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# CEO's Business Review 2018



# Highlights 2018

Comparable operating profit

EUR  
**987**  
million, +22%

Strategy updated to strengthen competitiveness and ensure a benchmark portfolio for the 2020s

Automation modernisation project in Loviisa NPP

Close to  
**3 GW**  
solar and wind portfolio (including associates)

Uniper ownership  
**49.99%**  
31 December 2018



## Fortum's 2018 reporting entity



CEO's Business Review



Financials



Governance



Remuneration



Tax Footprint



Sustainability  
To be published in week 11 at the latest

**Materiality process:** Our reporting for the year 2018 includes material information on topics we estimate to have a significant effect on Fortum's value creation. Our understanding of stakeholder views is based on the results of the One Fortum Survey, customer satisfaction surveys, the stakeholder sustainability survey, as well as information gained through daily stakeholder collaboration.

## CEO's Business Review 2018

### Dear stakeholders,

2018 was an eventful year for Fortum. We continued our strategy implementation with the integration and development of our Hafslund and Ekokem acquisitions, further investments in renewables, and most significantly; closing the Uniper tender offer. Our long-term belief in the need for large-scale decarbonisation took a leap forward with the decision to strengthen the Market Stability Reserve and subsequent tripling of emission allowance prices, having a clear positive impact on power prices.

### Determined strategy implementation and updated strategy

Driving the change for a cleaner world is at the heart of Fortum's strategy and our role is to accelerate this change by reshaping the energy system, improving resource efficiency, and providing smart solutions.

Over the previous years we have worked hard to deliver on our strategy announced in early 2016. As a result, we now have a portfolio of businesses with good profit potential for coming years. After taking significant steps in the capital redeployment that began in 2016, we updated Fortum's strategy in November 2018. The updated strategy is a natural continuation of the previous one and builds on four priorities.

Our first strategic priority is to pursue operational excellence and increased flexibility in order to ensure benchmark performance of our existing businesses and improve our long-term competitiveness. After the large investments done during previous years it is only natural that the second priority is to ensure value creation from these investments. We will also continue to optimise our business portfolio, considering the ongoing transformation and decarbonisation of the sector. As our third priority, we will continue to drive focused growth in the power value chain. We will build on our long-standing expertise with the strategic focus on CO<sub>2</sub>-free power generation – For a cleaner world. Foreseeing the market development towards the end of the 2020s will

be increasingly challenging, but we believe that the uncertainty will also provide new business opportunities. Consequently, as our fourth priority, we aim to build on our existing competences and emerging technologies to create new businesses, independent of power prices, that have the potential for sizeable profit contribution. One example of initiatives in this area is our commitment to invest in Valo Ventures, a new global venture capital fund. Valo Ventures invests in digital start-ups focusing on key global megatrends that are central to Fortum's strategy. Fortum launched Valo Ventures together with Scott Tierney, former Google Capital co-founder.

### The operating environment in 2018

The urgent need to decarbonise society is perhaps the greatest challenge of our time. The EU Commission published its long-term climate vision in November. Fortum supports the net zero emission target for 2050, as proposed in the most ambitious scenario. Cost-efficient emission reduction pathways should be established for all sectors. The EU emission trading scheme currently covers less than half of EU's CO<sub>2</sub> emissions. Therefore, strengthening and broadening the scope of the EU ETS to e.g. heating, cooling, and transport should be a key tool to drive decarbonisation. Fortum also supports the UN Global Compact and Caring for Climate initiatives, and is committed to the principles of these initiatives.

The market conditions in 2018 were characterised by the increasing CO<sub>2</sub> emission allowance price, volatile commodity and power prices, as well as the dry Nordic hydrology. Following the decision in late 2017 to strengthen the EU emission trading scheme by increasing the linear reduction factor and introducing the market stability reserve, the CO<sub>2</sub> price increased from EUR 8 per tonne in the beginning of 2018. The CO<sub>2</sub> price was volatile during the year was at EUR 25 per tonne at the end of the year, more than three times higher than a year earlier. This resulted



in 50% higher power prices than a year earlier and the average system spot price for 2018 was EUR 44 per megawatt-hour.

The Nordic water reservoirs were slightly above the long-term average in the beginning of the year and decreased to very low levels in the third quarter, which reduced Fortum's third quarter hydropower production to historically low levels. The year ended at 9 terawatt-hours below average.

### Strong financial performance

The impact of the higher power prices is reflected in our full-year comparable operating profit, which increased by 22%. The investment in Uniper only had a marginal effect on Fortum's 2018 results, as they include only Fortum's share of Uniper's third-quarter results. In the future, Uniper's profit and dividends will contribute to Fortum's earnings per share and cash flow.

Our continued investments in wind and solar are starting to have a positive impact on our results. Commissioned in the beginning of 2018 and the first of its kind in Russia, the 35-MW Ulyanovsk wind park is one example of this. The sale of a 54% stake in our 185-MW solar power plants in India freed up capital for further investments, and in June Fortum won a 250-MW auction for an Indian solar park with a fixed tariff for 25 years. Our total wind and solar portfolio has grown substantially during 2018. Together with our associated companies, we have a portfolio of close to three gigawatts of solar and wind parks and development projects in the Nordics, Russia, and India.

Highlight of the year for the Generation division was the clearly improved results, driven by higher market prices. During the year we also finalised the automation modernisation project at the Loviisa nuclear power plant, the biggest single project since the construction of the plant. Following strong improvement in Russia over the past years, the 2018 results in roubles improved slightly. In the City Solutions and Consumer Solutions divisions, 2018 was characterised by the integration of Hafslund, which proceeded well. Unfortunately, the financial results for these two divisions have not yet reached satisfactory levels. We will continue the integration work, and expect the synergies to materialise gradually during 2019 and 2020.

Based on the results of 2018 and the outlook for future years, Fortum's Board of Directors is proposing an unchanged dividend of EUR 1.10 per share for the calendar year 2018.

### The Uniper investment

Closing the offer on Uniper shares in June 2018 was the most significant milestone during the year and at the end of December, Fortum held 49.99% of Uniper shares and voting rights.

The strategic rationale of our investment in Uniper is just as valid today as it was when we launched our offer in 2017. Together Fortum and Uniper have the strategic mix of assets – both clean and secure – as well as the expertise required to successfully and affordably drive Europe's transition towards a low carbon energy system. Out of Uniper's 38 GW generation capacity approximately 50% is based on gas, 30% based on coal, and 20% is hydro and nuclear power. While coal-fired generation must be phased out over time, we have a responsibility to ensure security of supply and affordable power and heat for Europeans during the transition and here gas will play a crucial role. Uniper's declared role as a provider of security of supply is an excellent match with Fortum's ambition to accelerate the energy transition with increasing renewable generation and innovative solutions.

Building on this base we have a clear vision for how Fortum and Uniper can jointly build 'The Utility of the Future', and we want to work with the company to explore how to best make this vision a reality for the benefit of all shareholders and stakeholders of both companies. To our disappointment, talks with Uniper did not proceed as anticipated during 2018. However, in early February 2019, the Chairman of the Supervisory Board of Uniper voiced the need for decisive action to enable a fresh start to the relationship. We are delighted that Uniper is now committed to work with us in order to establish in earnest how the companies can work together strategically and operationally. Clearly, it is in the interest of everybody that we now rapidly advance to create value for the stakeholders of both companies.

### Continued focus on decarbonisation

Fortum is one of Europe's cleanest power producers. Our CO<sub>2</sub>-free production capacity has grown substantially over the last few decades and we will continue to focus on increasing it. To the extent we have fossil-based power production, our goal and strategy is, of course, to make it as efficient as possible. In 2018, 96% of our power generation in the European Union was CO<sub>2</sub>-free and our specific CO<sub>2</sub> emissions measured by grams of CO<sub>2</sub> per kilowatt-hour produced were 26 gCO<sub>2</sub>/kWh. Including the Russian power generation, which is mainly gas-based, and our Indian solar power we are still in the category of one of the cleanest utilities with 57% CO<sub>2</sub>-free and specific CO<sub>2</sub> emissions of 186 gCO<sub>2</sub>/kWh.

Decarbonising the power sector will play an essential role in combatting climate change, but it will not be sufficient in order for the EU to meet the targets of the Paris agreement or the 1.5 degree target of the recent IPCC report. Reaching these targets will require decarbonising transportation, heating, and industry, as well as increasing the use of carbon sinks in order to reach carbon neutrality by 2050. Fortum has focused on this in the updated strategy and will develop new products and services to help our customers reduce their carbon footprint, and by building new energy ventures that we believe will play an important role in the future low-emission energy system.

Finally, I would like to thank all our employees for their commitment and hard work during the year and our customers and all other stakeholders for their continued trust in us.

**Pekka Lundmark**  
President and CEO

## Three main drivers are shaping the future electricity markets

The world we live in is changing at an ever-increasing pace. Staying competitive requires companies to be very aware of the underlying drivers and to take an active role in driving the change for a better future.

Looking forward, Fortum is well positioned for the ongoing transition in the energy sector towards a decarbonised world, both in terms of asset base and performance. The main drivers influencing the ongoing energy sector transformation are regarded to be:

### Climate and environment

Climate change and global warming is one of the largest challenges facing mankind. The problem is global, and global efforts and commitment are required in order to solve it. Discussions about climate change have been ongoing for decades, but actions have not been

sufficient, due to lack of commitment, although positive developments have been seen in some regions.

With the adoption of the Paris Agreement in December 2015, mitigation of climate change rose to the top of the agenda all over the world. The commitment to mitigate climate change in order to limit global warming is now so widely spread that it affects every industry. The effects can be seen everywhere, e.g. the increase in low- or zero-emission housing, better fuel efficiency, the increase in the number of electric vehicles, the rapid growth in solar and wind power production, fuel switches to more environmentally friendly fuels, increased resource efficiency, and waste recycling.

In 2018, the United Nations International Panel on Climate Change (IPCC) released its special report on limiting global warming to 1.5°C. According to the IPCC, this requires “rapid and far-reaching transitions” including carbon dioxide removal from the atmosphere. Global net CO<sub>2</sub>

emissions have to decline by 45% from 2010 to 2030 and be net-zero by 2050. According to the report, the power sector should reduce emissions by 100% well before 2050. 70–85% of electricity should be produced from renewable sources and the contribution of nuclear power increases in all scenarios. The IPCC makes explicit references to carbon pricing as a tool to help balance out the impact of higher energy prices in a carbon-constrained world.

The whole energy industry is very heavily affected by this driver. This can be seen in the transition to low-carbon and renewable generation, which increases the share of intermittent power production and the need for demand response and flexible generation capacity. The increased need for resource efficiency paves the way for circular economy solutions.

### Politics and regulation

In a global perspective, the relationships between economic powers have recently developed in a way which does not ease reaching broad consensus on climate change measures. The increasing fragmentation in the international political scene increases the regulatory uncertainty. Companies have to be prepared for a possible future where national rather than international market-based mechanisms drive the development of our operating environment.

The energy business is heavily influenced by national and EU-level energy policies and regulations, and Fortum’s strategy has been developed based on scenarios of the future development of the regulatory environment in both existing and potential new businesses and market areas. The overall complexity and possible regulatory changes in Fortum’s various operating countries pose a risk if we are not able to anticipate, identify, and manage those changes efficiently.

Fortum maintains an active dialogue with the bodies involved in the development of laws and regulations in order to manage these risks and proactively contribute to the development of the energy policy and regulatory framework.



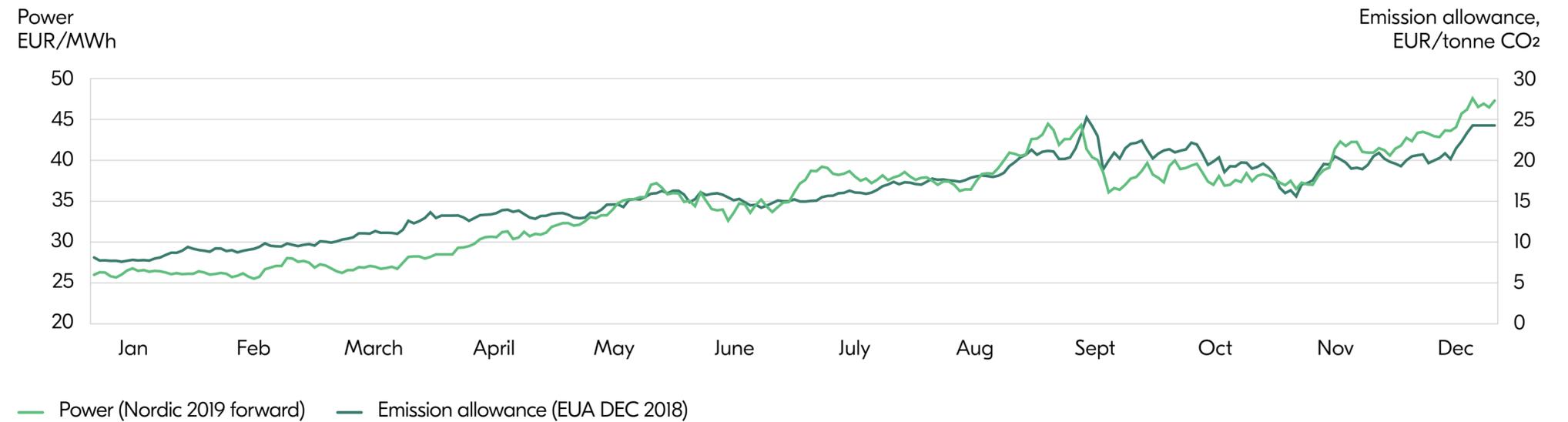
### Technology development

Technology development has always been a driver for change. Rapid technological development and high adoption rates quickly drive down the costs for new technologies. Digitalisation is further fuelled by the accelerated pace of commercialisation and adoption of new technologies, such as artificial intelligence. The processing power of devices is increasing and the amount of connected devices is growing exponentially. This in combination with an ever-increasing amount of data readily available for consumers and businesses creates the perfect breeding ground for innovation.

In the energy sector the cost of wind and solar power is decreasing. This development leads to an increasing share of intermittent power production and fewer running hours for traditional baseload power. This challenges the way the energy system has been functioning, where production has been able to adapt to the changing power demand of customers.

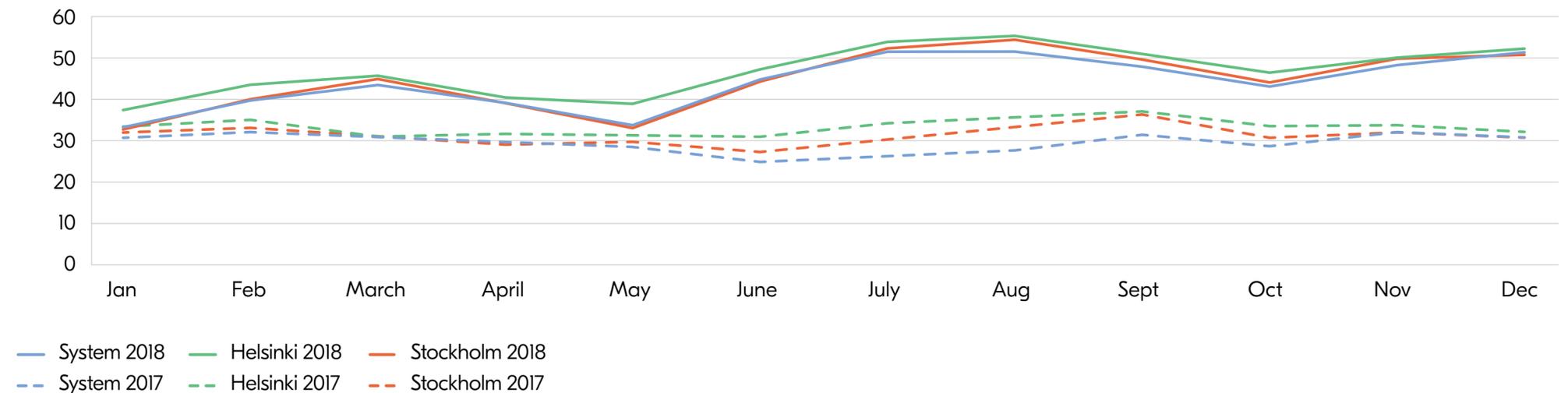
Digitalisation opens up for new storage and demand response solutions, which will change the way the customer interacts with the market. There will be new ways to produce, market, sell, and deliver products and services offered by utilities, start-ups, and new market entrants. Through these services, customers can take an active part in balancing a future power system that is heavily dependent on intermittent power production. In addition to power generation and usage, the technology development is also rapid within the field of transportation. Electric mobility is fast gaining ground as a result of the development of battery technology and processing power. The increasing production volumes are creating economies of scale and reducing production costs of electrical vehicles. Smart charging solutions for the growing amount of electrical vehicles create an opportunity for substantial demand response solutions.

### Power and emission allowance prices 2018



Source: Bloomberg

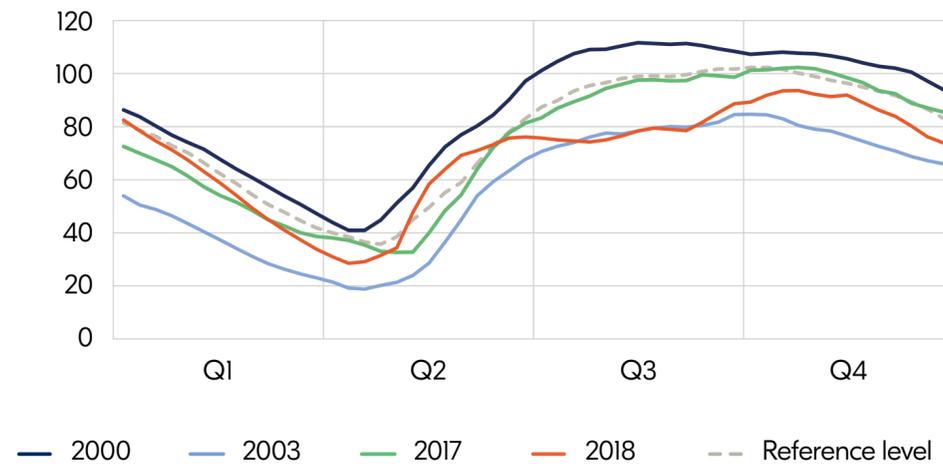
### Spot price development 2017 & 2018, EUR/MWh



Source: Nord Pool

The decision to tighten the EU emission trading scheme by increasing the linear reduction factor and introducing the market stability reserve caused the CO<sub>2</sub> price to triple during 2018.

Nordic water reservoirs, energy content, TWh



Source: Nord Pool

### Market Development

Whereas the main driver for the Nordic power price in 2016 and 2017 was the price of coal, the CO<sub>2</sub> emission allowance price clearly had the greatest impact on Nordic power prices in 2018. The decision to tighten the EU emission trading scheme by increasing the linear reduction factor and introducing the market stability reserve caused the CO<sub>2</sub> price to triple from EUR 8 per tonne at the beginning of the year to EUR 25 per tonne at the end of 2018. During 2018, the CO<sub>2</sub> price reached levels that did enable switching from low efficiency coal-fired to high efficiency gas-fired power production, even though the amount of switching was limited.

The hydrological situation in the Nordic area weakened in the beginning of 2018. During early fall water reservoirs initially reached very low levels compared to the long-term average, which resulted in Fortum's third quarter hydro power production being historically low. Precipitation increased thereafter, but there was still a deficit in the water reservoirs at the end of the year.

At the beginning of 2018, the Nordic water reservoirs were at 86 TWh, which is 3 TWh above the long-term average and 11 TWh higher than one year earlier. At the end of 2018, the reservoirs were at 74 TWh, which is 9 TWh below the long-term average and 12 TWh lower than one year earlier.

The average system spot price in Nord Pool for the year 2018 was EUR 44.0 (29.4) per MWh, an increase of 50%. In Finland the average area price was EUR 46.8 (33.2) per MWh and in Sweden SE3 (Stockholm) EUR 44.5 (31.2) per MWh. The dry hydrological situation combined with the clearly higher marginal cost for coal condense, due to the higher CO<sub>2</sub> price, were the main reasons for the price increase.

According to preliminary statistics electricity consumption in the Nordic countries increased by 2% during 2018 and was 399 (392) TWh. The higher consumption was mainly driven by colder weather during the first quarter of 2018 and the somewhat higher industrial consumption.

### Strategy

#### The transition towards a cleaner world

The entire energy sector is undergoing a transformation.

Our vision is "For a cleaner world" and reflects our ambition to drive the transformation towards a low-emissions energy system and optimal resource efficiency.

Our mission is to engage our customers and society to drive the change towards a cleaner world. Our role is to accelerate this change by reshaping the energy system, improving resource efficiency, and providing smart solutions. This way we deliver excellent shareholder value.

Sustainability is an integral part of Fortum's strategy in answering to these challenges. Business and responsibility are interconnected, underlining the role of sustainable solutions as a competitive advantage. In our operations, we give balanced consideration to economic, social, and environmental responsibility. We assess our impacts and address sustainability throughout the value chain.

Our values – curiosity, responsibility, integrity, and respect – form the foundation for all our activities.

#### Fortum's strategy

The ongoing transition towards CO<sub>2</sub>-free energy, driven by climate change concerns, politics and regulation, as well as technology development, brings significant opportunities for a company with competences in clean energy. Fortum is well positioned for this transition. At the same time, the future market environment is increasingly uncertain. As a response to this development, Fortum's updated strategy has four strategic priorities:

1. Pursue operational excellence and increased flexibility
2. Ensure value creation from investments and portfolio optimisation
3. Drive focused growth in the power value chain
4. Build options for significant new businesses

**Pursue operational excellence and increased flexibility**

Benchmark performance is essential for long-term competitiveness. For the next 2–3 years, Fortum prioritises profit creation from the current business portfolio. This will be achieved through operational excellence and increased flexibility. All sources of flexibility, both flexible generation assets and the demand response of large customers and consumers, will be needed to balance the high degree of volatile renewable generation.

Operational excellence and increased flexibility will contribute to improving Fortum’s financial performance and cash flows to create additional financial headroom. In addition, Fortum will continue to prioritise and scrutinize capital expenditure. Through these measures,

the target is to steer leverage from current net debt to EBITDA ratio towards the long-term target ratio of around 2.5 times. Having a solid investment grade rating is a key priority for Fortum.

**Ensure value creation from investments and portfolio optimisation**

Over the recent years Fortum has made several sizeable investments and aims to further improve its financial performance by ensuring value creation from them. The investment in Uniper, currently accounted for as an associated company, contributes to Fortum’s financial performance both through Fortum’s share of Uniper’s result and its dividend. As Uniper’s largest shareholder, Fortum’s ambition is to increase value for both companies and their stakeholders.

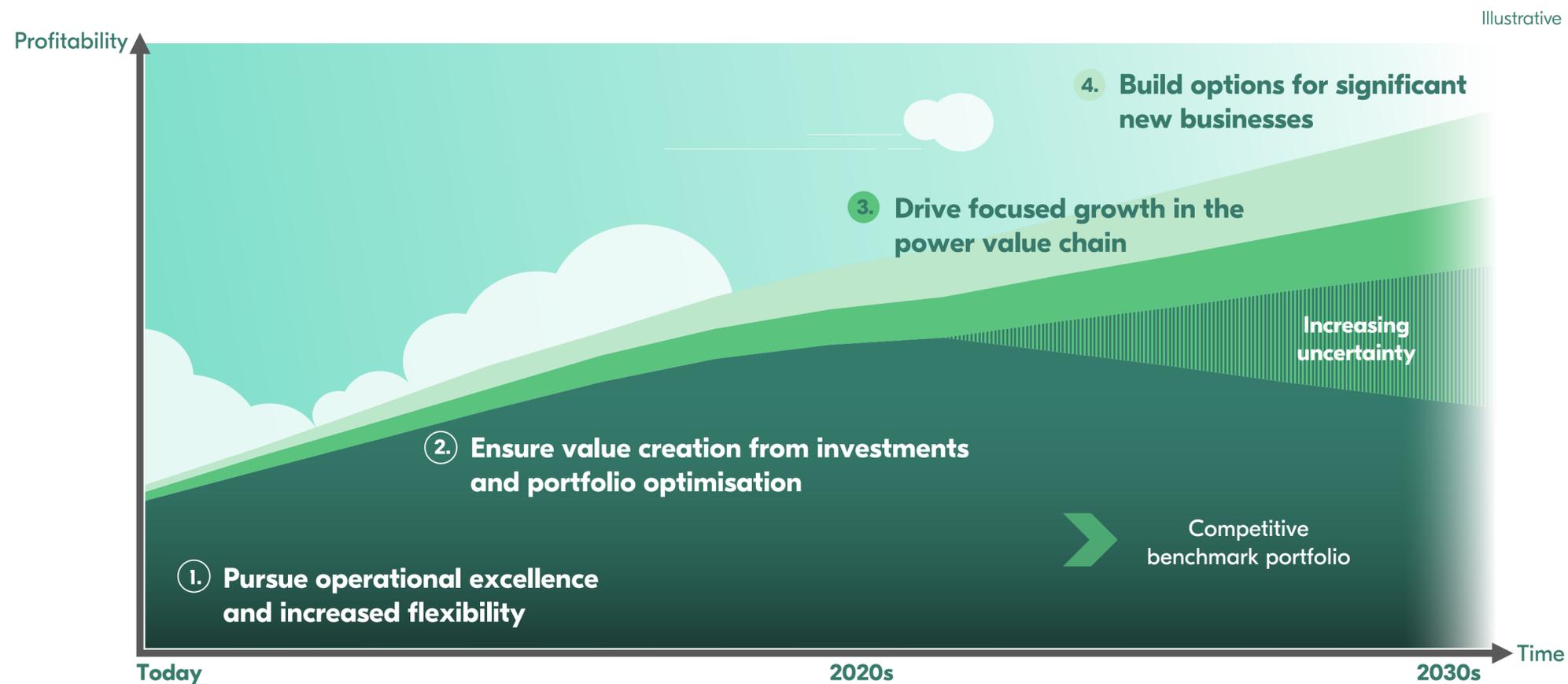
In addition, Fortum continues to review its business portfolio in line with its strategic priorities emphasising CO<sub>2</sub>-free assets, flexibility, and low operating cost to fit the changing business environment.

**Drive focused growth in the power value chain**

Fortum will build on its long-standing expertise to grow in CO<sub>2</sub>-free power generation. When it comes to solar and wind investments, Fortum aims to grow by utilising partnerships and other forms of co-operation for a more asset-light structure. The business of the future utility will be increasingly relying on technology, digitalisation, software, and services. Consequently Fortum will continue to develop value-adding offerings and services for customers both in the consumer and industrial sectors.

**Build options for significant new businesses**

Foreseeing the development of the power markets and regulatory environment will be increasingly challenging towards the end of the 2020s. However, the uncertainty will create new business opportunities. Fortum aims to build on existing expertise and emerging technologies to create new businesses, independent of power prices, with potential for sizeable profit contribution. Circular economy meets these criteria, especially in the areas of waste and recycling as well as bio economy. Furthermore, Fortum will focus on investments in start-up ventures with disruptive potential.



## Value-creating strategy



### Sustainability at Fortum

In Fortum business and responsibility are tightly linked, underlining the role of sustainable solutions as a competitive advantage. Our renewed strategy steers us towards decarbonisation of the sector and the society at large. Our specific CO<sub>2</sub> emissions from electricity production are one of the smallest among European major electricity utilities, and we support the EU Commission’s long-term climate target of net zero emissions for 2050, as proposed in the most ambitious scenario.

We annually improve the energy efficiency of our power and heat production. In 2018 our annual energy-efficiency improvement was 135 GWh in total. We contribute to circular economy by receiving and treating large amounts of waste from customers. As much of the waste

stream as possible is recycled, reused or recovered as material which shows our strong commitment to smart and efficient use of resources. Concurrently we safely take hazardous waste out of circulation. In 2018, the material recovery rate of waste received from our customers was 59%.

We continuously grow our wind and solar power production. Our strategy is targeting to a multi-gigawatt wind and solar portfolio. In 2018, we made several new investment decisions and investments in wind and solar power in the Nordics, Russia and India. In 2018 we started the supply of the biggest portfolio of a roof-top solar electricity system in the Nordic countries. We also commissioned 123 MW of new wind power in Norway, Sweden and Russia. In addition, the Fortum-Rusnano investment fund has been granted the right to build

almost 2 GW of new wind power in Russia; the wind parks are to be commissioned during the years 2019–2023.

2018 was a year of outstanding performance improvements, but also a year of challenges in terms of occupational safety. Four severe occupational accidents took place in our operations. In order to improve our safety performance we organised training for division managers, key individuals leading safety and procurement work, and the most challenging business areas. We cherish workplace wellbeing and organize activities to promote the health of our employees and the functionality of the work community. In 2018 our Energise Your Day wellbeing programme expanded to new sites and is currently under way in ten operating countries.

Nuclear and dam safety remain at the top of our operational safety priority list. The successfully completed large automation modernisation project at our Loviisa nuclear power plant in 2018 further improves our nuclear safety. Dam safety was improved through upgrading activities at our existing dams to fulfil the current structural dam safety requirements, and activities to ensure safe water management also in extreme hydrological conditions.

Fortum’s responsibility towards the society includes providing secure supply of energy and sustainable solutions for customers as well as acting responsibly towards local communities and the environment. In 2018, our support for activities promoting the common good totalled about EUR 3,8 million. Our commitment to advance social sustainability is also shown in Fortum’s new membership in the Work does not discriminate campaign that promotes workplace equality, and in the Equal by 30 campaign that promotes gender equality. This all paves the way towards a more equal and diverse work environment at Fortum.

### Fortum’s sustainability focus areas



## Business model

Fortum's business activities cover the production and sales of electricity and heat, waste-to-energy and circular economy solutions, as well as energy-sector expert services and various consumer solutions. Fortum is the third largest power generator and the largest electricity retailer in the Nordic countries. Globally, the company is one of the leading heat producers. As two thirds of Fortum's power production is hydro and nuclear, the company is also among the lowest-emitting generators in Europe.

Fortum's organisation consists of four business divisions: Generation, City Solutions, Consumer Solutions, and Russia. Until November 2018, there were two development units focusing on growing new businesses: M&A and Solar & Wind Development as well as Technology and New Ventures. In November Fortum announced the reorganisation of the solar and wind businesses. The wind operations became a business area within the Generation division and the solar operations within the City Solutions division. The Russian wind and solar operations continued as a part of the Russia division.

With core operations in 10 countries, Fortum employs a diverse team of more than 8,000 energy-sector professionals. Fortum has 124 hydro power plants, 27 combined heat and power (CHP), condensing, and nuclear power plants, as well as three wind power parks and three solar power plants. Globally, the company supplies heat in 23 cities and towns and has five main waste treatment facilities. Fortum's key markets are the Nordic and Baltic countries, Russia, Poland, and India.

### Generation

Generation is responsible for Nordic power production. The division comprises nuclear, hydro, wind, and thermal power production, as well as power portfolio optimisation, trading, industrial intelligence, and nuclear services globally.

### City Solutions

City Solutions is responsible for developing sustainable solutions for urban areas into a growing business for Fortum. The division comprises

heating, cooling, waste-to-energy, biomass, and other circular economy solutions as well as solar power production.

The business operations are located in the Nordics, the Baltic countries, and Poland. The division also includes Fortum's 50% holding in Stockholm Exergi (formerly Fortum Värme), which is a joint venture and is accounted for using the equity method.

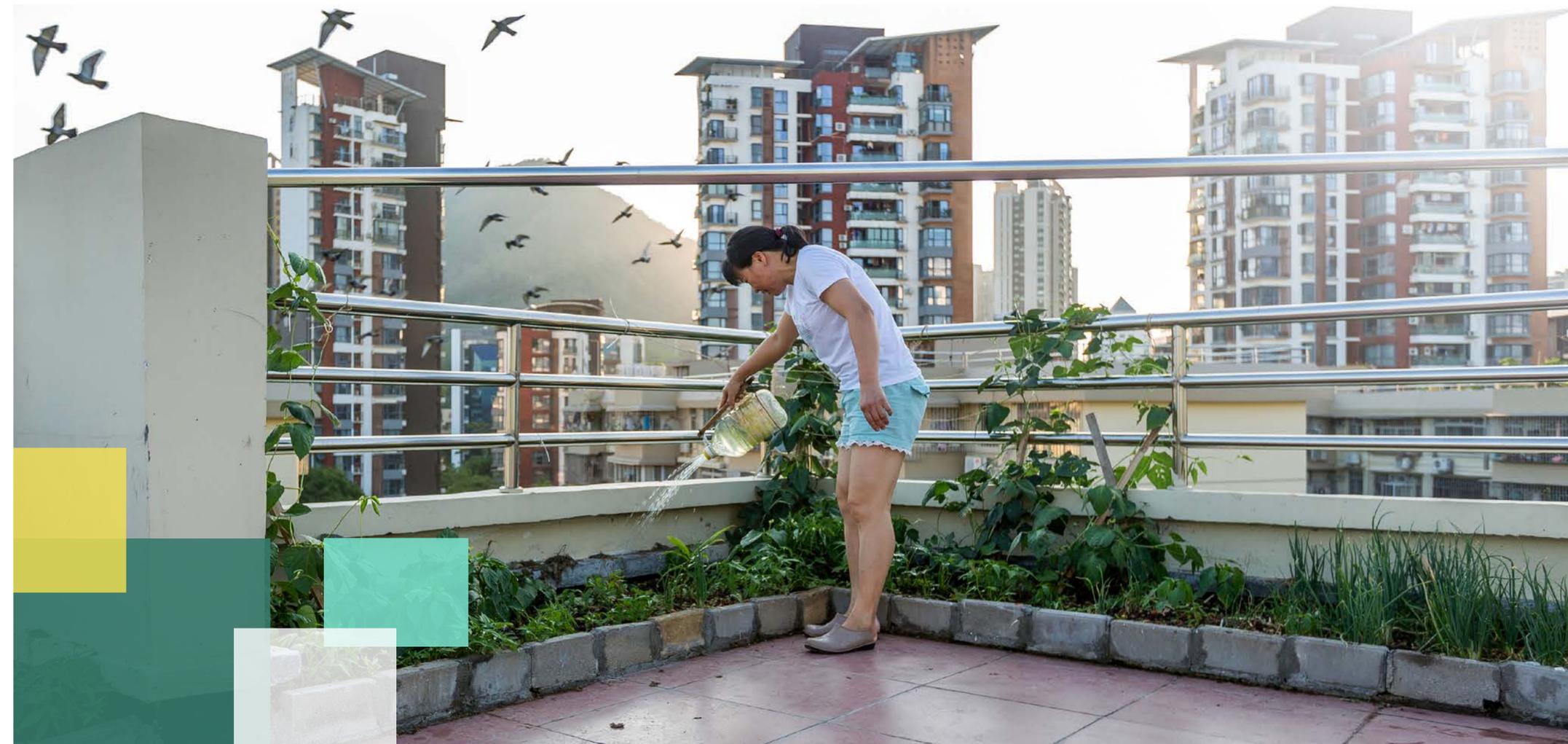
### Consumer Solutions

Consumer Solutions is responsible for the electricity and gas retail businesses in the Nordics and Poland, including the customer service,

invoicing, and debt collection business. Fortum is the largest electricity retail business in the Nordics, with approximately 2.5 million customers across different brands in Finland, Sweden, Norway, and Poland. The business provides electricity and related value added products as well as new digital services.

### Russia

Russia division comprises power and heat generation and sales in Russia. The division also includes Fortum's over 29% holding in TGC-1, which is an associated company and is accounted for using the equity method.



## Future challenges and opportunities

### Climate change

We believe that the growing awareness and concern about climate change will increase the demand for low-carbon and resource- and energy-efficient energy products and services. We are leveraging our know how in carbon dioxide-free hydro, nuclear, wind, and solar power as well as in energy-efficient CHP production by offering our customers low-carbon energy solutions. We also believe that the electrification of transportation, industry and services will increase the consumption of low-carbon electricity in particular. Our strategy is targeting to a multi-gigawatt wind and solar portfolio.

Our circular economy services also respond to this demand by utilising waste stream materials as efficiently as possible and by reducing the formation of greenhouse gases generated from biodegradable waste at landfills. Additionally, the use of non-recyclable and non-recoverable waste in energy production replaces fossil fuel.

Our operations are exposed to the physical risks caused by climate change, including changes in weather patterns that could alter energy production volumes and energy demand. Fluctuating precipitation, flooding, and extreme temperatures may affect e.g. hydropower production, dam safety, availability of cooling water, and the price and availability of biofuels.

Hydrological conditions, precipitation, temperatures, and wind conditions also affect the short-term electricity price in the Nordic power market. In addition to climate change mitigation, we also aim to adapt our operations and we take climate change into consideration in, among other things, the assessment of growth projects and investments as well as in operation and maintenance planning.

### Power price development

One of the key factors influencing Fortum's business performance is the wholesale price of electricity in the Nordic region. The key drivers behind the wholesale price development in the Nordic region are the

supply-demand balance, the prices of fuel and CO<sub>2</sub> emission allowances, and the hydrological situation.

The overall economic growth impacts commodity and CO<sub>2</sub> emission allowance prices, which has an effect on the Nordic wholesale price of electricity.

### Regulatory environment

In the Nordic countries, the regulatory and fiscal environment for the energy and environmental management sectors has also added risks for companies. The main strategic risk is that the regulatory and market environment develops in a way that we have not been able to foresee and prepare for. In response to these uncertainties, Fortum has analysed and assessed a number of future energy market and regulation scenarios, including the impact of these on different generation forms and technologies. As a result, Fortum's strategy includes broadening the base of revenues and diversification into new businesses, technologies, and markets. The environmental management business is based on the framework and opportunities created by environmental regulation. Being able to respond to customer needs created by the tightening regulation is a key success factor.

### Research and development

Sustainability is at the core of Fortum's strategy and, alongside Fortum's current businesses, the company is carefully exploring and developing new sources of growth within renewable energy production.

Fortum's goal is to be at the forefront of energy technology and application development. To accelerate innovation and the commercialisation of new offerings, Fortum is strengthening its in-house innovation and digitalisation efforts and building partnerships with leading global suppliers, promising technology and service companies, and research institutions. Fortum makes direct and indirect investments in start-ups that have promising new innovations focused on connectivity, have disruptive potential and accelerate the transition towards a circular economy. Fortum also invests in technologies that

support better utilisation of the current asset base and that can create new markets and products for Fortum. The company is continuously looking for emerging clean energy solutions and for solutions that increase resource and system efficiency.

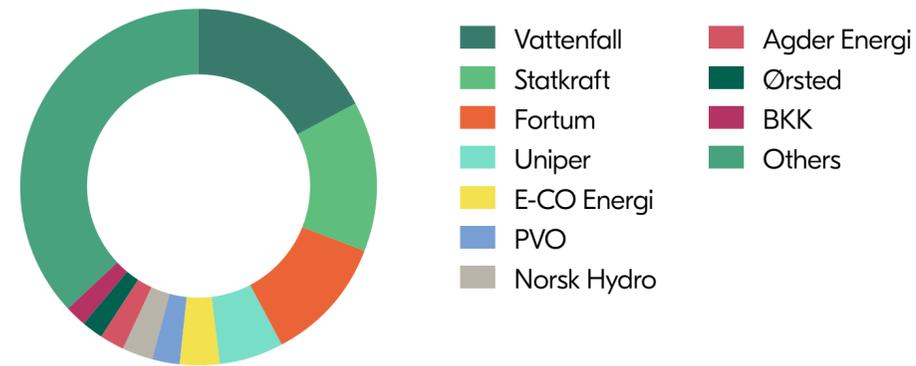
In December 2018, Fortum committed to invest EUR 150 million in Valo Ventures over a period of 10 years. It is an independent fund investing in digital and cloud-scale technology start-ups in North America and Europe. Valo Ventures is aligned with Fortum's vision 'For a cleaner world' and strategy. Fortum launched Valo Ventures together with Scott Tierney, former Google Capital co-founder.



### Market position

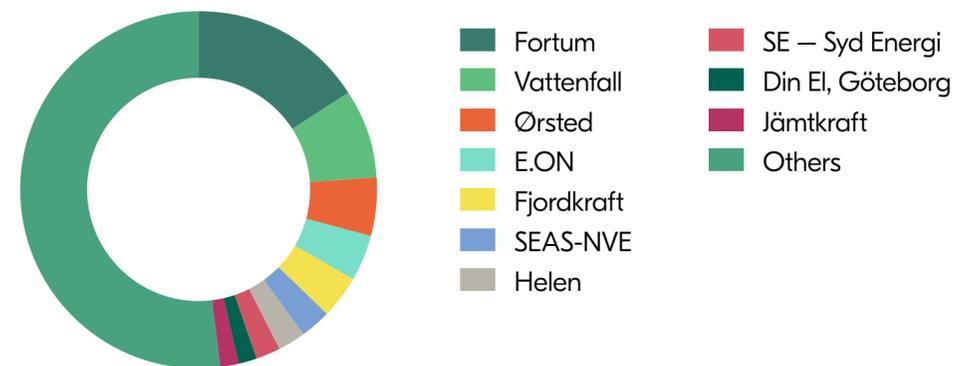
Fortum is the third largest power generator and the largest electricity retailer in the Nordic countries. Globally, we are one of the leading heat producers. As two thirds of our power production is hydro and nuclear, Fortum is also among the lowest-emitting generators in Europe.

### Nordic power generation, 402 TWh, over 350 companies



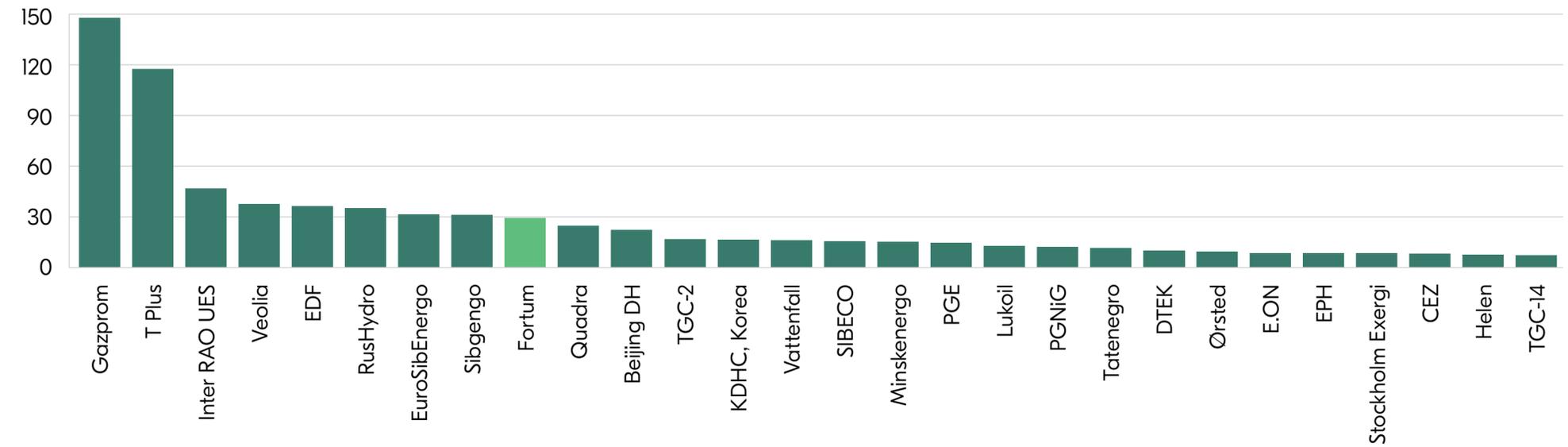
Source: Fortum, company information, 2017 figures pro forma

### Nordic electricity retail, 15 million customers, ~350 companies



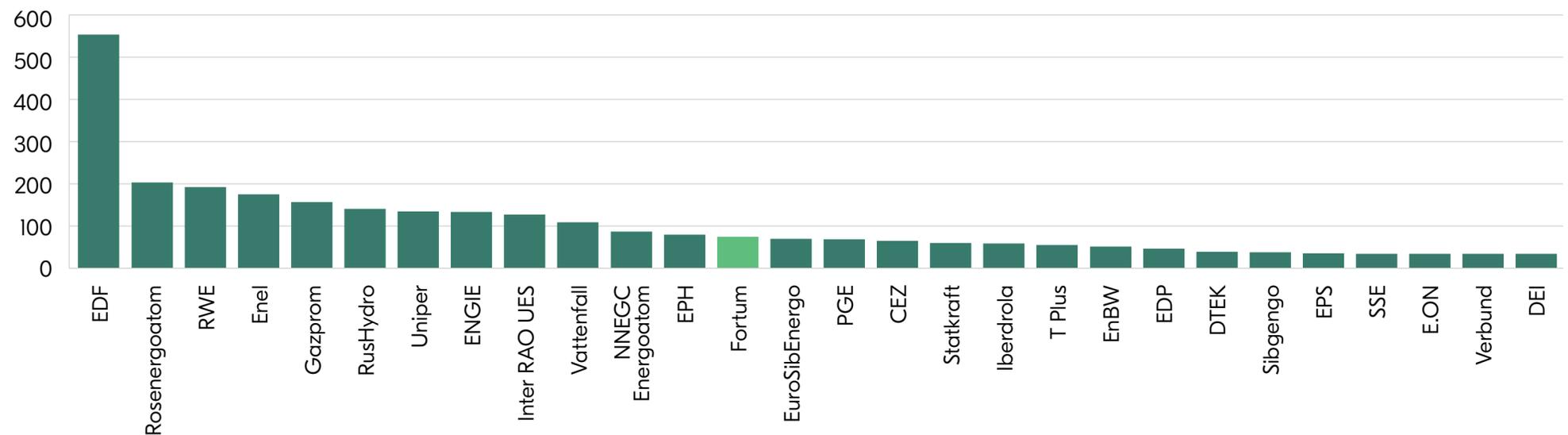
Source: Fortum, company information, 2017 figures pro forma

### Largest heat producers globally, TWh



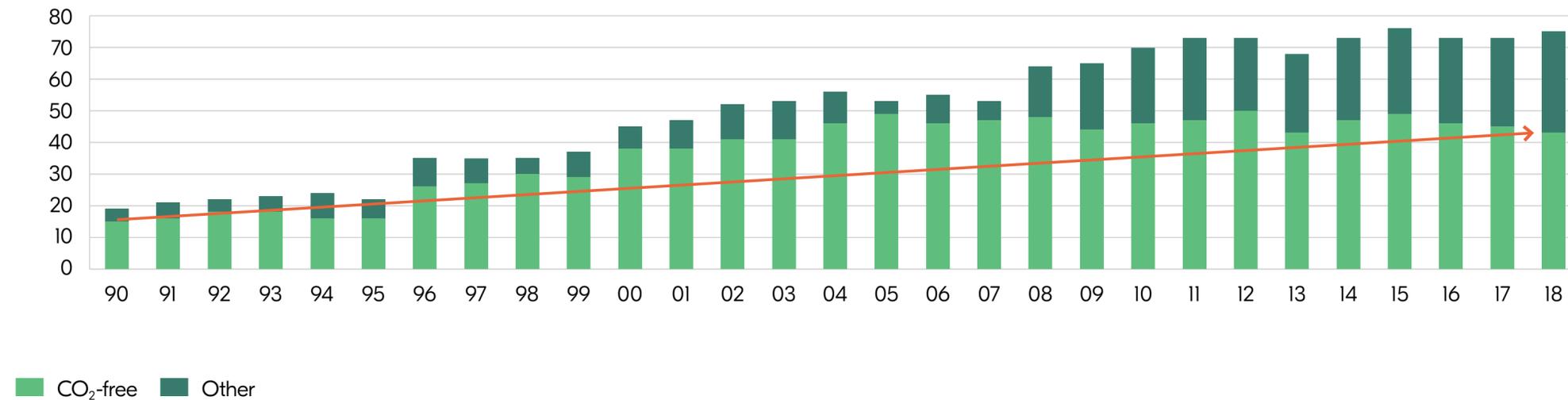
Source: Fortum, company information, 2017 figures pro forma. EPH incl. LEAG. Chinese data incomplete.

### Largest power generators in Europe and Russia, TWh



Source: Fortum, company information, 2017 figures pro forma. EPH incl. LEAG

### Fortum's power generation, TWh



### Long-term focus on no- or low-CO<sub>2</sub> power production

Sustainability and CO<sub>2</sub>-free power generation have been part of Fortum's strategy for several decades. We believe that the energy system needs to transform to a system with substantially lower emissions, higher resource efficiency, and a higher share of power generation based on renewables. The transformation will not happen overnight and we must provide customers with a secure energy supply at a competitive price during the transition towards lower emissions. In implementing our strategy we have worked to increase our CO<sub>2</sub>-free power generation.

We also have generation capacity based on fossil fuels, located mainly in Russia, and we have worked to increase its efficiency and reduce its specific emissions. We continue to focus on increasing our solar and wind power capacity over the coming years, and we are targeting a multi-gigawatt solar and wind portfolio.

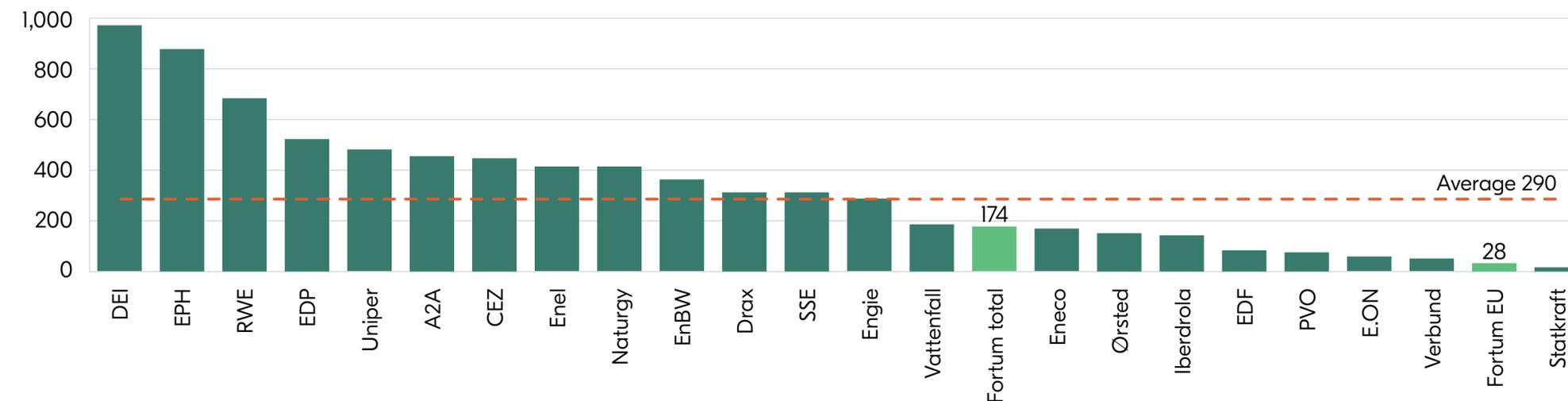
### Increasing the CO<sub>2</sub>-free power generation

Over the past decades Fortum has been working for a more sustainable world. We have increased our annual CO<sub>2</sub>-free power generation from around 15 TWh in 1990 to 43 TWh in 2018. The development has not always been linear, as annual variations in hydropower production have a significant impact.

### Among the lowest specific emissions

We were among the early proponents for a market-based price on CO<sub>2</sub>. We are advocating for market-based solutions and a strong EU ETS to drive the necessary change in the energy system. In our own operations we have invested in CO<sub>2</sub>-free power generation, and the carbon exposure of our production in Europe is among the lowest at 26 gCO<sub>2</sub>/kWh in 2018. The respective figure for Fortum overall was 186 gCO<sub>2</sub>/kWh in 2018.

### Specific CO<sub>2</sub> emissions of major utilities in Europe, g CO<sub>2</sub>/kWh electricity, 2017



Note: All figures, except "Fortum total", include only European power generation. Fortum's specific emissions of the power generation in 2018 in the EU were 26 g/kWh and in total 186 g/kWh. Source: PwC, December 2018, Climate Change and Electricity, Fortum



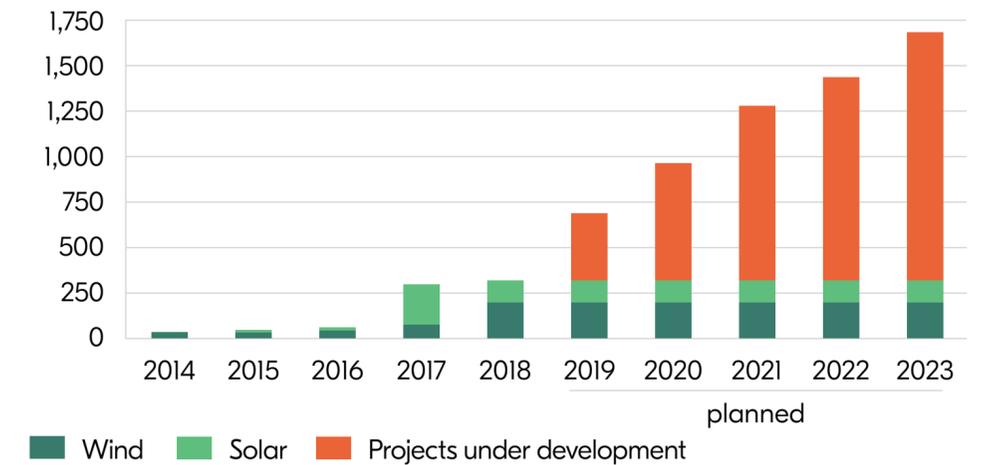
### Grow in solar and wind

In addition to CO<sub>2</sub>-free hydro and nuclear power production, we believe that solar and wind power will play an essential role in the future. Solar power is becoming one of the most competitive forms of new power generation in many parts of the world, and we are targeting investments totalling EUR 200–400 million in solar power in India. During 2018 we divested a 54% stake in our 185-MW solar power plants in India to free up capital for further investments, and in June 2018 Fortum won a 250-MW auction for a new Indian solar plant.

The market conditions in the Nord Pool area and in Russia are more suitable for wind power, and Fortum is increasing its investments heavily. In January 2018, Fortum commissioned the country's largest wind farm in Russia and in January 2019 we commissioned a further 50-MW wind farm together with our partner Rusnano. In Norway, Fortum commissioned the 50-MW Ånstablåheia wind farm and the 97-MW Sørjord wind farm is due to be commissioned in 2019.

Although the solar and wind capacity is still small compared to Fortum's current total power generation capacity of close to 14,000 MW, our total wind and solar portfolio has grown substantially during 2018. Together with our associated companies, we have a portfolio of close to three gigawatts (Fortum's share 1,686 MW) of solar and wind parks and development projects in the Nordics, Russia, and India.

### Fortum's wind and solar power generation capacity, MW



Includes Fortum's capacities and Fortum's share of the capacities of associates and joint ventures

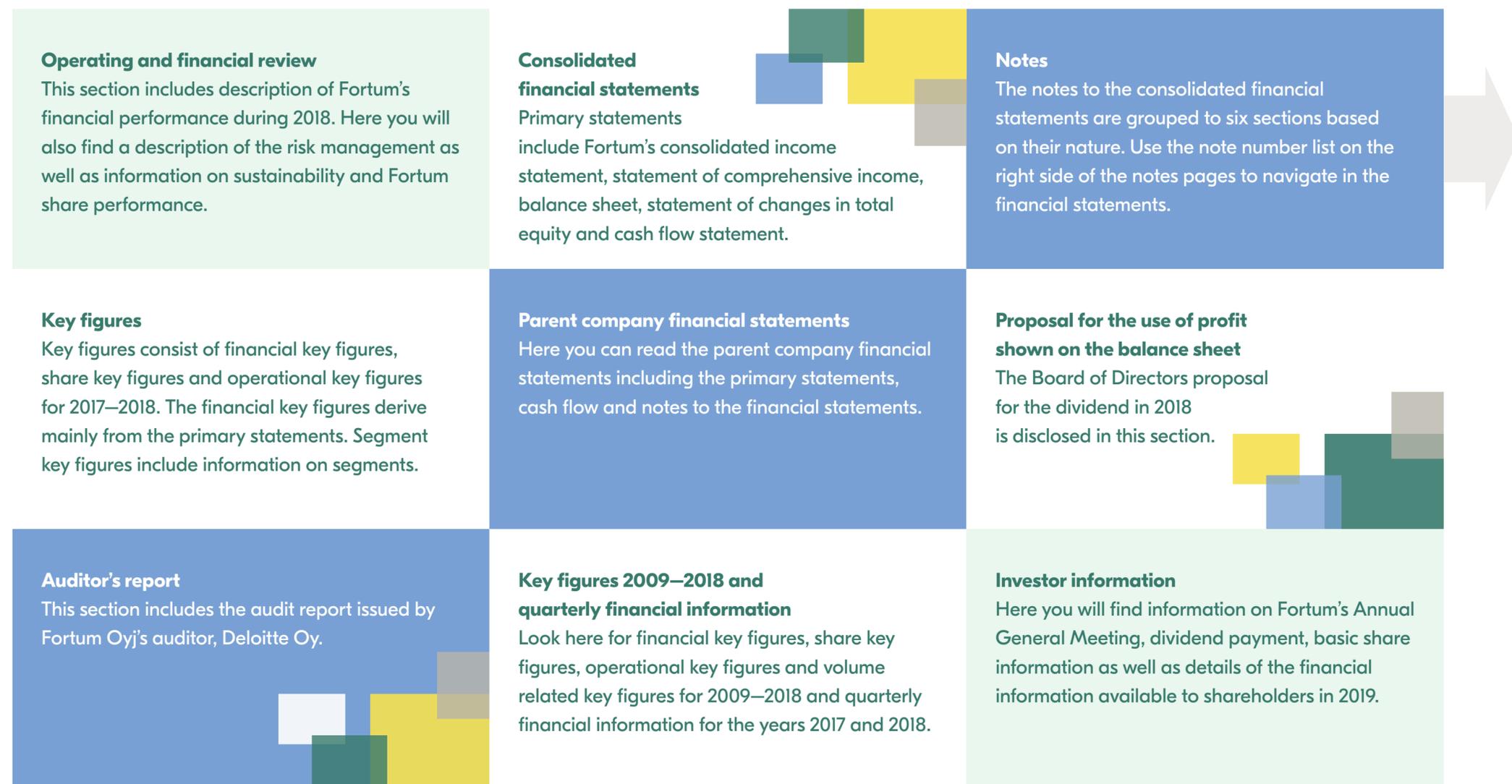
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# Financials 2018



# Financials 2018 – Reader's guide

This report consists of the operating and financial review and the consolidated financial statements of Fortum Group, including the parent company financial statements. Other parts of Fortum's reporting entity include CEO's business review, corporate governance statement, remuneration statement as well as tax footprint, which are published on Fortum's webpage. Sustainability reporting is an integrated part of Fortum's annual reporting and additional information on sustainability operations can be found on Fortum's website in sustainability section.



## Notes

### 1–3 Basis of preparation

These notes describe the basis of preparing the consolidated financial statements and consist of the accounting policies, critical accounting estimates and judgements and information about acquisitions and disposals.

### 4–5 Risks

In the Risks section you will find notes that disclose how Fortum manages financial risks and capital risks.

### 6–14 Income statement

These notes provide supporting information for the income statement.

### 15–33 Balance sheet

These notes provide supporting information for the balance sheet.

### 34–37 Off balance sheet items

The notes in this section provide information on items that are not included in the balance sheet.

### 38–40 Group structure and related parties

This section includes information on related party transactions, events after balance sheet date and the subsidiaries of Fortum group.

The following symbols show which amounts in the notes reconcile to the items in income statement, balance sheet and cash flow statement.

**IS** = Income statement

**BS** = Balance sheet

**CF** = Cash flow

# Financials 2018

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# Financial performance and position

Improved 2018 results on higher market prices – New phase in strategy implementation started

## Key financial ratios <sup>1)</sup>

	2018	2017	2016
Return on capital employed,%	6.7	7.1	4.0
Comparable net debt/EBITDA	3.6	0.8	0.0

1) See ▶ [Definitions of key figures](#).

## Key figures

EUR million	2018	2017	2016	Change 18/17
<b>IS</b> Sales	5,242	4,520	3,632	16%
Comparable EBITDA	1,523	1,275	1,015	19%
<b>IS</b> Comparable operating profit	987	811	644	22%
<b>IS</b> Operating Profit	1,138	1,158	633	-2%
- of sales%	21.7	25.6	17.4	
<b>IS</b> Share of profits from associates and joint ventures	38	148	131	-74%
<b>IS</b> Profit before income tax	1,040	1,111	595	-6%
- of sales%	19.8	24.6	16.4	
<b>IS</b> Earnings per share, EUR	0.95	0.98	0.56	-3%
<b>CF</b> Net cash from operating activities	804	993	621	-19%
Shareholders' equity per share, EUR	13.33	14.69	15.15	-9%
Interest-bearing net debt (at end of period)*	5,509	988	-48	
Return on shareholders' equity,%	6.8	6.6	3.7	
Equity-to-assets ratio,%	54	61	62	

\* Net cash in 2016

2018 was an eventful year for Fortum. We continued our strategy implementation with the integration and development of our Hafslund and Ekokem acquisitions, further investments in renewables, and most significantly; closing the Uniper tender offer. Our long-term belief in the need for large-scale decarbonisation took a leap forward with the strengthening of the Market Stability Reserve and subsequent tripling of emission allowance prices, having a clear positive impact on power prices.

Over the previous years we have worked hard to deliver on our strategy announced in early 2016. As a result, we now have a portfolio of businesses with good profit potential for coming years. After taking significant steps

in the capital redeployment that we began in 2016, we updated Fortum's strategy in November 2018. The updated strategy is a natural continuation of the previous one and builds on four priorities.

Our first strategic priority is to pursue operational excellence and increased flexibility in order to ensure benchmark performance of our existing businesses and improve our long-term competitiveness. After the large investments done during previous years it is only natural that the second priority is to ensure value creation from these investments. We will also continue to optimise our business portfolio, considering the ongoing transformation and decarbonisation of the sector. Despite the significant capital redeployment already made, we will, as our third priority, continue to drive focused growth in the power value chain. We will build on our long-standing expertise with the strategic focus on CO<sub>2</sub>-free power generation – For a cleaner world. Foreseeing the market development towards the end of the 2020s will be increasingly challenging, but we believe that the uncertainty will also provide new business opportunities. Consequently, as our fourth priority, we aim to build on our existing competences and emerging technologies to create new businesses, independent of power prices, that have the potential for sizeable profit contribution. One example of initiatives in this area is our commitment to invest in Valo Ventures, a new global venture capital fund. Valo Ventures invests in digital start-ups focusing on key global megatrends that are central to Fortum's strategy. Fortum launched Valo Ventures together with Scott Tierney, former Google Capital co-founder.

The urgent need to decarbonise society is perhaps the greatest challenge of our time. The EU Commission published its long-term climate vision in November. Fortum supports the net zero emission target for 2050, as proposed in the most ambitious scenario. Cost-efficient emission reduction pathways should be established for all sectors. The EU emission trading scheme currently covers less than half of EU CO<sub>2</sub> emissions. Therefore, strengthening and broadening the scope of the EU ETS to e.g. heating, cooling, and transport should be a key tool to drive decarbonisation.

Our continued investments in wind and solar are starting to have a positive impact on our results. Commissioned in the beginning of 2018 and the first of its kind in Russia, the 35-MW Ulyanovsk wind park is one example of this. The sale of a 54% stake in our 185-MW solar power plants in India freed up capital for further investments, and in June Fortum won a 250-MW auction for an Indian solar park with a fixed tariff for 25 years. Our total wind and solar portfolio has grown substantially during 2018. Together with our associated companies, we have a portfolio of close to three gigawatts of solar and wind parks and development projects in the Nordics, Russia, and India.

Closing the offer on Uniper shares in June 2018 was the most significant milestone during the year. We have a clear vision for how Fortum and Uniper can jointly build 'The Utility of the Future', and we want to work with the company to explore how to best make this vision a reality for the benefit of all shareholders and stakeholders of both companies. To our disappointment, talks with Uniper have not yet proceeded as

anticipated, but the fundamentals of our investment case are intact and we remain committed. Since the closing of the offer, we have increased our shareholding in Uniper in order to further secure Fortum's voting position in any future Uniper General Meeting. At the end of 2018, Fortum held 49.99% of Uniper shares and voting rights.

Fortum's fourth quarter results improved, mainly as a result of higher power prices and increased nuclear production, due to improved availability. The results were still burdened by lower than average hydropower generation volumes, due to low inflows and reservoir levels, although the situation improved from the record low volumes seen in the third quarter. The impact of the higher power prices is reflected in our full-year comparable operating profit, which increased by 22%. The investment in Uniper only had a marginal effect on Fortum's 2018 results, as they include only Fortum's share of Uniper's third-quarter results. In the future, Uniper's profit and dividends will contribute to Fortum's earnings per share and cash flow.

Highlight of the year for the Generation division was the clearly improved results, driven by higher market prices. During the year we also finalised the automation modernisation project at the Loviisa nuclear power plant, the biggest single project since the construction of the plant. Following on the strong improvement in Russia over the past years, the 2018 results in roubles improved slightly. In the City Solutions and Consumer Solutions divisions, 2018 was characterised by the integration of Hafslund, which proceeded well. Unfortunately the financial results for these two divisions has not yet reach satisfactory levels. We will continue the integration work, and expect the synergies to materialise gradually during 2019 and 2020.

Based on the results of 2018 and the outlook for future years, Fortum's Board of Directors is proposing an unchanged dividend of EUR 1.10 per share for the calendar year 2018.

## Strategy update in November 2018

On 12 November 2018, Fortum announced its updated strategy. The update is a continuation of the strategy execution towards Fortum's vision "For a cleaner world". At the same time Fortum reconfirmed its dividend policy and long-term financial targets. The strategy aims at

strengthening Fortum's competitiveness and ensuring a benchmark portfolio for the 2020's. Pursuing operational excellence and increased flexibility as well as ensuring value creation from investments and portfolio optimisation are the key priorities. Fortum will also drive focused growth in the power value chain and seek to build options for significant new businesses for the future. The updated strategy was presented in more details on Fortum's Capital Markets Day on 13 November 2018.

## Uniper investment

In September 2017, Fortum announced it had signed a transaction agreement with E.ON under which E.ON had the right to decide to tender its 46.65% shareholding in Uniper SE into Fortum's public takeover offer (PTO). In November 2017, Fortum launched a voluntary public takeover offer to all Uniper shareholders at a total value of EUR 22 per share, implying a premium of 36% to the price prior to intense market speculation on a potential transaction at the end of May 2017. In February 2018, Fortum announced that shareholders representing 47.12% of the shares in Uniper had accepted the offer.

The PTO was conditional to regulatory and merger control approvals in several countries. During the second quarter 2018, Fortum received the required clearances in Russia under the Strategic Investment Law as well as Competition Law. The clearances allow Fortum the acquisition of up to 50% of shares and voting rights in Uniper. During the second quarter, Fortum also received an unconditional merger clearance decision from the European Commission. Clearances in the United States and South Africa had already been granted earlier.

On 26 June 2018, Fortum closed the offer and became the largest shareholder in Uniper with 47.35% of the shares. Fortum paid a total consideration of EUR 3.7 billion for all shares tendered (EUR 21.31 per share). The total consideration was financed with existing cash resources of EUR 1.95 billion and bridge loan financing of EUR 1.75 billion from committed credit facilities. Since June 2018 Fortum has increased its shareholding in Uniper in order to further secure its voting position in any future Uniper General Meeting. On 31 December 2018, Fortum owned 49.99% of the shares in Uniper.

The share of Uniper's profit will contribute to the EPS and dividends to the cash flow of Fortum. As a result of this transaction, Fortum's leverage rose above Fortum's long-term target level for net debt/EBITDA ratio of around 2.5x. Over time, however, Fortum expects its cash generation in combination with the dividend from Uniper to reduce this ratio towards the stated target.

Fortum has consolidated Uniper as an associated company from 30 June 2018. The total acquisition cost, including direct costs relating to the acquisition, is reported in 'Participations in associated companies and joint ventures'. The purchase price allocation will be completed within the one-year window from the acquisition date, according to IFRS. As Uniper publishes its interim reports later than Fortum, Fortum's share of Uniper's results will be accounted for with a time-lag of one quarter, with potential adjustments. Fortum's Financial Statements 2018 only includes Fortum's share of Uniper's third-quarter results, amounting to EUR -2 million (► **Note 3**). Uniper will report its full-year 2018 results on 12 March 2019.

## Financial results

### Sales by segment

EUR million	2018	2017	Change 18/17
Generation	1,837	1,677	10%
City Solutions	1,094	1,015	8%
Consumer Solutions	1,759	1,097	60%
Russia	1,069	1,101	-3%
Other	129	102	26%
Netting of Nord Pool transactions <sup>1)</sup>	-516	-367	
Eliminations	-130	-103	
<b>IS Total</b>	<b>5,242</b>	<b>4,520</b>	

<sup>1)</sup> Sales and purchases with Nord Pool are netted at the Group level on an hourly basis and posted either as revenue or cost depending on whether Fortum is a net seller or net buyer during any particular hour.

### Comparable EBITDA by segment

EUR million	2018	2017	Change 18/17
Generation	762	603	26%
City Solutions	284	262	8%
Consumer Solutions	110	57	93%
Russia	417	438	-5%
Other operations	-50	-83	40%
<b>IS Total</b>	<b>1,523</b>	<b>1,275</b>	<b>19%</b>

### Comparable operating profit by segment

EUR million	2018	2017	Change 18/17
Generation	631	478	32%
City Solutions	113	98	15%
Consumer Solutions	53	41	29%
Russia	271	296	-8%
Other operations	-79	-102	23%
<b>IS Total</b>	<b>987</b>	<b>811</b>	<b>22%</b>

### Operating profit by segment

EUR million	2018	2017	Change 18/17
Generation	738	501	47%
City Solutions	109	102	7%
Consumer Solutions	75	39	92%
Russia	273	295	-7%
Other operations	-57	221	-126%
<b>IS Total</b>	<b>1,138</b>	<b>1,158</b>	<b>-2%</b>

For further information see [► Note 6](#) Segment reporting.

Fortum has reassessed the assumptions for all nuclear related assets and liabilities as of 31 December 2018. The increase in the nuclear provision for the Loviisa nuclear power plant in Finland leads to recognition of an additional share of the Finnish nuclear fund. As of 31 December 2018, Fortum still has EUR 254 million in unrecognised nuclear waste fund assets for Loviisa ([► Note 29](#)). The increase in the provision and the

additional share in the fund are both included in items affecting comparability. The changes in assumptions had a positive impact on interests presented in other financial expenses. The assumptions have also been changed for the respective balances of the co-owned nuclear companies in Finland and Sweden i.e. Teollisuuden Voima Oyj (TVO), Oskarshamn Kraftgrupp AB (OKG), and Forsmarks Kraftgrupp AB. The total impact of the change to share of profit from associated companies and joint ventures was EUR -37 million, net of tax, and including additional nuclear waste liability related to legacy waste obligations for Swedish nuclear. The net profit impact from all these nuclear related adjustments is close to zero.

Fortum's sales increased by 16%, mainly reflecting the consolidation of Hafslund and higher power prices. Comparable operating profit increased by 22%, mainly as a result of the higher achieved power price, the positive impact from the consolidation of the acquired Hafslund businesses, lower real-estate and capacity taxes in Swedish hydro and nuclear power plants, higher received Capacity Supply Agreement (CSA) payments in Russia, as well as the profit from the sale of a 54% share of Fortum's Indian solar power plants. The result improvement was partly offset by the very low hydropower production volumes in the third quarter and the weaker Russian rouble.

Operating profit for the period was positively impacted by EUR 151 (347) million of items affecting comparability, mainly due to the fair value change of non-hedge accounted derivatives, capital gains, and nuclear related adjustments. In 2017, the items affecting comparability included a one-time capital gain of EUR 324 million from the divestment of Hafslund ASA ([► Note 6](#)).

The share of profit from associates and joint ventures decreased to EUR 38 (148) million, mainly due to nuclear related adjustments of EUR -37 million and other items relating to nuclear decommissioning of EUR -33 million, mainly from OKG. The decrease was also due to that the comparison period included the share of profit from Hafslund ASA of EUR 39 million, divested in August 2017. Uniper accounted for EUR -2 (0) million, Stockholm Exergi (formerly Fortum Värme) for EUR 61 (66) million, and TGC-1 for EUR 40 (32) million. The share of profit from TGC-1 is based on the company's published fourth-quarter 2017 and

January–September 2018 interim reports. The share of profit from Uniper is based on the company's published third-quarter 2018 interim report ([► Note 19](#)).

Net finance costs amounted to EUR 136 (195) million. The decline was mainly due to nuclear related adjustments of EUR 49 million.

Profit before income taxes was EUR 1,040 (1,111) million.

Taxes for the period totalled EUR 181 (229) million. The effective income tax rate, according to the income statement, was 17.5% (20.6%). The comparable effective income tax rate, excluding the impact of the share of profit from associated companies and joint ventures, non-taxable capital gains, tax rate changes and other major one-time income tax effects was 22.0% (18.8%) ([► Note 13](#)).

The profit for the period was EUR 858 (882) million. Earnings per share were EUR 0.95 (0.98), of which EUR 0.15 (0.38) per share was related to items affecting comparability, including capital gains of EUR 0.09 from the sale of the 10% stake in Hafslund Produksjon. In the comparison period in 2017, the sales gain from the Hafslund transaction was EUR 0.36 and the impact from a Swedish income tax case was EUR -0.14.

### Financial position and cash flow

EUR million	2018	2017	Change 18/17
Interest expense	-148	-164	10%
Interest income	34	32	6%
Fair value gains and losses on financial instruments	-8	-12	33%
Other financial expenses - net	-15	-50	70%
<b>IS Finance costs - net</b>	<b>-136</b>	<b>-195</b>	<b>30%</b>
Interest-bearing liabilities	6,093	4,885	25%
Less: Liquid funds	584	3,897	-85%
<b>Interest-bearing net debt</b>	<b>5,509</b>	<b>988</b>	<b>458%</b>

### Cash flow

In 2018, net cash from operating activities decreased by EUR 189 million to EUR 804 (993) million, mainly impacted by an increase in comparable

## Financial performance and position

## Sustainability

## Risk management

## Fortum share and shareholders

EBITDA of EUR 248 million, an increase of realised foreign exchange gains and losses of EUR 314 million, and the negative effect of a EUR 751 million increase in working capital. The foreign exchange gains and losses of EUR 231 (-83) million relate to the rollover of foreign exchange contract hedging loans to Russian and Swedish subsidiaries. The EUR -670 (81) million change in working capital mainly resulted from the daily cash settlements for futures on Nasdaq Commodities (Additional cash flow information).

Capital expenditure decreased by EUR 78 million to EUR 579 (657) million, and was below the 2018 guidance of EUR 600–700 million. Acquisition of shares was EUR 4,088 (972) million, mainly related to the Uniper transaction (► **Note 3**). The impact of divestment of shares was EUR 259 (741) million, mainly resulting from the sale of the 10% stake in Hafslund Produksjon and a 54% share of a solar power company. Acquisitions and divestments in 2017 were mainly related to the Hafslund transaction. Net cash used in investing activities increased to EUR 4,398 (807) million.

Cash flow before financing activities was EUR -3,594 (187) million.

Proceeds from long-term liabilities were EUR 1,764 (35) million, of which the main part is related to the bridge loan financing from committed credit facilities for the acquisition of Uniper shares. Payments of long-term liabilities totalled EUR 586 (543) million. The dividends paid for 2017 amounted to EUR 977 million. The net decrease in liquid funds was EUR 3,268 (1,241) million.

### Assets and capital employed

At the end of the reporting period, total assets amounted to EUR 22,409 (21,753) million. Liquid funds at the end of the period decreased to EUR 584 (3,897) million, impacted by the Uniper transaction. Capital employed was EUR 18,170 (18,172) million.

### Equity

Equity attributable to owners of the parent company totalled EUR 11,841 (13,048) million. The decrease of EUR 1,207 million was mainly due to the dividends of EUR 977 million paid for 2017, the EUR -599 million impact from fair valuation of cash flow hedges, and translation

differences of EUR -518 million, partly offset by the net profit for the period of EUR 843 million. The dividend of EUR 1.10 per share for 2017 was approved by the 2018 Annual General Meeting on 28 March 2018 and paid on 10 April 2018.

### Financing

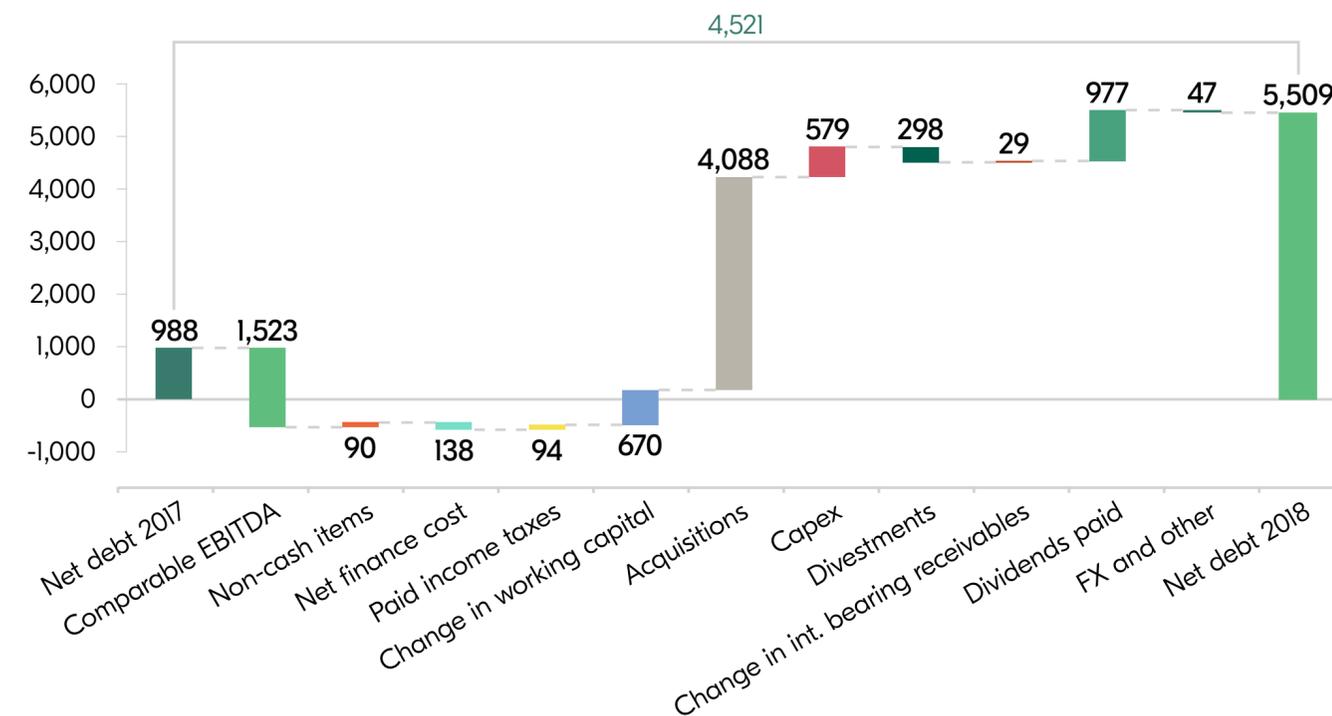
Net debt increased by EUR 4,521 million to EUR 5,509 (988) million, mainly due to the closing of the Uniper offer in the latter part of the second quarter.

At the end of 2018, the Group's liquid funds totalled EUR 584 (3,897) million. Liquid funds include cash and bank deposits of EUR 317 (246) million held by PAO Fortum. In addition to liquid funds, Fortum's undrawn committed credit facilities totalled EUR 1.8 (1.8) billion (► **Note 24**).

Net financial expenses totalled EUR 136 (195) million, of which net interest expenses were EUR 114 (132) million. Net financial expenses included the impact of EUR 49 million from nuclear related adjustments (► **Note 29**). In 2017, net financial expenses included costs relating to financing arrangements of the Uniper transaction.

On 12 September 2018, Fortum received information from Nasdaq Commodities that it had closed-out the positions of a clearing member and that the funds from the commodity member default fund had been utilised to cover the loss. Fortum is trading on Nasdaq Commodities and is a member of the default fund. On 13 September, Nasdaq requested the members of the default fund to replenish their contribution in the fund. Fortum's participation in the default fund was approximately EUR 30 million and the requested replenishment was approximately EUR 20 million. Consequently, Fortum booked

Change in net debt during 2018, EUR million



approximately EUR 20 million as a financing cost in its 2018 results. In November 2018, a legally binding agreement for a consensual arrangement was finalised between the defaulting member and the creditors of the defaulted member in order to recover part of the losses arising from the default.

In January 2018, Standard & Poor's downgraded Fortum's long-term credit rating from BBB+ to BBB with Negative Outlook. The short-term rating was affirmed at level A-2. In June 2018, Fitch Ratings downgraded Fortum's long-term credit rating from BBB+ to BBB with Stable Outlook. The short-term rating was downgraded to level F3. Having a solid investment grade rating is a key priority for Fortum.

### Key figures

At the end of 2018, the comparable net debt to EBITDA ratio for the last 12 months was 3.6x (0.8x), which is above the long-term over-the-cycle target of approximately 2.5x.

Gearing was 46% (7%) and the equity-to-assets ratio 54% (61%). Equity per share was EUR 13.33 (14.69). Return on capital employed (ROCE) for the last twelve months was 6.7% (7.1%). Fortum targets a long-term over-the-cycle return on capital employed of at least 10%.

## Operating and regulatory environment

### Nordic countries

According to preliminary statistics, electricity consumption in the Nordic countries was 399 (392) TWh. The higher consumption was mainly driven by colder weather during the first quarter of 2018 and the somewhat higher industrial consumption.

At the beginning of 2018, the Nordic water reservoirs were at 86 TWh, which is 3 TWh above the long-term average and 11 TWh higher than one year earlier. At the end of 2018, the reservoirs were at 74 TWh, which is 9 TWh below the long-term average and 12 TWh lower than one year earlier.

In 2018, the average system spot price in Nord Pool was EUR 44.0 (29.4) per MWh, the average area price in Finland was EUR 46.8 (33.2) per MWh and in Sweden SE3 (Stockholm) EUR 44.5 (31.2) per MWh.

In Germany, the average spot price was EUR 44.5 (34.2) per MWh in 2018.

The market price of CO<sub>2</sub> emission allowances (EUA) increased from EUR 8 per tonne at the beginning of the year to EUR 25 per tonne at the end of 2018.

### Russia

Fortum operates mainly in the Tyumen and Khanty-Mansiysk area of Western Siberia, where industrial production is dominated by the oil and gas industries, and in the Chelyabinsk area of the Urals, which is

dominated by the metal industry. The Russian market is divided into two price zones and Fortum operates in the First Price Zone (European and Urals part of Russia).

According to preliminary statistics, Russian electricity consumption was 1,056 (1,035) TWh and the corresponding figure for the First Price Zone was 810 (799) TWh in 2018.

In 2018, the average electricity spot price, excluding capacity price, increased by 3.6% to RUB 1,247 (1,204) per MWh in the First Price Zone and increased by 0.2% to RUB 1,043 (1,041) per MWh in the Urals hub.

### Power consumption

TWh	2018	2017	2016
Nordic countries	399	392	390
Russia	1,055	1,035	1,027
Tyumen	92	95	94
Chelyabinsk	35	33	35
Russia Urals area	260	261	259

### Average prices

	2018	2017	2016
Spot price for power in Nord Pool power exchange, EUR/MWh	44,0	29,4	26,9
Spot price for power in Finland, EUR/MWh	46,8	33,2	32,4
Spot price for power in Sweden, SE3, Stockholm, EUR/MWh	44,5	31,2	29,2
Spot price for power in Sweden, SE2, Sundsvall, EUR/MWh	44,2	30,8	29
Spot price for power in European and Urals part of Russia, RUB/MWh <sup>1)</sup>	1,247	1,204	1,204
Average capacity price, tRUB/MW/month	609	535	481
Spot price for power in Germany, EUR/MWh	44,5	34,2	29
Average regulated gas price in Urals region, RUB/1,000 m <sup>3</sup>	3,801	3,685	3,614
Average capacity price for old capacity, tRUB/MW/month <sup>2)</sup>	148	148	140
Average capacity price for new capacity, tRUB/MW/month <sup>2)</sup>	1,075	899	815
Spot price for power (market price), Urals hub, RUB/MWh <sup>1)</sup>	1,043	1,041	1,054
CO <sub>2</sub> , (ETS EUA), EUR/tonne CO <sub>2</sub>	16	6	5
Coal (ICE Rotterdam), USD/tonne	92	84	59
Oil (Brent Crude), USD/bbl	72	55	45

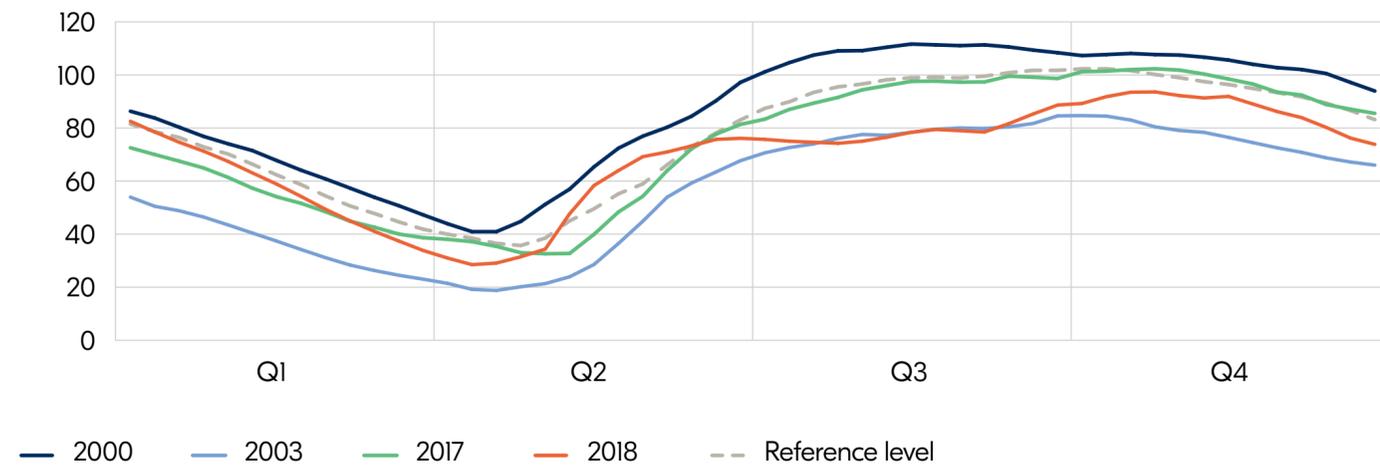
1) Excluding capacity tariff.

2) Capacity prices paid only for the capacity available at the time.

### Water reservoirs

TWh	31 Dec 2018	31 Dec 2017	31 Dec 2016
Nordic water reservoirs level	74	86	75
Nordic water reservoirs level, long-term average	83	83	83

### Nordic water reservoirs, energy content, TWh



Source: Nord Pool

### Export/import

TWh (+ = import to, - = export from Nordic area)	2018	2017	2016
Export/import between Nordic area and Continental Europe+Baltics	-10	-15	-10
Export/import between Nordic area and Russia	8	6	6
Export/import Nordic area, total	-2	-9	-4

## European regulatory environment

### COP24 agreed on the operational rules of the Paris Agreement

On 15 December, the United Nation's climate conference (COP24) in Poland approved the rules of the implementation of the Paris Agreement. The Agreement will come into force in 2020. The rules include

monitoring and reporting of greenhouse gas emissions, reporting on climate finance, and the process for increasing the climate ambition in the future. However, rules on market mechanisms and global carbon markets are pending and will be negotiated late 2019.

The Paris Agreement asks countries to submit their long-term climate strategies and revisions of the existing emission reduction commitments by early 2020. The current aggregated commitments are far from enough to meet the global goal of keeping the temperature increase below 1.5°C. According to the International Panel on Climate Change (IPCC), this requires “rapid and far-reaching transitions” including carbon dioxide removal from the atmosphere. Global net carbon dioxide emissions have to decline by 45% from 2010 to 2030 and be net-zero by 2050. According to the IPCC, the power sector should reduce emissions by 100% well before 2050.

### The EU 2050 climate strategy sets the long-term framework

On 28 November, the European Commission published the proposal “A Clean Planet for All”, establishing a strategic vision for 2050. The Commission foresees a 30–50% decline in energy consumption and a significantly growing role of electricity by 50–200%. Concrete proposals for the EU targets and policies post 2030 are expected from the next Commission.

Fortum considers the proposed strategy as ambitious and balanced. The carbon neutrality target for 2050 and the intermediate targets for 2030–2050 should be confirmed by the EU as soon as possible. In Fortum's view, carbon pricing will be the key measure for reaching carbon neutrality, and the EU should develop a market mechanism to reward also the capture of CO<sub>2</sub> directly from the air or from flue gases.

### The German Coal Commission adopts its final report

The Coal Commission suggests in its report to the German Government that coal would be phased out from the German energy mix by 2038. In 2032, there will be an assessment on the option to phase-out coal already in 2035. The report suggests that after 2022, 30 GW of coal capacity could be online meaning that 12.5 GW of coal capacity would have to be closed down compared to 2017. In 2030, only 17 GW of coal capacity would remain. Closing down nuclear and coal at the same time underlines the important role of gas in the energy mix.

The report proposes compensations for coal plant operators. A compensation to customers should be offered through lower grid fees or lowered electricity tax rates, as the Commission expects the power price to increase as a result of the closures. Also the regions suffering from the coal phase-out should receive compensation in order to mitigate the resulting negative structural effects on their economies. Furthermore, it is suggested that a consequent amount of CO<sub>2</sub> allowances would be cancelled so that the national policy measure would not water down the operation of the EU Emission Trading Scheme (ETS).

Fortum hopes that the German Government will give its opinion on the report as soon as possible, and that the preparations for the respective laws and regulations will start swiftly. Detailed rules on compensations would be necessary for the operators to make decisions on their production capacities.

## Sustainable financing rules affect the whole EU financing sector

In May 2018, the EU Commission presented the first set of legislative proposals based on the strategy and action plan of sustainable financing. This includes a proposal to develop an EU-wide taxonomy system to help investors assess the sustainability and impact of economic activities. In addition, the guidelines on non-financial reporting will be revised and EU labels for green financial products will be developed.

The risk related to the taxonomy development is, among other things, that it will take a negative view on certain low-carbon technologies (e.g. waste-to-energy and nuclear) which can increase the financing costs of future investments.

In Fortum's view, while supporting the overall objective of the Commission proposals, initiatives to promote sustainable investments in the energy sector have to be technology neutral and aim for low-carbon fossil-free solutions. It is also essential to ensure that the planned taxonomy is developed in a transparent manner with a market-based approach.

## EU waste package entered into force

The EU waste package, expected to effectively promote a circular economy, was officially published in June 2018 and member states are to implement the legislation by July 2020. The recycling targets for municipal solid waste and packaging waste will be increased and the landfilling of municipal waste will be further limited by 2030. Further, the quality and comparability of waste statistics will be improved, the calculation methods for recycling targets will be aligned, and e-registers for hazardous waste will be established.

## Rules on sustainable plastics use

In January 2018, the EU Commission published a communication for an EU plastics strategy. The target is to transform the way plastic products are designed, produced, used, and recycled in the EU. Better design of plastic products, higher recycling rates, and better quality recyclates will help boost the markets for secondary raw material plastics with greater added value for a competitive European plastics industry. All Nordic countries have developed their own roadmaps on sustainable plastics use.

Fortum welcomes the initiative to boost the markets for recycled plastics. The plastics strategy is expected to result in business opportunities for Fortum's recycling and waste solutions.

## Unexpected end-user price freeze in Poland

On 1 January 2019, the new Act on the Excise Tax and changes in other laws suddenly and unexpectedly came into effect in Poland, freezing end-user electricity prices at the level of 30 June 2018, with a proposed governmental mechanism to compensate suppliers for potential losses. The price freeze is a response to rapidly increased electricity prices, caused by the higher CO<sub>2</sub> price. The law is expected to be challenged by the European Commission as the planned compensation to power companies can be regarded as illegal state aid and the measure should have been notified to the Commission before implementing it. Fortum will continue to monitor the situation closely and will work jointly with the relevant bodies to seek improved understanding and clarification of the new legislation.

## Segment reviews

Fortum's business activities cover the production and sales of electricity and heat, waste-to-energy and circular economy solutions, as well as energy-sector expert services and various consumer solutions. Fortum is the third largest power generator and the largest electricity retailer in the Nordic countries. Globally, the company is one of the leading heat producers. As two thirds of Fortum's power production is hydro and nuclear, the company is also among the lowest-emitting generators in Europe.

With core operations in 10 countries, Fortum employs a diverse team of more than 8,000 energy-sector professionals. Fortum has 124 hydro power plants, 27 CHP (combined heat and power), condensing, and nuclear power plants as well as three wind power parks and three solar power plants. Globally, the company supplies heat in 23 cities and towns and has five main waste treatment facilities. Fortum's key markets are the Nordic and Baltic countries, Russia, Poland, and India.

Fortum's reportable segments under IFRS are Generation, City Solutions, Consumer Solutions, and Russia. M&A and Solar & Wind

Development, Technology and New Ventures as well as corporate functions are reported under Other Operations. Fortum's participation in Uniper SE is also reported as part of Other Operations.

In November 2018, Fortum announced that the solar and wind businesses were reorganised as they have grown beyond the initial development phase. The wind operations became a business area within the Generation division and the solar operations a business within the City Solutions division. The Russian wind and solar operations continues as a part of the Russia division. The segment reporting will be changed as of 2019 and 2018 figures will be restated accordingly.

## Generation

The Generation segment comprises power production in the Nordics including nuclear, hydro and thermal power production, power portfolio optimisation, trading and industrial intelligence, and nuclear services globally.

EUR million	2018	2017	Change 18/17
Sales	1,837	1,677	10%
- power sales	1,767	1,649	7%
of which Nordic power sales <sup>1)</sup>	1,401	1,342	4%
- other sales	70	28	150%
Comparable EBITDA	762	603	26%
Comparable operating profit	631	478	32%
Operating profit	738	501	47%
Share of profits from associates and joint ventures <sup>2)</sup>	-72	-1	-7,100%
Comparable net assets (at period-end)	6,295	5,672	11%
Comparable return on net assets,%	11.1	8.4	32%
Capital expenditure and gross investments in shares	194	264	-27%
Number of employees	1,075	1,035	4%

1) The Nordic power sales income and volume includes hydro and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

2) Power plants are often built jointly with other power producers, and owners purchase electricity at cost including interest cost and production taxes. The share of profit/loss is mainly IFRS adjustments (e.g. accounting for nuclear-related assets and liabilities) and depreciations on fair-value adjustments from historical acquisitions (► Note 19).

The Generation segment's total power generation in the Nordic countries decreased due to lower hydropower volumes caused by low inflows and low reservoir levels in the third and fourth quarters and slightly lower nuclear power generation resulting from the closure of Oskarshamn 1 in June 2017. The CO<sub>2</sub>-free production accounted for 100% (99%) of the total power production.

The achieved power price in the Generation segment increased by EUR 2.8, +9% due to higher spot prices.

Comparable operating profit increased by 32%, driven by the higher achieved power price and lower real-estate and capacity taxes in Swedish hydro and nuclear power plants, partly offset by lower hydro production volumes.

Operating profit was positively affected by EUR 108 (23) million of capital gains, fair value change of non-hedge accounted derivatives, nuclear related adjustments, and impairment charges (► [Note 6](#)).

The negative result contribution from associates and joint ventures was mainly due to nuclear related adjustments. The adjustments had a positive impact on other financial expenses and the total impact on Fortum's net profit was marginal (► [Note 19](#)).

In June 2018, Fortum sold its 10% ownership in Hafslund Produksjon and booked a one-time tax-free capital gain of EUR 77 million in the Generation segment's 2018 results.

### Power generation by source

TWh	2018	2017	Change 18/17
Hydropower, Nordic	19.1	20.7	-8%
Nuclear power, Nordic	22.8	23.0	-1%
Thermal power, Nordic	0.1	0.5	-80%
<b>Total</b>	<b>42.0</b>	<b>44.2</b>	<b>-5%</b>

### Nordic sales volume

TWh	2018	2017	Change 18/17
Nordic sales volume	48.4	51.8	0%
of which Nordic Power sales volume <sup>1)</sup>	40.5	42.2	-4%

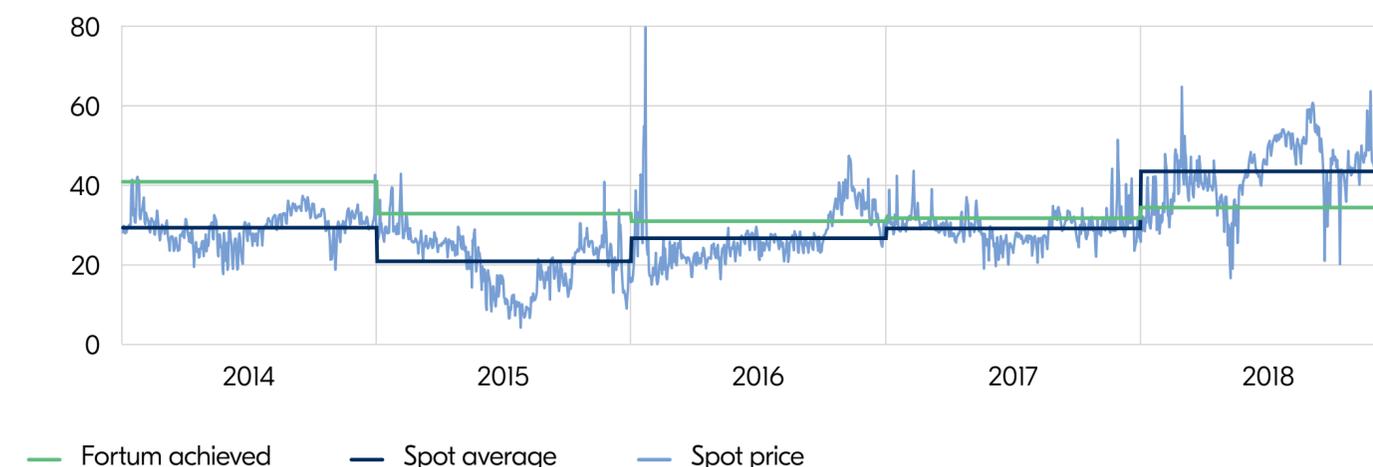
1) The Nordic power sales income and volume includes hydro and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

### Sales price

EUR/MWh	2018	2017	Change 18/17
Generation's Nordic power price <sup>2)</sup>	34.6	31.8	9%

2) Generation's Nordic power price includes hydro and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

### Nord Pool, power price, 2014–2018, EUR/MWh



Source: Nord Pool, Fortum

## City Solutions

City Solutions develops sustainable city solutions into a growing business for Fortum. The segment comprises heating and cooling, waste-to-energy, biomass and other circular economy solutions. The business operations are located in the Nordics, the Baltic countries and Poland. The segment also includes Fortum's 50% holding in Fortum Värme, which is a joint venture and is accounted for using the equity method.

EUR million	2018	2017	Change 18/17
Sales	1,094	1,015	8%
- heat sales	604	523	15%
- power sales	119	121	-2%
- waste treatment sales <sup>1)</sup>	211	195	8%
- other sales <sup>2)</sup>	161	175	-8%
Comparable EBITDA	284	262	8%
Comparable operating profit	113	98	15%
Operating profit	109	102	7%
Share of profits from associates and joint ventures	74	80	-8%
Comparable net assets (at period-end)	3,743	3,728	0%
Comparable return on net assets,%	5.0	5.5	-9%
Capital expenditure and gross investments in shares	222	556	-60%
Number of employees	1,956	1,907	3%

1) Waste treatment sales comprise gate fees at waste treatment plants and environmental construction services.

2) Other sales comprise mainly operation and maintenance services and fuel sales.

On 4 August 2017, Fortum concluded the restructuring of its ownership in Hafslund. As of 1 August 2017, Fortum's 50% ownership in Fortum Oslo Varme (the combined company of Hafslund's Heat business area and Klemetsrudanlegget) has been consolidated as a subsidiary to Fortum in the results of City Solutions.

Heat sales volumes increased by 8% mainly driven by the consolidation of Fortum Oslo Varme. The negative impact of the warm weather in the second quarter offset the positive effects of the cold weather in the first quarter.

Comparable operating profit increased by 15%. The positive effect of EUR 37 (15) million of the consolidation of Fortum Oslo Varme was partly offset by the weaker result in the recycling and waste business.

The seasonality of the City Solutions business has increased, due to the consolidation of Fortum Oslo Varme and the new seasonal pricing. On average, the annual effect of the seasonal pricing is neutral.

The consolidation of Fortum Oslo Varme had a positive effect of EUR 70 (29) million on the comparable EBITDA.

Operating profit was negatively affected by EUR -4 (4) million of fair-value change of non-hedge-accounted derivatives (► [Note 6](#)).

## Heat sales by country

TWh	2018	2017	Change 18/17
Finland	3.8	3.9	-3%
Poland	3.5	3.7	-5%
Norway	1.6	0.7	129%
Other countries	1.9	1.8	6%
<b>Total</b>	<b>10.8</b>	<b>10.0</b>	<b>8%</b>

## Power sales by country

TWh	2018	2017	Change 18/17
Finland	1.4	1.5	-7%
Poland	0.5	0.4	25%
Other countries	0.8	0.7	14%
<b>Total</b>	<b>2.7</b>	<b>2.6</b>	<b>4%</b>

## Consumer Solutions

Consumer Solutions comprises electricity and gas retail businesses in the Nordics and Poland, including the customer service, invoicing, and debt collection business. Fortum is the largest electricity retailer in the Nordics with approximately 2.5 million customers across different brands in Finland, Sweden, Norway, and Poland. The business provides electricity and related value-added products as well as new digital customer solutions.

EUR million	2018	2017	Change 18/17
Sales	1,759	1,097	60%
- power sales	1,547	862	79%
- other sales	212	235	-10%
Comparable EBITDA	110	57	93%
Comparable operating profit	53	41	29%
Operating profit	75	39	92%
Comparable net assets (at period-end)	648	638	2%
Capital expenditure and gross investments in shares	47	493	-90%
Number of employees	1,399	1,543	-9%

On 4 August 2017, Fortum concluded the restructuring of its ownership in Hafslund. As of 1 August 2017, Hafslund Markets has been consolidated into the results of Consumer Solutions.

The consolidation of Hafslund and the cold weather in February and March increased electricity sales volumes and, consequently, sales for the segment. Increasing spot power prices during the year also had a positive impact. The competition and customer churn in the Nordic market continued to be a challenge.

Comparable operating profit increased by 20%, due to the consolidation of Hafslund, partly offset by lower sales margins and the amended service agreements for the divested electricity distribution companies. The effect of the consolidation of Hafslund was EUR 31 (13) million.

The consolidation of Hafslund had a positive effect of EUR 54 (22) million on the comparable EBITDA. Due to the capitalisation of sales commissions, the implementation of IFRS 15 had a positive effect of EUR 32 million on the comparable EBITDA. EUR 22 million of the IFRS 15 effect was related to the Hafslund operations.

Operating profit was positively affected by EUR 22 (-2) million of fair-value change of non-hedge-accounted derivatives (► [Note 6](#)).

## Sales volumes

TWh	2018	2017	Change 18/17
Electricity	30.3	20.5	48%
Gas*	4.1	4.0	2%

\* Not including wholesale volumes.

## Number of customers

Thousands *	2018	2017	Change 17/16
Electricity	2,440	2,470	-1%
Gas	30	20	50%
<b>Total</b>	<b>2,470</b>	<b>2,490</b>	<b>-1%</b>

\* Rounded to the nearest 10,000.

## Russia

The Russia segment comprises power and heat generation and sales in Russia. The segment also includes Fortum's over 29% holding in TGC-1, which is an associated company and is accounted for using the equity method.

EUR million	2018	2017	Change 18/17
Sales	1,069	1,101	-3%
- power sales	872	837	4%
- heat sales	193	258	-25%
- other sales	4	6	-33%
Comparable EBITDA	417	438	-5%
Comparable operating profit	271	296	-8%
Operating profit	273	295	-7%
Share of profits from associates and joint ventures	36	31	16%
Comparable net assets (at period-end)	2,789	3,161	-12%
Comparable return on net assets,%	10.3	10.1	2%
Capital expenditure and gross investments in shares	117	277	-58%
Number of employees	2,941	3,495	-16%

Power generation volumes increased, due to the commissioning of the Chelyabinsk GRES unit 3 and good availability. Heat production volumes increased, due to cold weather, partly offset by the transfer of the heat-only boilers in Chelyabinsk to the Yustek joint venture. Power generation volumes in the first quarter of 2017 were lower due to a maintenance outage at the Nyagan power plant.

Sales declined due to the weaker Russian rouble and the transfer of the heat business in Tyumen to the Yustek joint venture. The decline was partly offset by higher received CSA payments and higher power and heat sales volumes.

Comparable operating profit decreased by 8%. The new production units and higher received CSA payments had a positive effect on the results. The result was negatively impacted by the change in the Russian rouble exchange rate, bad-debt provisions, and lower electricity margins. The increase in CSA payments was related to Nyagan 1 and Nyagan 2 receiving higher payments for the last years of the CSA period, positive

spot market corrections, and contributions from renewable generation. The increase in CSA payments was partly offset by the corrections arising from lower bond yields. The result for the comparison period in 2017 was positively affected by a one-time item from improved bad-debt collections. The effect of the change in the Russian rouble exchange rate was EUR -32 million.

## Key electricity, capacity and gas prices for Fortum Russia

	2018	2017	Change 18/17
Electricity spot price (market price), Urals hub, RUB/MWh	1,043	1,041	0%
Average regulated gas price, Urals region, RUB/1,000 m <sup>3</sup>	3,801	3,685	3%
Average capacity price for CCS and other, tRUB/MW/month <sup>1) 2)</sup>	148	148	0%
Average capacity price for CSA, tRUB/MW/month <sup>2)</sup>	1,075	899	20%
Average capacity price, tRUB/MW/month	609	535	14%
Achieved power price for Fortum in Russia, RUB/MWh	1,888	1,813	4%
Achieved power price for Fortum in Russia, EUR/MWh <sup>3)</sup>	25.6	27.5	-7%

1) Including capacity receiving payments under "forced mode status", regulated tariffs, and bilateral agreements.

2) Capacity prices paid for the capacity volumes, excluding unplanned outages, repairs, and own consumption.

3) Translated using the average exchange rate.

## Russian power generation and heat production

TWh	2018	2017	Change 18/17
Russian power generation	29.6	26.3	13%
Russian heat production	20.4	20.0	2%

The Chelyabinsk GRES unit 3 was commissioned in November 2017. Fortum's 35-MW wind power plant was commissioned in January 2018, and the 35-MW solar plants have been consolidated since December 2017.

## Other Operations

Other Operations comprises the two development units 'M&A and Solar & Wind Development' and 'Technology and New Ventures' as well as corporate functions. Other Operations also includes Fortum's shareholding in Uniper, which is consolidated as an associated company as of 30 June 2018 (► [Note 3](#)).

The total acquisition cost for Uniper, including direct costs relating to the acquisition, is reported in 'Participations in associated companies and joint ventures'. The purchase price allocation will be completed within the one-year window from the acquisition date, according to IFRS. As Uniper publishes its interim reports later than Fortum, Fortum's share of Uniper's results will be accounted for with a time-lag of one quarter, with potential adjustments. Fortum's Financial Statements 2018 only includes Fortum's share of Uniper's third-quarter results amounting to EUR -2 million (► [Note 3](#)). Uniper will report its full-year 2018 results on 12 March 2019.

In December 2018, Fortum committed to invest EUR 150 million in Valo Ventures over a period of 10 years. Valo Ventures is a new global venture capital fund launched by former Google Capital co-founder, Scott Tierney. It is an independent fund investing in digital and cloud-scale technology start-ups in North America and Europe. Valo Ventures is aligned with Fortum's vision 'For a cleaner world' and strategy. One of Fortum's strategic priorities to drive decarbonisation is building options for significant new innovative businesses. Becoming a digital leader is a critical enabler to achieve these goals.

In June 2018, Fortum agreed to sell a 54% share of its solar power company operating four solar power plants in India. The transaction was closed in August 2018. The total consideration from the divestment on a debt- and cash-free basis, including the effect of deconsolidating Fortum's minority part of the net debt, was EUR 147 million. The positive impact on Fortum's 2018 comparable operating profit was EUR 26 million. Fortum's capital recycling business model enables Fortum to efficiently utilise its key competences to develop, construct, and operate power plants while utilising partnerships and other forms of cooperation to create a more asset-light structure and thereby enable

more investments into building new renewable capacity. Profits from the capital recycling business model are recorded in comparable operating profit because the business results are realised through divesting the shareholding, either partially or totally.

## Capital expenditures, divestments and investments in shares

EUR million	2018	2017
<b>Capital expenditure</b>		
Intangible assets	53	18
Property, plant and equipment	532	672
<b>Total</b>	<b>584</b>	<b>690</b>
<b>Gross investments in shares</b>		
Subsidiaries	36	982
Associated companies and joint ventures	4,041	135
Other investments	11	8
<b>Total</b>	<b>4,088</b>	<b>1,125</b>

In 2018, capital expenditures and investments in shares totalled EUR 4,672 (1,815) million, mainly related to the purchase of Uniper shares. Capital expenditures were EUR 584 (690) million (► [Note 6](#)), below the 2018 guidance of EUR 600–700 million. Capital expenditures for 2018 were below the guidance level due to the timing of some capital expenditures being shifted to 2019.

See also ► [Note 18.2](#) Capital expenditure.

Fortum expects to start the supply of power and heat from new power plants and to upgrade existing plants as follows:

	Type	Electricity capacity MW	Heat capacity MW	Supply starts
<b>Generation</b>				
Loviisa, Finland	Nuclear	5		2018
Hydro plants in Sweden and Finland	Hydro	5		2018
Hydro plants in Sweden and Finland	Hydro	~15		2019
<b>City Solutions</b>				
Zabrze, Poland	CHP	75	145	Q1/2019
Kivenlahti, Finland	Bio HOB <sup>1)</sup>		58	2020
<b>Russia</b>				
Ulyanovsk	Wind	35		Jan 2018
Solar <sup>2)</sup>	Solar	110		2021–2022
<b>Other Operations</b>				
Ånstadblåheia, Norway	Wind	50		Q4/2018
Sørfjord, Norway	Wind	97		2019
Pavagada 2, India	Solar	250		2019

1) Biofuel-fired heat-only boiler (HOB).

2) Separate investment decision needed

## Generation

Through its interest in TVO, Fortum is participating in the building of Olkiluoto 3 (OL3), a 1,600-MW nuclear power plant unit in Finland. OL3 is funded through external loans, share issues and shareholder loans according to shareholder agreements between the owners and TVO. As a 25% shareholder in OL3, Fortum has committed to funding of the project pro rata. At the end of 2018, Fortum's outstanding receivables regarding OL3 were EUR 170 million and the outstanding commitment was EUR 63 million (► [Note 19](#)). In March 2018, TVO and the supplier consortium companies signed a comprehensive settlement agreement whereby the arbitration concerning the delay of OL3 is settled by financial compensation of EUR 450 million to be paid to TVO. Based on the project schedule of March 2018 and the effect of the settlement agreement, TVO estimated the total investment in OL3 to be approximately EUR 5.5 billion. According to the time plan updated by

plant supplier Areva-Siemens Consortium in November 2018, the plant is expected to start regular electricity production in January 2020.

In June 2018, Fortum sold its 10% ownership in Hafslund Produksjon Holding AS to Svartisen Holding AS. As part of the restructuring of the Hafslund ownership in 2017, Fortum acquired the ownership in Hafslund Produksjon. The sales price for the shares was EUR 160 million. Fortum booked a capital gain of EUR 77 million in the Generation segment 2018 results.

### City Solutions

In October 2018, Fortum announced it is replacing part of its fossil-based heat production by building a biofuel-fired heating facility in Kivenlahti, Finland. The construction of the plant is a significant step towards carbon neutral district heating production in Espoo, as the plant will allow for the decommissioning of the old coal-fired heating boiler in Suomenoja. The value of the investment is approximately EUR 40 million. The new facility will have a maximum heat output of 58 MW. Construction started in November 2018 and heat production is expected to begin in 2020.

The joint venture Kauno Kogeneracinė Jėgainė, owned by Fortum and Lietuvos Energija, is building a waste-to-energy CHP plant in Kaunas, Lithuania. The electricity capacity of the Kaunas plant will be 24 MW and the thermal capacity approximately 70 MW. Fortum's ownership in the joint venture is 49%. The CHP plant is expected to be commissioned in mid-2020.

In 2015, Fortum decided to build a new multi-fuel CHP plant in Zabrze, Poland, which primarily will be fuelled by refuse derived fuel (RDF) and coal but can also use biomass and a mixture of fuels. The new plant replaces the existing purely coal-fired units in Zabrze and Bytom. It will have a production capacity of 145 MW of heat and 75 MW of electricity and the planned start of commercial operations is during the first quarter of 2019.

### Russia

In June 2018, Fortum won the right to build 110 MW of solar capacity in a CSA auction. The power plants are to be commissioned during the years 2021–2022.

In June 2018, the Fortum-Rusnano wind investment fund (Fortum's ownership 50%) won the right to build 823 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during the years 2019–2023. During the fourth quarter 2018, the wind investment fund made an investment decision on a 100-MW wind farm. Power production is expected to start during the first half of 2020.

In June 2017, the Fortum-Rusnano wind investment fund won the right to build 1,000 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during the years 2018–2022. In October 2017 and October 2018, the wind investment fund made investment decisions on 50-MW and a 200-MW wind farm, respectively. On 1 January 2019, the 50-MW wind farm started operation. Power production at the 200-MW wind farm is expected to start during the first half of 2020.

The investment decisions related to the renewable capacities won by Fortum and the Fortum-Rusnano wind investment fund in 2017 and 2018 are made on a case-by-case basis. Fortum's maximum equity commitment is RUB 15 billion. In the longer term, Fortum seeks to maintain an asset-light structure by forming potential partnerships and other forms of co-operation.

### Other Operations

In December 2018, Fortum committed to invest EUR 150 million in Valo Ventures over a period of 10 years. It is an independent fund investing in digital and cloud-scale technology start-ups in North America and Europe.

In December 2018, Fortum won the right from Gujarat Urja Vikas Nigam Ltd. to build a 250-MW solar power plant in Raghnesda solar park in District Banaskhata, Gujarat, India. In January 2019, the Government of Gujarat cancelled the result of the auction on the grounds that it considers the winning tariffs to be too high. The Government of Gujarat has indicated that there will be a new auction,

for which they intend to reduce the solar park charges to operators, in order to lower the costs for the bidders and enable lower bids.

In June 2018, Fortum won the right to build a 250-MW solar power plant in the Pavagada solar park in Karnataka, India. The capital expenditure is estimated to be approximately EUR 120 million. Commissioning of the plant is expected in 2019.

In June 2018, Fortum signed an agreement to sell a 54% share of its solar power company operating four solar power plants in India to UK Climate Investments (40%) and Elite Alfred Berg (14%). Elite Alfred Berg has the option to buy up to an additional 16% from Fortum. The total capacity of this portfolio is 185 MW. Fortum aims to retain a significant minority ownership in the solar power company and to continue to provide operation and maintenance services based on a long-term agreement. The total consideration from the divestment on a debt- and cash-free basis, including the effect of deconsolidating Fortum's minority part of the net debt, was EUR 147 million. The positive impact on Fortum's third quarter comparable operating profit was EUR 26 million. The transaction was closed in August 2018.

In January 2017, Fortum finalised the acquisition of three wind power projects from the Norwegian company Nordkraft. The transaction consisted of the already operational Nygårdsfjellet wind farm as well as the fully-permitted Ånstadblåheia and Sørffjord projects. The Ånstadblåheia wind farm was commissioned during the fourth quarter of 2018 and the Sørffjord wind farm is expected to be commissioned in 2019. The total installed capacity of the three wind farms will be approximately 180 MW.

In 2016, Fortum made the final investment decision on the 75-MW Solberg wind park project in northern Sweden. Skellefteå Kraft is participating in the project with a 50% share. The wind park was taken into operation in the first quarter of 2018.

### Research and development

Sustainability is at the core of Fortum's strategy and, alongside Fortum's current businesses, the company is carefully exploring and developing new sources of growth within renewable energy production.

Fortum's goal is to be at the forefront of energy technology and application development. To accelerate innovation and the commercialisation of new offerings, Fortum is strengthening its in-house innovation and digitalisation efforts and building partnerships with leading global suppliers, technology and service companies, and research institutions. Fortum makes direct and indirect investments in start-ups that have promising new innovations focused on connectivity, have disruptive potential and accelerate the transition towards a circular economy. Fortum also invests in technologies that support better utilisation of the current asset base and that can create new markets and products for Fortum. The company is continuously looking for emerging clean energy solutions and for solutions that increase resource and system efficiency.

The Group reports its R&D expenditure on a yearly basis. In 2018, Fortum's R&D expenditure was EUR 56 (53) million, or 1.1% (1.2%) of sales.

	2018	2017	2016	Change 18/17
R&D expenditure, EUR million	56	53	52	6%
R&D expenditure, % of sales	1.1	1.2	1.4	

## Changes in Fortum's Management

On 29 August 2018, Fortum announced that Mr. Kari Kautinen, Senior Vice President, Solar & Wind Development and M&A, had resigned. He left Fortum at the end of September 2018.

On 3 September 2018, Fortum announced that Mr. Arun Aggarwal, M.Sc. (Eng.), 49, was appointed Senior Vice President, Business Technology and member of Fortum's Executive Management. This is a new position at Fortum. Mr. Aggarwal has Group-wide responsibility to lead Fortum's strategic IT, as well as digital innovation and transformation. He assumed this position in mid-October 2018 and reports to the President and CEO.

## Annual General Meeting 2018

Fortum Corporation's Annual General Meeting, held in Helsinki on 28 March 2018, adopted the Financial Statements and the Consolidated Financial Statements for the financial period 1 31 December 2017 and discharged from liability the members of the Fortum Board of Directors and the President and CEO for the year 2017.

The Annual General Meeting decided to pay a dividend of EUR 1.10 per share for the financial year that ended on 31 December 2017. The record date for the dividend payment was 3 April 2018, and the dividend payment date was 10 April 2018.

The Annual General Meeting confirmed the remuneration of EUR 75,000 per year to the Chairman, EUR 57,000 per year to the Deputy Chairman, EUR 40,000 per year to each member of the Board, as well as EUR 57,000 per year to the Board member acting as the Chairman of the Audit and Risk Committee if he or she is not at the same time acting as Chairman or Deputy Chairman of the Board. In addition, a EUR 600 meeting fee is paid for Board meetings as well as for committee meetings. The meeting fee is doubled for Board members who live outside Finland in Europe and tripled for members living outside Europe. For Board members living in Finland, the fee for each Board and Board Committee meeting is doubled for meetings held outside Finland and tripled for meetings outside Europe. For Board and Committee meetings held as a telephone conference, the basic meeting fee is paid to all members. No fee is paid for decisions made without a separate meeting.

The Annual General Meeting also confirmed the number of members in the Board of Directors to be eight. Mr. Matti Lievonon was elected as Chairman, Mr. Klaus-Dieter Maubach as a new member and Deputy Chairman, Mr. Heinz-Werner Binzel, Ms. Eva Hamilton, Mr. Kim Ignatius, Ms. Anja McAlister, and Mr. Veli-Matti Reinikkala were re-elected as members, and Ms. Essimari Kairisto was elected as a new member.

In addition, Deloitte Oy was re-elected as auditor, with Authorised Public Accountant Ms Reeta Virolainen as the principal auditor. The auditor's fee is paid pursuant to an invoice approved by the company.

The Annual General Meeting authorised the Board of Directors to decide on the repurchase and disposal of the company's own shares up to a maximum number of 20,000,000 shares, which corresponds to approximately 2.25 per cent of all the shares in the company. It was also decided that own shares could be repurchased or disposed of in connection with acquisitions, investments or other business transactions, or be retained or cancelled. The repurchases or disposals could not be made for the purposes of the company's incentive and remuneration schemes. The authorisation cancelled the authorisation resolved by the Annual General Meeting of 2017 and it will be effective until the next Annual General Meeting and, in any event, for a period of no longer than 18 months.

The Annual General Meeting decided on the following amendments to the Articles of Association of the company:

The first sentence of Art. 6 is amended in order to set the maximum number of members of the Board of Directors of the company at ten members instead of the current eight members, as follows: "The Board of Directors shall have a Chairman, a Deputy Chairman, and a minimum of three (3) and a maximum of eight (8) ordinary members who are elected at the General Meeting." Art. 6 is otherwise unchanged.

Due to the new Auditing Act (1141/2015) which entered into force on 1 January 2015, the reference to approval by the Central Chamber of Commerce set forth in the first sentence of Art. 11 shall be deleted and replaced with a reference to an auditing firm referred to in the Auditing Act, as follows: "The company shall have one regular auditor who must be an Auditing Firm referred to in the Auditing Act." Art. 11 is otherwise unchanged.

Due to the amendment of the Limited Liability Companies Act that entered into force on 21 June 2017, the reference to Chapter 4, Section 2, Subsection 2 of the Finnish Limited Liability Companies Act set forth in the last sentence of Art. 12 shall be replaced with a reference to Chapter 5, Section 6 a of the Limited Liability Companies Act, as follows:

"However, the notice of GM must in any event be delivered at least nine (9) days prior to the General Meeting Record Date referred to in Chapter 5, Section 6 a of the Finnish Limited Liability Companies Act." Art. 12 is otherwise unchanged.

The Annual General Meeting of Fortum Corporation decided, in accordance with Chapter 3, Section 14 a (3) of the Finnish Companies Act, that the rights to all such shares entered in the Joint Account and to the rights attached to such shares that had not been requested to be registered in the book-entry system in accordance with Chapter 6, Section 3 of the Act on the Book-Entry System and Clearing Operations prior to the decision by the Annual General Meeting, are forfeited. In the merger of Länsivoima Oyj (former Lounais-Suomen Sähkö Oy) to Fortum Corporation in 2000, those shareholders of Länsivoima Oyj that had not produced their share certificates and had not requested their rights to be registered in the book-entry system, received their respective shares of Fortum Corporation as merger consideration to a joint book-entry account opened on their behalf (the “Joint Account”). In addition to the shares, the rights attached to such shares, such as undrawn dividends, are forfeited. The provisions applicable to treasury shares held by the company will apply to the forfeited shares.

At the meeting held after the Annual General Meeting, Fortum’s Board of Directors elected, from among its members, to the Nomination and Remuneration Committee Matti Lievonen as Chairman and Eva Hamilton, Klaus-Dieter Maubach and Anja McAlister as members.

Furthermore, the Board elected to the Audit and Risk Committee Kim Ignatius as Chairman and Heinz-Werner Binzel, Essimari Kairisto and Veli-Matti Reinikkala as members.

### Shareholders Nomination Board

On 5 October 2018, Mr. Kimmo Viertola, Director General, Prime Minister’s Office, Ownership steering department (Chairman), Mr. Risto Murto, President and CEO, Varma Mutual Pension Insurance Company, and Mr. Jouko Pölönen, President and CEO, Ilmarinen Mutual Pension Insurance Company were appointed to Fortum’s Shareholders’ Nomination Board. In addition, the Chairman of Fortum’s Board of Directors Mr. Matti Lievonen, is a member of the Shareholders’ Nomination Board.

On 29 January 2019, Fortum’s Shareholders’ Nomination Board submitted its proposals to Fortum’s Board of Directors for the 2019 Annual General Meeting concerning the number of the Board members,

the members to be nominated to the Board of Directors, and the election of the Chairman and Deputy Chairman. The Shareholders’ Nomination Board did not reach a unanimous proposal, and consequently did not make a proposal for the remuneration paid to the Board of Directors for their following term of office.

### Other events during the reporting period

The Board of Directors of Fortum Corporation has decided to commence the 2019–2021 long-term incentive (LTI) plan for key employees and executives. The 2019–2021 LTI plan is part of Fortum’s ongoing LTI programme and follows the same principles as the previous plan. The performance measure applied to the 2019–2021 LTI plan will be based on the total shareholder return measured relative to the peer group comprising selected European utility companies. The 2019–2021 LTI plan will comprise approximately 130 participants, including the members of Fortum Executive Management.

### Events after the balance sheet date

On 1 January 2019, Fortum acquired all remaining C-shares of TVO entitling to the power production of the Meri-Pori coal condensing power plant. Fortum is now entitled to 100% of the power production of the plant, an increase from 67% previously. The Meri-Pori power plant is mainly used in Fingrid’s capacity reserve and as back-up capacity. See more information in ▶ **Note 19** Participations in associated companies and joint ventures.

### Key drivers and risks

Fortum’s financial results are exposed to a number of economic, strategic, energy policy and regulation, financial, and operational risks. Fortum is exposed to these risks both directly and indirectly through its associated companies.

Some of the key factors influencing Fortum’s business performance are the European commodity and electricity wholesale prices. The key short-term drivers behind the electricity wholesale price development in the Nordic region are the prices of fuels and CO<sub>2</sub> emission allowances,

the hydrological situation, temperature, economic development, and the electricity import-export balance.

Global economic growth impacts commodity and CO<sub>2</sub> emission allowance prices, which, in turn, impact the Nordic wholesale price of electricity. In all regions, fuel prices and power plant availability also impact profitability. In addition, increased volatility in exchange rates could have both translation and transaction effects on Fortum’s financials, especially through the Russian rouble and Swedish krona.

In the Nordic countries, changes in the regulatory and fiscal environment add risks for the energy and environmental management sectors. The main strategic risk is that the regulatory and market environment develops in a way that we have not been able to foresee and prepare for. In response to these uncertainties, Fortum has analysed and assessed a number of future energy market and regulation scenarios, including the impact of these on different generation forms and technologies. As a result, Fortum’s updated strategy includes broadening of the revenue base and diversification into new businesses, technologies, and markets. The environmental management business is based on the framework and opportunities created by environmental regulation. Being able to respond to customer needs created by the tightening regulation is a key success factor.

For Fortum’s Russian business, the key drivers are economic growth, the rouble exchange rate, regulation of the heat business, and the further development of the electricity and capacity markets. A key profitability driver is the received capacity payment based on the CSA contracts and Competitive Capacity Selection (CCS) auctions. The main part of Fortum’s generation capacity built after 2007 is entitled to CSA payments for approximately 10 years after commissioning of each new unit (approximately 15 years for renewable generation). The received capacity payments vary, depending on the age, location, type, and size of the plant as well as on seasonality and availability. The CSA payments are adjusted for, among other factors, the weighted average cost of capital (WACC), the consumer price index (CPI), and re-examination of earnings from the electricity-only (spot) market (done every three and six years after commissioning of a unit). In addition, thermal power

plants are entitled to clearly higher CSA payments starting approximately six years after commissioning.

For further details on Fortum's risks and risk management, see the [Risk management](#) section of the Operating and financial review and [Note 4](#) Financial risk management.

## Outlook

### Hedging

At the end of 2018, approximately 75% of the Generation segment's estimated Nordic power sales volume was hedged at EUR 31 per MWh for 2019, and approximately 45% at EUR 29 per MWh for 2020.

The reported hedge ratios may vary significantly, depending on Fortum's actions on the electricity derivatives markets. Hedges are mainly financial contracts, most of them electricity derivatives quoted on Nasdaq Commodities.

### Capital expenditure and divestments

Fortum currently estimates its capital expenditure, including maintenance but excluding acquisitions, to be in the range of EUR 600–650 million in 2019. This includes solar and wind investments, which can be divested through the capital recycling business model. The maintenance capital expenditure in 2019 is estimated at approximately EUR 300 million, well below the level of depreciation.

In 2020, capital expenditure is expected to decline.

### Nordic market

Electricity is expected to continue to gain a higher share of total energy consumption. Electricity demand in the Nordic countries is expected to grow by approximately 0.5% on average, while the growth rate for the next few years will largely be determined by the macroeconomic development in Europe and especially in the Nordic countries.

During the fourth quarter of 2018, oil and coal prices started to decrease, while EUA prices still increased. In late January 2019, the forward quotation for coal (ICE Rotterdam) for the remainder of 2019 was around USD 84 per tonne and the market price for EUAs for 2019

at the level of EUR 23 per tonne. The Nordic system electricity forward price at Nasdaq Commodities for the remainder of 2019 was around EUR 48 per MWh and for 2020 around EUR 39 per MWh. In Germany, the electricity forward price for the remainder of 2019 was around EUR 51 per MWh and for 2020 around EUR 49 per MWh. The Nordic water reservoirs were about 10 TWh below the long-term average and were 8 TWh lower than one year earlier.

### Generation

The Generation segment's achieved Nordic power price typically depends on factors such as hedge ratios, hedge prices, spot prices, availability and utilisation of Fortum's flexible production portfolio, as well as currency fluctuations. Excluding the potential effects from changes in the power generation mix, a 1 EUR/MWh change in the Generation segment's Nordic power sales achieved price will result in an approximately EUR 45 million change in Fortum's annual comparable operating profit. The achieved power price also includes the results of optimisation of Fortum's hydro and nuclear production as well as operations in the physical and financial commodity markets.

As a result of the nuclear stress tests in the EU, the Swedish Radiation Safety Authority (SSM) has decided on new regulations for Swedish nuclear reactors. For the operators, this means that safety investments should be in place no later than 2020.

The process to review the Swedish nuclear waste fees is done in a three-year cycle. In March 2017, the Swedish Government decided on the new nuclear waste fees for years 2018–2020. In October 2017, the Swedish Parliament decided on changes in the legal framework, impacting calculations of nuclear waste fees and the investment of the nuclear waste fund. In the revised legal framework, the assumed operating time for calculating the waste fee is 50 years, as opposed to the previous assumption of 40 years. The fund is now also allowed to invest in other financial instruments in addition to bonds. Based on these changes, the annual waste fees for Fortum increased by EUR 8 million in 2018.

On 19 June 2018, the Swedish parliament adopted new hydro legislation to come into force on 1 January 2019. According to the new legislation all hydropower shall apply for updated permits. At the same

time hydropower shall be protected to be able to play a key role in the future energy system. In order to protect hydropower, all exemptions of the Water Framework Directives shall be utilised when classifying water bodies. In the new legislation it is stated that the industry shall create a joint hydropower fund to finance major parts of the environmental actions needed. A fund has been established with a total financial cap of SEK 10 billion to be paid over a 20-year period. The major utilities will contribute to the fund based on their share of hydropower production. Fortum's share is expected to be 20–25% of the fund's total financing. In addition to the new legislation, the government has issued an ordinance to establish a national prioritisation plan for the revision of hydropower permits (valid from 11 January 2019).

On 11 June 2018, the Swedish Administrative Court of Appeal gave its decisions on Fortum Sverige AB's hydropower production-related real-estate tax assessments for the years 2009–2014. The court decisions were not in Fortum's favour. Fortum applied for the right to appeal from the Supreme Administrative Court, but did not receive permission to appeal. As the Administrative Court, the Administrative Court of Appeal in Stockholm, and the Supreme Administrative Court have handled only the arguments concerning state aid, the case concerning the other legal documents is now transferred back to the Administrative Court. The disputed amount, excluding interest for the time period, totals approximately SEK 510 million (approximately EUR 50 million). Moreover, Fortum's Swedish companies have appeals for 2011–2016 pending in the Administrative Court relating to the property tax rate for their hydropower plants referring to the same legal grounds. Fortum has paid the real-estate tax in accordance with the legislation. If the final court decision is unfavourable to Fortum, it will not impact Fortum's results. In December 2018, Fortum Sverige AB filed a complaint to the EU Commission regarding the Swedish property tax for hydropower plants regarding 2017 and prior years. Fortum has asked the Commission to investigate whether the Swedish legislation regarding the property tax for hydropower plants and the Swedish court decisions are in line with EU state aid rules.

In September 2016, the Swedish Government presented the budget proposal for the coming years, according to which the nuclear capacity

tax will be reduced to 1,500 SEK/MW per month from 1 July 2017 and abolished on 1 January 2018. In 2017, Fortum's Swedish nuclear capacity tax was EUR 44 million. In 2018, there is no capacity tax. Further, the Swedish hydropower real-estate tax will decrease from 2.8% to 0.5%. The tax is being reduced in four steps: in January 2017 to 2.2%; in January 2018 to 1.6%; in January 2019 to 1.0%; and in January 2020 to 0.5%. In 2018, the tax for Fortum decreased by EUR 20 million to EUR 65 million. In addition to the decrease in the tax rate, the hydropower real-estate tax values, which are linked to electricity prices, will be updated in 2019. The real-estate tax values are updated every six years. With the current electricity prices, the tax values for the 2019–2024 period would be lower than they are today.

In 2015, the Swedish OSG decided to permanently discontinue electricity production at Oskarshamn's nuclear plant units 1 and 2. Unit 1 was shut down on 17 June 2017 and unit 2 has been out of operation since June 2013. The closing processes for both units are estimated to take several years.

### City Solutions

In City Solutions, stable growth, cash flow and earnings are achieved through investments in new plants and through acquisitions. Fuel cost, availability, flexibility, efficiency, as well as gate fees are key drivers for profitability, but also the power supply/demand balance, electricity prices, and weather conditions affect profitability.

The development of Fortum Oslo Varme's business operations is estimated to require integration-related one-time costs and increased investments over the coming years. The realisation of cost synergies is estimated to gradually start materialising from 2019 onwards, with targeted annual synergies of EUR 5–10 million expected to be achieved by the end of 2020.

### Consumer Solutions

After the acquisition of Hafslund Markets in August 2017, a new business strategy for Consumer Solutions was approved by the Fortum Board of Directors in December 2017. The strategic objective is to establish

Consumer Solutions as the leading consumer business in the Nordics, with a customer-centric, multi-brand structure.

Competition in the Nordic electricity retail market is expected to remain challenging, with continued pressure on sales margins and customer churn. To counter the market challenges and create a solid foundation for competitive operations, Consumer Solutions will continue its cost spend in developing new digital services for consumers.

The combined Hafslund Markets and Fortum Markets business, while largely complementary, has identified synergy potential, in terms of both revenue and costs. The short-term priority will be on achieving identified revenue synergies by leveraging established best practices and providing additional products and services to the whole customer base. The realisation of cost synergies will start materialising once the integration of Hafslund Markets is completed, expected in 2019, with cost synergy realisation gradually increasing over the coming years and targeted annual synergies of approximately EUR 10 million to be achieved by the end of 2020.

### Russia

In the Russia segment, capacity payments based on CSA contracts are a key driver for earnings growth, as it receives considerably higher capacity payments than through the CCS auctions. Currently Fortum's CSA capacity amounts to 2,368 MW. In February 2018, the System Administrator of the wholesale market published data on the WACC and the CPI for 2017, which were used to calculate the 2018 CSA price. The CSA payments were revised downwards accordingly to reflect the lower bond rates. The regulator also reviewed the guaranteed CSA payments by re-examining earnings from the electricity-only market and revised the CSA payments upwards due to the lower earnings from the electricity-only market.

Fortum's other Russian generation capacity, totalling 2,544 MW, is allowed to participate in the CCS auctions. The long-term CCS for the years 2017–2019 was held at the end of 2015, the CCS for the year 2020 in September 2016, and the CCS for the year 2021 in September 2017. All Fortum plants offered in the auction were selected. Fortum also obtained

“forced mode status”, i.e. it receives payments for the capacity at a higher rate for some of the units at the Argayash power plant. For the years 2017–2019, “forced mode status” was obtained for 195 MW; for the year 2020 for 175 MW, and for the year 2021 for 105 MW. The date of the CCS auction for 2022 has been postponed from 15 September 2018 to 1 May 2019.

In June 2018, Fortum won the right to build 110 MW of solar capacity in a CSA auction. The power plants are to be commissioned during the 2021–2022 and will receive a guaranteed CSA price corresponding to approximately RUB 14,000 per MWh for a period of 15 years.

In June 2018, the Fortum-Rusnano wind investment fund (Fortum's ownership 50%) won the right to build 823 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during 2019–2023 and will receive a guaranteed CSA price corresponding to approximately RUB 7,000–8,000 per MWh for a period of 15 years. In December 2018, the wind investment fund made an investment decision on a 100-MW wind farm.

As of January 2018, Fortum's Ulyanovsk wind farm is listed in the registry of capacity. The 35-MW power plant is Russia's first industrial wind park. It will receive CSA payments for a period of approximately 15 years after commissioning. The CSA price currently corresponds to approximately RUB 11,000 per MWh.

In June 2017, the Fortum-Rusnano wind investment fund won the right to build 1,000 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during 2018–2022 and will receive a guaranteed CSA price corresponding to approximately RUB 7,000–9,000 per MWh for a period of 15 years. In October 2017 and October 2018, the wind investment fund made investment decisions on a 50-MW and a 200-MW wind farm, respectively.

The Russian annual average gas price growth was 3.1% in 2018. Fortum estimates the Russian annual average gas price growth to be 3% in 2019.

### Other Operations

For information on the financial impact of the Uniper shareholding, please see the Uniper investment section of [Note 3](#).

In December 2018, Fortum won the right from Gujarat Urja Vikas Nigam Ltd. to build a 250-MW solar power plant in Raghnesda solar park in District Banaskhata, Gujarat, India. In January 2019, the Government of Gujarat cancelled the result of the auction on the grounds that it considers the winning tariffs to be too high. The Government of Gujarat has indicated that there will be a new auction, for which they intend to reduce the solar park charges to operators, in order to lower the costs for the bidders and enable lower bids.

In June 2018, Fortum won the right to build a 250-MW solar power plant in the Pavagada solar park in Karnataka, India. The capital expenditure is estimated to be approximately EUR 120 million, and the solar park will be entitled to a fixed tariff of 2.85 INR/kWh for 25 years. Commissioning of the plant is expected in 2019.

### Income taxation

In 2019, the effective corporate income tax rate for Fortum is estimated to be 19–21%, excluding the impact of the share of profits of associated companies and joint ventures, non-taxable capital gains, as well as tax rate changes.

Fortum has received income tax assessments in Sweden for the years 2013, 2014, and 2015 concerning the loans given by Fortum's Dutch financing company to Fortum's subsidiaries in Sweden. The interest income for these loans was taxed in the Netherlands. After Fortum received a negative decision from the Administrative Court in Stockholm in 2017, Fortum filed an appeal to the Administrative Court of Appeal in Stockholm. In October 2018, the Administrative Court of Appeal in Stockholm, Sweden, announced its decision relating to the income tax assessment for the year 2013. The decision was favourable to Fortum. The Administrative Court of Appeal confirmed that Fortum had sufficient business reasons for the loans and accepted Fortum's appeal. The decision regarding the year 2013 is final. The Administrative Court in Stockholm announced its decisions in the cases for 2014 and 2015 in November 2018. Also these decisions were favourable to Fortum. The decisions became non-appealable by the end of January 2019. Fortum had not made provisions for the cases regarding the years 2013–2015, as Fortum considers the additional tax unjustified. Therefore, the

favourable decisions issued by the Administrative Court of Appeal in October 2018 and by the Administrative Court in November 2018 did not have any impact on profits. The amount of additional tax claimed by the Swedish tax authority was originally SEK 273 million (EUR 26 million) for the year 2013, SEK 282 million (EUR 27 million) for the year 2014, and SEK 200 million (EUR 19 million) for the year 2015. The additional tax cost for 2013 was paid in 2017 and was refunded to Fortum in 2018. Additional taxes and interest for the years 2014 and 2015 had not been paid by Fortum.

In June 2018, the Swedish government decided to lower the Swedish corporate tax in two steps, from the current 22.0% to 21.4% from January 2019 and to 20.6% from January 2021.

In March 2018, the Swedish Supreme Administrative Court decided not to grant leave to appeal to Fortum with respect to the interest deduction cases relating to the years 2009–2012. The unfavourable decision of the Administrative Court of Appeal from June 2017 therefore remains in force. The additional tax and interest, in total SEK 1,175 million (EUR 122 million), was paid in 2016 and booked as a cost in the 2017 results. There are strong grounds to argue that these decisions of the Administrative Court of Appeal and the Supreme Administrative Court violate EU law and fundamental rights under EU law. On these grounds, Fortum filed a summons application in December 2018 to the District Court of Stockholm in which damages are claimed from the Swedish state in these cases. Fortum also filed a request to initiate a mutual agreement procedure between Sweden and the Netherlands for the year 2012 (► [Note 37](#)).

# Sustainability

## Sustainability approach

Fortum strives for balanced management of economic, social and environmental responsibility in the company's operations, emphasising the following focus areas:

Economic responsibility	Social responsibility	Environmental responsibility
Economic benefits to stakeholders	Operational and occupational safety	Energy and resource efficiency
Long-term value and growth	Secure energy supply for customers	Reduction of environmental impacts
Sustainable supply chain	Personnel wellbeing	Climate-benign energy production and systems
Customer satisfaction	Business ethics and compliance	Solutions for sustainable cities

The Group-level sustainability targets are linked to the main sustainability focus areas and emphasise Fortum's role in society. They measure not only environmental and safety targets, but also Fortum's reputation, customer satisfaction, employee wellbeing, and the security of power and heat production. Targets are set annually and are based on continuous operational improvement.

The achievement of the sustainability targets is monitored in monthly, quarterly and annual reporting. Fortum publishes a yearly Sustainability Report with additional information on the company's sustainability performance.

## Group sustainability targets and performance 2018

	Target	2018	2017
<b>Economic responsibility</b>			
Reputation index, based on One Fortum Survey	73.0	72.5	72.3
Customer satisfaction index (CSI), based on One Fortum Survey	70–74	63–83	64–76
Net Promoter Score (NPS) in Consumer Solutions division	-6	-18	-
<b>Environmental responsibility</b>			
Specific CO <sub>2</sub> emissions from total energy production as a five-year average, g/kWh	<200	186	188
Energy-efficiency improvement by 2020, base-line 2012, GWh/a	>1,900	1,637	1,502
Major EHS incidents, no.	≤20	18	20
<b>Social responsibility</b>			
Energy availability of CHP plants, %	>95.0	96.4	96.1
Lost workday injury frequency (LWIF), own personnel and contractors	≤2.1	1.8	2.4
Severe occupational accidents, no.	0	4	1
Quality of investigation process of occupational accidents, major EHS incidents and near misses	Level 3.0	Level 3.0	Level 2.0 *
GAP index, implementation of EHS minimum requirements	Level 3.0	Level 2.0	-
Sickness-related absences, %	≤2.2	2.8	2.2 **

\* Scaling revised

\*\* Excluding DUON and Hafslund

Fortum is listed on the Nasdaq Helsinki exchange and is included in the STOXX Global ESG Leaders, OMX Sustainability Finland, ECPI®, Euronext Vigeo Eurozone 120, Euronext Vigeo Europe 120, MSCI ESG Ratings, and Equileap Gender Equality indices. Fortum is also ranked in category B in the annual CDP Climate Change rating 2018, and it has received a Prime Status (B-) rating by ISS-oekom Corporate Rating.

Fortum's sustainability reporting covers all functions under Fortum's operational control, including subsidiaries in all countries of operation. The figures for power and heat generation, capacities and investments include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners at cost.

In the Financial Statements, Uniper is treated as an associated company and Stockholm Exergi as a joint venture, and both companies are consolidated with the equity method. Stockholm Exergi and Uniper are not included in Fortum's sustainability targets and indicators nor in the descriptions of management practices. Stockholm Exergi's and Uniper's sustainability information are available in the companies' sustainability reports that can be found on the companies' own web pages. The Meri-Pori power plant is included fully in Fortum's sustainability figures, as Fortum holds the environmental permit.

## Sustainability risks

Fortum's operations are exposed to risks, which if materialised can have adverse effects on the environment and on the safety and security of employees, contractors and neighbouring societies. Key sustainability risks are presented in the Risk management section in the Operating and financial review. Climate change and the need for decarbonisation and resource efficiency are changing the energy industry in a profound way, and these changes also create new business opportunities for Fortum.

## Sustainability governance and policies

Sustainability management at Fortum is strategy-driven and is based on the company's Values, the Code of Conduct, the Supplier Code of Conduct, the Sustainability Policy and other Group policies and their specifying instructions. As sustainability is an integral part of Fortum's strategy, the highest decision making for these issues falls within the duties of the Board of Directors, who share joint responsibility on sustainability matters.

Fortum Executive Management decides on the sustainability approach and Group-level sustainability targets that guide annual planning. The targets are ultimately approved by Fortum's Board of Directors. Fortum's line management is responsible for the implementation of the Group's policies and instructions and for day-to-day sustainability management. Realisation of the safety targets is a part of Fortum's short-term incentive system.

Fortum is a participant of the UN Global Compact initiative and the UN Caring for Climate initiative. Fortum respects and supports the International Bill of Human Rights, the United Nations Convention on the Rights of the Child, and the core conventions of the International Labour Organisation (ILO). Additionally, Fortum recognises in its operations the UN Guiding Principles on Business and Human Rights, the statutes of the OECD Guidelines for Multinational Enterprises, the International Chamber of Commerce's anti-bribery and anti-corruption guidelines, and the Bettercoal initiative's Code on responsible coal mining.

### Business ethics

The Fortum Code of Conduct and Fortum Supplier Code of Conduct define how we treat others, engage in business, safeguard corporate assets, and how Fortum expects suppliers and business partners to operate. Fortum's Board of Directors is responsible for the company's mission and values and has approved the Fortum Code of Conduct. Fortum has zero tolerance for corruption and fraud and does not award donations to political parties or political activities, religious organisations, authorities, municipalities or local administrations.

In addition to internal reporting channels, Fortum employees and partners can report suspicions of misconduct confidentially to Fortum's Head of Internal Audit via the "raise-a-concern channel" on Fortum's internal and external web pages.

Suspected misconduct and measures related to ethical business practices and compliance with regulations are regularly reported to the Audit and Risk Committee.

No cases of suspected corruption or bribery related to Fortum's operations were reported in 2018.

### Fortum's main internal policies and instructions guiding sustainability

	Economic responsibility	Environmental responsibility	Social responsibility		
			Social and employee matters	Human rights	Anti-corruption and bribery
Values	x	x	x	x	x
Code of Conduct	x	x	x	x	x
Supplier Code of Conduct	x	x	x	x	x
Disclosure Policy	x		x		
Group Risk Policy	x	x	x	x	x
Sustainability Policy (including environmental, and health and safety policies)	x	x	x	x	x
Minimum Requirements for EHS Management		x	x	x	
Biodiversity Manual		x			
Group Manual for Sustainability Assessment		x	x	x	x
Human Resources Policy			x	x	
Leadership Principles			x	x	
Accounting Manual	x	x	x		
Investment Manual	x	x	x		x
Group Instructions for Anti-Bribery	x		x		x
Group Instructions for Safeguarding Assets	x		x		x
Group Instructions for Conflicts of Interest	x		x		x
Anti-Money-Laundering Manual	x		x		x
Compliance Guidelines for Competition Law	x		x		x
Security Guidelines		x	x	x	
Policy for Sponsoring and Donations	x		x	x	x
Group Instructions for Compliance Management	x	x	x	x	x

## Economic responsibility

Fortum's goal is to achieve excellent financial performance in strategically selected core areas through strong competence and responsible ways of operating. Fortum measures financial performance with return on capital employed (long-term target: at least 10%) and capital structure (long-term target: comparable net debt/EBITDA around 2.5x).

Fortum is a significant economic actor in its operating countries. The most significant direct monetary flows of Fortum's operations come from revenue from customers, procurements of goods and services from suppliers, compensation to lenders, dividends to shareholders, growth and maintenance investments, employee wages and salaries, and taxes paid. In 2018, investments in CO<sub>2</sub>-free production were EUR 278 (375) million. Investments were a total of EUR 180 (291) million in hydro, wind and solar power and bioenergy.

Fortum supports social development and wellbeing in its operating countries by e.g. paying taxes. The tax benefits Fortum produces to society include not only corporate income taxes, but also several other taxes. In 2018, Fortum's taxes borne were EUR 299 (445) million. Fortum publishes its tax footprint annually.

Targets for reputation and customer satisfaction are monitored annually. In the One Fortum Survey in 2018, company reputation among key stakeholder groups was 72.5 (72.3) points, which did not meet the target of 73.0 points.

The Group-level target (70–74 points, on a scale of 0–100) for customer satisfaction was achieved among all business areas with two exceptions: retail electricity sales to major customers and EV charging solutions for consumers and businesses. The Consumer Solutions division also used the Net Promoter Score (NPS) method to measure the satisfaction of electricity sales customers; the score was -18, which did not meet the target of -6.

Fortum's total purchasing volume in 2018 was EUR 3.7 (3.2) billion and Fortum had about 14,000 suppliers of goods and services. Fortum expects its business partners to act responsibly and to comply with the Fortum Code of Conduct and the Fortum Supplier Code of Conduct. Fortum assesses the performance of its business partners with supplier

qualification and supplier audits. In 2018, Fortum conducted a total of 13 (11) supplier audits in Finland, Lithuania, Poland, Netherlands, Russia, Vietnam, and India. Most of the non-compliances identified in the audits in 2018 were related to occupational safety, working hours and remuneration. In addition, two of Fortum's Russian coal suppliers were audited against the Bettercoal Code by a third party.

## Environmental responsibility

Fortum's Group-level environmental targets are related to CO<sub>2</sub> emissions, energy efficiency, and major environmental, health and safety (EHS) incidents.

The Group Sustainability Policy together with the Minimum Requirements for EHS Management steer Fortum's environmental management. Investments, acquisitions and divestments are assessed based on the sustainability assessment criteria defined in the Group's Investment Manual. Operational-level activities follow the requirements set forth in the ISO 14001 environmental management standard, and 99.9% (99.8%) of Fortum's power and heat production worldwide has ISO 14001 certification.

## Circular economy

Fortum's aim is to promote resource efficiency improvements and the transition towards a more extensive circular economy. Resource efficiency and maximising the added value of waste and biomass are key priorities in the environmental approach, as defined in the Group Sustainability Policy.

In 2018, Fortum received a total of 1.6 million tonnes of non-hazardous waste and about 600,000 tonnes of hazardous waste from customers. As much of the waste stream as possible is recycled, recovered or reused. Waste that is unsuitable for recycling or reuse as a material is incinerated in Fortum's waste-to-energy plants in the Nordic countries and Lithuania.

## Sustainable energy production

Fortum's energy production is primarily based on carbon dioxide-free hydropower and nuclear power and on energy-efficient combined heat

and power (CHP). In line with the strategy, Fortum is targeting a multi-gigawatt solar and wind portfolio.

In 2018, Fortum's power generation was 74.6 (73.2) TWh and heat production 29.8 (28.6) TWh. 57% (61%) of the total power generation was CO<sub>2</sub>-free. In the EU area, 96% (96%) of the power generation was CO<sub>2</sub>-free.

The main fuels that Fortum uses to produce electricity and heat are natural gas, nuclear fuel, coal, waste-derived fuels and biomass fuels. The most significant fuel was natural gas, which accounted for 63% (62%) of the total fuel consumption. The next highest fuel use was uranium 21% (21%). Coal accounted for 8% (10%) of the total fuel use, and waste-derived fuels and biomass fuels 4% (3%) and 3% (3%), respectively. Russia accounted for 98% of the use of natural gas and 56% of the use of coal.

## Climate change mitigation

Fortum expects the concern about climate change to increase the demand for low-carbon production and energy-efficient solutions and products. Fortum aims to mitigate climate change by investing in CO<sub>2</sub>-free energy production and by improving energy and resource efficiency. Fortum is also adapting its operations to climate change in production planning and in the assessment of growth projects and investments.

In 2018, Fortum's direct CO<sub>2</sub> emissions were 20.1 (18.4) Mt. 84% of CO<sub>2</sub> emissions originated from Russian power plants. Direct CO<sub>2</sub> emissions increased due to the increase in power production in Russia. Of the total CO<sub>2</sub> emissions, 2.5 (2.4) Mt were within the EU's emissions trading scheme (ETS). The estimate for Fortum's free emission allowances is 0.8 (1.0) Mt.

## Fortum's direct CO<sub>2</sub> emissions

Fortum's total CO <sub>2</sub> emissions (million tonnes, Mt)	2018	2017	2016
Total emissions	20.1	18.4 *	18.6
Emissions subject to ETS	2.5	2.4 *	2.7
Free emissions allowances	0.8	1.0	1.0
Emissions in Russia	16.9	15.4	15.5

\* The figure has been revised from the one presented in the Financial Statements bulletin 2017, Financials 2017 and Sustainability 2017.

In 2018, Fortum's specific carbon dioxide emissions from total energy production were 192 (184) g/kWh. The specific CO<sub>2</sub> emissions from total energy production as a five-year average were 186 (188) g/kWh, which is better than Fortum's Group target of 200 g/kWh.

Fortum has a Group-level target to achieve annual energy-efficiency improvements of more than 1,900 GWh by 2020 compared to 2012. Fortum achieved 1,637 GWh/a by the end of 2018.

## Decreasing environmental impact

### Emissions into air

Fortum's activities cause various emissions to air. In addition to carbon dioxide (CO<sub>2</sub>) emissions, these include flue-gas emissions, such as sulphur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>) and particle emissions. All power plants operate in compliance with their air emission limits.

### Fortum's flue-gas emissions into air

Fortum's flue-gas emissions into air (1,000 tonnes)	2018	2017	2016
Sulphur dioxide emissions	16.8	18.8	22.5
Nitrogen oxide emissions	26.1	26.4 *	24.9 *
Particle emissions	9.6	15.8	16.8

\* Figure revised

### Water withdrawal

Fortum uses large volumes of water at various types of power plants and in district heat networks. In most cases, power plants do not consume water – the water is discharged back to the same water system from where it was withdrawn. Fortum withdrew a total of 2,100 (2,100) million m<sup>3</sup> of water in power and heat production; 94% of this amount was used as cooling water.

### Radioactive waste

In 2018, 20.3 (23.4) tonnes of spent nuclear fuel was removed from Loviisa power plant's reactors in Finland. High-level radioactive spent fuel is stored in an interim storage at the Loviisa power plant site. The

final disposal of the high-level radioactive waste is scheduled to begin at Olkiluoto in Eurajoki in the 2020s.

### Biodiversity

Fortum's main impacts on biodiversity are related to hydropower production. Fuel procurement and flue-gas emissions may also have a negative impact on biodiversity. On the other hand, increasing CO<sub>2</sub>-free production mitigates the biodiversity loss caused by climate change. Fortum's Biodiversity Manual, revised in 2017, and the first Biodiversity Action Plan, published in 2018, define the company's approach in biodiversity management.

### Environmental incidents

Fortum's target regarding major EHS incidents is to have no more than 20 major EHS incidents annually. Major EHS incidents are monitored, reported and investigated, and corrective actions are implemented. In 2018, there were 18 (20) major EHS incidents in Fortum's operations. The major EHS incidents included 11 fires, two environmental non-compliances, four leaks, and one dam safety incident. The growth in circular economy services increases the risk of EHS incidents and especially the risk of fires. The major EHS incidents did not have significant environmental impacts.

## Social responsibility

Fortum's social responsibility targets are related to the secure supply of electricity and heat for customers, operational and occupational safety, as well as employee wellbeing.

### Employees

The Group Human Resources Policy is based on the company's Values, Leadership Principles and Code of Conduct. The HR Policy guides the daily work in the company, and the implementation of the policy is followed up regularly through the employee engagement survey, the annual performance and development discussions, as well as other feedback practices.

Fortum's operations are mainly based in the Nordic countries, Russia, Poland and the Baltic Rim area. The total number of employees at the end of 2018 was 8,286 (8,785).

### Group employee statistics

	2018	2017	2016
Number of employees, 31 December	8,286	8,785	8,108
Average number of employees	8,767	8,507	7,994
Total amount of employee benefits, EUR million	459	423	334
Departure turnover, %	16.1	10.5	13.0
Permanent employees, %	95.9	95.2	96.1
Full-time employees, % (of permanent employees)	98.2	98.1	98.5
Female employees, %	32	32	29
Females in management, %	30	29	25

### Occupational safety

For Fortum, excellence in safety is the foundation of the company's business and an absolute prerequisite for efficient and interruption-free production. Fortum strives to be a safe workplace for the employees, contractors and service providers who work for the company. The Group Sustainability Policy, the Minimum Requirements for EHS Management and more detailed Group-level EHS manuals steer the work. A certified OHSAS 18001 or ISO 45001 safety management system covers 97.0% (98.4%) of Fortum's power and heat production worldwide.

In 2018, the combined lost-workday injury frequency (LWIF) for own personnel and contractors was 1.8 (2.4), which was better than the set target level (≤2.1). Unfortunately, 4 (1) severe occupational accidents took place in the company's operations in 2018; one in Sweden, one in Lithuania and two in Russia. The severe accident in Sweden and in Lithuania resulted in the fatality of a contractor employee. The Group target in 2018 was zero severe occupational accidents.

Fortum continues its efforts to improve contractor safety. In 2018, the company implemented tools to assess contractor safety performance as part of the supplier qualification process and also evaluated their safety practices in a more systematic manner during work. For 2019, Fortum has defined a new Group target: Contractor safety improvement index, focusing on identified actions that are based on the Group's

requirements for contractor management to enhance safety (target level 2.0).

In 2018, the quality of investigation process of occupational accidents, major EHS incidents, and serious near misses was at the level of 3.0, achieving the set target level (3.0). The GAP index, describing the implementation of the Group's EHS minimum requirements at the power plant level, was at the level 2.0, which did not meet the set target level (3.0). The most significant deviations were detected in companies that Fortum has acquired in recent years and in the sites operated by contractors.

Fortum introduced a safety training programme, provided by an external safety service provider, for both the management level and key individuals leading safety and procurement work as well as the most challenging business areas. Special attention was paid to the prevention of unsafe behaviour, problem solving, the provision of positive feedback, and the establishment of a safety leadership team.

#### Open leadership, personnel development and wellbeing

In 2018, more than 800 supervisors participated in the Strategy & Open Leadership events that focused on strategy communications and more in-depth open leadership. Additionally, training programmes on the circular economy, the utilisation of data, communication skills, wellbeing and stress management were arranged during the year for management, supervisors and experts.

Fortum's goal of workplace wellbeing activities is to promote the health and occupational safety of employees and the functionality of the work community. In 2018, the Energise Your Day wellbeing programme was expanded to Fortum Recycling and Waste Solutions' sites in Finland, Sweden and Denmark, and is now under way in ten operating countries.

In 2018, the percentage of sickness-related absences was 2.8 (2.2), which did not meet the target level of ≤2.2.

#### Respect for human rights

Fortum's goal is to operate in accordance with the UN Guiding Principles on Business and Human Rights and to apply these principles in company's own operations as well as in country and partner risk assessments and supplier audits.

A sustainability assessment, including a human rights evaluation, is carried out for investment projects – especially in new operating areas – and also for new countries where Fortum plans to expand the sales of products and services. In 2018, seven (15) of these assessments were made.

In 2018, there were no grievances related to human rights filed through Fortum's formal grievance channels, nor were there any grievances carried over from the previous year.

#### Society

An uninterrupted and reliable energy supply is critical for society to function. With planned preventive maintenance and condition monitoring, Fortum ensures that the power plants operate reliably to produce the electricity and heat customers need. The energy availability of the company's CHP plants in 2018 was, on average, 96.4% (96.1%), outperforming the target of >95.0%.

Fortum's operations impact the local communities where the power plants are located, and the company engages in many kinds of collaboration with local stakeholders. According to Fortum's Policy for Sponsoring and Donations, the company's sponsoring focuses on the wellbeing of children and youth, renewable energy projects, R&D and innovations supporting Fortum's strategy, recycling, recovery and reuse. Fortum also engages in collaboration with universities through different research and development projects. In 2018, Fortum's support for activities promoting the common good totalled about EUR 3.8 (4.9) million. In addition, the grants awarded by Fortum Foundation, not part of Fortum Group, were about EUR 680,000 (696,000).

# Risk management

## Risk management framework and objectives

Fortum's Risk Management framework is described in the Group Risk Policy and supporting documents. The Group Risk Policy includes an overview of Fortum's risk management systems consisting of the general principles of risk management and the main features of the risk management process. The objective of the risk management systems are to;

- support the development of the Group strategy,
- support strategy execution,
- support the achievement of agreed targets within acceptable risk levels so that the Group's ability to meet financial commitments is not compromised,
- ensure the understanding of material risks and uncertainties affecting Fortum, and
- support the prevention of accidents that can have a severe effect on the health and safety of employees or third parties, and from incidents that can have a material impact on Fortum's assets, reputation or the environment.

## Risk management organisation

The main principle is that risks are managed at source meaning that each Division and Corporate Function Head is responsible for managing risks that arise within their business operations. However, in order to take advantage of synergies, certain risks are managed centrally. For example, Group Treasury is responsible for managing currency, interest rate, liquidity and refinancing risks and cyber and information security risks are managed by Corporate Security.

The Audit and Risk Committee (ARC) is responsible for monitoring the efficiency of the company's risk management systems and for annually reviewing the Group Risk Policy and the material risks and uncertainties. Corporate Risk Management, a function headed by the Chief Risk Officer (CRO) reporting to the CFO, provides instructions and tools which support the Group in running an efficient risk management

## Corporate Risk Policy Structure

### Approving body

Board of Directors

President and CEO

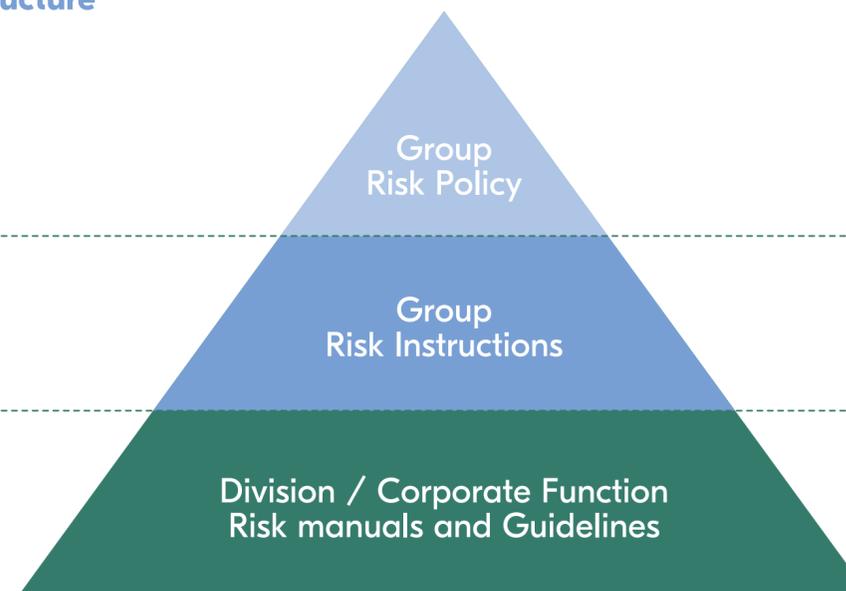
Division / Corporate Function Head

### Reviewing Body

Audit and Risk Committee

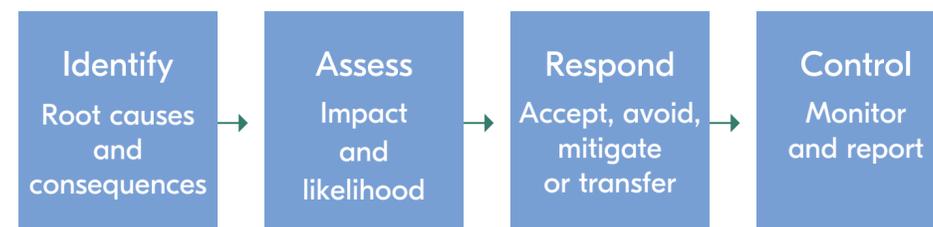
CFO

CRO



process. Corporate Risk Management is responsible for assessing and reporting maturity of risk management in Divisions and Corporate Functions and for providing independent monitoring and reporting of material risk exposures to Group Management, the ARC and the Board of Directors. Risk control functions and controllers in the business monitor and report risks to the CRO.

## Risk management process



Fortum's risk management process is designed to support the achievement of agreed targets by ensuring that risk management activities are consistent with the general principles of risk management and that risks are monitored and followed-up in a prudent manner. The main features of risk management process consist of event identification, risk assessment, risk response and risk control. Identification is regularly carried out according to a structured process and risks are assessed in terms of impact and likelihood according to a Group-common methodology. Impact is assessed not only in monetary terms, but also in terms of health and safety, environment and reputation. All risks have risk owners who are responsible for implementing actions to respond to the risk. Risk responses can be to accept, avoid, mitigate or transfer the risk. Risk control processes, which include monitoring and reporting of risks, are designed to support compliance with approved instructions, manuals and guidelines and to ensure that risk exposures remain within approved limits and mandates.

Fortum's Board of Directors approves the Group Risk Policy and the CEO approves Group Risk Instructions covering commodity market risks, counterparty credit risks, and operational risks. Fortum also has other Group policies and instructions covering e.g. compliance, privacy, sustainability, treasury and cyber and information security risks which are aligned with the Group Risk Policy. There are risk mandates or limits defined for commodity market risks, counterparty credit risks and financial risks. Divisions and Corporate Functions issues risk manuals and guidelines as needed which detail how the Group Risk Instructions are implemented.

## Risk factors

### Strategic risks

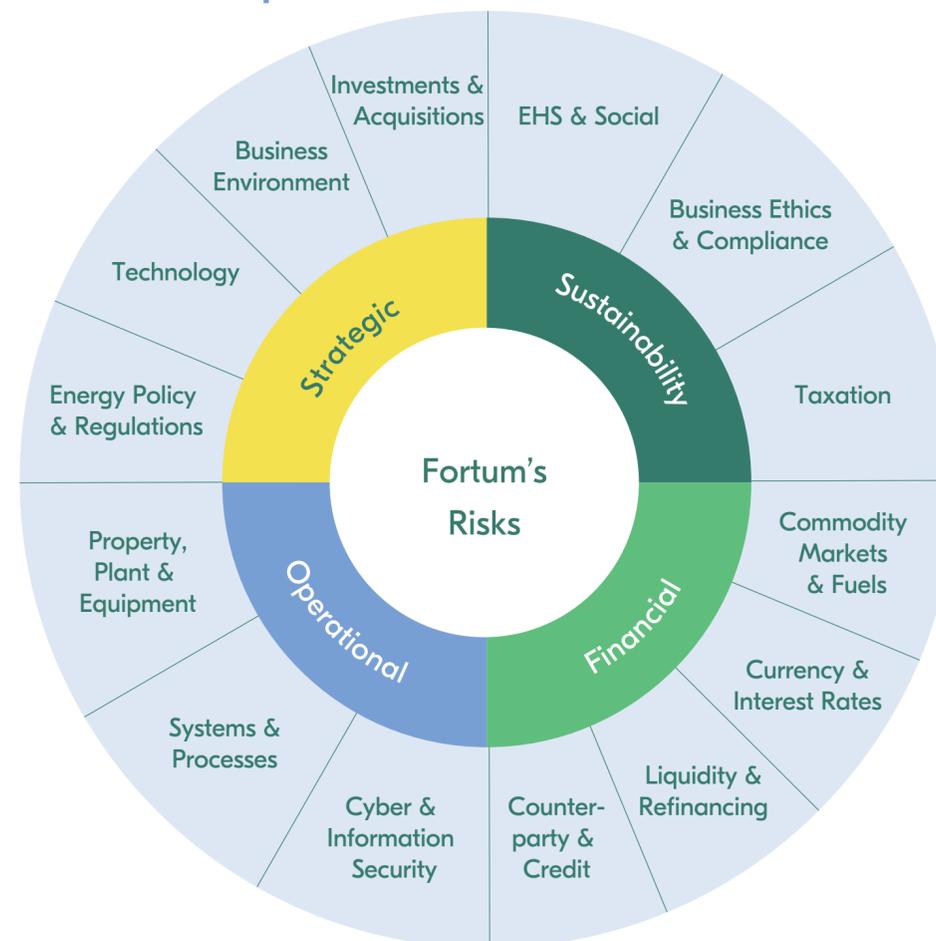
The main strategic risks are that energy policy, regulation, technology or the business environment develop in ways that we have not been able to foresee and prepare for. Future energy market and regulation scenarios, including the impact of these to Fortum's business, are continuously assessed and analysed. It is part of Fortum's strategy to, in the long-term, broaden the base of revenues and diversify into new businesses, technologies and markets.

Risks which could hinder Fortum in executing its strategy are continuously assessed, monitored and reported as part of the strategy work. These risks include an inability to identify and carry out successful investments and acquisitions with the related project and integration risks.

### Business Environment

Fortum operates in a global business environment and is therefore exposed to political and other risks which affect the macroeconomic development and consumer behaviour in the markets where we operate. As we increase operations to new geographical regions, this risk may also increase. The current trend of increasingly nationalistic policies and protectionism may lead to increased trade restrictions which in turn could affect demand for our products and services. Fortum monitors the development in order to react quickly to market shifts and changes in consumer behaviour.

Fortum Risk Map



### Investment and acquisition risks

Fortum's strategy includes growth of operations in new businesses, technologies and geographies. This includes an increasing number of associated companies and joint ventures where we do not exercise control, including the Uniper investment and a joint-venture with Rusnano for wind development in Russia. These recent investments as well as any future investment or acquisition, including possible future partnerships, entail risk such as:

- increased overall operating complexity and requirements for management, personnel and other resources,
- the need to understand the value drivers and their uncertainties in investments or potential acquisition targets,
- the need to manage complex integrations of companies with different culture and infrastructure,
- the need to understand and manage new markets with different cultural, ethical and legal frameworks,
- the need to understand and manage risks related to sustainability and safety issues related to new businesses, markets and technologies.

These risks are managed as part of the investment process which includes requirements for risk identification and assessment and action plans before investment decisions are made, and also sets requirements to follow-up risks in projects and acquisitions. Risks in large projects are mitigated through contract structures and insurance coverage. Partner risk assessments are performed before entering into joint ventures or other material partnership agreements, and there is also a country entry process which includes a country risk assessment before decisions to enter into a new market can be made.

### Energy policy and regulation risks

The energy business is heavily influenced by national and EU-level energy policies and regulations, and Fortum's strategy has been developed based on scenarios of the future development of the regulatory environment in both existing and potential new businesses and market areas. The overall complexity and possible regulatory

changes in Fortum's various operating countries pose a risk if we are not able to anticipate, identify and manage those changes efficiently.

Fortum maintains an active dialogue with the bodies involved in the development of laws and regulations in order to manage these risks and proactively contribute to the development of the energy policy and regulatory framework.

### Nordic/EU

Fortum's strategy in the power and heat sectors is based on a market-driven development, which would mean more interconnections and competition supported by increasing policy harmonization. Even if the Nordic power market has a long tradition of harmonization, national policies vary considerably when it comes to e.g. taxation, permitting, subsidies and market model meaning that we have to manage risks related to both EU regulation and national regulation. Potential risks related to the future energy and climate policy framework include;

- Increasing policy costs and uncoordinated national mechanisms delaying the development towards an integrated, flexible and dynamic power market,
- Overlapping national carbon policies diluting the EU ETS and carbon price despite the ETS reform,
- Increasing cost burden for hydro power in Finland, driven by fish obligations, grid costs and real estate taxation and unbalanced implementation of the EU Water Framework directive in Sweden leading to lower production volumes,
- Stricter sustainability requirements for forest biomass leading to reduced availability and increasing costs,
- Implementation of national waste incineration taxes or restrictive measures affecting the operational environment or the competitiveness of the waste-to-energy business as part of overall recycling promotion,
- Substantial retroactive changes and/or discontinuation of prevailing CHP support schemes in Baltic countries and Poland or deteriorating competitiveness of CHP due to fuel tax increases,
- Undue heavy-touch price-regulation of district heating in order to enhance the affordability and other social aspects of protecting the

end-customers which could be driven by an increase of national or local political steering in this sector,

- Introduction of a national plastic tax aiming to reduce the use of plastics,
- Emergence of windfall tax discussions following possible increasing electricity and carbon price development.

The inter-linkage of these issues create uncertainty as changes in policies in one area could undermine the effects of policy changes in other areas.

### Russia

Our business in Russia is exposed to political, economic and social uncertainties and risks resulting from changes in regulation, legislation, economic and social upheaval and other similar factors. The current economic sanctions may be enlarged and/or extended having direct and indirect impacts on the business environment. The main energy policy-related risks in Russia are linked to the development of the whole energy sector, part of which, like the wholesale power market, is liberalised while other parts, like gas, heat, and retail electricity, are not. Regulated sectors are inherently exposed to a risk of regulatory changes which could affect Fortum's operations.

### Technology risks

Fortum's strategy includes developing or acquiring new technologies, as well as digitalizing the business. Fortum's R&D and innovation activities focus on the development of the energy system towards a future solar economy. Fortum is, for example, developing circular economy, bio-economy and other renewable energy concepts as well as innovative solutions for its customers. New technologies expose Fortum to risks related to intellectual property rights, data privacy and viability of technologies. Technology risks are managed primarily through developing a diversified portfolio of projects consisting of different technologies.

### Sustainability risks

Corporate social responsibility and sustainable development are integral parts of Fortum's strategy. Fortum gives balanced consideration to economic, environmental and social responsibility. Changes to laws, regulations and the business environment can pose a risk if not identified and managed effectively and the same applies to changes in views of our main stakeholders. In order to identify and manage these risks, Fortum endorses a number of international voluntary charters, standards and guidelines in the area of sustainability, conducts stakeholder surveys annually and has defined internal policies and instructions on how to conduct business. Divisions and Corporate Functions identify and assess sustainability risks related to their operations and define mitigation measures annually. Corporate Sustainability executes oversight as part of the Group's risk management process.

### Environmental, health and safety and social risks

Operating power and heat generation plants, circular economy services and waste management involves use, storage and transportation of fuels and materials, including hazardous waste, that can have adverse effects on the environment and expose personnel, contractors and third parties to safety risks. Assessment of environmental risks and preparedness to operate in exceptional and emergency situations follows legislative requirements as well as the requirements in the environmental management standard (ISO 14001). The same approach, based on the requirements in the operational health and safety standard (OHSAS 18001 or ISO 45001), applies to risks related to occupational health and safety and actions in emergency situations.

Environmental, health and safety (EHS) risks as well as social risks related to Fortum's supply chain are evaluated through supplier qualification, internal and external audits and risk assessments including partner and country risk assessment. Corrective and preventive actions are implemented when necessary. EHS and social risks related to investments are evaluated in accordance with Fortum's Investment manual. Environmental risks and liabilities in relation to past actions

have been assessed and provisions have been made for future remedial costs.

Fortum's operations are exposed to physical risks caused by climate change, including changes in weather patterns that could alter energy demand and, for instance, hydropower production volumes. Changes in precipitation and temperatures may affect hydropower production, dam safety, and also bioenergy supply and availability. Fortum adapts its operations to the changing climate and takes it into consideration, for example, in production and maintenance planning and in evaluating growth and investment projects.

### Tax risk

Fortum operates in a number of countries and is therefore exposed to changes in taxation and how tax authorities interpret tax laws. Political pressure has resulted in numerous new laws and rules which have created a tax environment that is leading to new or increased taxes and new interpretations of existing tax laws. Clarity and predictability around how our operations are taxed have decreased due to the changing regulation. In addition, new regulation creates material volume of new complex compliance work.

Fortum aims to identify simple and cost-efficient solutions to manage taxes in a sustainable manner. Fortum's tax principle is that tax is a consequence of business and that compliance with tax rules and legislation and transparency result in a correct tax contribution. This principle leaves no room for artificial or other aggressive solutions. Fortum is continuously following the development of tax related issues and their impact on the Group and maintains an active dialogue with tax authorities in unclear cases. Tax-related issues are communicated openly both internally and externally and Fortum's tax footprint is published annually.

### Business ethics and compliance risks

Fortum's operations are subject to laws, rules and regulations set forth by the relevant authorities, exchanges, and other regulatory bodies in all markets in which Fortum operates. Fortum's ability to operate in

certain countries may be affected by future changes to local laws and regulations.

Fortum's Code of Conduct enhances the understanding of the importance of business ethics for all Fortum employees, contractors and partners. Prevention of corruption is one of the Code of Conduct's focus areas. Fortum has procedures for anti-corruption including prevention, oversight, reporting and enforcement based on the requirements prescribed in international legislation. Fortum's supplier code of conduct sets sustainability requirements for suppliers of goods and services. The Supplier Code of Conduct is based on the principles of the United Nations Global Compact and is divided into four sections: business principles including anti-corruption, human rights, labour standards and environment.

Fortum systematically identifies, assesses, mitigates and reports compliance risks including risks related to business ethics. Internal controls are implemented to prevent the possibilities of unauthorised activities or non-compliance with Group policies and instructions. Fortum's rolling compliance programme includes a risk-based prioritisation of the development and mitigating actions. Training and communications plays a central role in increasing the awareness in the organisation.

### Financial risks

#### Commodity market and fuel risks

Fortum's business is exposed to fluctuations in prices and availability of commodities used in the production and sales of energy products. The main exposure is toward electricity prices and volumes, prices of emissions and prices and availability of fuels. Fortum hedges its exposure to commodity market risks in accordance with approved Hedging Guidelines and Mandates. For further information on hedge ratios, exposures, sensitivities and outstanding derivatives contracts, see ▶ **Note 4** Financial risk management.

### Electricity price and volume risks

In competitive electricity markets, such as the Nordpool spot market exchange in the Nordic region, the wholesale price of electricity is determined as the balance between supply and demand. The short-term factors affecting electricity prices and volumes on the Nordic market include hydrological conditions, temperature, wind, CO<sub>2</sub> allowance prices, fuel prices, economic development, transmission capacity and the import/export situation.

Electricity price risks are mainly hedged by entering into electricity derivatives contracts on the Nasdaq Commodities exchange. The ability to implement hedging strategies is dependent on a well-functioning and liquid derivatives market. There is a risk of decreasing liquidity on the Nasdaq Commodities exchange, and alternatives including use of OTC derivative contracts and proxy products traded on other exchanges are used to mitigate this risk. Hedging strategies are continuously evaluated as electricity and other commodity market prices, the hydrological balance and other relevant parameters change. Hedging of the Generation segment's power sales is performed in EUR on a Nordic level covering both Finland and Sweden, and the currency component of these hedges in the Swedish entity is currently not hedged. In Russia, electricity prices and capacity sales are the main sources of market risk. The electricity price is highly correlated with the gas price. Exposure is partly mitigated through regulated fixed-price bilateral agreements, but the majority of electricity sales is exposed to spot price risk. In India, the electricity price received from solar production are fixed through long-term power-purchasing agreements.

### Emission and environmental value risks

The European Union has an emissions trading scheme to reduce the amount of CO<sub>2</sub> emissions. In addition to the emissions trading scheme, there are other trading schemes in environmental values in place in Sweden, Norway and Poland. Part of Fortum's power and heat generation is subject to requirements of these schemes. There is currently no trading scheme in Russia for emissions or other environmental values.

The main factors influencing the prices of CO<sub>2</sub> allowances and other environmental values are political decisions and the supply and demand

balance. Fortum hedges its exposure to these prices and volumes through the use of CO<sub>2</sub> futures and environmental certificates.

### Fuel price and volume risks

Power and heat generation requires use of fuels that are purchased on global or local markets. The main fuels used by Fortum are natural gas, uranium, coal, various biomass-based fuels and waste. The main risk factor for fuels that are traded on global markets such as coal and natural gas, is the uncertainty in price. Prices are largely affected by demand and supply imbalances that can be caused by, for example, increased demand growth in developing countries, natural disasters or supply constraints in countries experiencing political or social unrest. For fuels traded on local markets, such as bio-fuels, the volume risk in terms of availability of the raw material of appropriate quality is more significant as there may be a limited number of suppliers. Due to the sanctions and economic development in Russia, there are also risks related to imported fuels from Russia.

In the Nordic market, exposure to fuel prices is limited due to Fortum's flexible generation capacity which allows for switching between different fuels according to prevailing market conditions. The remaining exposure to fuel price risk is mitigated through fixed-price physical delivery contracts or derivative contracts. The main fuel source for heat and power generation in Russia is natural gas. Natural gas prices are partially regulated, so the price risk exposure is limited.

### Liquidity and refinancing risks

Fortum's business is capital intensive and there is a regular need to raise financing. Fortum maintains a diversified financing structure in terms of debt maturity profile, debt instruments and geographical markets. Liquidity and refinancing risks are managed through a combination of cash positions and committed credit facility agreements with its core banks. The credit risk of cash positions has been mitigated by diversifying the deposits to high-credit quality financial institutions and issuers of corporate debt.

### Currency and interest rate risks

Fortum's debt portfolio consists of interest-bearing liabilities and derivatives on a fixed- and floating-rate basis with differing maturity profiles. Fortum manages the duration of the debt portfolio through use of different types of financing contracts and interest rate derivative contracts such as interest rate swaps.

Fortum's currency exposures are divided into transaction exposures (foreign exchange exposures relating to contracted cash flows and balance sheet items where changes in exchange rates will have an impact on earnings and cash flows) and translation exposure (foreign exchange exposure that arises when profits and balance sheets in foreign entities are consolidated at the Group level). The main principle is that material transaction exposures should be hedged while translation exposures are not hedged, or are hedged selectively. An exception is the Generation segment's hedging of power sales in Sweden where the currency component is currently not hedged. The main translation exposures toward the EUR/RUB, EUR/SEK and EUR/NOK are monitored continuously. Changes in these currency rates affect Fortum's profit level and equity when translating results and net assets to euros.

### Counterparty & credit risks

Fortum is exposed to counterparty risk whenever there is a contractual arrangement with an external counterparty including customers, suppliers, partners, banks, clearing houses and trading counterparties.

Credit risk exposures relating to financial derivative instruments are often volatile. The majority of commodity derivatives are exchange-traded and cleared through clearing houses such as Nasdaq Clearing AB or through clearing banks. The recent default of a trader active on Nasdaq Commodities has shown that there is also credit risk toward clearing houses. The trend toward more use of futures contracts instead of forward contracts is decreasing the credit exposure toward clearing houses. Derivatives contracts are also entered into directly with external counterparties and such contracts are limited to high-credit-quality counterparties active on the financial or commodity markets.

Due to the financing needs and management of liquidity, Fortum has counterparty credit exposure to a number of banks and financial

institutions. The majority of the exposure is toward Fortum's key relationship banks, which are highly creditworthy institutions, but also includes exposure to the Russian financial sector in terms of deposits with financial institutions as well as to banks that provide guarantees for suppliers and contracting parties. Deposits in Russia have been concentrated to the most creditworthy state-owned or controlled banks.

Credit risk exposures relating to customers is spread across a wide range of industrial counterparties, small businesses and private individuals over a range of geographic regions. The majority of exposure is to the Nordic market, Poland and Russia. The risk of non-payment in the electricity and heat sales business in Russia is higher than in the Nordic market. In order to manage counterparty credit risk, Fortum has routines and processes to identify, assess and control exposure. Credit checks are performed before entering into commercial obligations and exposure limits are set for larger individual counterparties. Creditworthiness is monitored through the use of internal and external sources so that mitigating actions can be taken when needed. Mitigating actions include demanding collateral, such as guarantees, managing payment terms and contract length, and the use of netting agreements.

### Operational risks

Operational risks are unexpected events which can lead to negative monetary, safety, environmental or reputational impacts as a result of inadequate or failed internal processes, systems or equipment, or from external events.

### Systems and Process Risks

System and process risks are mainly caused by design failures or human errors. Mitigation includes process automation, testing and education. Process-related risks are assessed and controls for the most relevant risks are defined and implemented as part of the internal controls framework. IT-system risk management is based on an IT Service Lifecycle Model, and related processes and practices. ITIL and CobIT are the main frameworks which have been used as reference for the model. Business continuity plans are created for most critical processes.

### Property, plant and equipment

Property, plant and equipment risks are primarily managed through monitoring and maintenance planning. In addition, all Fortum's industrial assets are covered by a Group Master Policy covering property damage and business interruption risks which mitigates the impact of internal and external events.

### Combined heat and power (CHP) and recycling and waste

Operational events at CHP and recycling and waste facilities, or in the storage and transportation of fuels, waste and materials can lead to physical damages, business interruption, and environment, health and safety and social impacts. Leakage and contamination of the surrounding environment could lead to clean-up costs and third-party liabilities. An explosion or fire at a facility could cause damages to the plant or third-parties and lead to possible business interruption. Requirements for waste are clearly specified and samples are tested for selected incoming waste deliveries. These risks are mitigated by condition monitoring, preventive maintenance and other operational improvements as well as competence development of personnel operating the plants.

### Hydro power

Operational events at hydro power generation facilities can lead to physical damages, business interruptions, and third-party liabilities. A long-term program is in place for improving the surveillance of the condition of dams and for securing the discharge capacity in extreme flood situations. In Sweden, third-party liabilities from dam failures are strictly the plant owner's responsibility. Together with other hydro power producers, Fortum has a shared dam liability insurance program in place that covers Swedish dam failure liabilities up to SEK 10,000 million.

### Nuclear power

Fortum owns the Loviisa nuclear power plant, and has minority interests in two Finnish and two Swedish nuclear power companies. At the Loviisa power plant, the assessment and improvement of nuclear safety is

a continuous process performed under the supervision of the Radiation and Nuclear Safety Authority of Finland (STUK).

Third-party liability relating to nuclear accidents is strictly the plant operator's responsibility and must be covered by insurance. As the operator of the Loviisa power plant, Fortum has a statutory liability insurance policy of 600M SDR (Special Drawing Right) and the same type of insurance policies are in place for the operators where Fortum has a minority interest.

### Wind and Solar

Fortum is involved in the construction, development and operations of several wind and solar projects in the Nordics, Russia and in India. Operational incidents during both construction and operational phases can lead to accidents, delays in commissioning and business interruption. These risks are mitigated as part of the project planning and through maintenance and continuous training of personnel operating the plants.

### Cyber and information security risks

Fortum's business operations and customer related services are dependent on well-functioning IT and information management systems and processes. Due to the nature of the business, large amounts of data are processed, often in real-time, and used for decision-making, serving customers and in internal and external communication and reporting. Securing information and availability of the systems are essential for Fortum. Cyber security risks, including risks related to information, industrial control systems (ICS), digitalization and privacy, are managed centrally by Corporate Security in collaboration with business. Group instructions and procedures set requirements for managing and mitigating cyber security risks.

General Data Protection Regulation became applicable on 25th of May 2018. The regulation contains a number of requirements related to processing personal data. Fortum established a Group-wide program to ensure the fulfilment of the requirements. The program was to a large extent implemented during 2018 and the future work continues

under the guidance of the Data Privacy Office and in accordance with the Group Instructions for Privacy.

IT functions in the business, support functions and outsourcing partners are responsible for identifying and mitigating operational IT security related risks as well as managing IT security incidents. IT functions are also responsible for IT service continuity.

## Fortum share and shareholders

Fortum Corporation's shares have been listed on Nasdaq Helsinki since 18 December 1998. The trading code is FORTUM (until 25 January 2017: FUM1V). Fortum Corporation's shares are in the Finnish book entry system maintained by Euroclear Finland Ltd which also maintains the official share register of Fortum Corporation.

### Share key figures

EUR	2018	2017	2016
Earnings per share	0.95	0.98	0.56
Cash flow per share	0.91	1.12	0.7
Equity per share	13.33	14.69	15.15
Dividend per share	1.10 <sup>1)</sup>	1.10	1.10
Payout ratio, %	115.8 <sup>1)</sup>	112.2	196.4
Dividend yield, %	5.8 <sup>1)</sup>	6.7	7.5

1) Board of Directors' proposal for the Annual General Meeting 26 March 2019.

For full set of share Key figures 2009–2018, see the section Key figures in the Financial Statements.

### Shareholders value, share price performance and volumes

Fortum's mission is to deliver excellent value to its shareholders. Fortum's share price has appreciated approximately 17% during the last five years, while Dow Jones European Utility Index has increased 3%. During the same period Nasdaq Helsinki Cap index has increased 27%. During 2018, Fortum's share price appreciated approximately 16%, while Dow Jones European Utility index decreased 3% and Nasdaq Helsinki Cap index decreased 8%.

In 2018, a total of 474.7 million (2017: 582.9) Fortum Corporation shares, totalling EUR 9,065 million, were traded on the Nasdaq Helsinki. The highest quotation of Fortum Corporation shares during 2018 was EUR 22.91, the lowest EUR 16.43, and the volume-weighted average EUR 19.09. The closing quotation on the last trading day of the year 2018 was EUR 19.10 (2017: 16.50). Fortum's market capitalisation, calculated using the closing quotation of the last trading day of the year, was EUR 16,966 million (2017: 14,658).

In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market. In 2018, approximately 68% (2017: 61%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

### Share capital

#### Share capital

EUR million	2018	
	Number of shares	Share capital
Registered shares at 1 January	888,367,045	3,046
Cancellation of treasury shares	72,580	-
Registered shares at 31 December	888,294,465	3,046

Fortum Corporation has one class of shares. By the end of 2018, a total of 888,294,465 shares (2017: 888,367,045) had been issued. Each share entitles the holder to one vote at the Annual General Meeting. All shares entitle holders to an equal dividend. At the end of 2018, Fortum Corporation's share capital, paid in its entirety and entered in the trade register, was EUR 3,046,185,953.00.

In the merger of Länsivoima Oyj (former Lounais-Suomen Sähkö Oy) to Fortum Corporation in 2000, those shareholders of Länsivoima Oyj that did not produce their share certificates and did not request their rights to be registered in the book-entry system, received their respective shares of Fortum Corporation as merger consideration to a joint book-entry account opened on their behalf (the "Joint Account"). The Annual General Meeting 2018 of Fortum Corporation decided, that the rights to all such shares entered in the Joint Account and to the rights attached to such shares that had not been requested to be registered in the book-entry system prior to the decision by the Annual General Meeting 2018, were forfeited. In addition to the shares, the rights attached to such shares, such as undrawn dividend, were forfeited. The provisions applicable to treasury shares held by the company were applied to the forfeited shares. On 17 December 2018, Board of Directors decided to cancel all these 72,580 Fortum shares owned by the company without decreasing the share capital. The cancellation was entered in the Trade Register on 21 December 2018.

### Shareholders

At the end of 2018, the Finnish State owned 50.76% of the company's shares. The Finnish Parliament has authorised the Government to reduce the Finnish State's holding in Fortum Corporation to no less than 50.1% of the share capital and voting rights.

The proportion of nominee registrations and direct foreign shareholders was 30.8 % (2017: 30.6%).

## Shareholders, 31 December 2018

Shareholders	No. of shares	Holding %
Finnish State	450,932,988	50.76
Ilmarinen Mutual Pension Insurance Company	8,955,600	1.01
Varma Mutual Pension Insurance Company	8,575,167	0.97
The Finnish Social Insurance Institution	7,030,896	0.79
Kurikan Kaupunki	6,203,500	0.70
The State Pension Fund	4,600,000	0.52
Elo Mutual Pension Insurance Company	4,420,000	0.50
OP-Finland	2,710,654	0.31
The Local Government Pensions Institution	2,568,955	0.29
Schweizerische Nationalbank	2,010,237	0.23
Danske Finnish Institutional Equity Fund	1,080,000	0.12
OP-Henkivakuutus Ltd.	962,467	0.11
Kauhajoen Kaupunki	902,640	0.10
Seligson & Co OMX 25 fund	837,941	0.09
Nominee registrations and direct foreign ownership <sup>1)</sup>	271,655,835	30.58
Other shareholders in total	114,847,585	12.93
<b>Total number of shares</b>	<b>888,294,465</b>	<b>100.00</b>

1) Excluding Schweizerische Nationalbank

By shareholder category	% of total amount of shares
Finnish shareholders	
Corporations	1.14
Financial and insurance institutions	1.67
General government	55.78
Non-profit organisations	1.14
Households	9.46
Non-Finnish shareholders	30.81
<b>Total</b>	<b>100.00</b>

## Breakdown of share ownership, 31 December 2018

Number of shares owned	No. of shareholders	% of shareholders	No. of shares	% of total amount of shares
1–100	37,557	30.54	1,980,752	0.22
101–500	47,199	38.38	12,546,537	1.41
501–1,000	18,498	15.04	13,621,769	1.53
1,001–10,000	18,684	15.19	48,637,140	5.48
10,001–100,000	949	0.77	20,834,163	2.35
100,001–1,000,000	70	0.06	22,060,974	2.48
1,000,001–10,000,000	10	0.01	48,155,009	5.42
over 10,000,000	1	0.00	450,932,988	50.76
	<b>122,968</b>	<b>100.00</b>	<b>618,769,332</b>	<b>69.66</b>
In the joint book-entry account and in special accounts on 31 December			596	0.00
Nominee registrations			269,524,537	30.34
<b>Total</b>			<b>888,294,465</b>	<b>100.00</b>

## Management shareholding 31 December 2018

At the end of 2018, the President and CEO and other members of the Fortum Executive Management owned 193,227 shares (2017: 200,667) representing approximately 0.02% (2017: 0.02%) of the total shares in the company.

A full description of the shareholdings and interests in long-term incentive schemes of the President and CEO and other members of the Fortum Executive Management is shown in ▶ **Note 11** Employee benefits.

## Authorisations from the Annual General Meeting 2018

In 2018, the Annual General Meeting decided to authorise the Board of Directors to decide on the repurchase and disposal of the company's own shares up to a maximum number of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. The authorisation is effective for a period of 18 months from the resolution of the General Meeting. The authorisation had not been used by the end of 2018.

## Dividend policy

The dividend policy ensures that shareholders receive a fair remuneration for their entrusted capital, supported by the company's long-term strategy that aims at increasing earnings per share and thereby the dividend. When proposing the dividend, the Board of Directors looks at a range of factors, including the macro environment, balance sheet strength as well as future investment plans. Fortum Corporation's target is to pay a stable, sustainable and over time increasing dividend, in the range of 50–80% of earnings per share, excluding one-off items.

## Dividend distribution proposal

The distributable funds of Fortum Corporation as at 31 December 2018 amounted to EUR 4,991,388,741.37 including the profit of the financial period 2018 of EUR 797,840,404.43. The company's liquidity is good and the dividend proposed by the Board of Directors will not compromise the company's liquidity.

The Board of Directors proposes to the Annual General Meeting that a dividend of EUR 1.10 per share be paid for 2018.

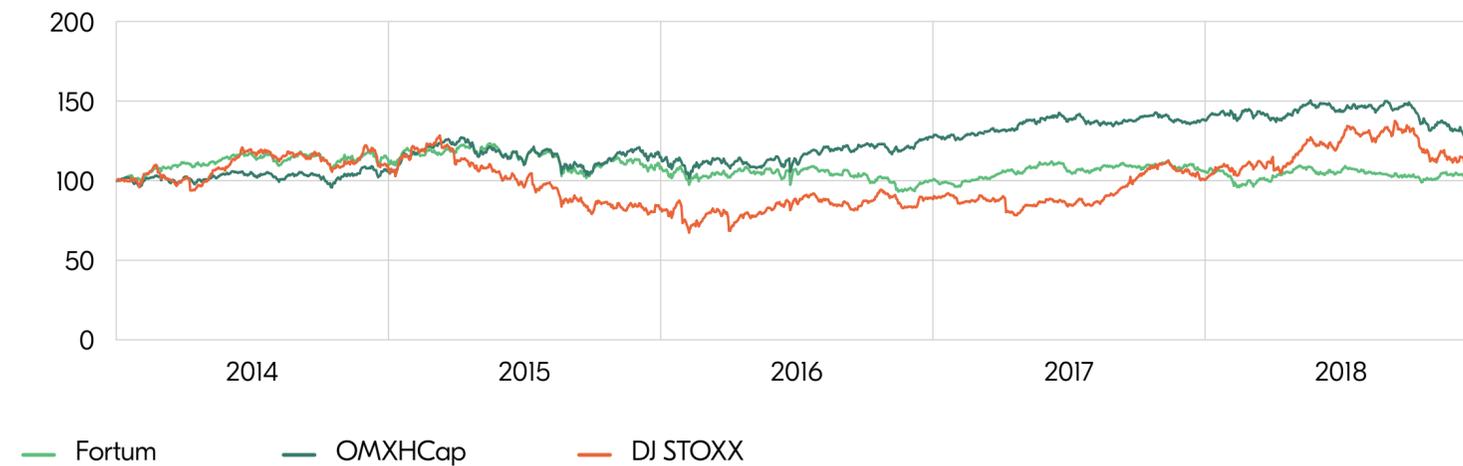
Based on the number of registered shares as at 31 January 2019 the total amount of dividend would be EUR 977,123,911.50. The Board of Directors proposes, that the remaining part of the distributable funds be retained in the shareholders' equity.

The Annual General Meeting will be held on 26 March 2019 at 11:00 EET at Finlandia Hall in Helsinki.

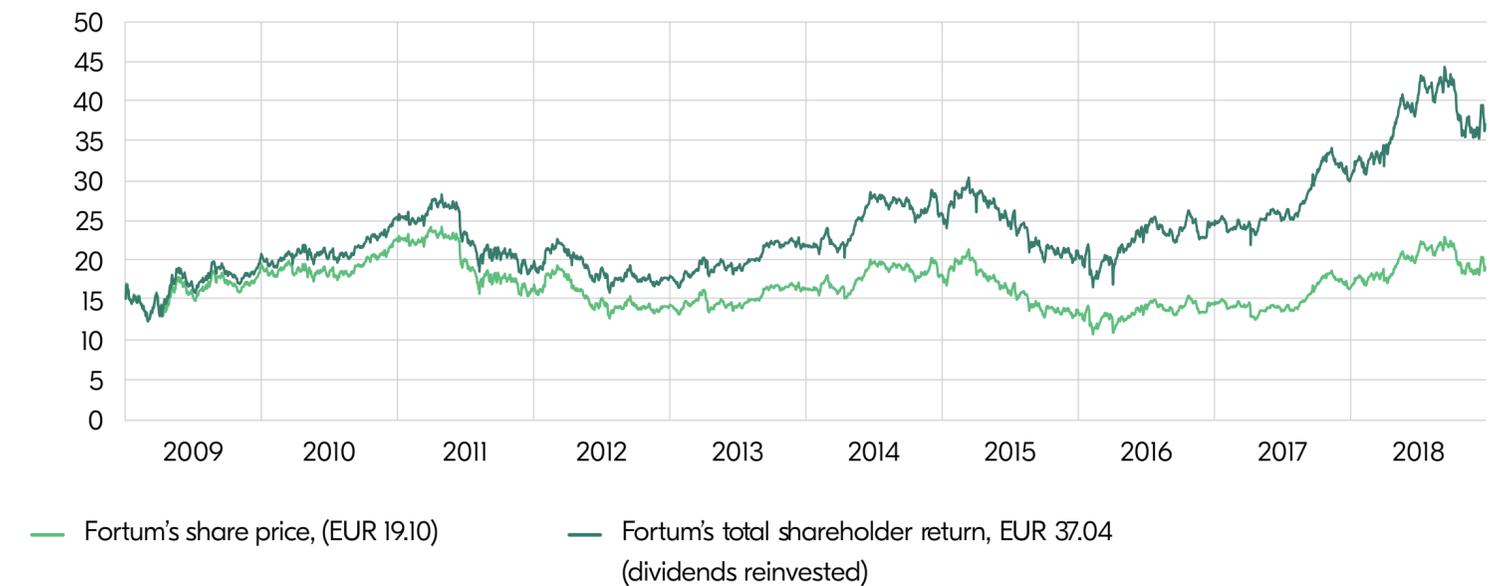
## Market capitalisation, EUR billion



## Share quotations, index 100 = quote on 2 January 2014



## Total shareholder return, EUR



## Consolidated income statement

EUR million	Note	2018	2017
Sales	6	5,242	4,520
Other income	9	130	55
Materials and services	10	-2,795	-2,301
Employee benefits	11	-459	-423
Depreciation and amortisation	6, 17, 18	-536	-464
Other expenses	9	-594	-576
<b>Comparable operating profit</b>	6	<b>987</b>	<b>811</b>
Items affecting comparability	7	151	347
<b>Operating profit</b>	6	<b>1,138</b>	<b>1,158</b>
Share of profit of associates and joint ventures	6, 19	38	148
Interest expense		-148	-164
Interest income		34	32
Fair value gains and losses on financial instruments	8	-8	-12
Other financial expenses - net		-15	-50
Finance costs - net	12	-136	-195
<b>Profit before income tax</b>		<b>1,040</b>	<b>1,111</b>
Income tax expense	13	-181	-229
<b>Profit for the period</b>		<b>858</b>	<b>882</b>
<b>Attributable to:</b>			
Owners of the parent		843	866
Non-controlling interests		15	16
		<b>858</b>	<b>882</b>
<b>Earnings per share for profit attributable to the equity owners of the company (EUR per share)</b>	14		
Basic		0.95	0.98

EUR million	Note	2018	2017
<b>Comparable operating profit</b>		<b>987</b>	<b>811</b>
Impairment charges		-4	6
Capital gains and other		102	326
Changes in fair values of derivatives hedging future cash flow	8	98	14
Nuclear fund adjustment	6	-45	1
<b>Items affecting comparability</b>	6, 7	<b>151</b>	<b>347</b>
<b>Operating profit</b>		<b>1,138</b>	<b>1,158</b>

See [▶ Definitions for key figures](#)

As Fortum currently has no dilutive instruments outstanding, diluted earnings per share is the same as basic earnings per share.

## Consolidated statement of comprehensive income

EUR million	Notes	2018	2017
<b>Profit for the period</b>		<b>858</b>	<b>882</b>
<b>Other comprehensive income</b>			
<b>Items that may be reclassified to profit or loss in subsequent periods:</b>			
Cash flow hedges			
Fair value gains/losses in the period		-778	22
Transfers to income statement		15	76
Transfers to inventory/fixed assets		-2	-4
Deferred taxes		162	-19
Net investment hedges			
Fair value gains/losses in the period		32	23
Deferred taxes		-6	-5
Exchange differences on translating foreign operations	4.6	-525	-372
Share of other comprehensive income of associates and joint ventures	19	-37	-10
Other changes		0	-2
		<b>-1,141</b>	<b>-291</b>
<b>Items that will not be reclassified to profit or loss in subsequent periods:</b>			
Actuarial gains/losses on defined benefit plans	31	3	-13
Actuarial gains/losses on defined benefit plans in associates and joint ventures	31	43	6
		<b>46</b>	<b>-7</b>
<b>Other comprehensive income for the period, net of deferred taxes</b>		<b>-1,094</b>	<b>-298</b>
<b>Total comprehensive income for the year</b>		<b>-236</b>	<b>584</b>
Total comprehensive income attributable to:			
Owners of the parent		-239	571
Non-controlling interests		3	13
		<b>-236</b>	<b>584</b>

Other comprehensive income (OCI) includes items of income and expense that are recognised in equity and not recognised in the consolidated income statement. They include unrealised items, such as fair value gains and losses on financial instruments hedging future cash flows. These items will be realised in the Consolidated income statement when the underlying hedged items is recognised. OCI also includes gains and losses on fair valuation of other investments, actuarial gains and losses from defined benefit plans, items on comprehensive income in associated companies and translation differences.

Fair valuation of cash flow hedges mainly relates to fair valuation of derivatives, such as futures and forwards, hedging electricity price for future transactions, where hedge accounting is applied. When electricity price is higher (lower) than the hedging price, the impact on equity is negative (positive).

Translation differences from translation of foreign entities, mainly RUB and SEK.

[Income statement](#)
[Statement of comprehensive income](#)
[Balance sheet](#)
[Statement of changes in total equity](#)
[Cash flow statement](#)

## Consolidated balance sheet

EUR million	Note	31 Dec 2018	31 Dec 2017
<b>ASSETS</b>			
<b>Non-current assets</b>			
Intangible assets	17	1,087	1,064
Property, plant and equipment	18	9,981	10,510
Participations in associates and joint ventures	19	5,978	1,900
Share in State Nuclear Waste Management Fund	29	899	858
Other non-current assets	20	139	140
Deferred tax assets	28	70	73
Derivative financial instruments	4	229	281
Long-term interest-bearing receivables	21	683	1,010
<b>Total non-current assets</b>		<b>19,065</b>	<b>15,835</b>
<b>Current assets</b>			
Inventories	22	233	216
Derivative financial instruments	4	326	240
Short-term interest-bearing receivables	21	409	395
Income tax receivables	28	172	172
Trade and other receivables	23	1,620	997
Deposits and securities (maturity over three months)		29	715
Cash and cash equivalents		557	3,182
Liquid funds	24	584	3,897
<b>Total current assets</b>		<b>3,344</b>	<b>5,918</b>
<b>Total assets</b>		<b>22,409</b>	<b>21,753</b>

EUR million	Note	31 Dec 2018	31 Dec 2017
<b>EQUITY</b>			
<b>Equity attributable to owners of the parent</b>			
Share capital	25	3,046	3,046
Share premium		73	73
Retained earnings		9,232	9,875
Other equity components		-510	54
<b>Total</b>		<b>11,841</b>	<b>13,048</b>
Non-controlling interests	26	236	239
<b>Total equity</b>		<b>12,077</b>	<b>13,287</b>
<b>LIABILITIES</b>			
<b>Non-current liabilities</b>			
Interest-bearing liabilities	27	5,007	4,119
Derivative financial instruments	4	362	214
Deferred tax liabilities	28	720	819
Nuclear provisions	29	899	858
Other provisions	30	91	100
Pension obligations	31	98	102
Other non-current liabilities	32	182	175
<b>Total non-current liabilities</b>		<b>7,358</b>	<b>6,388</b>
<b>Current liabilities</b>			
Interest-bearing liabilities	27	1,086	766
Derivative financial instruments	4	829	200
Trade and other payables	33	1,058	1,112
<b>Total current liabilities</b>		<b>2,973</b>	<b>2,078</b>
<b>Total liabilities</b>		<b>10,332</b>	<b>8,466</b>
<b>Total equity and liabilities</b>		<b>22,409</b>	<b>21,753</b>

## Consolidated statement of changes in total equity

EUR million	Note	Share capital	Share premium	Retained earnings		Other equity components			Owners of the parent	Non-controlling interests	Total equity
				Retained earnings and other funds	Translation of foreign operations	Cash flow hedges	Other OCI items	OCI items associated companies and joint ventures			
<b>BS Total equity 31 December 2017</b>		<b>3,046</b>	<b>73</b>	<b>12,062</b>	<b>-2,187</b>	<b>-40</b>	<b>70</b>	<b>24</b>	<b>13,048</b>	<b>239</b>	<b>13,287</b>
Impact from change in accounting principle (IFRS 9 and 15)				7					7		7
<b>Total equity 1 January 2018</b>		<b>3,046</b>	<b>73</b>	<b>12,069</b>	<b>-2,187</b>	<b>-40</b>	<b>70</b>	<b>24</b>	<b>13,055</b>	<b>239</b>	<b>13,295</b>
Net profit for the period				843					843	15	858
Translation differences					-519	0	1	-1	-518	-7	-525
Other comprehensive income				0		-599	28	6	-564	-5	-569
Total comprehensive income for the period				843	-519	-598	29	6	-239	3	-236
Cash dividend	14			-977					-977	-6	-983
Other				2					2	0	2
<b>BS Total equity 31 December 2018</b>		<b>3,046</b>	<b>73</b>	<b>11,937</b>	<b>-2,705</b>	<b>-638</b>	<b>99</b>	<b>30</b>	<b>11,841</b>	<b>236</b>	<b>12,077</b>
<b>BS Total equity 31 December 2016</b>		<b>3,046</b>	<b>73</b>	<b>12,186</b>	<b>-1,817</b>	<b>-115</b>	<b>58</b>	<b>27</b>	<b>13,459</b>	<b>84</b>	<b>13,542</b>
Net profit for the period				866					866	16	882
Translation differences					-369	1	1	-1	-369	-3	-372
Other comprehensive income				-9		74	11	-2	73	0	74
Total comprehensive income for the period				857	-369	75	11	-3	571	13	584
Cash dividend	14			-977					-977	-2	-979
Other				-4					-4	145	141
<b>BS Total equity 31 December 2017</b>		<b>3,046</b>	<b>73</b>	<b>12,062</b>	<b>-2,187</b>	<b>-40</b>	<b>70</b>	<b>24</b>	<b>13,048</b>	<b>239</b>	<b>13,287</b>

### Translation differences

Translation of financial information from subsidiaries in foreign currency is done using average rate for the income statement and end rate for the balance sheet. The exchange rate differences occurring from translation to EUR are booked to equity. Translation differences impacted equity attributable to owners of the parent company with EUR -518 million during 2018 (2017: -369). Translation differences are mainly related to RUB and SEK. Part of this translation exposure has been hedged and the foreign currency hedge result, amounting to EUR 24 million (2017: 28), is included in the other OCI items.

For information regarding exchange rates used, see ▶ **Note 1** Accounting policies. For information about translation exposure see ▶ **Note 4.6** Interest rate risk and currency risk.

### Cash flow hedges

The impact on equity attributable to owners of the parent from fair valuation of cash flow hedges, EUR -598 million (2017: 75), mainly relates to fair valuation of derivatives, such as futures and forwards, hedging electricity price for future transactions, where hedge accounting is applied. When electricity price is higher (lower) than the hedging price, the impact on equity is negative (positive).

### Non-controlling interests

Non-controlling interests increased with EUR 155 million during 2017 mainly due to the acquisition of Fortum Oslo Varme AS, which is consolidated as a subsidiary with 50% non-controlling interest. See also ▶ **Note 3** Acquisitions and disposals.

## Consolidated cash flow statement

EUR million	Note	2018	2017
<b>Cash flow from operating activities</b>			
Profit for the period		858	882
<b>Adjustments:</b>			
Income tax expenses		181	229
Finance costs - net		136	195
Share of profit of associates and joint ventures		-38	-148
Depreciation and amortisation		536	464
<b>Operating profit before depreciations (EBITDA)</b>		<b>1,674</b>	<b>1,623</b>
Items affecting comparability		-151	-347
<b>Comparable EBITDA</b>		<b>1,523</b>	<b>1,275</b>
Non-cash flow items		-90	-76
Interest received		23	35
Interest paid		-171	-187
Dividends received		61	58
Realised foreign exchange gains and losses		231	-83
Income taxes paid		-94	-83
Other items		-9	-28
<b>Funds from operations</b>		<b>1,474</b>	<b>912</b>
Change in working capital		-670	81
<b>Net cash from operating activities</b>		<b>804</b>	<b>993</b>
<b>Cash flow from investing activities</b>			
Capital expenditures	17, 18	-579	-657
Acquisitions of shares		-4,088	-972
Proceeds from sales of fixed assets		38	8
Divestments of shares		259	741
Shareholder loans to associated companies and joint ventures		-24	43
Change in cash collaterals and restricted cash		-36	-3
Change in other interest-bearing receivables		31	34
<b>Net cash used in investing activities</b>		<b>-4,398</b>	<b>-807</b>

EUR million	Note	2018	2017
<b>Cash flow before financing activities</b>		<b>-3,594</b>	<b>187</b>
<b>Cash flow from financing activities</b>			
Proceeds from long-term liabilities		1,764	35
Payments of long-term liabilities		-586	-543
Change in short-term liabilities		135	68
Dividends paid to the owners of the parent	14	-977	-977
Other financing items		-9	-12
<b>Net cash used in financing activities</b>		<b>326</b>	<b>-1,428</b>
<b>Total net increase(+)/decrease(-) in liquid funds</b>		<b>-3,268</b>	<b>-1,241</b>
<b>Liquid funds at the beginning of the year <sup>1)</sup></b>		<b>3,896</b>	<b>5,155</b>
Foreign exchange differences in liquid funds		-43	-16
<b>Liquid funds at the end of the period</b>	24	<b>584</b>	<b>3,897</b>

1) Opening balance 1 January 2018 adjusted EUR -1 million due to adoption of IFRS 9, see ▶ [Note 1.6](#) New IFRS standards adopted from 1 Jan 2018.

Realised foreign exchange gains and losses relate mainly to financing of Fortum's Russian and Swedish subsidiaries and the fact that the Group's main external financing currency is EUR. The foreign exchange gains and losses arise from rollover of foreign exchange contracts hedging these internal loans as major part of the forwards are entered into with short maturities i.e. less than twelve months.

Capital expenditures in cash flow do not include not yet paid investments. Capitalised borrowing costs are presented in interest paid.

[Income statement](#)
[Statement of comprehensive income](#)
[Balance sheet](#)
[Statement of changes in total equity](#)
[Cash flow statement](#)

### Change in net debt

EUR million	2018	2017
<b>Net debt 1 January</b>	<b>988</b>	<b>-48</b>
Impact from change in accounting principle (IFRS 9)	1	
Foreign exchange rate differences	15	-15
Comparable EBITDA	1,523	1,275
Non-cash flow items	-90	-76
Paid net financial costs	138	-199
Income taxes paid	-94	-83
Change in working capital	-670	81
Capital expenditures	-579	-657
Acquisitions	-4,088	-972
Divestments	298	749
Shareholder loans to associated companies	-24	43
Change in other interest-bearing receivables	-5	31
Dividends	-977	-977
Other financing activities	-12	-17
Net cash flow (- increase in net debt)	-4,580	-802
Fair value change of bonds, amortised cost valuation, acquired debt and other	-75	248
<b>Net debt 31 December</b>	<b>5,509</b>	<b>988</b>

### Additional cash flow information

#### Change in working capital

EUR million	2018	2017
Change in settlements for futures, decrease(+)/increase(-)	-524	141
Change in interest-free receivables, decrease(+)/increase(-)	-186	-94
Change in inventories, decrease(+)/increase(-)	-3	19
Change in interest-free liabilities, decrease(-)/increase(+)	43	15
<b>CF Total</b>	<b>-670</b>	<b>81</b>

In Fortum's cash flow statement the daily cash settlements for futures are shown as change in working capital whereas the changes in cash collaterals for forwards are included in cash flow from investing activities. The cash collaterals are included in the short-term interest-bearing receivables and the daily cash settlements are included in the other receivables, see [▶ Note 21](#) Interest-bearing receivables and [▶ Note 23](#) Trade and other receivables.

### Capital expenditure in cash flow

EUR million	Note	2018	2017
Capital expenditure	6, 17, 18	584	690
Change in not yet paid investments, decrease(+)/increase(-)		5	-17
Capitalised borrowing costs		-10	-16
<b>CF Total</b>		<b>579</b>	<b>657</b>

Capital expenditures for intangible assets and property, plant and equipment were in 2018 EUR 584 million (2017: 690). Capital expenditure in cash flow in 2018 EUR 579 million (2017: 657) is including payments related to capital expenditure made in previous year i.e. change in trade payables related to investments EUR 5 million (2017: -17) and excluding capitalised borrowing costs EUR -10 million (2017: -16), which are presented in interest paid.

See also information about the investments by segments and countries in [▶ Note 6](#) Segment reporting and the investment projects by segment in [▶ Note 18.2](#) Capital expenditure.

### Acquisition of shares in cash flow

Acquisition of shares, net of cash acquired, amounted to EUR 4,088 million during 2018 (2017: 972). Acquisition of shares during 2018 include mainly the acquisition of shares in Uniper SE. During 2018 Fortum also acquired 100% of the shares in the Fincumet Group metal recycling companies, three Latvian heat producing companies and other smaller companies. Fortum also invested in the wind investment fund owned 50/50 by Fortum and RUSNANO. For further information see [▶ Note 3](#) Acquisitions and disposals.

### Divestment of shares in cash flow

EUR million	Note	2018	2017
Proceeds from sales of subsidiaries, net of cash disposed	3	88	54
Proceeds from sales of associates and joint ventures		171	687
<b>CF Total</b>		<b>259</b>	<b>741</b>

Proceeds from sales of subsidiaries during 2018 include mainly the sale of the 54% share of Fortum's solar power company in accordance with the capital recycling business model. Proceeds from sales of associated companies and joint ventures during 2018 include the sale of Fortum's 10% ownership in Hafslund Produksjon Holding AS. For further information see [▶ Note 3](#) Acquisitions and disposals.

# 1 Accounting policies

## 1.1 Basic information

Fortum Corporation (the Company) is a Finnish public limited liability company with its domicile in Espoo, Finland. Fortum's shares are traded on Nasdaq Helsinki.

The operations of Fortum Corporation and its subsidiaries (together the Fortum Group) focus on the Nordic and Baltic countries, Russia and Poland. Fortum's activities cover generation and sale of electricity, generation, distribution and sale of heat, and energy-related expert services. In addition Fortum has major shareholdings including a 49.99% participation in Uniper SE.

These financial statements were approved by the Board of Directors on 31 January 2019.

## 1.2 Basis of preparation

The consolidated financial statements of the Fortum Group have been prepared in accordance with International Financial Reporting Standards (IFRS) and IFRIC Interpretations as adopted by the European Union. The financial statements also comply with Finnish accounting principles and corporate legislation.

The consolidated financial statements have been prepared under the historical cost convention, except for financial assets and financial liabilities (including derivative instruments) at fair value through profit and loss or other comprehensive income.

The figures in the consolidated financial statements have been rounded and consequently the sum of individual figures may deviate from the sum presented. Key figures have been calculated using exact figures.

### 1.2.1 Measures for performance

According to the ESMA Guidelines on Alternative Performance Measures, an Alternative Performance Measure (APM) is understood as a financial measure of historical or future financial performance, financial position, or cash flows, other than a financial measure defined or specified in the applicable financial reporting framework.

Fortum uses Alternative performance measures (APMs) in the financial target setting and forecasting, management's follow up of financial performance of segments and the group as well as allocation of resources in the group's performance management process. The business performance of the operations cannot be compared from one period to another without adjusting for items affecting comparability and therefore they are excluded from Comparable operating profit and Comparable EBITDA. The main business performance measurements have been used consistently since 2005.

Definitions are presented in the section [Definitions of key figures](#).

### 1.2.2 Classification of current and non-current assets and liabilities

An asset or a liability is classified as current when it is expected to be realised in the normal operating cycle or within twelve months after the balance sheet date or it is classified as financial assets or liabilities, except financial derivatives, held at fair value through profit or loss. Liquid funds are classified as current assets.

All other assets and liabilities are classified as non-current assets and liabilities.

## 1.3 Principles for consolidation

The consolidated financial statements comprise of the parent company, subsidiaries, joint ventures and associated companies.

The Fortum Group was formed in 1998 by using the pooling-of-interests method for consolidating Fortum Power and Heat Oy and Fortum Oil and Gas Oy (the latter demerged to Fortum Oil Oy and Fortum Heat and Gas Oy 1 May 2004). In 2005 Fortum Oil Oy (current Neste Oyj) was separated from Fortum by distributing 85% of its shares to Fortum's shareholders and by selling the remaining 15%. This means that the acquisition cost of Fortum Power and Heat Oy and Fortum Heat and Gas Oy has been eliminated against the share capital of the companies. The difference has been entered as a decrease in shareholders' equity.

### 1.3.1 Subsidiaries

Subsidiaries are defined as companies in which Fortum has control. Control exists when Fortum is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

The acquisition method of accounting is used to account for the acquisition of subsidiaries. The cost of an acquisition is measured as the aggregate of fair value of the assets given and liabilities incurred or assumed at the date of exchange. Identifiable assets acquired and liabilities assumed in a business combination are measured initially at their fair values at the acquisition date, irrespective of the extent of any minority interest. The excess of the cost of acquisition over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the fair value of the net assets of the subsidiary acquired, the difference is recognised directly in the income statement.

Subsidiaries are fully consolidated from the date on which control is transferred to the Group and are no longer consolidated from the date that control ceases.

Intercompany transactions, balances and unrealised gains on transactions between Group companies are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment

of the asset transferred. Where necessary, subsidiaries' accounting policies have been changed to ensure consistency with the policies the Group has adopted.

The Fortum Group subsidiaries are disclosed in [Note 40](#) Subsidiaries by segment on 31 December 2018.

### 1.3.2 Associates

Associated companies are entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. The Group's interests in associated companies are accounted for using the equity method of accounting.

### 1.3.3 Joint ventures

Joint ventures are arrangements in which the Group has joint control. Joint ventures are accounted for using the equity method of accounting.

### 1.3.4 Non-controlling interests

Non-controlling interests in subsidiaries are identified separately from the equity of the owners of the parent company. The non-controlling interests are initially measured at the non-controlling interests' proportionate share of the fair value of the acquiree's identifiable net assets. Subsequent to acquisition, the carrying amount of non-controlling interests is the amount of those interests at initial recognition plus the non-controlling interests' share of subsequent changes in equity.

## 1.4 Foreign currency transactions and translation

### 1.4.1 Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). The consolidated financial statements are presented in euros, which is the Company's functional and presentation currency.

### 1.4.2 Transactions and balances

Transactions denominated in foreign currencies are translated using the exchange rate at the date of the transaction. Receivables and liabilities denominated in foreign currencies outstanding on the closing date are translated using the exchange rate quoted on the closing date. Exchange rate differences have been entered in the income statement. Net conversion differences relating to financing are entered under financial income or expenses, except when deferred in equity as qualifying cash flow hedges. Translation differences on financial assets through other comprehensive income are included in Other equity components section of the equity.

### 1.4.3 Group companies

The income statements of subsidiaries, whose measurement and reporting currencies are not euros, are translated into the Group reporting currency using the average exchange rates for the year based on the month-end exchange rates, whereas the balance sheets of such subsidiaries are translated using the exchange rates on the balance sheet date. On consolidation, exchange differences arising from the translation of the net investment in foreign entities, and of borrowings and other currency instruments designated as hedges of such investments, are taken to equity. When a foreign operation is sold, such exchange differences are recognised in the income statement as part of the gain or loss on sale. Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at the closing rate.

The balance sheet date rate is based on the exchange rate published by the European Central Bank for the closing date. The average exchange rate is calculated as an average of each month's ending rate from the European Central Bank during the year and the ending rate of the previous year.

#### The key exchange rates applied in the Fortum Group accounts:

	Currency	Average rate		Balance sheet date rate	
		2018	2017	31 Dec 2018	31 Dec 2017
Sweden	SEK	10.2591	9.6392	10.2548	9.8438
Norway	NOK	9.6432	9.3497	9.9483	9.8403
Poland	PLN	4.2614	4.2556	4.3014	4.1770
Russia	RUB	73.8035	66.0349	79.7153	69.3920

### 1.4.4 Associates and joint ventures

The Group's interests in associated companies and joint ventures are accounted for by the equity method. Associates and joint ventures, whose measurement and reporting currencies are not euro, are translated into the Group reporting currency using the same principles as for subsidiaries, see [1.4.3](#) Group companies.

## 1.5 Other accounting policies

Fortum describes the other accounting principles in conjunction with the relevant note information. The table below lists the significant accounting policies and the note where they are presented as well as the relevant IFRS standard.

Accounting principle	Note		IFRS standard
Segment reporting	6	Segment reporting	IFRS 8, IFRS 15
Revenue recognition	6, 23	Segment reporting and Trade and other receivables	IFRS 15
Government grants	18	Property, plant and equipment	IAS 20
Share-based payments	11	Employee benefits	IFRS 2
Income taxes	28	Income taxes in balance sheet	IAS 12
Joint arrangements	19	Participations in associated companies and joint ventures	IFRS 11, IAS 28, IFRS 12
Investments in associates	19	Participations in associated companies and joint ventures	IAS 28, IFRS 12
Other shares and participations	15, 20	Financial assets and liabilities by categories and Other non-current assets	IAS 16, IAS 36, IFRS 9
Intangible assets	17	Intangible assets	IAS 38
Tangible assets	18	Property, plant and equipment	IAS 16, IAS 36, IAS 40
Leases	34	Lease commitments	IAS 17
Inventories	22	Inventories	IAS 2
Earnings per share	14	Earnings and dividend per share	IAS 33
Pensions and similar obligations	31	Pension obligations	IAS 19
Decommissioning obligation	29	Nuclear related assets and liabilities	IFRIC 5
Provisions	30	Other provisions	IAS 37
Contingent liabilities	36	Pledged assets and contingent liabilities	IAS 37
Financial instruments	4, 15, 16	Financial risk management, Financial assets and liabilities by categories and Financial assets and liabilities by fair value hierarchy	IAS 32, IFRS 7, IFRS 9, IFRS 13
Liquid funds	24	Liquid funds	IAS 7
Borrowings	27	Interest-bearing liabilities	IFRS 9

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## 1.6 Implementation of IFRS 9 and IFRS 15 from 1 January 2018

Fortum has adopted the following new or amended standards on 1 January 2018:

### IFRS 9 Financial instruments

Nature of change	The standard has new requirements for the classification and measurement of financial assets, hedge accounting and impairment of financial assets.
Date of adoption and transition method	Fortum has applied the new rules retrospectively, but utilises the transition relief for not restating the comparative figures and thus the transition effect is recognised as an adjustment to the retained earnings as of 1 January 2018. Adjustments to opening balances on 1 January 2018 from IFRS 9 are presented in the table 'Opening balance adjustments from adoption of IFRS 9 and IFRS 15'.
	Changes to hedge accounting requirements are however implemented prospectively and therefore have no impact on the prior year figures nor presentation.

Impact	<b>Hedging</b>
	IFRS 9 simplifies the hedge accounting requirements and aligns them with the company's risk management strategy and objectives. This has had the biggest impact on Fortum's electricity price risk hedging, as majority of the non-hedge accounted electricity derivatives qualified for hedge accounting under IFRS 9. Fortum's profit and loss volatility from commodity derivatives hedging future cash flows is reduced as all fair value changes of the hedge accounted commodity derivatives are fully recognised in other comprehensive income. Income statement volatility is reduced gradually due to prospective implementation.

All Fortum's derivatives (electricity, currency and interest rate) that have qualified for hedge accounting under IAS 39 continued to do so also under IFRS 9. In addition the electricity system price products that have previously failed to meet the rule-based criteria of IAS 39 have qualified for hedge accounting under IFRS 9. The new possibility in IFRS 9 to apply hedge accounting for one or several risk components, separately or in aggregation, has allowed Fortum to expand the scope of hedge accounting to electricity price area differential (EPAD) commodity derivatives and FX derivatives, both of them being perfect hedges for corresponding electricity price risk components.

#### Impairment

The new impairment requirements are based on an expected credit loss ("ECL") model and replaced the incurred loss model of IAS 39. The new impairment model contains financial assets such as trade receivables, loan receivables and liquid funds.

The implementation of new ECL models resulted in minor increase in bad debt provision, that was recognised as an adjustment of EUR 3 million (net of tax) in the retained earnings as of 1 January 2018. Future impacts will fluctuate due to seasonality and the amount of the trade receivables.

### Classification and measurement

Most of Fortum's financial assets such as interest-bearing receivables and liquid funds are classified under "Held-to-Collect" business model. These assets are measured at Amortised cost as they meet the SPPI criteria (contractual terms define solely payments of principal and interest on specified dates). When the SPPI criteria is not met, financial assets are classified to Fair value through profit or loss-category. Reclassification of financial assets into the IFRS 9 categories had no impact on their respective measurement basis and therefore no adjustment to retained earnings as of 1 January 2018 was recognised.

Certain investments (shareholder loan to Teollisuuden Voima Oyj, EUR 145 million, and shareholding in Lapin Sähkövoima Oy, EUR 20 million) have been reclassified as Participation in associated company and joint venture.

Impacts to the 2018 classifications are presented below:

Assets	Measurement category	
	IAS 39	IFRS 9
Loans and other receivables	Loans and receivables at amortised cost	Amortised cost or fair value through profit and loss
Other financial assets	Available-for-sale financial assets	Fair value through other comprehensive income
Deposits and securities	Available-for-sale financial assets	Amortised cost

### Accounting policies

Accounting policies related to IFRS 9 are presented in ▶ **Note 15** Financial assets and liabilities by categories.

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### IFRS 15 Revenue from Contracts with Customers

Nature of change	IFRS 15 Revenue from Contracts with Customers introduces a comprehensive five-step model for recognising revenue. As a result of applying the five steps, revenue will be recognised when goods are transferred or services performed at the price that the company expects to be entitled to.
Date of adoption and transition method	Fortum has adopted the new standard from 1 January 2018 onwards by applying the modified retrospective approach, which means that comparative information from 2017 is not restated. In the modified retrospective approach the cumulative effect of transition is booked as an adjustment to the retained earnings as of 1 January 2018. Adjustments to opening balances on 1 January 2018 from IFRS 15 are presented in the table 'Opening balance adjustments from adoption of IFRS 9 and IFRS 15'.
Impact	IFRS 15 transition did not have a significant impact to Fortum's financial statements and accounting policies. The biggest change relates to treatment of sales commission costs for obtaining customers in Consumer Solutions segment. Under IFRS 15 the sales commissions are capitalised and depreciated over the expected contract term. Before adoption of IFRS 15 the sales commissions were mostly expensed and the adoption of the new accounting standard thus impacts the timing and classification of sales commission expenses. The change is mainly impacting Comparable EBITDA and capital expenditure of Consumer Solutions segment.

In addition to the changed treatment of sales commissions, there are certain reclassification changes in income statement and balance sheet, which mostly arise from IFRS 15 scope and principal versus agent considerations.

Accounting policies related to IFRS 15 are presented in [▶ Note 6](#) Segment reporting.

Impact to the 2018 income statement and balance sheet is presented below:

### Impact to income statement

EUR million	2018 without IFRS 15	Sales commissions	Reclassifications	2018 as reported
Sales	5,590		-348	5,242
Other income	101		29	130
Materials and services	-3,114		319	-2,795
Depreciation and amortisation	-505	-31		-536
Other expenses	-626	32		-594
<b>Comparable operating profit</b>	<b>986</b>	<b>1</b>	<b>0</b>	<b>987</b>
Income tax expense	-181	0		-181
<b>Profit for the period</b>	<b>857</b>	<b>1</b>	<b>0</b>	<b>858</b>
<b>Comparable EBITDA</b>	<b>1,491</b>	<b>32</b>	<b>0</b>	<b>1,523</b>

### Impact to balance sheet

EUR million	December 31, 2018 without IFRS 15	Sales commissions	Reclassifications	December 31, 2018 as reported
Intangible assets	1,062	25		1,087
Other non-current assets	147	-8		139
Inventories	225		8	233
Trade and other receivables	1,632	-4	-8	1,620
<b>Total assets</b>	<b>22,395</b>	<b>14</b>	<b>0</b>	<b>22,409</b>
Retained earnings	9,221	11	0	9,232
Deferred tax liabilities	722	-2		720
Trade and other payables	1,053	5		1,058
<b>Total equity and liabilities</b>	<b>22,395</b>	<b>14</b>	<b>0</b>	<b>22,409</b>

## Opening balance adjustments from adoption of IFRS 9 and IFRS 15

The following table presents the impact of applying IFRS 9 and 15 to the opening balance sheet as of 1 January 2018.

EUR million	1 Jan 2018 (IAS 39 and 18)	Change in hedge accounting status	Change of measurement basis	Remeasurement	Capitalisation of sales commission	Other	1 Jan 2018 (IFRS 9 and 15)
<b>ASSETS</b>							
Intangible assets	1,064				20		1,084
Participations in associates and joint ventures	1,900					165	2,066
Long-term interest-bearing receivables							
Measured at amortised cost	969		-77	-2		-145	746
Measured at fair value through profit and loss			77	-2			75
Other non-current assets	11,902				-5	-20	11,877
<b>Total non-current assets</b>	<b>15,835</b>	<b>0</b>	<b>0</b>	<b>-3</b>	<b>15</b>	<b>1</b>	<b>15,848</b>
Derivative financial instruments							
Cash flow hedges	106	14					121
Non-hedge accounting	134	-14					120
Short-term interest-bearing receivables							
Measured at amortised cost	395		-32				363
Measured at fair value through profit and loss			32				32
Other current assets	5,282				-3		5,279
<b>Total current assets</b>	<b>5,918</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-3</b>	<b>0</b>	<b>5,915</b>
<b>Total assets</b>	<b>21,753</b>	<b>0</b>	<b>0</b>	<b>-3</b>	<b>12</b>	<b>1</b>	<b>21,763</b>
<b>EQUITY</b>							
<b>Total equity</b>	<b>13,287</b>	<b>0</b>	<b>0</b>	<b>-3</b>	<b>10</b>	<b>1</b>	<b>13,295</b>
<b>LIABILITIES</b>							
Derivative financial instruments							
Cash flow and fair value hedges	68	70					138
Non-hedge accounting	146	-70					76
Other non-current liabilities	6,174				3		6,176
<b>Total non-current liabilities</b>	<b>6,388</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>6,390</b>
Derivative financial instruments							
Cash flow hedges	44	82					126
Non-hedge accounting	156	-82					74
Other current liabilities	1,879						1,879
<b>Total current liabilities</b>	<b>2,078</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,078</b>
<b>Total liabilities</b>	<b>8,466</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>8,469</b>
<b>Total equity and liabilities</b>	<b>21,753</b>	<b>0</b>	<b>0</b>	<b>-3</b>	<b>12</b>	<b>1</b>	<b>21,763</b>

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## 1.7 Adoption of new IFRS standards from 1 Jan 2019 or later

Fortum will apply the following new or amended standards and interpretations starting from 1 January 2019 or later:

### IFRS 16 Leases

Nature of change	New standard regarding lease accounting that will replace IAS 17. The new lease standard will result in almost all leases being recognised on the balance sheet, as the distinction between operating and finance lease is removed.
Date of adoption	1 January 2019
Impact	<p>Currently under IAS 17, lessees recognise leases either as operating leases or finance leases. The new standard no longer distinguishes between operating and finance leases from a lessees point of view, and most right-of-use assets are recognised in the balance sheet. For lessors, there are no significant changes. In brief, IFRS 16 requirements contain the following:</p> <ul style="list-style-type: none"> <li>• A lessee shall recognise all leases, except for short-term and low value leases, in the balance sheet.</li> <li>• For lessees, both the value of the right-of-use asset and the corresponding liability shall be recognised in the balance sheet.</li> </ul> <p>Fortum has assessed the impact of the new standard to its statement of financial position. Assessment has included:</p> <ul style="list-style-type: none"> <li>• Reviewing current lease contracts reported as operating lease commitments</li> <li>• Going through supplier lists and identifying potential lease arrangements</li> <li>• Determining incremental borrowing rates</li> <li>• Calculation of accounting impacts</li> <li>• Implementing and integrating the new IFRS 16 software</li> </ul> <p>Contracts have been gathered and reviewed. No material new leases have been identified. Majority of the current operating leases are for the use of land and office buildings.</p> <p>Fortum will apply the standard using the modified retrospective method, which means the comparative figures will not be restated. Right-of-use assets will be initially recognised equal to the value of lease liabilities, adjusted by the amount of any prepaid or accrued lease payments relating to that lease recognised in the balance sheet before the initial application. In addition, Fortum will apply the exemption of not recognising short-term leases and leases of low-value assets in the balance sheet.</p> <p>The implementation of IFRS 16 will add right-of-use assets and corresponding lease liabilities approximately EUR 100 million. The impact to the consolidated statement of income will not be material. Further details on the impact will be disclosed in the Q1/2019 interim report.</p>

### IFRIC 23 Uncertainty over Income Tax Treatment

Nature of change	IFRIC 23 specifies how to reflect uncertainty in accounting for income taxes
Date of adoption	1 January 2019
Impact	The systemically identified positions are analysed based on facts, circumstances, existing tax rules, court praxis, expert statements and tax authority policy statements. Based on the analysis Fortum does not expect that the interpretation will have any material effect on Fortum's financial statements.

### Other new standards effective from 1 January 2019

Other new standards issued by the balance sheet date and effective from 1 January 2019 or later do not have a material impact on Fortum's financial statements.

## 2 Critical accounting estimates and judgements

The preparation of IFRS consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities existing at the balance sheet date as well as the reported amounts of revenues and expenses during the reporting period.

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Actual results and timing may differ from these estimates.

The table below is listing the areas where management's accounting estimates and judgements are most critical to reported results and financial position. The table is also showing where to find more information about above-mentioned estimates and judgements.

Critical accounting estimates and judgements	Note
Assigned values and useful lives determined for intangible assets and property, plant and equipment acquired in a business combination	17 Intangible assets
Assumptions related to impairment testing of property, plant and equipment and intangible assets as well as associated companies and joint ventures	17 Intangible assets
Judgement used when assessing the nature of Fortum's interest in its investees and when considering the classification of Fortum's joint arrangements as well as commitments arising from these arrangements	19 Participations in associated companies and joint ventures
Assumptions and estimates regarding future tax consequences	28 Income taxes in balance sheet
Assumptions made to determine long-term cash flow forecasts of estimated costs for provision related to nuclear production	29 Nuclear related assets and liabilities
Assumptions made when estimating provisions	30 Other provisions
Assumptions used to determine future pension obligations	31 Pension obligations

## 3 Acquisitions and disposals

### 3.1 Acquisitions

EUR million	2018	2017
Gross investments in shares in subsidiary companies	36	982
Gross investments in shares in associated companies and joint ventures	4,041	135
Gross investments in available for sale financial assets	11	8
<b>Gross investments in shares</b>	<b>4,088</b>	<b>1,125</b>

### Uniper investment

In September 2017, Fortum signed a transaction agreement with E.ON under which E.ON had the right to decide to tender its 46.65% shareholding in Uniper SE into Fortum's public takeover offer. In November 2017, Fortum launched a voluntary public takeover offer ("offer") to all Uniper shareholders. On 8 January 2018, E.ON decided to tender its shares to Fortum's offer. In February 2018, Fortum announced that shareholders representing 47.12% of the shares in Uniper had accepted the offer. The completion of Fortum's offer was subject to several competition and regulatory approvals. The final regulatory decisions were received 15 June 2018. In line with the Russian regulatory approvals, Fortum is allowed to purchase additional shares up to the 50% of shares and voting rights in Uniper. The final settlement of the offer took place on 26 June 2018.

The shareholders who tendered their shares to Fortum's offer were paid EUR 21.31 per share. The shareholders also benefitted from Uniper's dividend that was paid following the Annual General Meeting in early June. Fortum paid a total consideration of EUR 3.7 billion for all shares tendered. The total consideration was financed with existing cash resources of EUR 1.95 billion and bridge loan financing from committed credit facilities of EUR 1.75 billion. On 26 June 2018, Fortum closed the Uniper offer and became the company's largest shareholder with 47.35% of the shares. Since then Fortum has acquired additional shares in Uniper and holds 49.99% of the shares as of 31 December 2018.

Uniper is an international energy company with activities in Europe, Russia and other markets worldwide. Uniper's businesses are well aligned with Fortum's core competencies. The company operates power plants in Europe and Russia, with a total installed generation capacity of around 36 gigawatts, and it runs extensive energy trading operations as well as maintains gas storage facilities in Germany, Austria and the UK.

In 2017, Uniper's sales totalled EUR 72.2 billion and adjusted EBITDA was EUR 1.7 billion. Uniper employs around 12,000 people and had total assets of EUR 43 billion at the end of 2017. Uniper is listed on the Frankfurt stock exchange.

Fortum consolidates Uniper as an associated company from 30 June 2018. The total acquisition cost including direct costs relating to the acquisition, approximately EUR 4.0 billion as of 31 December 2018, is reported in the 'Participations in associated companies and joint ventures'.

Fortum uses Uniper's balance sheet as of 30 June 2018 (published 7 August 2018) as the starting point for the purchase price allocation. Purchase price allocation is still on-going and Fortum is evaluating potential fair value adjustments for the acquired assets and liabilities and identifying potential differences in order to align the accounting principles. The purchase price allocation will take time due to the size of transaction and will be completed within the one-year window from the acquisition date according to IFRS.

As Uniper publishes its interim reports later than Fortum, Fortum's share of Uniper's results will be accounted for with a time-lag of one quarter with potential adjustments. The share of profits of associates in Fortum's financial statements 2018 includes Fortum's share of Uniper's third quarter results amounting to EUR -2 million.

### 3.1.1 Acquisitions of subsidiary companies 2018

In August 2018 Fortum acquired all shares of three independent Latvian heat producers SIA BK Enerģija, SIA Energy & Communication and SIA Sprino as well as the shares of SIA Lake Development. The acquired production companies will continue to deliver heat to Daugavpils's municipal district heating company PAS Daugavpils Siltumtikli.

In October 2018 Fortum acquired the metal recycling business in Fincumet Group. In the transaction Fortum acquired shares in three companies: Fincumet Oy, Niemen Romukauppa Oy and NJS-Patentti Oy.

There were no other material acquisitions during 2018.

### 3.1.2 Acquisitions of subsidiary companies 2017

In January 2017 Fortum completed the acquisition of 100% of the shares in three wind power companies from the Norwegian company Nordkraft. The transaction consists of the Nygårdsfjellet wind farm, which is already operational, as well as the fully-permitted Ånstadblåheia and Sørffjord projects. The Ånstadblåheia wind farm was commissioned during the fourth quarter of 2018 and the Sørffjord wind farm is expected to be commissioned in 2019. The total installed capacity of the three wind farms will be approximately 180 MW.

Fortum started a redemption process for the remaining shares of Ekokem Corporation (renamed as Fortum Waste Solution Oy) in October 2016. The process was finalised in March 2017 after which Fortum owns 100% of the shares in the company.

On 4 August Fortum concluded the restructuring of the ownership in Hafslund together with City of Oslo. Fortum sold its 34.1% stake in Hafslund ASA to the City of Oslo. Fortum acquired 100% of Hafslund Markets AS, 50% of Hafslund Varme AS including the City of Oslo's waste-to-energy company Klemetsrudanlegget AS (KEA), currently Fortum Oslo Varme AS, and 10% of Hafslund Produksjon Holding AS. The total debt-free price of the acquisition was approximately EUR 940 million.

The combined net cash investment of the transactions, including the dividend received in May 2017, was approximately EUR 230 million.

Hafslund Markets and Fortum Oslo Varme are consolidated into Fortum Group from 1 August 2017. Hafslund Markets is consolidated as a part of the Consumer Solutions segment. Fortum has operational responsibility of

Fortum Oslo Varme, which is consolidated as a subsidiary with 50% non-controlling interest into the results of City Solutions segment. Hafslund Produksjon Holding was treated as an associated company and reported in the Generation segment until the divestment in June 2018, see further information in 3.2 below.

The initial purchase price allocation as of 31 July 2017 was finalised during Q3 2018. No material changes were made compared to the information disclosed in the consolidated financial statements for 2017.

In December 2017 Fortum acquired three solar power companies from Hevel Group. The Pleshanovskaya (10 MW) and Grachevskaya (10 MW) solar power plants are located in the Orenburg region and the Bugulchanskaya (15 MW) solar power plant in the Republic of Bashkortostan. All three power plants are operational and will receive capacity Supply Agreement (CSA) payments for approximately 15 years after commissioning at an average CSA price corresponding to approximately EUR 400/MWh. The plants were commissioned in 2016 and 2017.

EUR million	Hafslund Markets AS	Fortum Oslo Varme AS	Other	Fortum total
Consideration paid in cash	589	152	70	811
Unpaid consideration	0	0	9	9
<b>Total consideration</b>	<b>589</b>	<b>152</b>	<b>79</b>	<b>820</b>
Fair value of the acquired net assets	374	84	77	535
Translation difference	1	0	2	2
<b>Goodwill</b>	<b>215</b>	<b>69</b>	<b>1</b>	<b>286</b>

EUR million	Hafslund Markets AS			Fortum Oslo Varme AS			Fortum total <sup>1)</sup>		
	Acquired book values	Allocated fair value	Total fair value	Acquired book values	Allocated fair value	Total fair value	Acquired book values	Allocated fair value	Total fair value
Cash and cash equivalents	158		158	37		37	201		201
Intangible assets	12	284	296	0		0	17	334	352
Property, plant and equipment	5		5	526	207	733	604	208	811
Other assets	179		179	21		21	206		206
Deferred tax liabilities	-19	-68	-88	-21	-50	-71	-46	-129	-175
Other non-interest bearing liabilities	-176		-176	-39		-39	-217		-217
Interest-bearing liabilities	0		0	-445		-445	-489		-489
<b>Net identifiable assets</b>	<b>158</b>	<b>216</b>	<b>374</b>	<b>79</b>	<b>157</b>	<b>237</b>	<b>275</b>	<b>413</b>	<b>688</b>
Non-controlling interests	0	0	0	51	102	153	51	102	153
<b>Total</b>	<b>158</b>	<b>216</b>	<b>374</b>	<b>29</b>	<b>55</b>	<b>84</b>	<b>225</b>	<b>310</b>	<b>535</b>

1) Including acquired book values and allocated fair values from the acquisition of Norwegian wind park companies, Russian solar power companies as well as other smaller acquisitions.

EUR million	Hafslund Markets AS	Fortum Oslo Varme AS	Other	Fortum total
<b>Gross investment</b>				
Purchase consideration settled in cash	589	152	70	811
Cash and cash equivalents in acquired subsidiaries	158	37	6	201
Translation difference	1	0	2	3
<b>Cash outflow in acquisition</b>	<b>432</b>	<b>116</b>	<b>65</b>	<b>613</b>
Unpaid consideration			9	9
Interest-bearing debt in acquired subsidiaries		445	44	489
of which loans given by Fortum		-213		-213
Transaction adjustments to debt-like items	54	26	0	80
Translation difference	0	1	2	4
<b>Total gross investment in acquired subsidiaries</b>	<b>486</b>	<b>375</b>	<b>121</b>	<b>982</b>

### 3.1.3 Other share transactions

In April 2017, Fortum and RUSNANO, a Russian state-owned development company, signed a 50/50 investment partnership in order to secure the possibility of a Russian Capacity Supply Agreement (CSA) wind portfolio in Russia. The wind investment fund 50/50 owned by Fortum and RUSNANO was awarded 1,000 MW wind capacity in Russian wind CSA auction in June 2017. The investments decisions will be made on a case-by-case basis within the total mandate of the wind investment fund. Fortum's equity stake in the wind investment fund totals a maximum of RUB 15 billion. The amount is invested over time (within approximately 5 years) as it is subject to positive investment decisions. During 2018 Fortum invested EUR 61 million (2017: 43) in the fund.

In October 2017 Fortum and SUENKO established a joint venture, JSC Ural-Siberian Heat and Power Company (YUSTEK), for the heat supply in Tyumen, Russia. Fortum will continue as CHP owner and selling heat to YUSTEK.

## 3.2 Disposals

EUR million	2018	2017
Gross divestments of shares in subsidiary companies	147	55
Gross divestments of shares in associated companies and joint ventures	160	687
<b>Gross divestments of shares</b>	<b>306</b>	<b>742</b>

### 3.2.1 Disposals of subsidiary companies

On 31 August 2018, Fortum sold a 54% share of its solar power company operating four solar power plants in India to UK Climate Investments (40%) and Elite Alfred Berg (14%). In line with Fortum's 'capital recycling' business model, the result from the transaction, EUR 26 million, is recognised in Other operations' Comparable operating profit. The total consideration from the divestment on a debt- and cash-free basis, including the effect

of deconsolidating Fortum's minority part of the net debt, is EUR 147 million. In addition, Elite Alfred Berg has an option to buy up to an additional 16% from Fortum.

In July 2017 Fortum sold 100% of its shares in the Polish gas infrastructure company DUON Dystrybucja S.A. to Infracapital, the infrastructure investment arm of M&G Investments. DUON Dystrybucja S.A. is transporting grid gas and LNG in Poland. The company was acquired as part of the acquisition of the electricity and gas sales company Grupa DUON S.A. (currently Fortum Markets Polska S.A.) in 2016. Fortum booked in 2017 a one-time pre-tax sales gain in Consumer Solution segment totalling EUR 2 million.

In November 2017 Fortum sold its 51% stake in the Norwegian electricity sales company Røyken Kraft AS to the minority shareholder Røyken Energiverk AS. The company was acquired as part of the Hafslund Markets AS group in the restructuring of the ownership in Hafslund.

### Divestments of shares in subsidiaries – Impact on financial position

EUR million	2018	2017
Gross divestments of shares in subsidiary companies	147	55
Intangible assets and property, plant and equipment	138	58
Other non-current and current assets	7	6
Liquid funds	12	5
Interest-bearing loans	-108	-3
Other liabilities and provisions	-4	-7
<b>Net assets divested</b>	<b>45</b>	<b>59</b>
Reclassified to participations in associates and joint ventures	20	-
<b>Result from transaction</b>	<b>26</b>	<b>2</b>

### 3.2.2 Other disposals

In June 2018 Fortum sold its 10% ownership in Hafslund Produksjon Holding AS to Svartisen Holding AS, a Norwegian company owned by the Finnish energy companies Vantaan Energia Oy, Oy Turku Energia – Åbo Energi Ab and Oulun Seudun Sähkö. As part of the restructuring of the Hafslund ownership in 2017, Fortum acquired the ownership in Hafslund Produksjon. The sales price for the shares was EUR 160 million and Fortum booked a sales gain of EUR 77 million in the Generation segment 2018 results.

On 3 August 2017 Fortum sold its 34.1% stake in Hafslund ASA to the City of Oslo in connection with the restructuring of the ownership in Hafslund. Fortum booked a one-time tax-free sales gain in Other segment in the 2017 results totalling approximately EUR 324 million including transaction costs, corresponding EUR 0.36 earnings per share.

## 4 Financial risk management

Risk management framework and objectives, organisation and processes as well as description of risks i.e. strategic, sustainability, financial and operational risks are described in the Risk management part in the Operating and financial review (OFR).

### 4.1 Commodity market and fuel risks

Fortum's business is exposed to fluctuations in prices and volume of commodities used in the production and sales of energy products. The main exposure is toward electricity prices and volumes, prices of emissions and prices and availability of fuels. Fortum hedges its exposure to commodity market risks in accordance with approved Hedging Guidelines and Mandates.

### 4.2 Electricity price and volume risk

Electricity price risk is mainly hedged by entering into electricity derivatives contracts on Nasdaq Commodities exchange. The main objective of hedging is to reduce the effect of electricity price volatility on earnings. Hedging strategies cover several years in the short to medium term and are executed within approved mandates. These hedging strategies are continuously evaluated as electricity and other commodity market prices, the hydrological balance and other relevant parameters change. Hedging of the Generation segment's power sales is performed in EUR on a Nordic level covering both Finland and Sweden, and the currency component of these hedges in the Swedish entity is currently not hedged.

In Russia, electricity prices and capacity sales are the main sources of market risk. The electricity price is highly correlated with the gas price. Exposure is partly mitigated through regulated fixed-price bilateral agreements, but the majority of electricity sales is exposed to spot price risk.

Fortum's sensitivity to electricity market price is dependent on the hedge level for a given time period. As per 31 December 2018, approximately 75% of the Generation segment's estimated Nordic power sales volume was hedged for the calendar year 2019 with a price 31 EUR/MWh and approximately 45% for the calendar year 2020 with a price 29 EUR/MWh. Assuming no changes in generation volumes, hedge ratios or cost structure a 1 EUR/MWh change in the market price of electricity would affect Fortum's 2019 comparable operating profit by approximately EUR 11 million and for 2020 by approximately EUR 25 million. The volume used in this sensitivity analysis is 45 TWh which includes the electricity generation sold to the spot market in Sweden and Finland in the Generation segment without minority owner's shares of electricity or other pass-through sales, and excluding the volume of Fortum's coal-condensing generation. This volume is heavily dependent on price level, the hydrological situation, the length of annual maintenance periods and availability of power plants. Sensitivity is calculated only for electricity market price movements. Hydrological conditions, temperature, wind, CO<sub>2</sub> allowance prices, fuel

prices, economic development, transmission capacity and the import/export situation all affect the electricity price on short-term basis and effects of individual factors cannot be separated.

#### 4.2.1 Sensitivity arising from financial instruments according to IFRS 7

Sensitivity analysis shows the sensitivity arising from financial electricity derivatives as defined in IFRS 7. These derivatives are used for hedging purposes within Fortum. Sensitivities are calculated based on 31 December 2018 (31 December 2017) position. Positions are actively managed in the day-to-day business operations and therefore the sensitivities vary from time to time. Sensitivity analysis includes only the market risks arising from derivatives i.e. the underlying physical electricity sales and purchases are not included. Sensitivity is calculated with the assumption that electricity forward quotations in Nasdaq Commodities and in EEX would change 1 EUR/MWh for the period Fortum has derivatives.

#### Sensitivity according to IFRS 7

+/- 1 EUR/MWh change in electricity forward quotations, EUR million	Effect	2018	2017
Effect on Profit before income tax	-/+	1	22
Effect on Equity	-/+	56	28

#### 4.2.2 Electricity derivatives

The tables below disclose the Group's electricity derivatives used mainly for hedging electricity price risk. The fair values represent the values disclosed in the balance sheet.

See also ▶ **Note 15** Financial assets and liabilities by categories for accounting principles and basis for fair value estimations and ▶ **Note 8** Fair value changes of derivatives and underlying items in income statement.

#### Electricity derivatives by instrument 2018

	Volume, TWh				Fair value, EUR million		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Electricity derivatives	29	26	0	55	848	1,712	-864
<b>Total</b>					<b>848</b>	<b>1,712</b>	<b>-864</b>
Netting against electricity exchanges <sup>1)</sup>					-701	-701	0
<b>Total</b>					<b>147</b>	<b>1,011</b>	<b>-864</b>

#### Electricity derivatives by instrument 2017

	Volume, TWh				Fair value, EUR million		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Electricity derivatives	26	24	0	50	360	519	-159
<b>Total</b>					<b>360</b>	<b>519</b>	<b>-159</b>
Netting against electricity exchanges <sup>1)</sup>					-234	-234	0
<b>Total</b>					<b>126</b>	<b>285</b>	<b>-159</b>

1) Receivables and liabilities against electricity exchanges arising from standard derivative contracts with same delivery period are netted.

#### Maturity analysis of commodity derivatives

Amounts in the table are fair values.

EUR million	2018				2017			
	Under 1 year	1–5 years	Over 5 years	Total	Under 1 year	1–5 years	Over 5 years	Total
Electricity derivatives, liabilities	706	305	0	1,011	162	123	0	285
Electricity derivatives, assets	94	53	0	147	90	35	0	126
Other commodity derivatives, liabilities	77	13	0	90	13	3	0	16
Other commodity derivatives, assets	116	24	0	140	36	6	0	43

#### 4.3 Fuel price risks

Exposure to fuel prices is limited due to Fortum's flexible generation capacity, which allows for switching between different fuels according to prevailing market conditions. The remaining exposure to fuel price risk is mitigated through fixed-price physical delivery contracts or derivative contracts, such as coal and gas derivatives included in the table above as part of "Other commodity derivatives".

#### 4.4 Emission allowance price and volume risk

Part of Fortum's power and heat generation is subject to requirements of emission trading schemes. Fortum hedges its exposure to these prices and volumes through the use of CO<sub>2</sub> futures. Most of these CO<sub>2</sub> futures are own use contracts valued at cost and some are treated as derivatives in the accounts included in the table above as part of "Other commodity derivatives".

#### 4.5 Liquidity and refinancing risk

Fortum's business is capital intensive and the Group has a diversified loan portfolio mainly consisting of long-term financing denominated in EUR and SEK. Long-term financing is primarily raised by issuing bonds under Fortum's Euro Medium Term Note programme as well as through bilateral and syndicated loan facilities from a variety of different financial institutions.

Financing is primarily raised on parent company level and distributed internally through various internal financing arrangements. For example Fortum's Russian operations are mainly financed via intra group internal long-term RUB denominated loans. The internal RUB loan receivables are hedged via external forward contracts offsetting the currency exposure for the internal lender. On 31 December 2018, 95% (2017: 90%) of the Group's total external financing was raised by the parent company Fortum Corporation.

On 31 December 2018, the total interest-bearing debt was EUR 6,093 million (2017: 4,885) and the interest-bearing net debt was EUR 5,509 million (2017: 988).

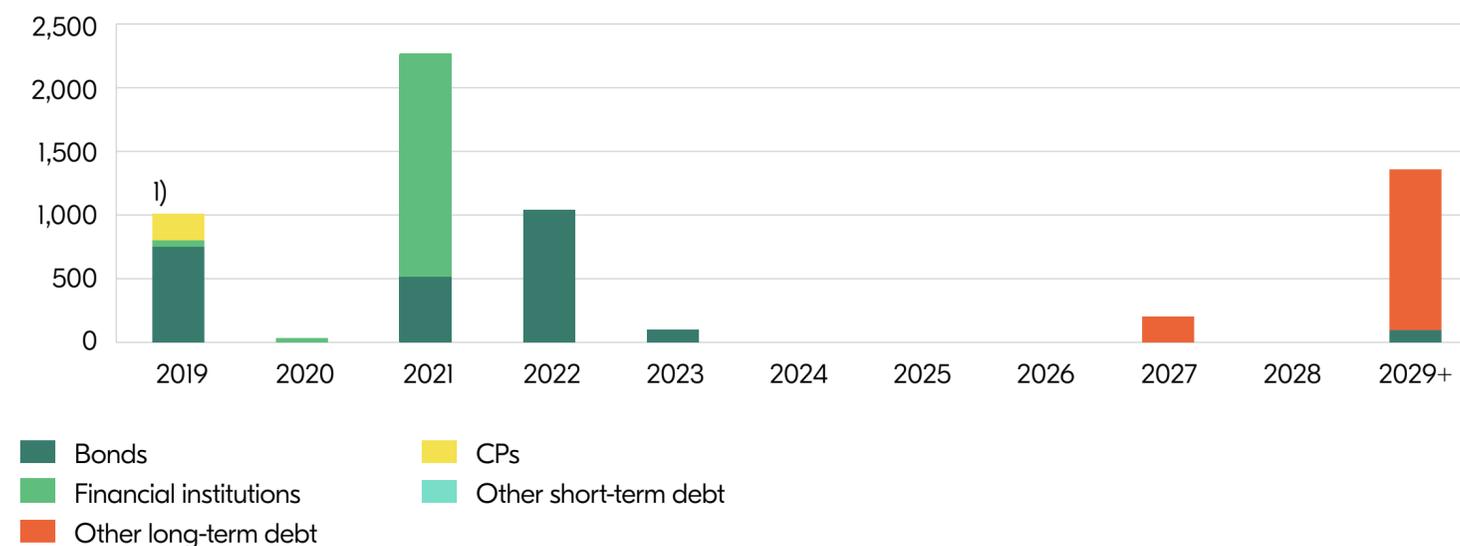
Fortum manages liquidity and refinancing risks through a combination of cash positions and committed credit facility agreements with its core banks. The Group shall at all times have access to cash, marketable securities and unused committed credit facilities including overdrafts, to cover all loans maturing within the next twelve-month period. However, cash/marketable securities and unused committed credit facilities shall always amount to at least EUR 500 million.

On 31 December 2018, loan maturities for the coming twelve-month period amounted to EUR 1,086 million (2017: 766). Liquid funds amounted to EUR 584 million (2017: 3,897) and the total amount of committed and undrawn credit facilities amounted to EUR 1,800 million (2017: 1,800).

### Maturity of interest-bearing liabilities

EUR million	2018
2019	1,086
2020	33
2021	2,267
2022	1,042
2023	100
2024 and later	1,565
<b>Total</b>	<b>6,093</b>

### Loan maturities per loan type, EUR million as of 31 December 2018



1) In addition Fortum has received EUR 75 million based on Credit Support Annex agreements with several counterparties. This amount has been booked as a short-term liability.

### Liquid funds, major credit lines and debt programmes 2018

EUR million	Total facility	Drawn amount	Available amount
<b>Liquid funds</b>			
Cash and cash equivalents			556
Deposits and securities over 3 months			29
<b>Total</b>			<b>584</b>
of which in Russia (PAO Fortum)			317
<b>Committed credit lines</b>			
EUR 1,750 million syndicated credit facility	1,750	-	1,750
Bilateral overdraft facilities	50	-	50
<b>Total</b>	<b>1,800</b>	<b>0</b>	<b>1,800</b>
<b>Debt programmes (uncommitted)</b>			
Fortum Corporation, CP programme EUR 1,000 million	1,000	180	820
Fortum Corporation, CP programme SEK 10,000 million	975	27	948
Fortum Corporation, EMTN programme EUR 8,000 million	8,000	2,448	5,552
<b>Total</b>	<b>9,975</b>	<b>2,655</b>	<b>7,320</b>

### Liquid funds, major credit lines and debt programmes 2017

EUR million	Total facility	Drawn amount	Available amount
<b>Liquid funds</b>			
Cash and cash equivalents			3,182
Deposits and securities over 3 months			715
<b>Total</b>			<b>3,897</b>
of which in Russia (PAO Fortum)			246
<b>Committed credit lines</b>			
EUR 1,750 million syndicated credit facility	1,750	-	1,750
Bilateral overdraft facilities	50	-	50
<b>Total <sup>1)</sup></b>	<b>1,800</b>	<b>0</b>	<b>1,800</b>
<b>Debt programmes (uncommitted)</b>			
Fortum Corporation, CP programme EUR 500 million	500	-	500
Fortum Corporation, CP programme SEK 5,000 million	508	-	508
Fortum Corporation, EMTN programme EUR 8,000 million	8,000	2,943	5,057
<b>Total</b>	<b>9,008</b>	<b>2,943</b>	<b>6,065</b>

1) Excluding committed credit facilities for Fortum's offer for Uniper shares

Liquid funds amounted to EUR 584 million (2017: 3,897), including PAO Fortum's bank deposits amounting to EUR 316 million (2017: 231). See also [▶ Note 24](#) Liquid funds.

## Maturity analysis of interest-bearing liabilities and derivatives

Amounts disclosed below are non-discounted expected cash flows (future interest payments and amortisations) of interest-bearing liabilities and interest rate and currency derivatives.

EUR million	2018				2017			
	Under 1 year	1–5 years	Over 5 years	Total	Under 1 year	1–5 years	Over 5 years	Total
Interest-bearing liabilities	1,212	3,616	1,792	6,620	895	2,723	1,869	5,487
Interest rate and currency derivatives liabilities	3,665	682	16	4,363	3,210	1,005	4	4,219
Interest rate and currency derivatives receivables	-3,736	-726	-20	-4,482	-3,319	-1,092	-1	-4,413
<b>Total</b>	<b>1,141</b>	<b>3,572</b>	<b>1,788</b>	<b>6,501</b>	<b>785</b>	<b>2,636</b>	<b>1,871</b>	<b>5,293</b>

On the balance sheet date the average rate of outstanding currency and interest rate derivatives done in SEK and RUB was 9.90 and 74.86 respectively.

For further information regarding loans from the State Nuclear Waste Management Fund and Teollisuuden Voima Oyj, see ▶ **Note 29** Nuclear related assets and liabilities.

## 4.6 Interest rate risk and currency risk

### 4.6.1 Interest rate risk

Fortum risk mandates state that the average duration of the net debt portfolio shall always be kept within a range of 12 and 36 months and that the flow risk i.e. changes in interest rates shall not affect the net interest payments of the Group by more than EUR 50 million for the next rolling 12-month period. Within these mandates, strategies are evaluated and developed in order to find an optimal balance between risk and financing cost.

On 31 December 2018, the average duration of the net debt portfolio (including derivatives) was 1.6 years (2017: gross debt 1.5). Approximately 79% (2017: 65%) of the debt portfolio was on a floating rate basis or fixed rate loans maturing within the next 12-month period. The flow risk, measured as the difference between the base case net interest cost estimate and the worst-case scenario estimate for Fortum's net debt portfolio for the coming 12 months, was EUR 13 million (2017: gross debt 4).

The average interest rate for the portfolio consisting mainly of EUR and SEK loans was 1.7% at the balance sheet date (2017: 2.4%). Part of the external loans EUR 686 million (2017: 773) have been swapped to RUB and the average interest cost for these loans, including cost for hedging the RUB, was 8.3% at the balance sheet date (2017: 9.5%). The average interest rate on loans and derivatives on balance sheet date, 31 December 2018, was 2.4% (2017: 3.6%). Average cumulative interest rate on loans and derivatives for 2018 was 3.0% (2017: 3.6%).

The average interest rate on deposits and securities excluding Russian deposits on 31 December 2018 was -0.11% (2017: -0.27%). Liquid funds held by PAO Fortum amounted to EUR 317 million (2017: 246) and the average interest rate for this portfolio was 6.9% at the balance sheet date.

### 4.6.2 Currency risk

Fortum's policy is to hedge major transaction exposures on a local level in the reporting currency of each legal entity in order to avoid exchange differences in the profit and loss statement. These exposures are mainly hedged with forward contracts. An exception is the Generation segment's hedging of power sales in Sweden where the currency component is currently not hedged.

Translation exposures in the Fortum Group are generally not hedged as the majority of these assets are considered to be long-term strategic holdings. In Fortum this means largely entities operating in Sweden, Russia, Norway and Poland, whose base currency is not euro.

The currency risk relating to transaction exposures is measured using absolute EUR equivalent amounts from each currency. The mandate for the open transaction exposure is EUR 50 million. On 31 December 2018 the open transaction exposure, excluding Generation segment's EUR/SEK exposure, was EUR 6 million (2017: 13). Translation exposure on 31 December 2018 was EUR 7,723 million (2017: 8,212). Had EUR been 5% weaker/stronger on closing date, then the impact from transaction exposure to profit and loss statement would have been EUR +0.3/-0.3 million (2017: +0.7/-0.7 million) and impact from translation exposure to group's equity EUR +386/-386 million (2017: +411/-411 million).

### Group Treasury's transaction exposure

EUR million	2018			2017		
	Net Position	Hedge	Open	Net Position	Hedge	Open
RUB	541	-541	0	589	-589	0
SEK	969	-969	0	277	-264	13
PLN	366	-365	0	310	-310	0
NOK	296	-290	6	451	-451	0
INR	93	-93	0	117	-117	0
USD	-117	116	0	-118	118	0
Other	-16	16	0	-41	41	0
<b>Total</b>	<b>2,132</b>	<b>-2,126</b>	<b>6</b>	<b>1,585</b>	<b>-1,572</b>	<b>13</b>

Transaction exposure is defined as already contracted or forecasted foreign exchange dependent items and cash flows. Transaction exposure is divided into balance sheet exposure and cash flow exposure. Balance sheet exposure reflects currency denominated assets and liabilities for example loans, deposits and accounts receivable/payable in currencies other than the company's base currency. Cash flow exposure reflects future forecasted

or contracted currency flows in foreign currency deriving from business activities such as sales, purchases or investments. Net foreign exchange differences from transaction exposure are entered under financial income or expense when related to financial items or when related to accounts receivable/payable entered under items included in operating profit. Conversion differences related to qualifying cash flow hedges are deferred to equity.

Fortum's policy is to hedge balance sheet exposures in order to avoid exchange rate differences in the income statement. The Group's balance sheet exposure mainly relates to financing of non-euro subsidiaries and the fact that the Group's main external financing currency is EUR. For derivatives hedging this balance exposure Fortum does not apply hedge accounting, because they have a natural hedge in the income statement.

Contracted cash flow exposures shall be hedged to reduce volatility in future cash flows. These hedges normally consist of currency derivative contracts, which are matched against the underlying future cash flow according to maturity. Fortum has currency cash flow hedges both with and without hedge accounting treatment under IFRS. Those currency cash flow hedges, which do not qualify for hedge accounting are mainly hedging electricity derivatives. Unrealised hedges create volatility in the operating profit.

#### Group translation exposure

EUR million	2018			2017		
	Net Investment	Hedge	Open	Net Investment	Hedge	Open
RUB	2,364	-144	2,220	2,673	-173	2,500
SEK	3,704	-244	3,460	4,769	-1,087	3,682
NOK	1,625	-	1,625	1,600	-	1,600
PLN	291	-	291	294	-	294
Other	128	-	128	136	-	136
<b>Total</b>	<b>8,111</b>	<b>-388</b>	<b>7,723</b>	<b>9,472</b>	<b>-1,260</b>	<b>8,212</b>

Translation exposure position includes net investments in foreign subsidiaries and associated companies. Exchange differences arising from the translation of the net investment in foreign entities are taken to equity. The net effect of exchange differences on equity attributable to equity holders mainly from RUB and SEK was EUR -518 million in 2018 (2017: -369). Part of this translation exposure has been hedged and the foreign currency hedge result amounted to EUR 24 million in 2018 (2017: 28).

#### Interest rate and currency derivatives by instrument 2018

EUR million	2018 Notional amount Remaining lifetimes				2018 Fair value		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Forward foreign exchange contracts	3,240	310	-	3,550	43	20	23
Interest rate swaps	1,515	2,242	225	3,982	159	70	88
Interest rate and currency swaps	383	265	-	648	66	-	66
<b>Total</b>	<b>5,137</b>	<b>2,817</b>	<b>225</b>	<b>8,179</b>	<b>268</b>	<b>90</b>	<b>178</b>
Of which long-term					152	44	108
Short-term					116	46	70

#### Interest rate and currency derivatives by instrument 2017

EUR million	2017 Notional amount Remaining lifetimes				2017 Fair value		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Forward foreign exchange contracts	2,864	266	-	3,130	56	19	37
Interest rate swaps	305	3,421	102	3,827	205	90	115
Interest rate and currency swaps	311	580	-	892	92	3	89
<b>Total</b>	<b>3,480</b>	<b>4,267</b>	<b>102</b>	<b>7,849</b>	<b>353</b>	<b>112</b>	<b>241</b>
Of which long-term					238	88	151
Short-term					114	24	90

#### 4.7 Credit risk

Fortum is exposed to counterparty risk whenever there is a contractual arrangement with an external counterparty.

Credit risk exposures relating to financial derivative instruments are often volatile. The majority of commodity derivatives are exchange-traded and cleared through clearing houses such as Nasdaq Clearing AB or through clearing banks. Derivatives contracts are also entered into directly with external counterparties and such contracts are limited to high-credit-quality counterparties active on the financial or commodity markets. Currency and interest rate derivative counterparties are limited to investment grade banks and financial institutions. ISDA Master agreements, which include netting clauses and in some cases Credit Support Annex agreements, are in place with most of these counterparties. Commodity derivative counterparties are limited to

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those considered to be creditworthy. Master agreements, such as ISDA, FEMA and EFET, which include netting clauses, are in place with the majority of the counterparties.

Due to the financing needs and management of liquidity, Fortum has counterparty credit exposure toward a number of banks and financial institutions. The majority of the exposure is toward Fortum's key relationship banks, which are highly creditworthy institutions, but also includes exposure to the Russian financial sector in terms of deposits with financial institutions as well as to banks that provide guarantees for suppliers and contracting parties. Deposits in Russia have been concentrated to the most creditworthy state-owned or controlled banks. The creditworthiness of banks and financial institutions are monitored so that mitigating actions can be taken as ratings or the financial situation changes. The development of economic sanctions against Russia is followed as part of the monitoring process.

Credit risk relating to customers is spread across a wide range of industrial counterparties, small businesses and private individuals over a range of geographic regions. The majority of exposure is to the Nordic market, Poland and Russia. The risk of non-payment in the electricity and heat sales business in Russia is higher than in the Nordic market.

#### 4.7.1 Credit quality of major financial assets

Fortum recognises the loss allowance for expected credit losses on financial assets classified to amortised cost category at each reporting date. Impairment requirements are based on an expected credit loss ("ECL") model which replaces the incurred loss model of IAS 39. The new impairment model is applied to financial assets such as trade receivables, loan receivables and restricted cash given as collateral for commodity exchanges. Expected credit loss is calculated on individual contract basis for deposits, commercial papers and loan receivables. No impairment loss is recognised on cash in bank accounts. The expected credit losses according to this model are based on assessment of the individual counterparty's risk of default. The risk of default is evaluated at each reporting date based on credit ratings to determine if credit risk has increased significantly. A change of credit rating from investment to non-investment grade constitutes a significant increase in credit risk. If the credit risk on the financial asset has not increased significantly since the initial recognition, loss allowance equals to 12 month ECL. If the credit risk on the financial asset has increased significantly since initial recognition, loss allowance equals to the lifetime expected credit losses. There have been no significant increases in credit risk during 2018. The loss allowance for deposits, commercial papers and loan receivables totalled EUR 1 million on December 31, 2018. Amounts for interest-bearing receivables including bank deposits and derivative financial instruments recognised as assets are presented by counterparties.

#### Credit quality of major financial assets

EUR million	2018		2017	
	Carrying amount	of which past due	Carrying amount	of which past due
<b>Investment grade receivables</b>				
Deposits, commercial papers and cash in bank accounts	168	-	3,348	-
Fair values of interest rate and currency derivatives	268	-	353	-
Fair values of electricity and other commodity derivatives	58	-	56	-
<b>Total investment grade receivables</b>	<b>494</b>	<b>-</b>	<b>3,757</b>	<b>-</b>
<b>Energy exchange receivables</b>				
Fair value of derivatives on Nasdaq Commodities	76	-	37	-
Fair value of derivatives on European Energy Exchange AG	4	-	2	-
Fair value of derivatives on the Polish Power Exchange	75	-	13	-
<b>Total energy exchange receivables</b>	<b>155</b>	<b>-</b>	<b>52</b>	<b>-</b>
<b>Associated companies and joint venture receivables</b>				
Loan receivables	641	-	864	-
Finance lease receivable	0	-	41	-
Fair values of electricity and other commodity derivatives	22	-	9	-
<b>Total associated companies and joint venture receivables</b>	<b>663</b>	<b>-</b>	<b>914</b>	<b>-</b>
<b>Other receivables</b>				
Investments in commercial papers	46	-	249	-
Russian deposits with non-investment grade banks	260	-	141	-
Restricted cash mainly given as collateral for commodity exchanges	379	-	363	-
Receivable from SIBUR related to divested shares of OOO Tobolsk CHP	70	-	102	-
Loan and other interest-bearing receivables	2	-	35	-
Fair values of electricity and other commodity derivatives	53	-	51	-
<b>Total other receivables</b>	<b>810</b>	<b>-</b>	<b>941</b>	<b>-</b>
<b>Total</b>	<b>2,122</b>	<b>-</b>	<b>5,664</b>	<b>-</b>

## Deposits and securities

The following tables present bank deposits, commercial papers and fair values of derivatives by rating classes.

EUR million	2018	2017
<b>Counterparties with external credit rating from Standard &amp; Poor's, Fitch and/or Moody's Investment grade ratings</b>		
AAA	-	-
AA+/AA/AA-	62	324
A+/A/A-	30	2,835
BBB+/BBB/BBB-	76	189
<b>Total investment grade ratings</b>	<b>168</b>	<b>3,348</b>
BB+/BB/BB-	260	141
B+/B/B-	-	-
Below B-	-	-
<b>Non-investment grade ratings</b>	<b>260</b>	<b>141</b>
<b>Counterparties without external credit rating from Standard &amp; Poor's, Fitch or Moody's</b>		
Government or municipality	-	-
Fortum Rating 5 - Lowest risk	46	249
Fortum Rating 4 - Low risk	-	-
Fortum Rating 3 - Normal risk	-	-
Fortum Rating 2 - High risk	-	-
Fortum Rating 1 - Highest risk	-	-
No rating	-	-
<b>Total non-rated counterparties</b>	<b>46</b>	<b>249</b>
<b>Total</b>	<b>474</b>	<b>3,738</b>

In addition, cash in other bank accounts totalled EUR 110 million on 31 December 2018 (2017: 159).

See [Note 24](#) Liquid funds.

## Interest rate and currency derivatives

EUR million	2018		2017	
	Receivables	Netted amount <sup>1)</sup>	Receivables	Netted amount <sup>1)</sup>
<b>Counterparties with external credit rating from Standard &amp; Poor's, Fitch and/or Moody's Investment grade ratings</b>				
AAA	-	-	-	-
AA+/AA/AA-	46	26	51	30
A+/A/A-	180	59	292	100
BBB+/BBB/BBB-	42	24	10	9
<b>Total investment grade ratings</b>	<b>268</b>	<b>109</b>	<b>353</b>	<b>140</b>
<b>Total associated companies and joint ventures</b>	<b>-</b>	<b>-</b>	<b>0</b>	<b>0</b>
<b>Counterparties without external credit rating from Standard &amp; Poor's, Fitch or Moody's</b>				
	-	-	-	-
<b>Total</b>	<b>268</b>	<b>109</b>	<b>353</b>	<b>140</b>

1) The netted amount includes the cash received in accordance with Credit Support Annex agreements EUR 75 million (2017: 113).

## Electricity, coal, gas and oil derivatives and CO<sub>2</sub> emission allowances treated as derivatives

EUR million	2018		2017	
	Receivables	Netted amount	Receivables	Netted amount
<b>Counterparties with external credit rating from Standard &amp; Poor's, Fitch and/or Moody's Investment grade ratings</b>				
AAA	-	-	-	-
AA+/AA/AA-	-	-	1	1
A+/A/A-	56	60	53	53
BBB+/BBB/BBB-	2	2	2	1
<b>Total investment grade ratings</b>	<b>58</b>	<b>62</b>	<b>56</b>	<b>55</b>
<b>Non-investment grade ratings</b>				
BB+/BB/BB-	0	0	1	0
B+/B/B-	-	-	0	0
Below B-	-	-	-	-
<b>Total non-investment grade ratings</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Total associated companies and joint ventures</b>	<b>22</b>	<b>0</b>	<b>9</b>	<b>0</b>
<b>Counterparties without external credit rating from Standard &amp; Poor's, Fitch or Moody's</b>				
Government or municipality	12	0	0	0
Fortum Rating 5 - Lowest risk	12	1	15	10
Fortum Rating 4 - Low risk	13	5	19	12
Fortum Rating 3 - Normal risk	3	1	16	12
Fortum Rating 2 - High risk	3	3	0	0
Fortum Rating 1 - Highest risk	-	-	-	-
No rating	10	3	1	1
<b>Total non-rated counterparties</b>	<b>53</b>	<b>13</b>	<b>51</b>	<b>35</b>
<b>Total</b>	<b>133</b>	<b>75</b>	<b>117</b>	<b>90</b>

For derivatives, the receivable is the sum of the positive fair values, i.e. the gross amount. Netted amount includes negative fair values where a valid netting agreement is in place with the counterparty. When the netted amount is less than zero, it is not included. In cases where a parent company guarantee is in place, the exposure is shown on the issuer of the guarantee.

All counterparties for currency and interest rate derivatives and the majority of counterparties for bank deposits have an external rating from Standard & Poor's, Fitch and/or Moody's credit agencies. The above rating

scale is for Standard & Poor's and Fitch rating categories. For those counterparties only rated by Moody's, the rating has been translated to the equivalent Standard and Poor's and Fitch rating category. For counterparties rated by more than one rating agency, the lowest of the ratings is used.

In the commodity derivatives and commercial paper market, there are a number of counterparties not rated by Standard & Poor's, Fitch or Moody's. For these counterparties, Fortum assigns an internal rating. The internal rating is based on external credit ratings from other credit agencies. The rating from Bisnode is used for Nordic counterparties and for other counterparties the rating from Dun & Bradstreet is used. Governments and municipal companies are typically not rated, and are shown separately. This rating category does not include companies owned by governments or municipalities. Counterparties that have not been assigned a rating by the above listed credit agencies are in the "No rating" category.

## 5 Capital risk management

Fortum updated its strategy and reconfirmed the dividend policy and long-term financial targets in November 2018. The update was a continuation of the strategy execution towards Fortum's vision "For a cleaner world". The strategy aims at strengthening Fortum's competitiveness and ensuring a benchmark portfolio for the 2020's.

Fortum has undergone a remarkable transformation in recent years, starting with the exit from the regulated power distribution business. This has enabled stronger focus on power and heat generation, through the strategic investment in Uniper, and growth in sustainable bio and waste-based combined heat and power generation. Furthermore, Fortum has created a solid base in solar and wind power, expanded in the consumer sector, and into the recycling and waste business.

Pursuing operational excellence and increased flexibility as well as ensuring value creation from investments and portfolio optimization are the key priorities. Benchmark performance is essential for long-term competitiveness. For the next 2–3 years, Fortum prioritises profit creation from the current business portfolio. This will be achieved through operational excellence and increased flexibility. All sources of flexibility, both flexible generation assets and the demand response of large customers and consumers, will be needed to balance the high degree of volatile renewable generation. Operational excellence and increased flexibility will contribute to improving Fortum's financial performance and cash flows to create additional financial headroom. In addition, Fortum will continue to prioritise and scrutinize capital expenditure. Through these measures, the target is to steer leverage from current net debt to EBITDA ratio towards the long-term target ratio of around 2.5 times. Having a solid investment grade rating is a key priority for Fortum.

Over the recent years Fortum has made several sizeable investments and aims to further improve its financial performance by ensuring value creation from them. The investment in Uniper, currently accounted for as an associated company, will contribute to Fortum's financial performance both through Fortum's share of

Uniper's result and its dividend. As Uniper's largest shareholder, Fortum's ambition is to increase value for both companies and their stakeholders.

In addition, Fortum continues to review its business portfolio in line with its strategic priorities emphasising CO<sub>2</sub>-free assets, flexibility, and low operating cost to fit the changing business environment. Fortum will also drive focused growth in the power value chain and seek to build options for significant new businesses for the future.

Financial targets give guidance on Fortum's view of the company's long-term value creation potential, its growth strategy and business activities. The long-term over-the-cycle financial targets are Return on capital employed, ROCE at least 10% and Comparable net debt to EBITDA around 2.5 times. These measures are considered as Alternative Performance Measures.

The dividend policy ensures that shareholders receive a fair remuneration for their entrusted capital, supported by the company's long-term strategy that aims at increasing earnings per share and thereby the dividend. When proposing the dividend, the Board of Directors looks at a range of factors, including the macro environment, balance sheet strength as well as future investment plans. Fortum Corporation's target is to pay a stable, sustainable and over time increasing dividend, in the range of 50–80% of earnings per share, excluding one-off items.

In January 2018, Standard & Poor's downgraded Fortum's long-term credit rating from BBB+ to BBB with Negative Outlook. The short-term rating was affirmed at level A-2. In June 2018, Fitch Ratings downgraded Fortum's long-term credit rating from BBB+ to BBB with Stable Outlook. The short-term rating was downgraded to level F3.

### Comparable net debt/EBITDA ratio

EUR million	Note	2018	2017
Interest-bearing liabilities	27	6,093	4,885
<b>BS</b> Less: Liquid funds	24	584	3,897
<b>Net debt</b>		<b>5,509</b>	<b>988</b>
Operating profit		1,138	1,158
Add: Depreciation and amortisation		536	464
<b>EBITDA</b>		<b>1,674</b>	<b>1,623</b>
Less: Items affecting comparability		151	347
<b>Comparable EBITDA</b>		<b>1,523</b>	<b>1,275</b>
<b>Comparable net debt/EBITDA</b>		<b>3.6</b>	<b>0.8</b>

### Return on capital employed, %

EUR million	Note	2018	2017
<b>Profit before income tax</b>		<b>1,040</b>	<b>1,111</b>
Interest expenses		148	164
Other financial expenses <sup>1)</sup>		26	25
<b>+Interest and other financial expenses</b>		<b>174</b>	<b>189</b>
<b>Profit before taxes + interest and other financial expenses</b>		<b>1,214</b>	<b>1,300</b>
1) Other financial expenses, see also ▶ <a href="#">Note 12</a> Finance costs-net			
<b>Capital employed</b>			
<b>Total assets</b>		<b>22,409</b>	<b>21,753</b>
Total liabilities		10,332	8,466
- Interest-bearing liabilities		6,093	4,885
<b>- Total interest-free liabilities</b>		<b>4,239</b>	<b>3,581</b>
<b>Capital employed</b>		<b>18,170</b>	<b>18,172</b>
<b>Capital employed at the end of previous period</b>		<b>18,172</b>	<b>18,649</b>
<b>Average capital employed</b>		<b>18,171</b>	<b>18,411</b>
<b>Return on capital employed, %</b>		<b>6.7%</b>	<b>7.1%</b>

See ▶ [Definitions of key figures](#).

## 6 Segment reporting

### ACCOUNTING POLICIES

#### REVENUE RECOGNITION

Fortum's operations comprise electricity, heating, cooling and waste management services. The revenue streams can be divided into four groups: power sales to wholesale markets, power sales to retail customers, heating sales and waste treatment sales.

Fortum has adopted the new IFRS 15 Revenue from Contracts with Customers standard from 1 January 2018 onwards by applying the modified retrospective approach, which means that comparative information from 2017 is not restated. IFRS 15 transition does not have a significant impact on Fortum's financial statements and accounting policies. See additional information on the transition impacts in [► Note 1 Accounting policies](#).

Revenue is recognized when goods are transferred or services are performed, i.e. when (or as) a performance obligation is satisfied and control of the good or service underlying the particular performance obligations is transferred to the customer. Revenue is shown at the price that Fortum expects to be entitled to and is presented net of rebates, discounts, value-added tax and selective taxes such as electricity tax.

The accounting policies for the different revenue streams are described below.

#### POWER SALES TO WHOLESALE MARKETS

Physical electricity trades to Nord Pool or to other wholesale markets are made either during the same day or day before the delivery and the duration of the contract is thus very short. The transaction price is the spot price and there are no variable elements. Electricity sales are recognized upon delivery at the price defined in Nordpool or in other wholesale market. When Fortum is acting as an agent in the power trades by granting access to the Nord Pool power trading system, Fortum presents the bilateral trades between Fortum and the customer on a net basis, and only the fee from the service is recorded as revenue.

#### POWER SALES TO RETAIL CUSTOMERS

Fortum's contracts with the consumer and business customers cover the electricity sales, while the distribution service is delivered by the transmission company operating the local network. There is only one performance obligation, which is to stand-ready to supply electricity to the customer. The transaction price generally includes both a fixed monthly fee and a variable fee that depends on the volume of electricity supplied. As Fortum's promise is to stand ready to deliver electricity, the fixed and variable components are recognised based on the fees chargeable from the customer. If automated meter reading is not available, the electricity consumption between the last meter reading and end of the month is estimated.

#### HEATING SALES

In many areas the district heating service covers both the distribution and sale of heat. Even if heat is produced by a third party, Fortum is usually responsible for delivering the whole service and is acting as a principal for the heat sales

as well. Fortum has concluded that the distribution and sale of heat are not separate performance obligations and are both covered by the promise to stand-ready to supply heat to the customer. The fees charged from the customer generally comprise a fixed monthly charge and a variable component that is determined based on the volume of heat supplied. In accordance with the IFRS 15 principles, the fixed charge and the variable heat volume charge are allocated and recognised in line with the fees chargeable from the customer. In Russia, Baltics and Poland there are also areas, where Fortum operates only the heat production facilities while some third party is responsible for the distribution of heat. In these areas the performance obligation is to supply heat and revenue is recognised based on the volume of heat that Fortum is entitled to charge from the customer.

#### WASTE TREATMENT SALES

A majority of the revenues from waste management services arises from the fees charged for receiving the waste from customers (i.e. gate fees). The fee is usually determined based on the volume of waste received and there are no variable elements in the pricing. Fortum is required to treat the waste and this performance obligation is satisfied when the treatment is performed. Transportation of the waste forms another performance obligation. The fees for waste treatment and transportation services are separately agreed in the contract and correspond to the price that would be charged for these services separately. Revenue for transportation service is recognised when service is provided.

Waste treatment business sales includes also various types of soil and landfill site projects which mostly take place at the customer site. The fees charged from the customers are invoiced based on payment schedules agreed with the customer. The customer obtains the benefits of the construction work simultaneously when the construction work proceeds and therefore the projects are recognised over time. The progress of the construction is best measured through the costs incurred or the completed area of the construction site.

#### COSTS FOR OBTAINING CUSTOMERS

Incremental costs for obtaining new customers as well as renewing existing customer contracts in Consumer Solutions division are capitalised as intangible assets and amortised over the expected contract duration. The sales commission costs were mostly expensed until end of 2017, but are capitalised from 1 January 2018 onwards due to adoption of IFRS 15 Revenue from contracts with customers. See additional information on impact of transition to IFRS 15 in [► Note 1 Accounting policies](#).

#### NETTING AND INTER-SEGMENT TRANSACTIONS

Generation segment sells its production to Nord Pool and Consumer Solutions buys its electricity from Nord Pool. Eliminations of sales include eliminations of sales and purchases with Nord Pool that are netted on group level on an hourly basis and posted either as revenue or cost depending on if Fortum is a net seller or net buyer during any particular hour. Inter-segment sales, expenses and results for the different business segments are affected by intragroup deliveries, which are eliminated on consolidation. Inter-segment transactions are based on commercial terms.

### 6.1 Fortum's business structure

Fortum's business divisions are Generation, City Solutions, Consumer Solutions, Russia and Other Operations, which includes M&A and Solar & Wind Development, Technology and New Ventures as well as corporate functions. Fortum's participation in Uniper SE is also reported as part of Other Operations.

In November 2018, Fortum announced that the solar and wind businesses were reorganised and the wind operations became a business area within the Generation division and the solar operations within the City Solutions division. The Russian wind and solar operations continue as a part of the Russia division. The management and segment reporting will be changed from 2019 onwards and 2018 figures will be restated accordingly.

Below is the description of the reportable segments:

		Group			
		Generation	City Solutions	Consumer Solutions	Russia
Divisions					
		Generation	City Solutions	Consumer Solutions	Russia
Reporting segments		The Generation segment comprises power production in the Nordics, including nuclear, hydro, and thermal power production, power portfolio optimisation, trading, industrial intelligence, as well as nuclear services globally.	City Solutions develops sustainable solutions for urban areas into a growing business for Fortum. The segment comprises heating and cooling, waste-to-energy, operation and maintenance services, biomass, and other circular economy solutions. The business operations are located in the Nordics, the Baltic countries, and Poland. The segment also includes Fortum's 50% holding in Stockholm Exergi (formerly Fortum Värme), which is a joint venture and is accounted for using the equity method.	Consumer Solutions comprises electricity and gas retail businesses in the Nordics and Poland, including the customer service, invoicing and debt collection business. Fortum is the largest electricity retailer in the Nordics, with approximately 2.5 million customers across different brands in Finland, Sweden, Norway and Poland. The business provides electricity and related value-added products as well as new digital customer solutions.	The Russia segment comprises power and heat generation and sales in Russia. The segment also includes Fortum's over 29% holding in TGC-1, which is an associated company and is accounted for using the equity method.
		Generation	City Solutions	Consumer Solutions	Russia

### 6.2 Segment structure in Fortum

Fortum discloses segment information in a manner consistent with internal reporting to Fortum's Board of Directors and to Fortum Executive Management led by the President and CEO. Fortum has segments based on type of business operations, combined with one segment based on geographical area. Fortum's reportable segments under IFRS are the business divisions Generation, City Solutions, Consumer Solutions and Russia.

### 6.3 Definitions for segment information

Fortum's segment information discloses the financial measurements used in financial target setting and forecasting, management's follow up of financial performance and allocation of resources in the group's performance management process. These measurements that are considered as Alternative Performance Measures, such as Comparable operating profit and Comparable return on net assets, have been used consistently since 2005.

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Items affecting comparability are disclosed separately in Fortum's income statement to support the understanding of business performance when comparing results between periods. Items classified as Items affecting comparability include accounting effects from valuation according to IFRS that are not arising from the performance of the business operations. Such items include fair valuation of financial derivatives hedging future cash-flows where hedge accounting is not applied according to IFRS 9 and effects from the accounting of Fortum's part of the Finnish Nuclear Waste Fund where the asset in the balance sheet cannot exceed the related provisions according to IFRIC interpretation 5.

The business performance of the operations cannot be compared from one period to another without adjusting for one-time items relating to capital gains, major impairment related items and transaction costs arising from acquisitions. Therefore such items have also been treated as Items affecting comparability. Transaction costs arising from acquisitions of subsidiary shares are included in capital gains and other within items affecting comparability. According to IFRS 3 transaction costs related to the acquisitions of subsidiary shares are recognised in the income statement.

Segment reporting is based on the same accounting principles as the Fortum Group.

See ▶ [Definition of key figures](#).

## 6.4 Segment information

### Income statement

EUR million	Note	Generation <sup>1)</sup>		City Solutions <sup>1)</sup>		Consumer Solutions		Russia		Other Operations		Total	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Power sales <sup>3)</sup>		1,767	1,649	119	121	1,547	862	872	837	26	15	4,331	3,483
Heat sales		0	0	604	523	0	0	193	258	0	0	797	782
Waste treatment sales		0	0	211	195	0	0	0	0	0	0	211	195
Other sales		70	28	161	175	212	235	4	6	102	87	549	531
<b>IS Sales</b>		<b>1,837</b>	<b>1,677</b>	<b>1,094</b>	<b>1,015</b>	<b>1,759</b>	<b>1,097</b>	<b>1,069</b>	<b>1,101</b>	<b>129</b>	<b>102</b>	<b>5,888</b>	<b>4,991</b>
Internal eliminations		-2	-15	-37	-19	-11	-3	0	0	-80	-67	-130	-103
Netting of Nord Pool transactions <sup>2)</sup>												-516	-367
<b>External sales</b>		<b>1,835</b>	<b>1,662</b>	<b>1,057</b>	<b>996</b>	<b>1,748</b>	<b>1,094</b>	<b>1,069</b>	<b>1,101</b>	<b>49</b>	<b>35</b>	<b>5,242</b>	<b>4,520</b>
<b>Comparable EBITDA</b>		<b>762</b>	<b>603</b>	<b>284</b>	<b>262</b>	<b>110</b>	<b>57</b>	<b>417</b>	<b>438</b>	<b>-50</b>	<b>-83</b>	<b>1,523</b>	<b>1,275</b>
IS Depreciation and amortisation		-131	-125	-171	-163	-57	-16	-147	-142	-30	-18	-536	-464
<b>IS Comparable operating profit</b>		<b>631</b>	<b>478</b>	<b>113</b>	<b>98</b>	<b>53</b>	<b>41</b>	<b>271</b>	<b>296</b>	<b>-79</b>	<b>-102</b>	<b>987</b>	<b>811</b>
Impairment charges	7	-4	6	0	0	0	0	0	0	0	0	-4	6
Capital gains and other	7	77	1	0	1	0	2	2	0	23	322	102	326
Changes in fair values of derivatives hedging future cash-flow	7, 8	79	15	-4	3	22	-4	0	0	0	0	98	14
Nuclear fund adjustment	7, 29	-45	1	0	0	0	0	0	0	0	0	-45	1
IS Items affecting comparability	7	108	23	-4	4	22	-2	2	0	23	322	151	347
<b>IS Operating profit</b>		<b>738</b>	<b>501</b>	<b>109</b>	<b>102</b>	<b>75</b>	<b>39</b>	<b>273</b>	<b>295</b>	<b>-57</b>	<b>221</b>	<b>1,138</b>	<b>1,158</b>
IS Share of profit of associated companies and joint ventures	19, 29	-72	-1	74	80	0	0	36	31	0	38	38	148
IS Finance costs - net												-136	-195
IS Income taxes												-181	-229
<b>IS Profit for the year</b>												<b>858</b>	<b>882</b>

1) Sales, both internal and external, include effects from realised hedging contracts. Effect on sales can be negative or positive depending on the average contract price and realised spot price.

2) Netting and eliminations include eliminations of internal sales and netting of Nord Pool transactions. Sales and purchases with Nord Pool, EUR -516 million, are netted on Group level on an hourly basis and posted either as revenue or cost depending on if Fortum is a net seller or net buyer during any particular hour.

3) Power sales contains realised result from commodity derivatives, EUR +70 million, which have not had hedge accounting status under IFRS 9, but have been considered operatively as hedges.

**Segment assets and liabilities**

EUR million	Note	Generation		City Solutions		Consumer Solutions		Russia		Other Operations		Total	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Non-interest-bearing assets		6,669	6,097	3,555	3,517	1,044	923	2,408	2,812	395	452	14,072	13,801
<b>BS</b> Participations in associated companies and joint ventures	19, 29	846	785	613	611	0	0	495	472	4,024	32	5,978	1,900
Eliminations												-117	-19
<b>Total segment assets</b>		<b>7,515</b>	<b>6,882</b>	<b>4,168</b>	<b>4,128</b>	<b>1,044</b>	<b>923</b>	<b>2,903</b>	<b>3,284</b>	<b>4,419</b>	<b>483</b>	<b>19,933</b>	<b>15,682</b>
Interest-bearing receivables	21											1,092	1,406
<b>BS</b> Deferred tax assets	28											70	73
Other assets												731	696
<b>BS</b> Liquid funds												584	3,897
<b>Total assets</b>												<b>22,409</b>	<b>21,753</b>
<b>Segment liabilities</b>		<b>1,220</b>	<b>1,210</b>	<b>425</b>	<b>400</b>	<b>396</b>	<b>285</b>	<b>114</b>	<b>124</b>	<b>155</b>	<b>207</b>	<b>2,311</b>	<b>2,227</b>
Eliminations												-117	-19
<b>Total segment liabilities</b>												<b>2,194</b>	<b>2,208</b>
<b>BS</b> Deferred tax liabilities	28											720	819
Other liabilities												1,325	554
<b>Total liabilities included in capital employed</b>												<b>4,239</b>	<b>3,581</b>
Interest-bearing liabilities	27											6,093	4,885
<b>BS</b> Total equity												12,077	13,287
<b>Total equity and liabilities</b>												<b>22,409</b>	<b>21,753</b>

**Gross investments / divestments**

EUR million	Note	Generation		City Solutions		Consumer Solutions		Russia		Other Operations		Total	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Gross investments in shares	19, 3	8	90	32	386	0	486	63	125	3,985	39	4,088	1,125
Capital expenditure	17, 18	186	174	190	170	47	7	54	152	108	187	584	690
of which capitalised borrowing costs		3	3	4	2	0	0	0	7	3	4	10	16
Gross divestments of shares	3	160	0	0	0	0	55	0	0	147	687	306	742

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## Comparable operating profit including share of profits from associates and joint ventures and Comparable return on net assets

EUR million	Note	Generation		City Solutions		Consumer Solutions		Russia		Other Operations	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Comparable operating profit		631	478	113	98	53	41	271	296	-79	-102
Share of profit of associated companies and joint ventures	11	-72	-1	74	80	0	0	36	31	0	38
Adjustment for Share of profit of associated companies and joint ventures		94	0	0	0	0	0	0	0	-38	0
<b>Comparable operating profit including share of profits from associates and joint ventures</b>		<b>653</b>	<b>482</b>	<b>186</b>	<b>178</b>	<b>53</b>	<b>41</b>	<b>307</b>	<b>327</b>	<b>-117</b>	<b>-63</b>
Segment assets at the end of the period		7,515	6,882	4,168	4,128	1,044	923	2,903	3,284	4,419	483
Segment liabilities at the end of the period		1,220	1,210	425	400	396	285	114	124	155	207
<b>Comparable net assets</b>		<b>6,295</b>	<b>5,672</b>	<b>3,743</b>	<b>3,728</b>	<b>648</b>	<b>638</b>	<b>2,789</b>	<b>3,161</b>	<b>4,264</b>	<b>276</b>
<b>Comparable net assets average <sup>1)</sup></b>		<b>5,868</b>	<b>5,753</b>	<b>3,700</b>	<b>3,218</b>	<b>671</b>	<b>348</b>	<b>2,976</b>	<b>3,248</b>	<b>2,619</b>	<b>475</b>
<b>Comparable return on net assets, %</b>		<b>11.1</b>	<b>8.4</b>	<b>5.0</b>	<b>5.5</b>	<b>7.8</b>	<b>11.7</b>	<b>10.3</b>	<b>10.1</b>	<b>-4.5</b>	<b>-13.3</b>

1) Average net assets are calculated using the opening balance and end of each quarter values.

## Employees

	Generation		City Solutions		Consumer Solutions		Russia		Other Operations		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Number of employees 31 Dec	1,075	1,035	1,956	1,907	1,399	1,543	2,941	3,495	915	805	8,286	8,785
Average number of employees	1,087	1,036	1,940	1,807	1,473	1,180	3,378	3,710	888	774	8,767	8,507

## 6.5 Group-wide disclosures

The Group's operating segments operate mainly in the Nordic countries, Russia, Poland and other parts of the Baltic Rim area. Generation operates mainly in Finland and Sweden, Consumer Solutions operates mainly in Nordic countries and Poland, whereas City Solutions operates in all of these geographical areas except Russia. Other countries are mainly Estonia, Latvia, Lithuania and India. The home country is Finland.

The information below is disclosing sales by the country in which the customer is located. Assets, capital expenditure and personnel are reported where the assets and personnel are located. Participations in associates and joint ventures are not divided by location since the companies concerned can have business in several geographical areas. Sales by product area is presented in Income statement by segment. Due to the large number of customers and the variety of its business activities, there is no individual customer whose business volume is material compared with Fortum's total business volume.

## Sales by market area based on customer location

EUR million	2018	2017
Nordic	3,619	2,827
Russia	1,069	1,102
Poland	331	452
Other countries	223	139
<b>IS Total</b>	<b>5,242</b>	<b>4,520</b>

The Nordic power production is not split by countries since Nordic power production is mainly sold through Nord Pool.

### Capital expenditure by location

EUR million	2018	2017
Finland	215	179
Sweden	89	104
Norway	97	46
Russia	54	152
Poland	86	92
Other countries	43	115
<b>Total</b>	<b>584</b>	<b>690</b>

### Segment assets by location

EUR million	2018	2017
Finland	4,589	3,882
Sweden	4,202	4,304
Norway	1,622	1,533
Russia	2,408	2,812
Poland	645	559
Other countries and eliminations	488	692
<b>Non-interest bearing assets</b>	<b>13,955</b>	<b>13,781</b>
BS Participations in associates and joint ventures	5,978	1,900
<b>Total</b>	<b>19,933</b>	<b>15,682</b>

Segment assets in Finland include EUR 590 million (2017: 85) settlements paid for futures.

### Number of employees on 31 December by location

	2018	2017
Finland	2,238	2,165
Sweden	981	968
Norway	667	654
Russia	2,941	3,494
Poland	754	827
Other countries	705	677
<b>Total</b>	<b>8,286</b>	<b>8,785</b>

## 7 Items affecting comparability

EUR million	2018	2017
Impairment charges	-4	6
Capital gains and other	102	326
Changes in fair values of derivatives hedging future cash flow	98	14
Nuclear fund adjustments	-45	1
<b>IS Total</b>	<b>151</b>	<b>347</b>

Fortum uses Alternative performance measures (APMs) in the financial target setting and forecasting, management's follow up of financial performance of segments and the group as well as allocation of resources in the group's performance management process. The business performance of the operations cannot be compared from one period to another without adjusting for items affecting comparability and therefore they are excluded from Comparable operating profit and Comparable EBITDA. The main business performance measurements have been used consistently since 2005.

Definitions are presented in the section [Definitions of key figures](#).

### Impairment charges and capital gains

EUR million	Segment	2018	2017
<b>Impairment charges</b>			
Change in dismantling provision for the Finnish coal-fired power plant Inkoo	Generation	-3	6
Other impairment charges	Generation	-1	
<b>Total</b>		<b>-4</b>	<b>6</b>
<b>Capital gains and other</b>			
Hafslund Produksjon Holding AS, associated company	Other Operations	77	
Espoo head office	Other Operations	26	
Hafslund ASA, associated company	Other Operations		324
Transaction costs	Other Operations	-4	-4
Other non-recurring items		2	6
<b>Total</b>		<b>101</b>	<b>326</b>

### Fair value changes on derivatives

Changes in the fair values of financial derivative instruments hedging future cash flows that do not qualify for hedge accounting are recognised in items affecting comparability. This is done to improve the understanding of the financial performance when comparing results from one period to another.

### Nuclear waste management fund adjustment

Nuclear fund adjustment includes effects from the accounting principle of Fortum's part of the State Nuclear Waste Management Fund where the assets in the balance sheet cannot exceed the nuclear related provisions according to IFRIC 5. As long as the Fund is overfunded from an IFRS perspective, the effects to the operating profit from this adjustment will be positive if the provisions increase more than the Fund and negative if actual value of the fund increases more than the provisions. In addition adjustments are made for accounting effects from valuation according to IFRS.

Fortum has reassessed assumptions used for all nuclear related assets and liabilities as of 31 December 2018. The increase of the nuclear provision for the Loviisa nuclear power plant in Finland leads to recognition of an additional share of the Finnish nuclear fund. The increase of the provision due to the reassessment and the additional share in the fund are both included in Items affecting comparability. The net profit impact from all these nuclear related adjustments is close to zero. For additional information see [Note 29](#) Nuclear related assets and liabilities

For more information regarding disposals of shares, see [Note 3](#) Acquisitions and disposals. For more information regarding fair value changes of derivatives, see [Note 8](#) Fair value changes of derivatives and underlying items in income statement. For more information regarding nuclear waste management, see [Note 29](#) Nuclear related assets and liabilities.

## 8 Fair value changes of derivatives and underlying items in income statement

Fair value changes in operating profit presented below are arising from financial derivatives hedging future cash flows where hedge accounting is not applied according to IFRS 9 and the ineffectiveness from cash flow hedges.

Fair value changes of currency derivatives in net financial expenses are arising mainly from balance sheet hedges without hedge accounting status according to IFRS 9, because they are natural hedges of loans and receivables. Fair value change of interest rate hedges without hedge accounting is EUR -8 million (2017: -7).

EUR million	2018	2017
<b>In operating profit</b>		
Fair value changes from derivatives not getting hedge accounting status		
Electricity derivatives	77	-20
Currency derivatives	3	-1
Other commodity derivatives	17	25
Ineffectiveness from cash flow hedges	0	11
<b>Total effect in operating profit</b>	<b>98</b>	<b>14</b>
<b>In finance costs</b>		
Exchange gains and losses on loans and receivables <sup>1)</sup>	-100	-51
Fair value changes of derivatives not getting hedge accounting status		
Cross currency interest rate derivatives <sup>1)</sup>	8	6
Foreign currency derivatives <sup>1)</sup>	91	47
Rate difference on forward contracts	3	-4
Currency derivatives	102	49
Interest rate derivatives	-8	-7
Fair value change of hedging derivatives in fair value hedge relationship	-24	-31
Fair value change of hedged items in fair value hedge relationship	24	31
Total <sup>2)</sup>	94	42
<b>Total effect in finance costs</b>	<b>-6</b>	<b>-10</b>
<b>Total effect on profit before income tax</b>	<b>92</b>	<b>4</b>

1) Exchange gains and losses on loans, receivables and derivatives totalling EUR -1 million (2017: 2).

2) Including fair value gains and losses on hedged financial instruments and foreign currency and interest rate derivatives EUR -5 million (2017: -12). See also [Note 12](#) Finance costs - net.

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## 9 Other income and other expenses

### ACCOUNTING POLICIES

#### OTHER INCOME

Revenue from activities outside normal operations is reported in other income. This includes recurring items such as rental income and subsidies and non-recurring items such as insurance compensation. In addition, profits from the capital recycling business model are presented in other income, because the business results are realised through divesting the shareholding, either partially or totally.

#### RESEARCH AND DEVELOPMENT COSTS

Research and development costs are recognised as expense as incurred and included in other expenses in the income statement. If development costs will generate future income, they are capitalised as intangible assets and depreciated over the period of the income streams.

### 9.1 Other income

EUR million	2018	2017
Rental income	12	6
Insurance compensation	1	2
Subsidies	47	17
Other items	71	28
<b>IS Total</b>	<b>130</b>	<b>55</b>

Increase in subsidies is due to reclassification from sales to other income according to IFRS 15. Other items include a profit of EUR 26 million from the partial sale of Fortum's solar power company in India according to the 'capital recycling' business model. See also [▶ Note 3 Acquisitions and disposals](#).

### 9.2 Other expenses

EUR million	2018	2017
Operation and maintenance costs	130	125
Property taxes	109	115
IT and telecommunication costs	77	60
Other items	278	276
<b>IS Total</b>	<b>594</b>	<b>576</b>

The major components recorded in other expenses are the external operation and maintenance costs of power and heat plants. Property taxes include taxes relating to directly owned hydropower production EUR 65 million (2017: 81). Other items include expenses relating to properties and other operative expenses.

#### Principal auditors' fees

EUR million	2018	2017
Audit fees	1.7	1.4
Audit related assignments	0.2	0.2
Tax assignments	0.0	0.0
Other assignments	1.6	1.0
<b>Total</b>	<b>3.5</b>	<b>2.6</b>

Deloitte Oy is the appointed auditor until the next Annual General Meeting, to be held in 2019. Audit fees include fees for the audit of the consolidated financial statements, review of the interim reports as well as the fees for the audit of Fortum Corporation and its subsidiaries. Audit related assignments include fees for assurance of sustainability reporting and other assurance and associated services related to the audit. Tax assignments include fees for tax advice services. Other assignments consist of advisory services.

## 10 Materials and services

EUR million	2018	2017
Materials	2,296	1,769
Materials purchased from associated companies and joint ventures	372	431
Transmission costs	41	39
External services	86	63
<b>IS Total</b>	<b>2,795</b>	<b>2,301</b>

Materials consists mainly of coal, gas and nuclear fuels used for producing power and heat.

Materials purchased from associated companies consist of nuclear and hydropower purchased at production cost (including interest costs and production taxes) and purchased steam.

Total materials and services include production taxes EUR 62 million (2017: 109), of which nuclear related capacity and property taxes EUR 4 million (2017: 48) and hydro power related property taxes EUR 13 million (2017: 14). Nuclear capacity tax in Sweden was abolished from 1 January 2018 in accordance with the energy agreement adopted by the Swedish Parliament. Taxes related to nuclear and hydro production are included in taxes paid through purchases from associated companies.

See [▶ Note 19](#) Participations in associated companies and joint ventures.

## 11 Employee benefits

EUR million	2018	2017
Wages and salaries	345	312
Pensions		
Defined contribution plans	34	32
Defined benefit plans	7	8
Social security costs	48	44
Share-based incentives	3	4
Other employee costs	23	23
<b>IS Total</b>	<b>459</b>	<b>423</b>

The compensation package for Fortum employees consists of salaries, fringe benefits, short-term incentives, profit sharing paid to the Personnel Fund (in Finland) and share-based long-term incentives for selected key individuals.

The remuneration policy is determined by the Board of Directors. The Nomination and Remuneration Committee of the Board of Directors discusses, assesses and makes recommendations and proposals to the Board of Directors on the remuneration policy, remuneration of the President and CEO and the Fortum Executive Management and company-wide incentive arrangements for senior management and key personnel as well as monitors these plans annually. Additionally, the Committee contributes to the Group's nomination issues by proposing to the Board of Directors any nominations regarding the members of Fortum Executive Management.

For further information on pensions see [▶ Note 31](#) Pension obligations

### 11.1 Short-term incentives (STI)

Fortum's STI programme is designed to support the achievement of the company's financial and other relevant targets on an annual basis. As a main principle, all employees are covered by the programme or alternatively by a business specific or a comparable local variable pay arrangement.

The Board of Directors determines the performance criteria and award levels for the Fortum Executive Management. The awards are based on the achievement of Group financial performance, divisional targets and individual targets. The target incentive opportunity is 20% and the maximum incentive opportunity is 40% of the annual base salary. The Board of Directors assesses the performance of the President and CEO and the members of the Fortum Executive Management on a regular basis.

Awards for other employees are based on a combination of Group, divisional, functional and personal targets. The targets are set in annual performance discussions held at the beginning of the year. Awards under the STI programme are paid solely in cash.

### 11.2 Share-based long-term incentives (LTI)

The purpose of Fortum's share-based long-term incentive programme is to support the delivery of sustainable long-term performance, align the interests of management with those of shareholders and support in committing and retaining key individuals.

Fortum's LTI programme provides participants with the opportunity to earn company shares. Under the LTI programme and subject to the decision of the Board of Directors, a new LTI plan commences annually. The Board of Directors approves participation of the Fortum Executive Management members in each annually commencing

LTI plan. Subject to a decision by the Board of Directors the President and CEO is authorised to decide on individual participants and potential maximum awards for other participants than the Fortum Executive Management in accordance with the nomination guidelines approved by the Board of Directors. Participation in the LTI plan precludes the individual from being a member in the Fortum Personnel Fund.

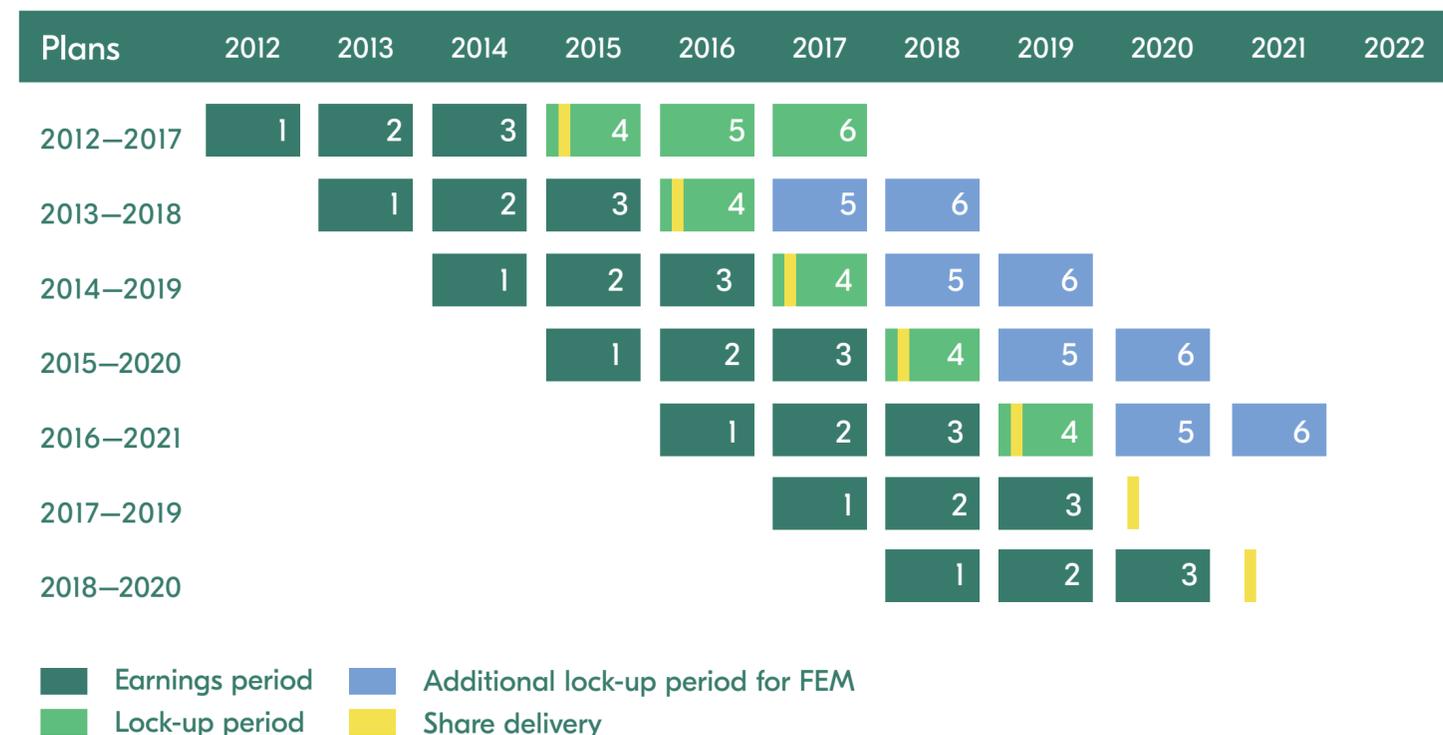
Each LTI plan begins with a three-year earnings period, during which participants may earn share rights if the performance criteria set by the Board of Directors are fulfilled. If the minimum performance criteria are not exceeded, no shares will be awarded. If performance is exceptionally good and the targets approved by the Board of Directors are achieved, the combined gross value of all variable compensation cannot exceed 120% of the person's annual salary in any calendar year. After the earnings period has ended and the relevant taxes and other employment-related expenses have been deducted, participants are paid the net balance in the form of shares.

For LTI plans commencing in 2013 onwards, any shares awarded to Fortum Executive Management members are subject to a three-year lock-up period. Subject to a decision by the Board of Directors, the lock-up period can be reduced to one year for those Fortum Executive Management members whose aggregate ownership of Fortum shares is greater than or equal to their annual salary. For other participants the lock-up period is one year. For LTI plans commencing prior to 2013, the lock-up period is three years for all LTI plan participants. If the value of the shares decreases or increases during the lock-up or retention period, the participant will carry the potential loss or gain. For LTI plans commencing in 2017 and later, the share awards will not be subject to a minimum lock-up period. However, Fortum Executive Management members whose aggregate ownership of Fortum shares does not yet fulfil the shareholding requirement are required to retain at least 50% of the shares received until the required level of shareholding is met.

The Board of Directors has the right to revise the targets set in the incentive plans, deviate from the payment based on achievement of the set earnings criteria, or to discontinue any ongoing incentive plan.

The share plans under the LTI arrangement are accounted for as partly equity- and partly cash-settled arrangements. The earned reward that the participants receive in shares is accounted for as an equity-settled transaction. For participants receiving cash only, the total arrangement is accounted for as cash-settled transaction. The reward is recognised as an expense during the earnings period with a corresponding increase in the liabilities and for the transactions settled in shares in the equity. The social charges related to the arrangement payable by the employer are accrued as a liability. The LTI liability including social charges at the end of the year 2018 was EUR 14 million (2017: 18), including EUR 8 million (2017: 4) recorded in equity.

At year end 2018 approximately 120 key employees are participants in at least one of the six on-going annual LTI plans (plans 2013–2018, 2014–2019, 2015–2020, 2016–2021, 2017–2019 and 2018–2020).



Shares granted

	Plan 2015–2020	Plan 2014–2019	Plan 2013–2018
Grant date	13 Feb 2018	13 Feb 2017	12 Feb 2016
Grant price, EUR	17.04	14.28	12.18
Number of shares granted	73,377	92,321	152,200
Number of shares subsequently forfeited or released from lock-up and other changes	-8,974	-84,807	-150,475
Number of shares under lock-up at the end of the year 2018	64,403	7,514	1,725

In addition to the shares granted above, share rights have been granted to participants that will receive cash payments instead of shares after the lock-up period. The gross amount of share rights outstanding at the end of the year 2018 for plan 2015–2020 was 72,284, for plan 2014–2019 17,793 and for plan 2013–2018 32,066 share rights.

### 11.3 Fortum Personnel Fund

The Fortum Personnel Fund (for employees in Finland only) has been in operation since year 2000. The Board of Directors determines the criteria for the fund's annual profit-sharing bonus. Persons included in Fortum's long-term incentive schemes are not eligible to be members of this fund. Members of the personnel fund are the permanent and fixed-term employees of the Group. The membership of employees joining the company starts at the beginning of the next month after the employment relationship has been ongoing for five months. An employee is entitled to make withdrawals right from the beginning of the membership. The membership in the fund terminates when the member has received his/her share of the fund in full.

The profit-sharing received by the fund is distributed equally between the members. Each employee's share is divided into a tied amount and an amount available for withdrawal. It is possible to transfer a maximum of 15% of capital from the tied amount to the amount available for withdrawal each year.

The amount available for withdrawal (maximum 15% of the tied amount) is decided each year by the council of the fund and it is paid to members who want to exercise their withdrawal rights.

The fund's latest financial year ended at 30 April 2018 and the fund then had a total of 2,233 members (2017: 2,320). At the end of April 2018 Fortum contributed EUR 2.0 million (2017: 2.8) to the personnel fund as an annual profit-sharing bonus based on the financial results of 2017. The combined amount of members' shares in the fund was EUR 19 million (2017: 21).

The contribution to the personnel fund is expensed as it is earned.

### 11.4 The President and CEO and the Fortum Executive Management remuneration

The Fortum Executive Management (FEM) consists of ten members, including the President and CEO. The following table presents the total remuneration of the President and CEO and the FEM and takes into account the changes in FEM during the year. The expenses are shown on accrual basis.

#### Management remuneration

EUR thousand	2018		2017	
	Pekka Lundmark, President and CEO	Other FEM members	Pekka Lundmark, President and CEO	Other FEM members
Salaries and fringe benefits	1,048	3,101	998	3,387
Performance bonuses <sup>1)</sup>	228	658	187	589
Share-based incentives <sup>1)</sup>	297	1,431	334	1,030
Pensions (statutory)	250	677	231	665
Pensions (voluntary)	252	596	229	712
Social security expenses	36	254	41	257
<b>Total</b>	<b>2,112</b>	<b>6,716</b>	<b>2,019</b>	<b>6,640</b>

1) Based on estimated amounts.

The annual contribution for the President and CEO Pekka Lundmark's pension arrangement is 25% of the annual salary. The annual salary consists of base salary and fringe benefits. The President and CEO's retirement age is 63. In case his assignment is terminated before the retirement age, the President and CEO is entitled to retain the benefits accrued in the arrangement.

For the other members of the FEM the retirement age varies between 62 and 65. According to group policy all new supplementary pension arrangements are defined contribution plans. For the members of the FEM that have defined contribution arrangements, the maximum pension premium percentage can be 25% of the annual salary. Members, who have joined Fortum prior 1 January 2009, are participating in defined benefit pension arrangements, where the benefit is 60–66% of the final pensionable salary with the pension provided by an insurance company or Fortum's Pension Fund.

A pension liability of EUR 624 thousand (2017: 693) related to the defined benefit plans for FEM members has been recognised in the balance sheet. The additional pension arrangement for the President and CEO is a defined contribution pension plan and thus no liability has been recognised in the balance sheet.

In the event that Fortum decides to give notice of termination to the President and CEO, he is entitled to the salary for the notice period (6 months) and a severance pay equal to 12 months' salary. Other FEM members' termination compensation is equal to 6 to 12 months' salary.

#### Number of shares delivered to the management

The table below shows the number of shares delivered during 2018 and 2017 to the President and CEO and other FEM members under the LTI arrangements. Shares delivered under the plans are subject to a lock-up period under which they cannot be sold or transferred to a third party.

	2018 <sup>2)</sup>	2017 <sup>3)</sup>
<b>FEM members at 31 December 2018</b>		
Pekka Lundmark, CEO	6,453	4,463
Arun Aggarwal (member of FEM from 17 Oct 2018)	-	-
Alexander Chuvaev <sup>1)</sup>	15,930	15,480
Per Langer	1,621	2,358
Risto Penttinen	1,767	1,793
Markus Rauramo	2,103	4,185
Arto Rätty	-	-
Mikael Rönöblad (member of FEM from 15 May 2017)	-	-
Sirpa-Helena Sormunen	1,879	1,777
Tiina Tuomela	2,117	2,563
<b>Former FEM members</b>		
Timo Karttinen (member of FEM until 28 February 2017)	N/A	3,626
Kari Kautinen (member of FEM until 30 September 2018)	2,059	2,274
Matti Ruotsala (member of FEM until 31 October 2017)	N/A	4,176
<b>Total</b>	<b>33,929</b>	<b>42,695</b>

1) Estimated number of shares after local tax and tax related deductions. Due to local legislation, share rights will be paid in cash instead of shares after the three-year lock-up period.

2) Share delivery based on share plan 2015–2020.

3) Share delivery based on share plan 2014–2019.

## 11.5 Board of Directors and management shareholding

On 31 December 2018, the members of the Board of Directors owned a total of 8,540 shares (2017: 9,200), which corresponds to 0.00% (2017: 0.00%) of the company's shares and voting rights.

### Number of shares held by members of the Board of Directors

	2018	2017
<b>Board members at 31 December 2018</b>		
Matti Lievonen, Chairman	1,500	1,500
Klaus-Dieter Maubach, Deputy Chairman	-	N/A
Heinz-Werner Binzel	-	-
Eva Hamilton	40	-
Kim Ignatius	4,000	2,400
Essimari Kairisto	-	N/A
Anja McAlister	-	-
Veli-Matti Reinikkala	3,000	3,000
<b>Former Board member</b>		
Sari Baldauf	N/A	2,300
<b>Total</b>	<b>8,540</b>	<b>9,200</b>

The President and CEO and other members of the FEM owned a total of 193,227 shares (2017: 200,667) which corresponds to approximately 0.02% (2017: 0.02%) of the company's shares and voting rights.

### Number of shares held by members of the Fortum Executive Management

	2018	2017
<b>FEM members at 31 December 2018</b>		
Pekka Lundmark	67,166	60,713
Arun Aggarwal	-	N/A
Alexander Chuvaev	22,053	14,713
Per Langer	33,191	31,570
Risto Penttinen	12,355	10,588
Markus Rauramo	34,135	32,032
Arto Rätty	-	-
Mikael Rönöblad	-	-
Sirpa-Helena Sormunen	6,656	4,777
Tiina Tuomela	17,671	15,554
<b>Former FEM member</b>		
Kari Kautinen	N/A	30,720
<b>Total</b>	<b>193,227</b>	<b>200,667</b>

## 11.6 Board remuneration

The Board of Directors comprises five to ten members who are elected at the Annual General Meeting for a one-year term of office, which expires at the end of the first Annual General Meeting following the election. At the end of 2018 the Board of Directors consists of eight members.

The Annual General meeting confirms the yearly compensation for the Board of Directors. Board members are not offered any long-term incentive benefits or participation in other incentive schemes. There are no pension arrangements for the Board members. Social security costs EUR 11 thousand (2017: 14) have been recorded for the fees in accordance with local legislation in respective countries.

### Fees for the Board of Directors

EUR thousand	2018	2017
Chairman	75	75
Deputy Chairman	57	57
Chairman of the Audit and Risk Committee <sup>1)</sup>	57	57
Members	40	40

1) If not Chairman or Deputy Chairman simultaneously.

Every member of the Board of Directors receives a fixed yearly fee and additional fees for each meeting attended. A meeting fee of EUR 600 is paid for board and committee meetings. For board members living outside Finland in Europe, the meeting fee is EUR 1,200; for board members living outside Europe, the meeting fee is EUR 1,800. For board and committee meetings held as a telephone conference, the meeting fee is paid as EUR 600 to all members. No fee is paid for decisions made without a separate meeting.

Board members are entitled to travel expense compensation in accordance with the company's travel policy.

### Compensation for the Board of Directors

EUR thousand	2018	2017
<b>Board members at 31 December 2018</b>		
Matti Lievonen, Chairman from 28 March 2018	80	49
Klaus-Dieter Maubach, Deputy Chairman from 28 March 2018	54	N/A
Heinz-Werner Binzel	54	57
Eva Hamilton	54	54
Kim Ignatius, Chairman of the Audit and Risk Committee	65	67
Essimari Kairisto (member of the board from 28 March 2018)	42	N/A
Anja McAlister (member of the board from 4 April 2017)	60	47
Veli-Matti Reinikkala	54	58
<b>Former Board members</b>		
Sari Baldauf (Chairman until 28 March 2018)	20	84
Mino Akhtarzand (member of the board until 4 April 2017)	N/A	16
Tapio Kuula (member of the board until 7 November 2017)	N/A	43
Jyrki Talvitie (member of the board until 4 April 2017)	N/A	17
<b>Total</b>	<b>483</b>	<b>492</b>

## 12 Finance costs - net

EUR million	Note	2018	2017
<b>Interest expense</b>			
Borrowings		-155	-170
Other interest expense		-3	-10
Capitalised borrowing costs	18	10	16
<b>Total</b>		<b>-148</b>	<b>-164</b>
<b>Interest income</b>			
Loan receivables and deposits		31	28
Other interest income		3	3
<b>Total</b>		<b>34</b>	<b>32</b>
<b>Fair value gains and losses on financial instruments</b>	8		
Fair value change of interest rate derivatives not getting hedge accounting status		-8	-7
Fair value change of hedging derivatives in fair value hedge relationship		-24	-31
Fair value change of hedged items in fair value hedge relationship		24	31
Rate difference on forward contracts		3	-4
Fair value gains and losses on other investments		-3	-
<b>Total</b>		<b>-3</b>	<b>-12</b>
<b>Exchange gains and losses</b>			
Loans and receivables	8	-100	-51
Cross currency interest rate derivatives	8	8	6
Foreign currency derivatives	8	91	47
Write down of loan receivables	23	-13	0
Interest income on share of State Nuclear Waste Management Fund	29	7	6
Unwinding of discount on nuclear provisions	29	11	-45
Unwinding of discount on other provisions	30, 31	-3	-3
Other financial income		11	14
Other financial expenses		-26	-25
<b>Total</b>		<b>-15</b>	<b>-50</b>
<b>IS Finance costs - net</b>		<b>-136</b>	<b>-195</b>

Interest expenses include interest expenses on interest-bearing loans, interest on interest rate and currency swaps and forward points on forward foreign exchange contracts hedging loans and receivables. Other interest expenses for 2017 include the interest expense of SEK 69 million (EUR 7 million) relating to the Swedish income tax assessment for 2009–2012. See ▶ **Note 37** Legal actions and official proceedings.

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Interest income includes EUR 12 million (2017: 12) from shareholders' loans to co-owned Finnish and Swedish nuclear companies, and EUR 17 million (2017: 10) from deposits and commercial papers.

Fair value gains and losses on financial instruments include change in clean price of interest rate and cross currency swaps not getting hedge accounting and fair value changes of interest rate derivatives in hedge relationship and hedged items. Accrued interest on these derivatives is entered in interest expenses of borrowings. Fair value gains and losses include also rate difference from forward contracts hedging loans and receivables without hedge accounting.

Exchange gains and losses includes exchange rate differences arising from valuation of foreign currency loans and receivables and exchange rate differences from forward foreign exchange contracts and interest rate and currency swaps.

Fortum has reassessed the assumptions used for all nuclear related assets and liabilities as of 31 December 2018. Unwinding of discount rate on nuclear provisions, EUR 11 million, includes positive effect from changes in assumptions of EUR 49 million. This represents the adjustment to past unwinding of interest. The net profit impact from all the nuclear related adjustments is close to zero. For additional information see [Note 29](#) Nuclear related assets and liabilities.

Other financial income includes EUR 10 million from SIBUR receivable (2017: 14). Other financial expenses includes 20 million replenishment to Nasdaq default fund and 2017 includes EUR 16 million financial cost related to financing commitment for Uniper acquisition.

### Fair value changes on interest rate and currency derivatives

EUR million	2018	2017
<b>Interest rate and cross currency swaps</b>		
Interest expenses on borrowings	27	21
Exchange rate difference from derivatives	8	6
Rate difference in fair value gains and losses on financial instruments <sup>1)</sup>	-32	-38
<b>Total fair value change of interest rate derivatives in finance costs - net</b>	<b>3</b>	<b>-11</b>
<b>Forward foreign exchange contracts</b>		
Interest expenses on borrowings	-52	-68
Exchange rate difference from derivatives	91	47
Rate difference in fair value gains and losses on financial instruments	3	-4
<b>Total fair value change of currency derivatives in finance costs - net</b>	<b>42</b>	<b>-25</b>
<b>Total fair value change of interest and currency derivatives in finance costs - net</b>	<b>45</b>	<b>-36</b>

1) Fair value gains and losses on financial instruments include fair value changes from interest rate swaps not getting hedge accounting amounting to EUR -8 million (2017: -7) and fair value change of hedging derivatives in fair value hedge relationship EUR -24 million (2017: -31), totalling EUR -32 million (2017: -38).

## 13 Income tax expense

### 13.1 Profit before tax

EUR million	2018	2017
Finnish companies	113	76
Swedish companies	396	240
Russian companies	261	269
Other companies	270	526
<b>IS Total</b>	<b>1,040</b>	<b>1,111</b>

Profit before tax split by country represents the respective countries' part of the profit before tax for Fortum Group according to International Financial Reporting Standards (IFRS), i.e. based on the same accounting principles as for the Consolidated Financial Statements. This means that the respective country profits include such items as for example share of profits from associates and effects of accounting for nuclear provisions, which are not included in taxable profits in the local subsidiaries.

### 13.2 Major components of income tax expense by major countries

EUR million	2018	2017
<b>Current taxes</b>		
Finnish companies	-7	-15
Swedish companies	-3	2
Russian companies	-38	-11
Other companies	-46	-34
<b>Total</b>	<b>-94</b>	<b>-58</b>
<b>Deferred taxes</b>		
Finnish companies	-18	11
Swedish companies	-73	-34
Russian companies	-11	-43
Other companies	15	24
<b>Total</b>	<b>-87</b>	<b>-42</b>
<b>Adjustments recognised for current tax of prior periods</b>		
Finnish companies	-1	-13
Swedish companies <sup>1)</sup>	0	-115
Russian companies	0	0
Other companies	0	-1
<b>Total</b>	<b>-1</b>	<b>-129</b>
<b>IS Income tax expense</b>	<b>-181</b>	<b>-229</b>

1) Income tax expense 2017 from the unfavourable decisions in the Administrative Court of Appeal in Sweden relating to the income tax assessments for 2009–2012.

### 13.3 Income tax rate

The table below explains the difference between the theoretical enacted tax rate in Finland compared to the tax rate in the consolidated income statement.

EUR million	2018	%	2017	%
Profit before tax	1,040		1,111	
Tax calculated at nominal Finnish tax rate	-208	20.0	-222	20.0
Tax rate changes	17	-1.6	6	-0.6
Differences in tax rates and regulations	6	-0.6	5	-0.4
Income not subject to tax	1	-0.1	0	0.0
Tax exempt capital gains	15	-1.5	77	-6.9
Expenses not deductible for tax purposes	-13	1.3	-3	0.3
Share of profit of associated companies and joint ventures	7	-0.7	33	-2.9
Taxes related to dividend distributions	-14	1.4	-10	0.9
Changes in tax valuation allowance related to not recognised tax losses	11	-1.0	-2	0.2
Other items	-3	0.3	3	-0.3
Adjustments recognised for taxes of prior periods	0	0.0	-117	10.5
<b>IS Income tax expense</b>	<b>-181</b>	<b>17.5</b>	<b>-229</b>	<b>20.6</b>

#### Key tax indicators:

- The weighted average applicable income tax rate for 2018 is 19.4% (2017: 21.7%)
- The effective income tax rate in the income statement for 2018 is 17.5% (2017: 20.6%)
- The comparable effective income tax rate (excluding the share of profits from associates, joint ventures as well as tax exempt capital gains, tax rate changes and other major one-time income tax effects) for 2018 is 22.0% (2017: 18.8%).

See [► Definitions of key figures](#).

The major items affecting the effective income tax rate are as follows:

The one-time tax-free capital gain (EUR 100 million) in Ireland and Netherlands 2018 from the sale of Hafslund Produksjon Holding AS and Fortum Sun BV reduced the effective income tax rate with 1.5%. Tax rate changes mainly in Sweden and Norway during 2018 reduced the effective income tax rate with 1.6%.

Effective income tax rate impacted by gains or losses on sale of shares. In many countries like in Finland, Sweden, Netherlands and Norway income on capital gains and losses is treated as tax exempt. The purpose of this is to tax the operative income of the company and avoid taxing the same income twice in case of the sale of the shares. Taxation of capital gains or losses is in line with the taxation of dividend income.

Fortum has had tax audits ongoing during 2018. Based on earlier audits Fortum has received income tax assessments in Belgium for the years 2008–2012. In previous years, Fortum has appealed all assessments received. Based on legal analysis, no provision has been accounted for in the financial statements related to Belgium 2008–2012 tax audits.

For further information regarding the ongoing tax appeals see [► Note 37](#) Legal actions and official proceedings.

During 2018 entities primarily in Sweden and Russia used a portion of the deferred tax asset relating to tax loss carry forwards.

Fortum has a material deferred tax liability owing to its investments in non-current assets. These assets are depreciated more rapidly for tax than for accounting purposes resulting in lower current tax payments at the start of an asset's lifetime and higher tax payments at the end of its lifetime. This difference results in a deferred tax liability.

See also [► Note 28](#) Income taxes in the balance sheet.

# 14 Earnings and dividend per share

## ACCOUNTING POLICIES

### EARNINGS PER SHARE

Basic earnings per share is calculated by dividing the net profit attributable to the owners of the parent company by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares purchased by the Group and held as treasury shares.

### DIVIDENDS

Dividends proposed by the Board of Directors are not recognised in the financial statements until they have been approved by the Company's shareholders at the Annual General Meeting.

## 14.1 Earnings per share

### Earnings per share, basic

	2018	2017
IS Profit attributable to owners of the parent (EUR million)	843	866
Weighted average number of shares (thousand)	888,312	888,367
Basic earnings per share (EUR)	0.95	0.98

In the merger of Länsivoima Oyj (former Lounais-Suomen Sähkö Oy) to Fortum Corporation in 2000, those shareholders of Länsivoima Oyj that did not produce their share certificates and did not request their rights to be registered in the book-entry system, received their respective shares of Fortum Corporation as merger consideration to a joint book-entry account opened on their behalf (the "Joint Account"). The Annual General Meeting 2018 of Fortum Corporation decided, that the rights to all such shares entered in the Joint Account and to the rights attached to such shares that had not been requested to be registered in the book-entry system prior to the decision by the Annual General Meeting 2018, were forfeited. In addition to the shares, the rights attached to such shares, such as undrawn dividend, were forfeited. The provisions applicable to treasury shares held by the company were applied to the forfeited shares. On 17 December 2018, Board of Directors decided to cancel all these 72,580 Fortum shares owned by the company without decreasing the share capital. The cancellation was entered in the Trade Register on 21 December 2018. In 2018 these shares had minor impact on weighted average number of shares.

As Fortum currently has no dilutive instruments outstanding, diluted earnings per share is the same as basic earnings per share.

## 14.2 Dividend per share

Dividends proposed by the Board of Directors are not recognised in the financial statements until they have been approved by the Company's shareholders at the Annual General Meeting.

A dividend in respect of 2018 of EUR 1.10 per share, amounting to a total dividend of EUR 977 million based on the amount of shares registered as at 31 January 2019, is to be proposed at the Annual General Meeting on 26 March 2019. These Financial statements do not reflect this dividend.

A dividend for 2017 of EUR 1.10 per share, amounting to a total of EUR 977 million, was decided in the Annual General Meeting on 28 March 2018 and the dividend was paid on 10 April 2018.

A dividend for 2016 of EUR 1.10 per share, amounting to a total of EUR 977 million, was decided in the Annual General Meeting on 4 April 2017. The dividend was paid on 13 April 2017.

# 15 Financial assets and liabilities by categories

## ACCOUNTING POLICIES

### FINANCIAL ASSETS

Fortum classifies its financial assets in the following categories according to IFRS 9: financial assets at amortised cost, financial assets at fair value through profit and loss and financial assets at fair value through other comprehensive income. The classification is made at initial recognition and depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them.

In order for the financial asset to be classified and measured at amortised cost or fair value through other comprehensive income, it needs to give rise to cash flows that are solely payments of the principal and interest on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level. When the SPPI criteria is not met, financial assets are classified to fair value through profit and loss category.

Financial assets are presented as non-current assets unless they are held for trading, expected to be realized within 12 months at the closing date or they have a maturity of under 12 months at closing date. These are classified as current assets.

### FINANCIAL ASSETS AT AMORTISED COST

Fortum measures financial assets at amortised cost when the financial asset is included in the held-to-collect business model with fixed or determinable payments that are payments of amount outstanding or interest on it. They arise when the Group provides money, goods or services directly to a debtor. Financial assets at amortised cost include non-derivative financial assets with fixed or determinable payments that are not quoted in an active market.

Financial assets at amortised cost are subject to impairment. Gains and losses from derecognition of the asset are recognised in profit and loss.

### FINANCIAL ASSETS AT FAIR VALUE THROUGH PROFIT AND LOSS

Financial assets at fair value through profit and loss include financial assets held for trading in the short term, financial assets designated upon initial recognition irrevocably as fair value through profit and loss and financial assets mandatorily recognised at fair value through profit and loss according to IFRS 9. Fortum has also elected to classify equity investments (i.e. other investments) irrevocably as financial assets at fair value through profit and loss. These are mainly comprised of shares in unlisted companies. Derivatives are classified as held for trading unless they are designated as effective hedging instruments.

Gains and losses arising from changes in the fair value are included in the income statement in the period in which they arise.

## FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

Other investments designated at fair value through other comprehensive income are not subject to impairment assessment and are never recycled to profit and loss. Dividends received are recognised in profit and loss.

Fortum currently does not have material other investments that have been irrevocably classified as financial assets at fair value through other comprehensive income.

## DERECOGNITION

Fortum derecognises financial assets when the rights to receive cash flows from the assets have expired or when it has substantially transferred the risks and rewards of the assets outside of the Group.

## IMPAIRMENT

Fortum recognizes an allowance for expected credit losses ("ECL") according to IFRS 9 for financial assets measured at amortised cost. See further information on ECL in [▶ Note 4.7.1](#) Credit quality of major financial assets and in

[▶ Note 23](#) Trade and other receivables.

Financial assets measured at fair value through profit or loss are not included in ECL assessment as they are already measured at fair value which takes into account expected credit losses. A financial asset is written-off when there is no reasonable expectation of recovering the contractual cash flows.

## FINANCIAL LIABILITIES

All financial liabilities are recognised initially at fair value. In the case of loans and borrowings and payables, incurred transaction costs are deducted. In subsequent periods, all non-derivative financial liabilities are stated at amortised cost; any difference between proceeds (net of transaction costs) and the redemption value is recognised as interest cost over the period of the borrowing using the effective interest rate method.

Derivative financial instruments entered into by the Group, that are not designated as hedging instruments are classified as liabilities at fair value through profit and loss. Amortisation of the effective interest rate and gains and losses of liabilities are recognised in the statement of profit and loss.

Group's financial liabilities include trade and other payables, loans and borrowings and derivative financial instruments. Borrowings or portion of borrowings being hedged with a fair value hedge are recognised at fair value through profit and loss. Derecognition of financial liabilities takes place when the Group has fulfilled the contractual obligations.

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## ACCOUNTING FOR DERIVATIVE FINANCIAL INSTRUMENTS AND HEDGING ACTIVITIES

Within the ordinary course of business the Group routinely enters into sale and purchase transactions for commodities. The majority of these transactions take the form of contracts that were entered into and continue to be held for the purpose of receipt or delivery of the commodity in accordance with the Group's expected sale, purchase or usage requirements. Such contracts are not within the scope of IFRS 9.

Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently remeasured at their fair value. The method of recognising the resulting gain or loss depends on whether the derivative is designated as a hedging instrument eligible for hedge accounting, and if so, the nature of the item being hedged. The Group designates certain derivatives as either: (1) hedges of highly probable forecast transactions (cash flow hedges); (2) hedges of the fair value of recognised assets or liabilities (fair value hedge); or (3) hedges of net investments in foreign operations.

The Group documents at the inception of the transaction the relationship between hedging instruments and hedged items, whether the hedged item is one or several risk components separately or in aggregation, as well as its risk management objective and strategy for undertaking various hedge transactions. When applying hedge accounting the Group also documents its assessment, of whether the derivatives that are used in hedging transactions are meeting the hedge accounting effectiveness criteria: (1) there is an economic relationship between the hedged item and the hedging instrument, (2) the effect of credit risk does not dominate the value changes that result from that economic relationship; and (3) the hedge ratio of the hedging relationship is the same as applied in the risk management. The Group also documents its assessment, both at hedge inception and on an ongoing basis, of whether the derivatives that are used in hedging transactions are highly effective by assessing the prospective capacity of the derivatives in offsetting changes in fair values or cash flows of hedged items. Hedge accounting is discontinued only when the hedging relationship ceases to meet the hedge effectiveness criteria.

### CASH FLOW HEDGE

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges are recognised in equity. Gain or loss relating to the ineffective portion is recognised immediately in the income statement. Amounts accumulated in equity are recycled in the income statement in the periods when the hedged item will affect profit and loss (for instance when the forecast sale that is hedged takes place). However, when the forecast transaction that is hedged results in the recognition of a non-financial asset (for example, inventory) or a liability, the gains and losses previously deferred in equity are transferred from equity and included in the initial measurement of the cost of the asset or liability. When a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity is recognised in the income statement when the forecast transaction is ultimately also recognised in the income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately recognised in the income statement.

Fortum hedges its exposure to commodity market risks and applies hedge accounting by risk components. Hedge accounting is applied to Nordic electricity price risk, where the Nordic area priced physical electricity delivery is commonly divided into three risk components: (1) system price risk, (2) electricity price area difference risk (EPAD) and (3) currency risk. For each of these separate risk components there are specific derivative contracts available, which each are being a perfect hedge without any ineffectiveness for the associated risk component.

### FAIR VALUE HEDGE

Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recorded in the income statement, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.

If the hedge no longer meets the criteria for hedge accounting, the adjustment to the carrying amount of a hedged item for which the effective interest method is used is amortised to profit and loss for the period to maturity.

### NET INVESTMENT HEDGING IN FOREIGN OPERATIONS

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gain or loss on the hedging instrument relating to the effective portion of the hedge is recognised in equity; the gain or loss relating to the ineffective portion is recognised immediately in the income statement. Gains and losses accumulated in equity are included in the income statement when the foreign operation is disposed of.

### DERIVATIVES THAT DO NOT QUALIFY FOR HEDGE ACCOUNTING

Certain derivative instruments hedging future cash flows do not qualify for hedge accounting. Fair value changes of commodity derivative instruments are recognised in items affecting comparability in the income statement, whereas fair value changes of interest rate and currency derivative instruments are recognised in finance costs - net.

Financial assets and liabilities in the tables below are split into categories in accordance with IFRS 9. The categories are further divided into classes which are the basis for valuing a respective asset or liability. Further information can be found in the Notes mentioned in the table.

In the comparative period ending 31.12.2017, financial assets and liabilities are split in accordance with IAS 39. See [▶ Note 1.6](#) Implementation of IFRS 9 and IFRS 15 from 1 January 2018 for more information.

**Financial assets by categories 2018 according to IFRS 9**

EUR million	Note	Amortised cost	Fair value through profit and loss			Fair value through other comprehensive income	Total financial assets
			Hedge accounting, fair value hedges	Non-hedge accounting	Other investments	Cash flow hedges	
<b>Financial instruments in non-current assets</b>							
Other non-current assets	20	90			49		139
Derivative financial instruments	4						
Electricity derivatives				52		1	53
Interest rate and currency derivatives			122	4		26	152
Other commodity future and forward contracts				24			24
Long-term interest-bearing receivables	21	642		41			683
<b>Financial instruments in current assets</b>							
Derivative financial instruments	4						
Electricity derivatives				84		10	94
Interest rate and currency derivatives				97		19	116
Other commodity future and forward contracts				116		0	116
Trade receivables	23	800					800
Other short-term interest-bearing receivables	21	379		30			409
Liquid funds	24	584					584
<b>Total</b>		<b>2,495</b>	<b>122</b>	<b>448</b>	<b>49</b>	<b>56</b>	<b>3,170</b>

**Financial assets by categories 2017 according to IAS 39**

EUR million	Note	Loans and receivables Amortised cost	Fair value through profit and loss			Fair value through other comprehensive income	Available-for-sale financial assets	Finance lease	Total financial assets
			Hedge accounting, fair value hedges	Non-hedge accounting	Cash flow hedges				
<b>Financial instruments in non-current assets</b>									
Other non-current assets	20	74				65		140	
Derivative financial instruments	4								
Electricity derivatives				35	0			35	
Interest rate and currency derivatives			140	85	13			238	
Other commodity future and forward contracts				7				7	
Long-term interest-bearing receivables	21	969					41	1,010	
<b>Financial instruments in current assets</b>									
Derivative financial instruments	4								
Electricity derivatives				69	21			90	
Interest rate and currency derivatives				29	85			114	
Other commodity future and forward contracts				36	0			36	
Trade receivables	23	638						638	
Other short-term interest-bearing receivables	21	395						395	
Liquid funds	24	1,928				1,968		3,897	
<b>Total</b>		<b>4,004</b>	<b>140</b>	<b>261</b>	<b>119</b>	<b>2,033</b>	<b>41</b>	<b>6,600</b>	

**Financial liabilities by categories 2018 according to IFRS 9**

MEUR	Note	Amortised cost	Fair value through profit and loss		Fair value through other comprehensive income	Total financial liabilities
			Hedge accounting, fair value hedges	Non-hedge accounting	Cash flow hedges	
<b>Financial instruments in non-current liabilities</b>						
Interest-bearing liabilities	27	4,077	930 <sup>1)</sup>			5,007
Derivative financial instruments	4					
Electricity derivatives				70	235	305
Interest rate and currency derivatives			25	2	16	44
Other commodity future and forward contracts				13		13
<b>Financial instruments in current liabilities</b>						
Interest-bearing liabilities	27	1,086				1,086
Derivative financial instruments	4					
Electricity derivatives				65	641	706
Interest rate and currency derivatives				45	1	46
Other commodity future and forward contracts				77	0	77
Trade payables	33	334				334
Other liabilities	33	212				212
<b>Total</b>		<b>5,709</b>	<b>995</b>	<b>272</b>	<b>893</b>	<b>7,830</b>

1) Fair valued part of bond in fair value hedge relationship.

**Financial liabilities by categories 2017 according to IAS 39**

MEUR	Note	Fair value through profit and loss		Fair value through other comprehensive income	Other financial liabilities		Total financial liabilities
		Hedge accounting, fair value hedges	Non-hedge accounting	Cash flow hedges	Amortised costs	Fair value	
<b>Financial instruments in non-current liabilities</b>							
Interest-bearing liabilities	27				3,082	1,037	4,119
Derivative financial instruments	4						
Electricity derivatives			100	23			123
Interest rate and currency derivatives		26	43	19			88
Other commodity future and forward contracts			3				3
<b>Financial instruments in current liabilities</b>							
Interest-bearing liabilities	27				766		766
Derivative financial instruments	4						
Electricity derivatives			131	31			162
Interest rate and currency derivatives			12	12			24
Other commodity future and forward contracts			13	0			13
Trade payables	33				318		318
Other liabilities	33				208		208
<b>Total</b>		<b>26</b>	<b>302</b>	<b>85</b>	<b>4,374</b>	<b>1,037</b>	<b>5,824</b>

# 16 Financial assets and liabilities by fair value hierarchy

## ACCOUNTING POLICIES

Fair value measurements are classified using a fair value hierarchy i.e. Level 1, Level 2 and Level 3 that reflects the significance of the inputs used in making the measurements.

## FAIR VALUES UNDER LEVEL 1 MEASUREMENT HIERARCHY

The fair value of some commodity derivatives traded in active markets (such as publicly traded electricity options, coal, gas and oil futures) are market quotes at the closing date.

## FAIR VALUES UNDER LEVEL 2 MEASUREMENT HIERARCHY

The fair value of financial instruments including electricity derivatives traded in active markets is based on quoted market prices at the closing date. Known calculation techniques, such as estimated discounted cash flows, are used to determine fair value of interest rate and currency financial instruments. The fair value of interest-rate swaps is calculated as the present value of the estimated future cash flows. The fair value of forward foreign exchange contracts is determined using forward exchange market rates at the closing date. Fair values of options are determined by using option valuation models. The fair value of financial liabilities is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the Group for similar financial instruments. In fair valuation, credit spread has not been adjusted, as quoted market prices of the instruments used are believed to be consistent with the objective of a fair value measurement.

The Group bases the calculation on existing market conditions at each closing date. Financial instruments used in Fortum are standardised products that are either cleared via exchanges or widely traded in the market. Commodity derivatives are generally cleared through exchanges such as for example NASDAQ Commodities and financial derivatives done with creditworthy financial institutions with investment grade ratings.

## FAIR VALUES UNDER LEVEL 3 MEASUREMENT HIERARCHY

Investments in unlisted shares classified as other investments for which the fair value can't be reliably measured. Fair value gains and losses of other investments are booked through profit and loss.

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**Financial assets**

EUR million	Note	Level 1		Level 2		Level 3		Netting <sup>2)</sup>		Total	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
<b>In non-current assets</b>											
Other investments <sup>1)</sup>	20	0	0			49	65			49	65
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				23	5			-22	-5	1	0
Non-hedge accounting			0	146	66			-94	-30	52	35
Interest rate and currency derivatives											
Hedge accounting				149	153					149	153
Non-hedge accounting				4	85					4	85
Other commodity future and forward contracts											
Non-hedge accounting		29	8					-5	-1	24	7
Interest-bearing receivables						41	76			41	76
<b>In current assets</b>											
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				93	28			-83	-7	10	21
Non-hedge accounting		2	8	585	253			-502	-192	84	69
Interest rate and currency derivatives											
Hedge accounting				19	85					19	85
Non-hedge accounting				97	29					97	29
Other commodity future and forward contracts											
Non-hedge accounting		203	186		1			-87	-151	116	36
Interest-bearing receivables						30	32			30	32
<b>Total</b>		<b>234</b>	<b>202</b>	<b>1,116</b>	<b>705</b>	<b>120</b>	<b>173</b>	<b>-793</b>	<b>-386</b>	<b>675</b>	<b>694</b>

1) Other investments, i.e. shares which are not classified as associated companies or joint ventures, consist mainly of shares in unlisted companies of EUR 49 million (Dec 31, 2017: 65). This includes Fortum's indirect shareholding in Fennovoima of EUR 33 million (Dec 31, 2017: 25). Fair value gains and losses of other investments are booked through profit and loss. Other investments at fair value through other comprehensive income are immaterial.

Other investments include listed shares at fair value of EUR 0 million (2017: 0). The cumulative fair value change booked in Fortum's equity was EUR -2 million (2017: -3).

2) Receivables and liabilities against electricity and other commodity exchanges arising from standard derivative contracts with same delivery period are netted.

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## Financial liabilities

EUR million	Note	Level 1		Level 2		Level 3		Netting <sup>2)</sup>		Total	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
<b>In non-current liabilities</b>											
Interest-bearing liabilities	27			930 <sup>1)</sup>	1,037 <sup>1)</sup>					930	1,037
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				257	28			-22	-5	235	23
Non-hedge accounting				163	131			-94	-30	70	100
Interest rate and currency derivatives											
Hedge accounting				42	45					42	45
Non-hedge accounting				2	43					2	43
Other commodity future and forward contracts											
Non-hedge accounting		18	3	0	1			-5	-1	13	3
<b>In current liabilities</b>											
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				724	39			-83	-7	641	31
Non-hedge accounting		1	7	566	315			-502	-192	65	131
Interest rate and currency derivatives											
Hedge accounting				1	12					1	12
Non-hedge accounting				45	12					45	12
Other commodity future and forward contracts											
Non-hedge accounting		158	160	7	4			-87	-151	77	13
<b>Total</b>		<b>177</b>	<b>170</b>	<b>2,737</b>	<b>1,667</b>	<b>0</b>	<b>0</b>	<b>-793</b>	<b>-386</b>	<b>2,121</b>	<b>1,451</b>

1) Fair valued part of bonds in fair value hedge relationship.

2) Receivables and liabilities against electricity and other commodity exchanges arising from standard derivative contracts with same delivery period are netted.

Net fair value amount of interest rate and currency derivatives is EUR 178 million, including assets EUR 268 million and liabilities EUR 90 million. Fortum has cash collaterals based on Credit Support Annex agreements with some counterparties. At the end of December 2018 Fortum had received EUR 75 million from Credit Support Annex agreements. The received cash has been booked as short-term interest-bearing liability.

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# 17 Intangible assets

## ACCOUNTING POLICIES

Intangible assets, except goodwill, are stated at the historical cost less accumulated amortisation and impairment losses. They are amortised on a straight-line method over their expected useful lives.

## GOODWILL

Goodwill represents the excess of the cost of an acquisition over the fair value of the Group's share of net identifiable assets of the acquired subsidiary, associate or joint venture at the date of acquisition. Goodwill on acquisitions of subsidiaries is included in intangible assets and tested yearly for impairment. Goodwill on acquisition of associates and joint ventures is included in investments in associates and joint ventures and is tested for impairment as part of the overall balance. Goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed. Gains and losses on disposal of an entity include the carrying amount of goodwill relating to the entity sold.

## COMPUTER SOFTWARE

Acquired computer software licences are capitalised on the basis of the costs incurred when bringing the software into use. Costs associated with developing or maintaining computer software are recognised as an expense as incurred. Costs that are directly associated with the production of identifiable and unique software products controlled by the Group, and that will generate economic benefits exceeding costs beyond one year, are recognised as intangible assets. Direct costs include the software development employee costs and an appropriate portion of relevant overheads. Computer software costs recognised as assets are amortised over their estimated useful lives (three to five years).

## TRADEMARKS AND LICENSES

Trademarks and licences are shown at historical cost less accumulated amortisation and impairment losses, as applicable. Amortisation is calculated using the straight-line method to allocate the cost of trademarks and licences over their estimated useful lives (15–20 years).

## CONTRACTUAL CUSTOMER RELATIONSHIPS

Contractual customer relationships acquired in a business combination are recognised at fair value on acquisition date. The contractual customer relations have a finite useful life and are carried at costs less accumulated amortisation. Amortisation is calculated using the straight-line method over the expected duration of the customer relationship.

## COSTS FOR OBTAINING CUSTOMERS

Incremental costs for obtaining new customers as well as renewing existing customer contracts are capitalised as intangible assets and amortised over the expected contract duration. The sales commission costs were mostly expensed until end of 2017, but are capitalised from 1 January 2018 onwards due to adoption of IFRS 15 Revenue from contracts with customers. See additional information on adoption of IFRS 15 in [▶ Note 1.6 Implementation of IFRS 9 and IFRS 15 from 1 January 2018](#) and [▶ Note 6 Segment reporting](#).

## EMISSION ALLOWANCES

The Group accounts for emission allowances based on currently valid IFRS standards where purchased emission allowances are accounted for as intangible assets at cost, whereas emission allowances received free of charge are accounted for at nominal value. For CO2 emissions from power and heat production, a provision is recognised. CO2 emission costs are settled by returning emission allowances. To the extent that the Group already holds allowances to cover emission costs, the provision is measured at the carrying amount of those allowances. Any shortfall of allowances held over the obligation is valued at the current market value of allowances. The emission cost is recognised in the income statement within materials and services. The sales gains and losses of emission allowances not used for covering the obligation from CO2 emissions, are reported in other income.

## IMPAIRMENT TESTING OF NON-FINANCIAL ASSETS

The individual assets' carrying values are reviewed continuously to determine whether there is any indication of impairment. An asset's carrying amount is written down immediately to its recoverable amount if it is greater than the estimated recoverable amount.

In addition, impairment needs are assessed and documented once a year in connection with the long-term forecasting process. Indications for impairment are analysed separately by each division as they are different for each business and include risks such as changes in electricity and fuel prices, regulatory/political changes relating to energy taxes and price regulations etc. Impairment testing needs to be performed if any of the impairment indications exists. Assets that have an indefinite useful life and goodwill, are not subject to amortisation and are tested annually for impairment.

Value in use is determined by discounting the future cash flows expected to be derived from an asset. If it's not possible to estimate the cash flows generated by an individual asset, the impairment testing is performed on a cash-generating unit level. Fortum defines the cash-generating unit as the smallest business area where the tested assets

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generate cash flows that are independent of the cash flows generated by other assets in other business areas. Goodwill is allocated to the cash-generating unit or lowest level of groups of cash-generating units that benefit from the synergies of the acquired goodwill. Cash flow projections are based on the most recent long-term forecast that has been approved by management and the Board of Directors. Cash flows arising from future investments such as new plants are excluded unless projects have been started. The cash outflow needed to complete the started projects is included.

Non-financial assets other than goodwill that suffered an impairment charge are reviewed for possible reversal of the impairment at each reporting date.

### CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSIGNED VALUES AND USEFUL LIVES IN ACQUISITIONS

In an acquisition acquired intangible and tangible assets are fair valued and their remaining useful lives are determined. Management believes that the assigned values and useful lives, as well as the underlying assumptions, are reasonable. Different assumptions and assigned lives could have a significant impact on the reported amounts.

The Group has significant carrying values in property, plant and equipment, intangible assets and participations in associated companies and joint ventures which are tested for impairment according to the accounting policy described above.

### CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS RELATED TO IMPAIRMENT TESTING

The Group has significant carrying values in property, plant and equipment, intangible assets and participations in associated companies and joint ventures which are tested for impairment according to the accounting policy described in the notes. The recoverable amounts of cash-generating units have been determined based on value in use calculations. These calculations are based on estimated future cash flows from most recent approved long-term forecast. Preparation of these estimates requires management to make assumptions relating to future expectations. Assumptions vary depending on the business the tested assets are in. For power and heat generation business the main assumptions relate to the estimated future operating cash flows and the discount rates that are used in calculating the present value.

Estimates are also made in an acquisition when determining the fair values and remaining useful lives of acquired intangible and tangible assets.

EUR million	Goodwill		Other intangible assets		Total	
	2018	2017	2018	2017	2018	2017
<b>Cost 31 December</b>	<b>613</b>	<b>353</b>	<b>764</b>	<b>386</b>	<b>1,377</b>	<b>739</b>
Impact from change in accounting principle (IFRS 15) <sup>1)</sup>	0	0	32	0	32	0
<b>Cost 1 January</b>	<b>613</b>	<b>353</b>	<b>796</b>	<b>386</b>	<b>1,409</b>	<b>739</b>
Translation differences and other adjustments	-27	-27	-21	-20	-49	-47
Acquisition of subsidiary companies	0	286	22	381	22	667
Capital expenditure	0	0	53	18	53	18
Changes in emissions rights	0	0	16	0	16	0
Disposals	0	0	-24	-14	-24	-14
Sale of subsidiary companies	0	0	-6	-2	-6	-2
Reclassifications	3	0	35	15	37	15
<b>Cost 31 December</b>	<b>588</b>	<b>613</b>	<b>869</b>	<b>764</b>	<b>1,457</b>	<b>1,377</b>
<b>Accumulated depreciation 31 December</b>	<b>0</b>	<b>0</b>	<b>313</b>	<b>273</b>	<b>313</b>	<b>273</b>
Impact from change in accounting principle (IFRS 15) <sup>1)</sup>	0	0	12	0	12	0
<b>Accumulated depreciation 1 January</b>	<b>0</b>	<b>0</b>	<b>325</b>	<b>273</b>	<b>325</b>	<b>273</b>
Translation differences and other adjustments	0	0	-12	-6	-12	-6
Acquisition of subsidiary companies	0	0	0	30	0	30
Disposals	0	0	-24	-14	-24	-14
Sale of subsidiary companies	0	0	0	-1	0	-1
Reclassifications	0	0	0	2	0	2
Depreciation for the period	0	0	81	30	81	30
<b>Accumulated depreciation 31 December</b>	<b>0</b>	<b>0</b>	<b>370</b>	<b>313</b>	<b>370</b>	<b>313</b>
<b>BS Carrying amount 31 December</b>	<b>588</b>	<b>613</b>	<b>499</b>	<b>451</b>	<b>1,087</b>	<b>1,064</b>

1) See additional information in ▶ [Note 1](#) Accounting policies and ▶ [Note 6](#) Segment reporting

### Goodwill

Total goodwill in the balance sheet as of 31 December 2018 amounted to EUR 588 million (2017: 613).

In 2018 Fortum finalised the purchase price allocation of Hafslund Markets Group and Fortum Oslo Varme Group acquired in 2017. The acquisitions enable scale benefits and combination of competences that support Fortum's strategic growth and cash flow ambitions in the Nordic retail electricity and district heating markets and will also enhance the development of new and greener technologies and services. Hafslund Markets is

integrated in Consumer Solutions segment and Fortum Oslo Varme in City Solutions segment. The goodwill from the acquisition is allocated to these segments.

See more information on the acquisitions in [► Note 3 Acquisitions and disposals](#).

### Goodwill in groups of cash-generating units

EUR million	2018	2017
Consumer Solutions	226	228
City Solutions	207	208
Russia	154	177
<b>Total carrying amount 31 December</b>	<b>588</b>	<b>613</b>

### Other intangible assets

Other intangible assets include capitalised sales commissions for customer acquisition with a carrying amount totalling EUR 63 million at the end of 2018. The carrying amount consists of capitalised sales commission costs totalling EUR 111 million and accumulated depreciations totalling EUR 49 million. The sales commissions were mostly expensed until end of 2017, but are capitalised from 1 January 2018 onwards due to adoption of IFRS 15 Revenue from contracts with customers. See additional information on adoption of IFRS 15 in [► Note 1.6 Implementation of IFRS 9 and IFRS 15 from 1 January 2018 and ► Note 6 Segment reporting](#).

Other items in other intangible assets include customer contracts, costs for software products and software licenses, bought emission rights and emission rights received free of charge, which are recognised to the lower of fair value and historical cost.

### 17.1 Impairment testing

The impairment testing of the allocated goodwill in 2018 is described below.

Key assumptions used in impairment testing are presented below as well as the basis for determining the value of each assumption. Assumptions are based on internal and external data that are consistent with observable market information, when applicable. The assumptions are determined by management as part of the long-term forecasting process for the Fortum Group.

#### Key assumptions

Power market development, recycling and waste solutions market development  
Regulation framework

Utilisation of power plants and treatment facilities

Forecasted maintenance investments

Discount rate

#### Basis for determining the value for key assumptions

Historical analysis and prospective forecasting

Current market setup and prospective forecasting (e.g. CSA mechanism in Russia)

Past experience, technical assessment and forecasted market development

Past experience, technical assessment and planned maintenance work

Mostly market-based information

The cash flows used in determining the value in use for each cash generating unit are based on the most recent long-term forecasts and are determined in local currency. The period covered by cash flows is related to the useful lives of the assets being reviewed for impairment. The growth rate used to extrapolate the cash flow projections until the end of assets' useful lives is in line with the assumed inflation. In Russia the generation capacity built after 2007 under the Russian Government's Capacity Supply Agreements receives guaranteed capacity payments for a period of 10 years.

The discount rate takes into account the risk profile of the country in which the cash flows are generated. There have not been any major changes in the discount rate components or in the methods used to determine them. The long-term pre-tax discount rate used were: City Solutions 7.3%, Consumer Solutions 6.9% and Russia 11.4%.

The net operating assets of the CGUs and group of CGUs with allocated goodwill are tested yearly for possible impairment. The tested net operating assets include both the goodwill and fair value adjustments arising from the acquisition. As of 31 December 2018, the recoverable values were greater than their carrying values and therefore no impairments were booked.

The Group has considered the sensitivity of key assumptions as part of the impairment testing. When doing this any consequential effect of the change on the other variables has also been considered. The calculations are most sensitive to changes in estimated future EBITDA levels and changes in discount rate.

Management estimates that a reasonably possible change in the discount rate used or in future earnings would not cause the carrying amount to exceed its recoverable amount in any of the tested units.

Based on the sensitivity analysis done, if the estimated future EBITDA were 10% lower than management's estimates or pre-tax discount rate applied was 10% higher than the one used, the Group would not need to recognise impairment losses for tested items.

# 18 Property, plant and equipment

## ACCOUNTING POLICIES

Property, plant and equipment comprise mainly power and heat producing buildings and machinery buildings, waterfall rights, district heating network and buildings and machinery as well as landfill sites and treatment areas used in waste treatment operations. Property, plant and equipment are stated at historical cost less accumulated depreciation and accumulated impairment losses as applicable in the consolidated balance sheet. Historical cost includes expenditure that is directly attributable to the acquisition of an item and capitalised borrowing costs. Cost may also include transfers from equity of any gains or losses on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment. Acquired assets on the acquisition of a new subsidiary are stated at their fair values at the date of acquisition.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance expenses are charged to the income statement during the financial period in which they are incurred.

Additionally the cost of an item of property, plant and equipment includes the estimated cost of its dismantlement, removal or restoration.

See [▶ Note 30](#) Other provisions for information about asset retirement obligations and [▶ Note 29](#), Nuclear related assets and liabilities, for information about provisions for decommissioning nuclear power plants.

Land, water areas and waterfall rights are not depreciated since they have indefinite useful lives. Depreciation on other assets is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, as follows:

Hydro power plant buildings, structures and machinery	40–50 years
Thermal power plant buildings, structures and machinery	25 years
Nuclear power plant buildings, structures and machinery	25 years
CHP power plant buildings, structures and machinery	15–25 years
Recycling and waste treatment facility buildings, structures and machinery	15–40 years
Solar and Wind power plant structures and machinery	25 years
District heating network	30–40 years
Other buildings and structures	20–40 years
Other tangible assets	20–40 years
Other machinery and equipment	3–20 years
Other non-current investments	5–10 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at each closing date. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. See further information on the impairment testing in [▶ Note 17](#) Intangible assets.

## GOVERNMENT GRANTS

Grants from the government are recognised at their fair value when there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions. Government grants relating to costs are deferred and recognised in the income statement over the period necessary to match them with the costs that they are intended to compensate. Government grants relating to the purchase of property, plant and equipment are deducted from the acquisition cost of the asset and are recognised as income by reducing the depreciation charge of the asset they relate to.

## BORROWING COSTS

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale. Qualifying assets are assets that necessarily take a substantial period of time to get ready for their intended use or sale.

All other borrowing costs are recognised in profit or loss in the period in which they are incurred.

EUR million	Land and waterfall rights		Buildings, plants and structures		Machinery and equipment		Other tangible assets		Advances paid and construction in progress		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
<b>Cost 1 January</b>	<b>2,694</b>	<b>2,765</b>	<b>3,805</b>	<b>3,621</b>	<b>8,335</b>	<b>7,147</b>	<b>163</b>	<b>135</b>	<b>626</b>	<b>824</b>	<b>15,623</b>	<b>14,492</b>
Translation differences and other adjustments	-104	-89	-208	-154	-328	-237	-3	-2	-82	-18	-725	-500
Acquisition of subsidiary companies	0	15	3	161	8	900	0	0	1	32	14	1,109
Capital expenditure	1	2	5	15	3	139	0	0	522	516	532	672
Nuclear asset retirement cost	0	0	0	0	16	-6	0	0	0	0	16	-6
Disposals	0	-1	-33	-21	-30	-40	0	-1	0	1	-64	-62
Sale of subsidiary companies	-1	0	-3	-49	-132	-14	0	0	0	-2	-136	-65
Reclassifications	1	3	281	232	107	445	9	31	-436	-726	-37	-15
<b>Cost 31 December</b>	<b>2,591</b>	<b>2,694</b>	<b>3,851</b>	<b>3,805</b>	<b>7,979</b>	<b>8,335</b>	<b>170</b>	<b>163</b>	<b>631</b>	<b>627</b>	<b>15,222</b>	<b>15,623</b>
<b>Accumulated depreciation 1 January</b>	<b>0</b>	<b>0</b>	<b>1,629</b>	<b>1,550</b>	<b>3,349</b>	<b>2,898</b>	<b>133</b>	<b>114</b>	<b>0</b>	<b>0</b>	<b>5,113</b>	<b>4,562</b>
Translation differences and other adjustments	0	0	-86	-38	-177	-72	-2	-2	0	0	-265	-112
Acquisition of subsidiary companies	0	0	0	52	0	244	0	0	0	0	0	297
Disposals	0	0	-33	-17	-29	-36	0	-1	0	0	-62	-54
Sale of subsidiary companies	0	0	0	-9	0	-3	0	0	0	0	0	-12
Depreciation for the period	0	0	113	112	340	317	3	4	0	1	455	434
Reclassifications	0	0	54	-21	-55	1	1	18	0	0	0	-2
<b>Accumulated depreciation 31 December</b>	<b>0</b>	<b>0</b>	<b>1,678</b>	<b>1,629</b>	<b>3,427</b>	<b>3,349</b>	<b>135</b>	<b>133</b>	<b>0</b>	<b>1</b>	<b>5,241</b>	<b>5,113</b>
<b>BS Carrying amount 31 December</b>	<b>2,591</b>	<b>2,694</b>	<b>2,173</b>	<b>2,175</b>	<b>4,552</b>	<b>4,986</b>	<b>35</b>	<b>29</b>	<b>631</b>	<b>626</b>	<b>9,981</b>	<b>10,510</b>

The decrease in property, plant and equipment arises mainly from translation differences and divestment of a 54% share in a solar power company.

See additional information on the divestment in [Note 3](#)

Acquisitions and disposals.

Property, plant and equipment that are subject to restrictions in the form of real estate mortgages amount to EUR 158 million (2017: 318). See [Note 36](#) Pledged assets and contingent liabilities.

## 18.1 Capitalised borrowing costs

EUR million	Buildings, plants and structures		Machinery and equipment		Advances paid and construction in progress		Total	
	2018	2017	2018	2017	2018	2017	2018	2017
<b>1 January</b>	<b>59</b>	<b>55</b>	<b>175</b>	<b>162</b>	<b>12</b>	<b>41</b>	<b>245</b>	<b>258</b>
Translation differences and other adjustments	-6	-3	-20	-11	-1	-1	-26	-16
Increases / disposals	0	0	0	10	10	6	10	16
Sale of subsidiary companies	0	0	-4	0	0	0	-4	0
Reclassification	3	10	6	22	-9	-34	0	-3
Depreciation	0	-2	-11	-8	0	0	-11	-10
<b>31 December</b>	<b>56</b>	<b>59</b>	<b>146</b>	<b>175</b>	<b>12</b>	<b>12</b>	<b>214</b>	<b>245</b>

Borrowing costs of EUR 10 million were capitalised in 2018 (2017: 16). The interest rate used for capitalisation varied between 2%–6% (2017: 2%–13%).

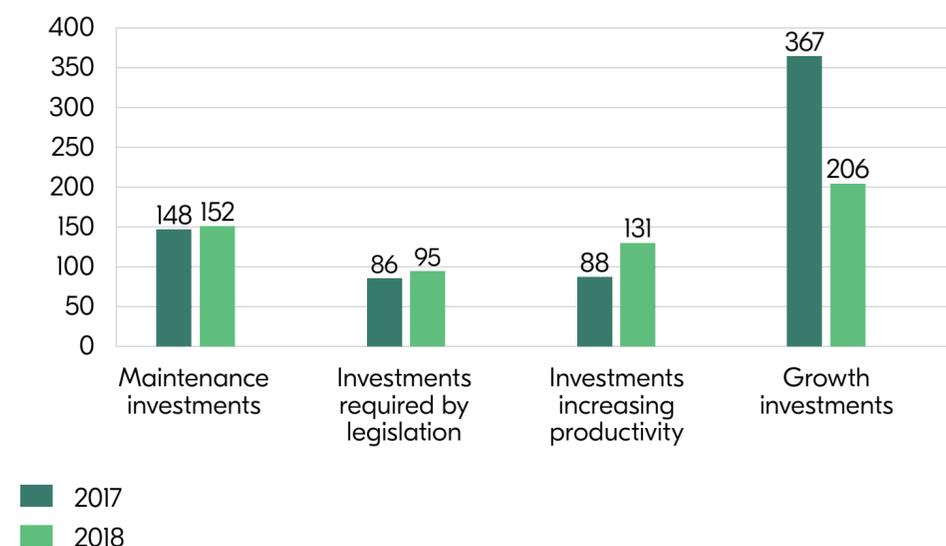
## 18.2 Capital expenditure <sup>1)</sup>

EUR million	Finland		Sweden		Russia		Poland		Norway		Other countries		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
<b>Generation</b>														
Hydropower	20	24	59	62									79	87
Nuclear power	99	84											99	84
Fossil-based electricity														0
Other renewable-based electricity														0
Other	8	3											8	3
<b>Total Generation</b>	<b>126</b>	<b>111</b>	<b>59</b>	<b>62</b>									<b>186</b>	<b>174</b>
<b>City Solutions</b>														
Fossil-based heat	5	2	0				7	3	0		0	0	12	6
Fossil-based electricity														0
Renewable, of which	34	23	6	1			52	72	9	13	5	4	106	112
waste	20	17	6	1			52	72	9	13	5	3	92	106
biofuels	15	6	0				0		0		0	0	15	7
other	0	0	0				0		0		0	0	0	0
District heat network	14	11	0				18	13	16		11	8	60	32
Other	7	4	1	10			1	1	0		3	3	12	19
<b>Total City Solutions</b>	<b>60</b>	<b>41</b>	<b>6</b>	<b>11</b>			<b>78</b>	<b>90</b>	<b>26</b>	<b>13</b>	<b>19</b>	<b>15</b>	<b>190</b>	<b>170</b>
<b>Consumer Solutions</b>														
Other	9	2	14	2			8	1	16	2			47	7
<b>Total Consumer Solutions</b>	<b>9</b>	<b>2</b>	<b>14</b>	<b>2</b>			<b>8</b>	<b>1</b>	<b>16</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>7</b>
<b>Russia</b>														
Fossil-based electricity					28	81							28	81
Fossil-based heat					22	18							22	18
Renewable-based electricity, wind					5	53							5	53
<b>Total Russia</b>					<b>54</b>	<b>152</b>							<b>54</b>	<b>152</b>
<b>Other</b>														
Renewable-based electricity, wind	2		9	22					51	24			62	45
Renewable-based electricity, solar											19	99	19	99
Other	17	25	1	7			0		4	7	5	3	26	42
<b>Total Other</b>	<b>19</b>	<b>25</b>	<b>9</b>	<b>28</b>			<b>0</b>		<b>55</b>	<b>31</b>	<b>24</b>	<b>102</b>	<b>108</b>	<b>187</b>
<b>Total</b>	<b>215</b>	<b>179</b>	<b>89</b>	<b>104</b>	<b>54</b>	<b>152</b>	<b>86</b>	<b>92</b>	<b>97</b>	<b>46</b>	<b>43</b>	<b>115</b>	<b>584</b>	<b>690</b>
<b>Of which investments in CO<sub>2</sub> free production</b>	<b>135</b>	<b>115</b>	<b>67</b>	<b>84</b>	<b>5</b>	<b>53</b>	<b>0</b>	<b>0</b>	<b>51</b>	<b>24</b>	<b>19</b>	<b>99</b>	<b>278</b>	<b>375</b>

1) Includes capital expenditure to both intangible assets and property, plant and equipment.

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### Fortum classifies investments in four main categories, EUR million



#### 18.2.1 Generation

In Finland, Fortum invested EUR 99 million (2017: 84) into the Loviisa nuclear power plant. Fortum invested additionally EUR 79 million (2017: 87) into hydro production, mainly maintenance, legislation and productivity investments. The biggest of these were Åsen refurbishment EUR 10 million in Sweden and Imatra dam safety EUR 10 million in Finland. Investments in CO<sub>2</sub> free production were EUR 178 million (2017: 171).

#### 18.2.2 City Solutions

Growth investments in City Solutions totalled EUR 100 million (2017: 107) in year 2018. The largest investment project in 2018 was the new CHP plant in Zabrze, Poland. Maintenance, legislation and productivity investments totalled EUR 89 million (2017: 62). This amount consists mainly of investments in district heat networks and plants as well as the maintenance of existing CHP plants and measures defined by legal requirements. Investments in CO<sub>2</sub> free production were EUR 15 million (2017: 7)

#### 18.2.3 Consumer Solutions

Investments in Consumer solutions totalled EUR 47 million (2017: 7). The amount consists mainly of sales commissions for customer acquisition that are capitalised starting from the implementation of IFRS 15 in 2018 (see ▶ **Note 1.6** Implementation of IFRS 9 and IFRS 15 from 1 January 2018) and new product development costs.

#### 18.2.4 Russia

Growth investments in Russia totalled EUR 10 million (2017: 96). Additionally, EUR 44 million (2017: 56) was invested in maintenance, legislation and productivity projects. Investments in CO<sub>2</sub> free production were EUR 5 million (2017: 53).

#### 18.2.5 Other

Other Division's investments include solar investments in India EUR 19 million (2017: 99) and investments in wind power production EUR 62 million (2017: 45). Wind investments include Solberg wind park in Sweden, as well as Ånstadblåheia and Sørffjord wind parks in Norway. Other Division invested also in Charge and Drive EUR 9 million (2017: 13), mainly charging poles in Norway. Investments in CO<sub>2</sub> free production were EUR 81 million (2017: 144).

# 19 Participations in associated companies and joint ventures

## ACCOUNTING POLICIES

The Group's interests in associated companies and jointly controlled entities are accounted for using the equity method of accounting. Assets acquired and liabilities assumed in the investment in associates or joint ventures are measured initially at their fair values at the acquisition date. The excess of the cost of acquisition over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the fair value of the net assets of the associate or joint venture acquired, the difference is recognised directly in the income statement.

The Group's share of its associates or joint ventures post-acquisition profits or losses after tax and the expenses related to the adjustments to the fair values of the assets and liabilities assumed are recognised in the income statement. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. The Group's share of post-acquisition adjustments to associates or joint ventures equity that has not been recognised in the associates or joint ventures income statement, is recognised directly in Group's shareholder's equity and against the carrying amount of the investment.

When the Group's share of losses in an associate or a joint venture equals or exceeds its interest in the associate or joint venture, including any other unsecured receivables, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associate or joint venture.

Unrealised gains on transactions between the Group and its associates or joint ventures are eliminated to the extent of the Group's interest in the associate or joint venture. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates or joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

If more recent information is not available, the share of the profit of certain associated or joint venture companies is included in the consolidated accounts based on the latest available information.

## CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS

Management is required to make significant judgements when assessing the nature of Fortum's interest in its investees and when considering the classification of Fortum's joint arrangements. In the classification, emphasis has been put on decision-making, legal structure and financing of the arrangements.

Management judgement is required when testing the carrying amounts for participations in associated companies and joint ventures for impairment. See ▶ **Note 17** Intangible assets for more information.

## 19.1 Principal associated companies and joint ventures

	OKG AB	Forsmarks Kraftgrupp AB	Kemijoki Oy	Uniper SE	TGC-I	TVO Oyj	Stockholm Exergi AB
Nature of the relationship	Co-owned nuclear company	Co-owned nuclear company	Co-owned hydro company	International energy company (listed)	Energy company (listed)	Co-owned nuclear company	Power and heat company
Classification	Associated company	Associated company	Associated company	Associated company	Associated company	Joint venture	Joint venture
Segment	Generation	Generation	Generation	Other	Russia	Generation	City Solutions
Domicile	Sweden	Sweden	Finland	Germany	Russia	Finland	Sweden
Ownership interest, % <sup>1)</sup>	46	26	58	49.99	29	25	50
Votes, %	46	26	27	49.99	29	25	50

1) Kemijoki and TVO have different series of shares. The ownership interest varies due to the changes in equity assigned to the different share series. The ownership interests for 2017 for Kemijoki Oy and TVO were 59% and 26% respectively.

## Shareholdings in power production companies

Power plants are often built jointly with other power producers. Under the consortium agreements, each owner is entitled to electricity in proportion to its share of ownership or other agreements and each owner is liable for an equivalent portion of costs. The production companies are not profit making, since the owners purchase electricity at production cost including interest cost and production taxes. The share of profit of these companies is mainly IFRS adjustments (e.g. accounting for nuclear related assets and liabilities) and depreciations on fair value adjustments from historical acquisitions since the companies are not profit making under local accounting principles.

Fortum has material shareholdings in such power production companies (mainly nuclear and hydro) that are consolidated using equity method either as associated companies (OKG AB, Forsmarks Kraftgrupp AB and Kemijoki Oy) or in some cases as joint ventures (Teollisuuden Voima Oyj (TVO)).

In Sweden nuclear production company shareholdings are 45.5% ownership of the shares in OKG AB and 25.5% ownership of the shares in Forsmarks Kraftgrupp AB. Excluding non-controlling interests in the subsidiaries, Fortum's participation in the companies are 43.4% and 22.2% respectively, which reflects the share of electricity produced that Fortum can sell further to the market. The minority part of the electricity purchased is invoiced further to each minority owner according to their respective shareholding and treated as pass-through.

In Finland Fortum has an ownership in power production company TVO that has three series of shares which entitle the shareholders to electricity produced in the different power plants owned by TVO.

Shares in series A entitle to electricity produced in nuclear power plants Olkiluoto 1 and 2 and Fortum owns 26.6% of these shares. Series B entitles to electricity in the nuclear power plant presently being built, Olkiluoto 3, and Fortum's ownership in this share series is 25%. Series C entitles to electricity produced in TVO's share of the coal condensing power plant Meri-Pori, and Fortum's ownership in this share series is 26.6%. The Meri-Pori power plant is accounted for as a joint operation in Fortum. Fortum increased its ownership in Series C of TVO to 100% on 1 January 2019, see [▶ Note 39](#) Events after the balance sheet date.

See also Associated companies in [▶ Note 37](#) Legal actions and official proceedings and Joint operations in the accounting principles in [▶ Note 18](#) Property, plant and equipment.

The most significant hydro production company shareholding is 63.8% of the hydro shares and 28.27% of the monetary shares in Kemijoki Oy. Each owner of hydro shares is entitled to the hydropower production in proportion to its hydro shareholding.

### Shareholdings in other principal associated companies and joint ventures

During 2018 Fortum has acquired 49.99% of the shares in Uniper, see [▶ Note 3](#) Acquisitions and disposals. As Uniper is a listed company and publishes its interim reports later than Fortum, Fortum's share of Uniper's results will be accounted for with a time-lag of one quarter with potential adjustments. Fortum's financial statements 2018 includes Fortum's share of Uniper's third quarter results.

Fortum has also other shareholdings in listed companies such as Territorial Generating Company 1 (TGC-1). The shareholding in TGC-1 is accounted for as an associated company as Fortum has representatives in the Board of Directors of the company. The share of profit of TGC-1 is accounted for based on previous quarter information since updated interim information is not normally available.

In Sweden Fortum has a 50% ownership in Stockholm Exergi AB (publ) (previously AB Fortum Värme Holding samägt med Stockholms stad) that is co-owned with the City of Stockholm through Stockholms Stadshus AB. Stockholm Exergi produces district heating, district cooling and electricity and supplies heat and cooling to customers in the Stockholm area.

In August 2017 Fortum sold its 34.1% stake in Hafslund ASA to the City of Oslo in connection with the restructuring of the ownership in Hafslund. Hafslund ASA was accounted for as an associated company and the share of profits was accounted for according to the latest quarter information available.

### Summarised financial information of the principal associated companies and joint ventures

Impact of different accounting principles presented in the tables below on the line Fair values on acquisitions and different accounting principles include mainly IFRS adjustments for Nuclear liabilities and assets and capitalised borrowing costs in Swedish associates. Fortum records its share of nuclear related assets and liabilities in its nuclear associated companies according to equity method. The basis for recognition is similar as for Loviisa power plant, see accounting principles in [▶ Note 29](#) Nuclear related assets and liabilities.

The purchase price allocation for Uniper acquisition is still on-going and Fortum is evaluating potential fair value adjustments and identifying potential differences in order to align the accounting principles. The purchase price allocation will take time due to the size of transaction and will be completed within the one-year window from the acquisition date according to IFRS. Difference between the acquisition price and Fortum's share of Uniper's net book value acquired is presented below on line 'Difference compared to acquisition price'.

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### Summarised financial information of the principal associated companies in 2018

EUR million	Forsmarks		Kemijoki Oy	Uniper SE	
	OKG AB	Kraftgrupp AB		group	TGC-1 group
	31 Dec 2017	31 Dec 2017	31 Dec 2017	30 Sept 2018	30 Sept 2018
<b>Balance sheet</b>					
Non-current assets	581	2,336	472	33,213	1,730
Current assets	273	412	8	27,311	258
Non-current liabilities	760	2,603	352	21,070	309
Current liabilities	82	112	71	27,819	138
Equity	13	34	57	11,635	1,540
Attributable to the owners of the parent	13	34	57	11,027	1,429
Attributable to NCI	0	0	0	608	112
	1 Jan 2017–	1 Jan 2017–	1 Jan 2017–	1 July 2018–	1 Oct 2017–
	31 Dec 2017	31 Dec 2017	31 Dec 2017	30 Sept 2018	30 Sept 2018
<b>Statement of comprehensive income</b>					
Sales	426	637	42	17,091	1,229
Profit or loss	1	-1	-11	1	132
Attributable to the owners of the parent	1	-1	-11	-4	127
Attributable to NCI	0	0	0	5	5
Total comprehensive income	1	-1	-11	-10	130
Attributable to the owners of the parent	1	-1	-11	1	125
Attributable to NCI	0	0	0	-11	5
<b>Reconciliation to carrying amount in the Fortum group</b>					
Group's interest in the equity of the associate at 1 January 2018	6	9	41	-	454
Change in share of profit and OCI items	0	0	-7	0	40
Dividends received	0	0	0	0	-7
Acquired net assets	0	0	0	5,512	0
Translation differences and other adjustments	0	0	0	0	-66
<b>Group's interest in the equity of the associate at 31 December 2018</b>	<b>6</b>	<b>9</b>	<b>33</b>	<b>5,512</b>	<b>421</b>
Fair values on acquisitions and different accounting principles	-6	82	155	-	-18
Difference compared to acquisition price	-	-	-	-1,544	-
<b>Carrying amount at 31 December 2018</b>	<b>0</b>	<b>90</b>	<b>188</b>	<b>3,968</b>	<b>403</b>
Market value for listed shares <sup>1)</sup>				4,135	114

1) The market quotation for the TGC-1 share is affected by the low liquidity of the TGC-1 shares in the Russian stock exchanges. During 2018 trading volumes of TGC-1 shares in relation to the number of shares of the company were approximately 11% (2017: 10%).

### Summarised financial information of the principal associated companies in 2017

EUR million	Forsmarks		Hafslund ASA		TGC-1 group
	OKG AB	Kraftgrupp AB	Kemijoki Oy	group 1)	
	31 Dec 2016	31 Dec 2016	31 Dec 2016	30 June 2017	30 Sept 2017
<b>Balance sheet</b>					
Non-current assets	628	2,367	465	2,329	1,938
Current assets	428	466	12	325	312
Non-current liabilities	961	2,599	264	1,091	420
Current liabilities	82	198	144	585	168
Equity	13	36	69	978	1,663
Attributable to the owners of the parent	13	36	69	978	1,540
Attributable to NCI	0	0	0	0	123
	1 Jan 2016–	1 Jan 2016–	1 Jan 2016–	1 Oct 2016–	1 Oct 2016–
	31 Dec 2016	31 Dec 2016	31 Dec 2016	30 June 2017	30 Sept 2017
<b>Statement of comprehensive income</b>					
Revenue	430	756	55	1,240	1,289
Profit or loss from continuing operations	1	0	-10	118	81
Other comprehensive income	0	0	0	-12	1
Total comprehensive income	1	0	-10	105	82
Attributable to the owners of the parent	1	0	-10	105	83
Attributable to NCI	0	0	0	0	-1
<b>Reconciliation to carrying amount in the Fortum group</b>					
Group's interest in the equity of the associate at 1 January 2017	6	10	48	349	471
Change in share of profit and OCI items	0	0	-6	36	32
Dividends received	0	0	0	-23	-5
Divestments	0	0	0	-363	0
Translation differences and other adjustments	0	-1	0	1	-44
<b>Group's interest in the equity of the associate at 31 December 2017</b>	<b>6</b>	<b>9</b>	<b>41</b>	<b>0</b>	<b>454</b>
Fair values on acquisitions and different accounting principles	16	92	157	0	-25
<b>Carrying amount at 31 December 2017</b>	<b>22</b>	<b>101</b>	<b>197</b>	<b>0</b>	<b>429</b>
Market value for listed shares <sup>1)</sup>					196

1) Divested in August 2017, see also ▶ Note 3 Acquisition and disposals.

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## Summarised financial information of the principal joint ventures in 2018 and 2017

EUR million	2018		2017	
	TVO Oyj group 30 Sept 2018	Stockholm Exergi AB group 31 Dec 2018	TVO Oyj group 30 Sept 2017	Stockholm Exergi AB group 31 Dec 2017
<b>Balance sheet</b>				
Non-current assets	7,231	2,581	6,900	2,642
Current assets	420	313	606	266
of which cash and cash equivalents	115	15	192	15
Non-current liabilities	5,108	1,271	5,159	1,461
of which non-current interest-bearing liabilities	4,033	903	4,186	1,071
Current liabilities	776	418	673	230
of which current financial liabilities	603	246	484	112
Equity	1,767	1,205	1,674	1,216
Attributable to the shareholders of the company	1,767	1,205	1,674	1,216
Attributable to NCI	0	0	0	0
<b>Statement of comprehensive income</b>	<b>1 Oct 2017–30 Sept 2018</b>	<b>1 Jan 2018–31 Dec 2018</b>	<b>1 Oct 2016–30 Sept 2017</b>	<b>1 Jan 2017–31 Dec 2017</b>
Revenue	338	683	343	689
Depreciation and amortisation	-55	-138	-56	-139
Interest income	12	0	14	0
Interest expense	-44	-17	-46	-17
Income tax expense or income	0	-5	0	-35
Profit or loss from continuing operations	-10	113	-4	125
Other comprehensive income	7	2	9	-7
Total comprehensive income	-2	116	5	118
Attributable to the shareholders of the company	-2	116	5	117
Attributable to NCI	0	0	0	0
<b>Reconciliation to carrying amount in the Fortum group</b>				
Group's interest in the equity of the joint venture at 31 December	280	608	279	588
Impact from change in accounting principle (IFRS 9) <sup>1)</sup>	145	0	-	-
Group's interest in the equity of the joint venture at 1 January	425	608	279	588
Change in share of profit and from OCI items	-1	58	0	59
Dividends received	0	-39	0	-21
Investments	25	0	-	-
Divestments and capital returns	-2	0	0	0
Translation differences and other adjustments	0	-25	0	-18
<b>Group's interest in the equity of the joint venture at 31 December</b>	<b>448</b>	<b>602</b>	<b>280</b>	<b>608</b>
Fair values on acquisitions and different accounting principles <sup>2)</sup>	-9	-68	-11	-75
<b>Carrying amount at 31 December</b>	<b>439</b>	<b>535</b>	<b>269</b>	<b>533</b>

 1) See additional information in ▶ [Note 1.6](#) Implementation of IFRS 9 and IFRS 15 from 1 January 2018.

 2) Impact of different accounting principles include mainly IFRS adjustments for Nuclear liabilities and assets and capitalised borrowing costs. Fortum records its share of nuclear related assets and liabilities in its nuclear associated companies according to equity method. The basis for recognition is similar as for Loviisa power plant, see accounting principles in ▶ [Note 29](#) Nuclear related assets and liabilities.

## 19.2 Participations and shares of profits in associated companies and joint ventures

### Participations in associated companies and joint ventures in the balance sheet

EUR million	2018	2017
Principal associates	4,649	749
Principal joint ventures	973	802
Other associates	60	121
Other joint ventures	295	229
<b>BS Carrying amount 31 December</b>	<b>5,978</b>	<b>1,900</b>

### Changes in participation during the year

EUR million	2018		2017	
	Associated companies	Joint ventures	Associated companies	Joint ventures
<b>Historical cost</b>				
Historical cost 31 December	680	598	864	636
Impact from change in accounting principle (IFRS 9) <sup>1)</sup>	20	145		
Historical cost 1 January	699	743	864	636
Translation differences and other adjustments	-33	-17	-30	-8
Investments	3,969	97	83	52
Reclassifications <sup>2)</sup>	-3	20	-1	-81
Divestments and capital returns	-83	-12	-236	0
<b>Historical cost 31 December</b>	<b>4,549</b>	<b>831</b>	<b>680</b>	<b>598</b>
<b>Equity adjustments</b>				
Equity adjustments 1 January	190	432	289	324
Translation differences and other adjustments	-29	-19	-18	-13
Share of profits of associates and joint ventures	-32	71	73	75
Reclassifications <sup>2)</sup>	41	0	1	81
Divestments	0	0	-128	0
Dividends received	-10	-51	-29	-29
OCI items associated companies and joint ventures	1	5	2	-5
<b>Equity adjustments 31 December</b>	<b>160</b>	<b>437</b>	<b>190</b>	<b>432</b>
<b>Carrying amount at 31 December</b>	<b>4,709</b>	<b>1,269</b>	<b>870</b>	<b>1,031</b>

1) See additional information in ▶ [Note 1.6 Implementation of IFRS 9 and IFRS 15 from 1 January 2018](#).

2) On 31 August 2018, Fortum sold a 54% share of its solar power company and as a consequence the subsidiary was reclassified as a joint venture.

During 2018 Fortum received EUR 61 million (2017: 58) in dividends from associates and joint ventures of which EUR 39 million (2017: 21) was received from Stockholm Exergi. Dividends received during 2017 include EUR 23 million from Hafslund ASA.

For information about investments and divestments of shares in associated companies, see ▶ [Note 3 Acquisitions and disposals](#).

### Share of profit of associates and joint ventures

EUR million	2018	2017
Principal associates		
OKG AB	-58	8
Forsmarks Kraftgrupp AB	-7	2
Kemijoki Oy	-9	-9
Uniper SE	-2	0
TGC-1	40	32
Hafslund ASA (divested in August 2017)	-	39
<b>Principal associates, total</b>	<b>-35</b>	<b>73</b>
Principal joint ventures		
Stockholm Exergi AB	61	66
TVO Oyj	1	-4
<b>Principal joint ventures, total</b>	<b>62</b>	<b>63</b>
Other associates	3	0
Other joint ventures	9	12
<b>IS Total</b>	<b>38</b>	<b>148</b>

There are no unrecognised share of losses of associated companies and joint ventures.

Fortum has reassessed assumptions used for all nuclear related assets and liabilities as of 31 December 2018. Assumptions have been changed for the respective balances of the co-owned nuclear companies in Finland and Sweden, i.e. Teollisuuden Voima Oyj (TVO), Oskarshamn Kraft Grupp AB (OKG), and Forsmarks Kraftgrupp AB. The total impact of the change to share of profit from these associated companies and joint ventures was EUR -37 million, net of tax, and including additional nuclear waste liability related to legacy waste obligations for Swedish nuclear. The net profit impact from all these nuclear related adjustments is close to zero. For additional information see ▶ [Note 29 Nuclear related assets and liabilities](#).

## 19.3 Transactions and balances

### Associated company transactions

EUR million	2018	2017
Sales to associated companies	0	1
Interest income on loan receivables to associated companies	12	12
Purchases from associated companies	256	319

Purchases from associated companies include mainly purchases of nuclear and hydro power at production cost including interest costs and production taxes.

### Associated company balances

EUR million	2018	2017
<b>Receivables from associated companies</b>		
Long-term interest-bearing loan receivables	581	656
Trade receivables	1	1
Other receivables	0	1
<b>Liabilities to associated companies</b>		
Long-term loan payables	0	2
Trade payables	2	0

For more info about receivables from associated companies, see [Note 21](#) Interest-bearing receivables.

### Joint venture transactions

EUR million	2018	2017
Sales to joint ventures	39	109
Interest income on joint venture loan receivables	0	1
Purchases from joint ventures	124	153

Purchases from joint ventures include mainly purchases of nuclear and hydro power at production cost including interest costs and production taxes.

### Joint venture balances

EUR million	2018	2017
<b>Receivables from joint ventures</b>		
Long-term interest-bearing loan receivables	60	208
Finance lease receivables from joint ventures	0	41
Trade receivables	53	23
Other receivables	18	17
<b>Liabilities to joint ventures</b>		
Long-term loan payables	293	285
Trade payables	31	19
Other payables	14	7

Change in long-term interest-bearing loan receivables, see [Note 1.6](#) Implementation of IFRS 9 and IFRS 15 from 1 January 2018.

For more info about interest-bearing receivables from joint ventures, see [Note 21](#) Interest-bearing receivables.

## 20 Other non-current assets

EUR million	2018	2017
Other investments	49	65
Interest-free receivables	90	74
<b>BS Total</b>	<b>139</b>	<b>140</b>

Other investments, i.e. shares which are not classified as associated companies or joint ventures, consist mainly of shares in unlisted companies of EUR 49 million (2017: 65). This includes Fortum's indirect shareholding in Fennovoima of EUR 33 million (Dec, 31 2017: 25). Fair value gains and losses of Other investments are booked through profit and loss. Other investments at fair value through other comprehensive income are immaterial.

## 21 Interest-bearing receivables

EUR million	2018		2017	
	Carrying amount	Fair value	Carrying amount	Fair value
Long-term loan receivables from associated companies	581	601	656	689
Long-term loan receivables from joint ventures	60	68	208	229
Finance lease receivables from joint ventures	0	0	41	41
Other long-term interest-bearing receivables	43	43	106	111
<b>BS Total long-term interest-bearing receivables</b>	<b>683</b>	<b>712</b>	<b>1,010</b>	<b>1,071</b>
Other short-term interest-bearing receivables	409	409	395	395
<b>Total short-term interest-bearing receivables</b>	<b>409</b>	<b>409</b>	<b>395</b>	<b>395</b>
<b>Total</b>	<b>1,092</b>	<b>1,121</b>	<b>1,406</b>	<b>1,466</b>

Long-term interest-bearing receivables include receivables from associated companies and joint ventures EUR 641 million (Dec 31, 2017: 905). These receivables include EUR 575 million (Dec 31, 2017: 638) from Swedish nuclear companies, OKG AB and Forsmarks Kraftgrupp AB, which are mainly funded with shareholder loans, pro rata each shareholder's ownership.

Finance lease relating to heat pipelines in Tyumen area, which are leased to joint venture YUSTEK, has been reassessed and classified as operating lease.

Interest-bearing receivables includes also EUR 70 million (2017: 102) from SIBUR, a Russian gas processing and petrochemicals company regarding divested shares of OOO Tobolsk CHP.

Short-term interest-bearing receivables include EUR 379 million (2017: 363) restricted cash mainly given as collateral for commodity exchanges. The new European Market Infrastructure Regulation (EMIR) came into force in 2016 requiring fully-backed guarantees.

For further information regarding credit risk management, see [▶ Note 4.7 Credit risk](#).

### Interest-bearing receivables

EUR million	Effective interest rate, %	Carrying amount 2018	Repricing			Fair value 2018	Carrying amount 2017	Fair value 2017
			Under 1 year	1–5 years	Over 5 years			
Long-term loan receivables	2.5	683	633	4	45	712	1,010	1,071
Short-term receivables	0.4	409	409	-	-	409	395	395
<b>Total interest-bearing receivables</b>	<b>1.7</b>	<b>1,092</b>	<b>1,042</b>	<b>4</b>	<b>45</b>	<b>1,121</b>	<b>1,406</b>	<b>1,466</b>

## 22 Inventories

### ACCOUNTING POLICIES

Inventories mainly consist of fuels consumed in the production process or in the rendering of services. Inventories are stated at the lower of cost and net realisable value being the estimated selling price for the end product, less applicable variable selling expenses and other production costs. Cost is determined using the first-in, first-out (FIFO) method.

Inventories which are acquired primarily for the purpose of trading are stated at fair value less selling expenses.

EUR million	2018	2017
Nuclear fuel	72	83
Coal	52	45
Oil	7	7
Biofuels	4	3
Materials and spare parts	56	54
Other inventories	43	25
<b>BS Total</b>	<b>233</b>	<b>216</b>

Write-downs in inventories amounted to EUR 6 million (2017: 0).

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## 23 Trade and other receivables

### ACCOUNTING POLICIES

Trade receivables include revenue based on an estimate of electricity, heat and cooling already delivered but not yet measured and not yet invoiced.

Impairment losses for trade receivables are calculated according to the expected credit loss (“ECL”) model. For large trade receivables, ECL is calculated for the individual customer based on the probability of default and expected recovery rate. These estimates are based on the customer’s rating and adjusted if there are indications of decreased creditworthiness, e.g. based on payment behaviour. ECL for trade receivables from small customers are calculated on portfolio basis by country and business segment. The impairment reservations are based on historical analysis of losses when possible, or on average default rates for customers based on externally available information. These rates be adjusted if there are any forward-looking indicators showing changes in expected credit losses. Trade receivables overdue more than 180 days are generally considered to be credit-impaired and reservations are made for the full amount, adjusted for expected recovery rates.

EUR million	2018	2017
Trade receivables	800	743
Accrued interest income	1	1
Accrued income and prepaid expenses	59	29
Cash settlements for futures	592	85
Other receivables	168	139
<b>BS Total</b>	<b>1,620</b>	<b>997</b>

Cash settlements for futures has increased mainly due to higher electricity prices for the hedging period. Futures are cash settled daily on Nasdaq Commodities exchange.

### 23.1 Trade receivables

#### Ageing analysis of trade receivables

EUR million	2018			2017	
	Gross	Expected credit loss allowance	Expected credit loss rate, %	Gross	Impaired
Not past due	712	2	0	632	2
Past due 1–30 days	63	2	3	54	2
Past due 31–90 days	17	4	24	36	3
Past due 91–180 days	15	11	73	19	3
Past due more than 181 days	77	66	86	68	57
<b>Total</b>	<b>885</b>	<b>85</b>	<b>10</b>	<b>809</b>	<b>66</b>

#### Changes in expected credit loss allowance

EUR million	2018
<b>Closing balance 31 December 2017 under IAS 39</b>	<b>66</b>
Impact from change in accounting principle	-1
<b>Opening balance 1 January 2018 under IFRS 9</b>	<b>64</b>
Expected credit loss allowance recognised during the period	27
Write-offs	-9
Recovery of previously recognised expected credit loss allowance	-5
Translation differences and other changes	7
<b>Closing balance 31 December 2018 under IFRS 9</b>	<b>85</b>

On 31 December 2018, EUR 61 million of the expected credit loss allowance refers to the Russia segment.

#### Trade receivables by currency (Gross)

EUR million	2018	2017
EUR	234	206
SEK	137	137
RUB	197	207
NOK	217	177
PLN	84	69
Other	16	13
<b>Total</b>	<b>885</b>	<b>809</b>

Trade receivables are arising from a large number of customers mainly in EUR, SEK, RUB and NOK mitigating the concentration of risk.

For further information regarding credit risk management and credit risks, see ▶ **Counterparty risks** in the Operating and financial review and ▶ **Note 4.7** Credit risk.

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## 24 Liquid funds

### ACCOUNTING POLICIES

Cash and cash equivalents in Liquid funds include cash in hand, deposits held at call with banks and other short-term, highly liquid investments with maturities of three months or less. Deposits and securities with maturity more than 3 months include fixed term deposits and commercial papers with maturity more than three months but less than twelve months. Deposits and securities are measured at amortised cost.

Bank overdrafts are shown within borrowings in current liabilities in the balance sheet. Cash collateral or otherwise restricted cash are treated as short-term interest-bearing receivables.

EUR million	2018	2017
Cash at bank and in hand	203	1,928
Deposits and securities with maturity under 3 months	353	1,253
<b>Cash and cash equivalents</b>	<b>556</b>	<b>3,182</b>
Deposits and securities with maturity more than 3 months	29	715
<b>BS Total</b>	<b>584</b>	<b>3,897</b>

Liquid funds consist of deposits and cash in bank accounts amounting to EUR 518 million and commercial papers EUR 66 million. The average interest rate on deposits and securities excl. Russian deposits on 31 December 2018 was -0.11% (2017: -0.27%). Liquid funds held by PAO Fortum amounted to EUR 317 million (2017: 246), of which EUR 316 million (2017: 231) was held as bank deposits. The average interest rate for this portfolio was 6.9% at the balance sheet date.

Liquid funds totalling EUR 168 million (2017: 3,348) are placed with counterparties that have an investment grade rating. In addition, EUR 416 million (2017: 549) have been placed with counterparties separately reviewed and approved by the Group's credit control department.

The committed and undrawn credit facilities amounted to EUR 1,800 million (2017: 1,800).

For further information regarding credit risk management and credit risks, see [Note 4.7](#) Credit risk.

## 25 Share capital

EUR million	2018		2017	
	Number of shares	Share capital	Number of shares	Share capital
Registered shares at 1 January	888,367,045	3,046	888,367,045	3,046
Cancellation of Treasury shares	72,580	-	-	-
Registered shares at 31 December	888,294,465	3,046	888,367,045	3,046

Fortum Corporation has one class of shares. By the end of 2018, a total of 888,294,465 shares had been issued. Each share entitles the holder to one vote at the Annual General Meeting. All shares entitle holders to an equal dividend. At the end of 2018 Fortum Corporation's share capital, paid in its entirety and entered in the trade register, was EUR 3,046,185,953.00.

In the merger of Länsivoima Oyj (former Lounais-Suomen Sähkö Oy) to Fortum Corporation in 2000, those shareholders of Länsivoima Oyj that did not produce their share certificates and did not request their rights to be registered in the book-entry system, received their respective shares of Fortum Corporation as merger consideration to a joint book-entry account opened on their behalf (the "Joint Account"). The Annual General Meeting 2018 of Fortum Corporation decided, that the rights to all such shares entered in the Joint Account and to the rights attached to such shares that had not been requested to be registered in the book-entry system prior to the decision by the Annual General Meeting 2018, were forfeited. In addition to the shares, the rights attached to such shares, such as undrawn dividend, were forfeited. The provisions applicable to treasury shares held by the company were applied to the forfeited shares. On 17 December 2018, Board of Directors decided to cancel all these 72,580 Fortum shares owned by the company without decreasing the share capital. The cancellation was entered in the Trade Register on 21 December 2018.

Fortum Corporation's shares are listed on Nasdaq Helsinki. The trading code is FORTUM (FUM1V before 25 January 2017). Fortum Corporation's shares are in the Finnish book entry system maintained by Euroclear Finland Ltd.

Details on the President and CEO and other members of the Fortum Executive Management Team's shareholdings and interest in the equity incentive schemes is presented in [Note 11](#) Employee benefits.

## 25.1 Authorisations from the Annual General Meeting 2018

On 28 March 2018, the Annual General Meeting decided to authorise the Board of Directors to decide on the repurchase and disposal of the company's own shares up to a maximum of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. It was also decided that own shares could be repurchased or disposed of in connection with acquisitions, investments or other business transactions, or be retained or cancelled. The repurchases or disposals could not be made for the purposes of the company's incentive and remuneration schemes. The authorisation cancelled the authorisation resolved by the Annual General Meeting of 2017. The authorisation is effective until the next Annual General Meeting and, in any event, for a period no longer than 18 months. The authorisation had not been used by the end of 2018.

## 25.2 Convertible bond loans and bonds with warrants

Fortum Corporation has not issued any convertible bonds or bonds with attached warrants, which would entitle the bearer to subscribe for Fortum shares. The Board of Directors of Fortum Corporation has no unused authorisations from the General Meeting of shareholders to issue convertible bond loans or bonds with warrants or increase the company's share capital.

# 26 Non-controlling interests

### Principal non-controlling interests

EUR million		2018	2017
PAO Fortum Group	Russia	33	37
AS Fortum Tartu Group	Estonia	37	34
Fortum Oslo Varme AS Group	Norway	152	150
Other		14	18
<b>BS Total</b>		<b>236</b>	<b>239</b>

# 27 Interest-bearing liabilities

### Net debt

EUR million	2018	2017
Interest-bearing liabilities	6,093	4,885
Liquid funds	584	3,897
<b>Net debt</b>	<b>5,509</b>	<b>988</b>

Net debt is calculated as interest-bearing liabilities less liquid funds without deducting interest-bearing receivables amounting to EUR 1,092 million (Dec 31, 2017: 1,406). Interest-bearing receivables mainly consist of shareholder loans to partly owned nuclear companies regarded as long-term financing. For more information see [Note 21](#) Interest-bearing receivables.

### Interest-bearing debt

EUR million	2018	2017
Bonds	1,746	2,521
Loans from financial institutions	1,799	155
Reborrowing from the Finnish State Nuclear Waste Management Fund	1,158	1,129
Other long-term interest-bearing debt	303	314
<b>BS Total long-term interest-bearing debt</b>	<b>5,007</b>	<b>4,119</b>
Current portion of long-term bonds	750	422
Current portion of loans from financial institutions	48	129
Current portion of other long-term interest-bearing debt	5	10
Commercial paper debt	207	0
Other short-term interest-bearing debt	76	206
<b>BS Total short-term interest-bearing debt</b>	<b>1,086</b>	<b>766</b>
<b>Total interest-bearing debt</b>	<b>6,093</b>	<b>4,885</b>

## Interest-bearing debt

EUR million	Effective interest rate, %	Carrying amount 2018	Repricing			Fair value 2018	Carrying amount 2017	Fair value 2016
			Under 1 year	1–5 years	Over 5 years			
Bonds	3.7	2,496	847	1,552	97	2,629	2,943	3,143
Loans from financial institutions	0.9	1,847	1,847	-	-	1,901	283	303
Reborrowing from the Finnish State Nuclear Waste Management Fund	0.5	1,158	1,158	-	-	1,218	1,129	1,192
Other long-term interest-bearing debt <sup>1)</sup>	3.6	309	208	-	101	351	324	373
<b>Total long-term interest-bearing debt <sup>2)</sup></b>	<b>2.2</b>	<b>5,810</b>	<b>4,060</b>	<b>1,552</b>	<b>198</b>	<b>6,099</b>	<b>4,679</b>	<b>5,011</b>
Commercial paper debt	0.1	207	207	-	-	207	-	-
Other short-term interest-bearing debt	-0.3	76	76	-	-	76	206	207
<b>Total short-term interest-bearing debt</b>	<b>0.0</b>	<b>283</b>	<b>283</b>	<b>-</b>	<b>-</b>	<b>283</b>	<b>206</b>	<b>207</b>
<b>Total interest-bearing debt <sup>3)</sup></b>	<b>2.1</b>	<b>6,093</b>	<b>4,343</b>	<b>1,552</b>	<b>198</b>	<b>6,382</b>	<b>4,885</b>	<b>5,218</b>

1) Includes loans from Finnish pension institutions EUR 38 million (2017: 48) and other loans EUR 270 million (2017: 276).

2) Including current portion of long-term debt EUR 803 million (Dec 31, 2017: 560).

3) The average interest rate on loans and derivatives on 31 December 2018 was 2.4% (2017: 3.6%).

The interest-bearing debt increased in 2018 by EUR 1,208 million to EUR 6,093 million (2017: 4,885). The amount of short-term financing increased with EUR 77 million, and at the end of the year the amount of short-term financing EUR 283 million (2017: 206) included 75 million (2017: 113) from Credit Support Annex agreements.

During the first quarter of 2018 Fortum increased the amount of reborrowing from the Finnish State Nuclear Waste Management Fund and TVO by EUR 29 million to EUR 1,158 million. In March Fortum repaid two SEK bonds equivalent to EUR 413 million (SEK 4.15 billion). In June Fortum Oyj made a bridge loan drawdown of EUR 1.75 billion from existing committed credit facilities for Fortum's offer for Uniper shares. No major financing transactions during last quarters.

The average interest rate for the portfolio consisting mainly of EUR and SEK loans was 1.7% at the balance sheet date (2017: 2.4%). Part of the external loans EUR 686 million (2017: 773) have been swapped to RUB and the average interest cost for these loans including cost for hedging the RUB was 8.3% at the balance sheet date (2017: 9.5%). The average interest rate on total loans and derivatives at the balance sheet date was 2.4% (2017: 3.6%).

For more information please see [Note 4](#) Financial risk management and [Note 36](#) Pledged assets and contingent liabilities.

## Reconciliation of interest-bearing liabilities

EUR million	31 Dec 2017	Cash flow from financing activities <sup>1)</sup>	Non-cash changes			31 Dec 2018
			Divestments	Exchange rate differences	Fair value changes and amortised cost	
Bonds	2,943	-413		-13	-21	2,496
Loans from financial institutions	283	1,571		-10	4	1,848
Reborrowing from the Finnish State Nuclear Waste Management Fund	1,129	29				1,158
Other interest-bearing debt	530	126	-58	-6		592
<b>Total interest-bearing debt</b>	<b>4,885</b>	<b>1,313</b>	<b>-58</b>	<b>-29</b>	<b>-17</b>	<b>6,093</b>

1) Repayments and borrowings.

EUR million	31 Dec 2016	Cash flow from financing activities <sup>1)</sup>	Non-cash changes			31 Dec 2017
			Acquisitions	Exchange rate differences	Fair value changes and amortised cost	
Bonds	3,329	-343		-16	-27	2,943
Loans from financial institutions	393	-144	42	-8		283
Reborrowing from the Finnish State Nuclear Waste Management Fund	1,094	35				1,129
Other interest-bearing debt	291	13	233	-8		530
<b>Total interest bearing debt</b>	<b>5,107</b>	<b>-439</b>	<b>275</b>	<b>-31</b>	<b>-27</b>	<b>4,885</b>

1) Repayments and borrowings.

## 27.1 Bond issues

Issued/Maturity	Interest basis	Interest rate, %	Effective interest, %	Currency	Nominal value million	Carrying amount EUR million
<b>Fortum Corporation EUR 8,000 million EMTN Programme <sup>1)</sup></b>						
2009/2019	Fixed	6.000	6.095	EUR	750	750
2011/2021	Fixed	4.000	4.123	EUR	500	513
2012/2022	Fixed	2.250	2.344	EUR	1,000	1,039
2013/2023	Floating	Stibor 3M+1.13		SEK	1,000	98
2013/2043	Fixed	3.500	3.719	EUR	100	97
<b>Total outstanding carrying amount 31 December 2018</b>						<b>2,496</b>

1) EMTN = Euro Medium Term Note

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## 28 Income taxes in balance sheet

### ACCOUNTING POLICIES

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated income statement, because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax is provided in full, using the balance sheet approach on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, if the deferred tax arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss, it is not accounted for. Deferred tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the closing date and are expected to apply when the related deferred tax asset is realised or the deferred tax liability is settled.

Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised. Deferred tax assets are set off against deferred tax liabilities if they relate to income taxes levied by the same taxation authority.

Deferred tax is provided on temporary differences arising from investments in subsidiaries, associates and joint ventures, except where the timing of the reversal of the temporary difference is controlled by the Group, and it is probable that the temporary difference will not be reversed in the foreseeable future.

The Group recognises liabilities for anticipated tax dispute issues based on estimates of whether additional taxes will be due. No provision will be recognised in the financial statements if Fortum considers the claims unjustifiable. Therefore, if taxes regarding ongoing tax disputes have to be paid before final court decisions, they will be booked as a receivable. Where the final outcome of these matters is different from the amounts that were initially recorded, such differences will impact the income tax and deferred tax provisions in the period in which such determination is made.

### CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS AND ESTIMATES REGARDING FUTURE TAX CONSEQUENCES

Fortum has deferred tax assets and liabilities which are expected to be realised through the income statement over the extended periods of time in the future. In calculating the deferred tax items, Fortum is required to make certain assumptions and estimates regarding the future tax consequences attributable to differences between the carrying amounts of assets and liabilities as recorded in the financial statements and their tax basis.

Assumptions made include the expectation that future operating performance for subsidiaries will be consistent with historical levels of operating results, recoverability periods for tax loss carry-forwards will not change, and that existing tax laws and rates will remain unchanged into foreseeable future. Fortum believes that it has prudent assumptions in developing its deferred tax balances

Assumptions and estimates regarding uncertain tax positions are supported by external legal counsel or expert opinion.

If the actual final outcome (regarding tax disputes) would differ negatively from management's estimates with 10%, the Group would need to increase the income tax liability by EUR 11 million as of 31 December 2018. For additional information regarding tax disputes, see [▶ Note 37](#) Legal actions and official proceedings.

### 28.1 Deferred income taxes in the balance sheet

EUR million	2018			2017		
	1 Jan	Change	31 Dec	1 Jan	Change	31 Dec
<b>BS</b> Deferred tax assets	73	-3	70	66	7	73
<b>BS</b> Deferred tax liabilities <sup>1)</sup>	-822	100	-720	-616	-203	-819
<b>Net deferred taxes</b>	<b>-749</b>	<b>97</b>	<b>-651</b>	<b>-550</b>	<b>-197</b>	<b>-747</b>

1) 1 January 2018 opening balance includes EUR -3 million of impact from change in accounting principle, IFRS 15. See additional information in [▶ Note 1](#) Accounting policies and [▶ Note 6](#) Segment reporting.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income taxes relate to the same fiscal authority.

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## Movement in deferred tax assets and liabilities 2018

EUR million	Intangible assets	Property, plant and equipment	Pension obligations	Provisions	Derivative financial instruments	Tax losses and tax credits carry-forward	Other	Net deferred taxes
<b>Closing balance 31 Dec</b>	<b>-101</b>	<b>-806</b>	<b>21</b>	<b>7</b>	<b>35</b>	<b>116</b>	<b>-20</b>	<b>-747</b>
Impact from change in accounting principle (IFRS 15) <sup>1)</sup>	-3							-3
<b>1 Jan 2018</b>	<b>-104</b>	<b>-806</b>	<b>21</b>	<b>7</b>	<b>35</b>	<b>116</b>	<b>-20</b>	<b>-749</b>
Charged to income statement	0	-24	0	-23	-7	-42	10	-87
Charged to other comprehensive income	0	0	-2	0	159	0	5	162
Exchange rate differences, reclassifications and other changes	3	41	-1	1	-18	-3	4	28
Acquisitions and disposals	-5	1	0	0	0	0	0	-5
<b>31 Dec 2018</b>	<b>-106</b>	<b>-788</b>	<b>20</b>	<b>-15</b>	<b>169</b>	<b>70</b>	<b>-1</b>	<b>-651</b>

1) See additional information in [▶ Note 1 Accounting policies](#) and [▶ Note 6 Segment reporting](#).

Retained earnings when distributed as dividends are subject to withholding tax (e.g. Russia) or distribution tax (e.g. Estonia). Provision has been made for these taxes only to extent that it is expected that these earnings will be remitted in the foreseeable future. At the end of the year deferred income tax liabilities of EUR 32 million (2017: 28) have been recognised for the withholding tax and other taxes that would be payable on the distributions.

Change in deferred taxes 2018 are mainly related to change in derivative financial instruments through other comprehensive income.

## Movement in deferred tax assets and liabilities 2017

EUR million	Intangible assets	Property, plant and equipment	Pension obligations	Provisions	Derivative financial instruments	Tax losses and tax credits carry-forward	Other	Net deferred taxes
<b>1 Jan 2017</b>	<b>-12</b>	<b>-717</b>	<b>14</b>	<b>20</b>	<b>36</b>	<b>100</b>	<b>8</b>	<b>-550</b>
Charged to income statement	7	-38	1	-10	16	8	-26	-42
Charged to other comprehensive income	0	0	3	0	-18	0	0	-15
Exchange rate differences, reclassifications and other changes	2	29	1	-2	1	-2	-6	22
Acquisitions and disposals	-98	-79	2	0	0	10	4	-161
<b>31 Dec 2017</b>	<b>-101</b>	<b>-806</b>	<b>21</b>	<b>7</b>	<b>35</b>	<b>116</b>	<b>-20</b>	<b>-747</b>

Deferred tax assets and liabilities from acquisitions and disposals in 2017 are mainly related to restructuring of the ownership in Hafslund together with the City of Oslo, acquisition of Solar power plants in Russia and wind power companies in Norway. In addition, the deferred tax asset relating to tax loss carry forwards increased net in 2017 mainly because of the additional taxable losses in the Netherlands partly offset by the usage of losses carry forwards in Russia.

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### Deferred income tax assets recognised for tax loss carry-forwards

Deferred income tax assets are recognised for tax loss carry-forward to the extent that realisation of the related tax benefit through future profits is probable. The recognised tax assets relate to losses carry-forward with no expiration date and partly with expiry date as described below.

EUR million	2018		2017	
	Tax losses	Deferred tax asset	Tax losses	Deferred tax asset
Losses without expiration date	197	43	413	90
Losses with expiration date	110	28	103	26
<b>Total</b>	<b>307</b>	<b>70</b>	<b>516</b>	<b>116</b>

Deferred tax assets of EUR 10 million (2017: 20) have not been recognised in the consolidated financial statements, because the realisation is not probable. The major part of the unrecognised tax asset relates to loss carry-forwards that are unlikely to be used in the foreseeable future.

Tax loss carry-forwards decreased in 2018 mainly because of use of losses carry forwards in Russia and Sweden.

## 28.2 Income tax receivables

EUR million	2018	2017
Sweden	41	28
Belgium	114	114
Other	17	30
<b>Total Income tax receivables</b>	<b>172</b>	<b>172</b>

Income tax receivables reflect payments of corporate income tax done in relation to the year 2018 as well as payments according to received tax audit assessments in relation to previous years.

In October 2018 the Administrative Court of Appeal in Sweden announced its decision relating to the income tax assessment for the year 2013. The decision was favorable to Fortum. The additional taxes claimed 2013 have been paid during prior year, in total EUR 26 million and based on supporting legal opinion booked as an income tax receivable. Due to the favorable decision the amount was refunded to Fortum in 2018. The income tax receivable in Sweden 2018 of EUR 41 million relate to overpayment of preliminary income tax.

In Belgium, Fortum has in previous years received income tax assessments for the years 2008–2012. The additional taxes have been paid during prior years, in total EUR 114 million and based on supporting legal opinions booked as an income tax receivable.

See ▶ [Note 37](#) Legal actions and official proceedings.

## 29 Nuclear related assets and liabilities

### ACCOUNTING POLICIES

Fortum owns Loviisa nuclear power plant in Finland. In Fortum's consolidated balance sheet, Share in the State Nuclear Waste Management Fund and the Nuclear provisions relate to Loviisa nuclear power plant. Fortum's nuclear related provisions and the related part of the State Nuclear Waste Management Fund are both presented separately in the balance sheet. Fortum's share in the State Nuclear Waste Management Fund is accounted for according to IFRIC 5, Rights to interests arising from decommissioning, restoration and environmental rehabilitation funds which states that the fund assets are measured at the lower of fair value or the value of the related liabilities since Fortum does not have control or joint control over the State Nuclear Waste Management Fund. The Nuclear Waste Management Fund is managed by governmental authorities. The related provisions are the provision for decommissioning and the provision for disposal of spent fuel.

The fair values of the provisions are calculated according to IAS 37 by discounting the separate future cash flows, which are based on estimated future costs and actions already taken. The initial net present value of the provision for decommissioning (at the time of commissioning the nuclear power plant) has been included in the investment cost and is depreciated over the estimated operating time of the nuclear power plant. Changes in the technical plans etc., which have an impact on the future cash flow of the estimated costs for decommissioning, are accounted for by discounting the additional costs to the current point in time. The increased asset retirement cost due to the increased provision is added to property, plant and equipment and depreciated over the remaining estimated operating time of the nuclear power plant. For power plant units taken from use the increase is taken to income statement.

The provision for spent fuel covers the future disposal costs for fuel used until the end of the accounting period. Costs for disposal of spent fuel are expensed during the operating time based on fuel usage. The impact of the possible changes in the estimated future cash flow for related costs is recognised immediately in the income statement based on the accumulated amount of fuel used until the end of the accounting period. The related interest costs due to unwinding of the provision is recognised in the corresponding period.

The timing factor is taken into account by recognising the interest expense related to discounting the nuclear provisions. The interest on the State Nuclear Waste Management Fund assets is presented as financial income.

Fortum's actual share of the State Nuclear Waste Management Fund, related to Loviisa nuclear power plant, is higher than the carrying value of the Fund in the balance sheet. The legal nuclear liability should, according to the Finnish Nuclear Energy Act, be fully covered by payments and guarantees to the State Nuclear Waste Management Fund. The legal liability is not discounted while the provisions are, and since the future cash flow is spread over a very long time horizon, the difference between the legal liability and the provisions are material.

The annual fee to the Fund is based on changes in the legal liability, the interest income generated in the State Nuclear Waste Management Fund and incurred costs of taken actions.

Fortum also has minority interests in nuclear power companies, i.e. Teollisuuden Voima Oyj (TVO) in Finland and OKG Aktiebolag (OKG) and Forsmarks Kraftgrupp AB (Forsmark) in Sweden. The minority shareholdings are classified as associated companies and joint ventures and are consolidated with equity method. Both the Finnish and the Swedish companies are non-profit making, i.e. electricity production is invoiced to the owners at cost including depreciations, interest costs and production taxes accounted for according to local GAAP. Accounting policies of the associates regarding nuclear assets and liabilities have been changed where necessary to ensure consistency with the policies adopted by the Group.

### CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS MADE WHEN ESTIMATING PROVISIONS RELATED TO NUCLEAR PRODUCTION

The provision for future obligations for nuclear waste management including decommissioning of Fortum's nuclear power plant and related spent fuel is based on long-term cash flow forecasts of estimated future costs. The main assumptions are technical plans, timing, cost estimates and discount rate. The technical plans, timing and cost estimates are approved by governmental authorities.

Any changes in the assumed discount rate would affect the provision. If the discount rate used would be lowered, the provision would increase. Fortum has contributed cash to the State Nuclear Waste Management Fund based on a non-discounted legal liability, which leads to that the increase in provision would be offset by an increase in the recorded share of Fortum's part of the State Nuclear Waste Management Fund in the balance sheet. The total effect on the income statement would be positive since the decommissioning part of the provision is treated as an asset retirement obligation. This situation will prevail as long as the legal obligation to contribute cash to the State Nuclear Waste Management Fund is based on a non-discounted liability and IFRS is limiting the carrying value of the assets to the amount of the provision since Fortum does not have control or joint control over the fund.

Based on the Nuclear Energy Act in Finland, Fortum has a legal obligation to fully fund the legal liability decided by the governmental authorities, for decommissioning of the power plant and disposal of spent fuel through the State Nuclear Waste Management Fund.

Both in Finland and in Sweden nuclear operators are legally obligated for the decommissioning of the plants and the disposal of spent fuel (nuclear waste management). In both countries the nuclear operators are obligated to secure the funding of nuclear waste management by paying to government operated nuclear waste funds. The nuclear operators also have to give securities to guarantee that sufficient funds exist to cover future expenses of decommissioning of the power plant and disposal of spent fuel.

Fortum has reassessed the assumptions used for all nuclear related assets and liabilities as of 31 December 2018. The increase in the nuclear provision for the Loviisa nuclear power plant in Finland leads to recognition of an additional share of the Finnish nuclear fund. As of 31 December 2018, Fortum still has EUR 254 million in unrecognised nuclear waste fund assets for Loviisa. The increase in the provision and the additional share in the fund are both included in Items affecting comparability. The changes in assumptions also had a positive impact on interests presented in other financial expenses. The assumptions have also been changed for the respective balances of the co-owned nuclear companies in Finland and Sweden, i.e. TVO, OKG and Forsmark. The total impact of the change to share of profit from these associated companies and joint ventures was EUR -37 million, net of tax, and including additional nuclear waste liability related to legacy waste obligations for Swedish nuclear. The net profit impact from all these nuclear-related adjustments is close to zero.

## 29.1 Nuclear related assets and liabilities for 100% owned nuclear power plant, Loviisa

EUR million	2018	2017
<b>Carrying values in the balance sheet</b>		
<b>BS</b> Nuclear provisions	899	858
<b>BS</b> Fortum's share of the State Nuclear Waste Management Fund	899	858
<b>Legal liability and actual share of the State Nuclear Waste Management Fund</b>		
Liability for nuclear waste management according to the Nuclear Energy Act	1,180	1,161
Funding obligation target	1,180	1,153
Fortum's share of the State Nuclear Waste Management Fund	1,153	1,125
Share of the fund not recognised in the balance sheet	254	267

### Legal liability for Loviisa nuclear power plant

The legal liability on 31 December 2018, decided by the Ministry of Economic Affairs and Employment in November 2018, was EUR 1,180 million.

The legal liability is based on a cost estimate, which is done every year, and a technical plan, which is made every third year. The current technical plan was updated in 2016. The legal liability is determined by assuming that the decommissioning would start at the beginning of the year following the assessment year.

### Fortum's share in the State Nuclear Waste Management Fund

According to Nuclear Energy Act, Fortum is obligated to contribute funds in full to the State Nuclear Waste Management Fund to cover the legal liability. Fortum contributes funds to the Finnish State Nuclear Waste Management Fund based on the yearly funding obligation target decided by the governmental authorities in connection with the decision of size of the legal liability. The current funding obligation target decided in November 2018 is EUR 1,180 million.

### Nuclear provisions

EUR million	2018	2017
<b>BS 1 January</b>	<b>858</b>	<b>830</b>
Additional provisions	29	4
Provision used	-26	-21
Unwinding of discount	38	45
<b>BS 31 December</b>	<b>899</b>	<b>858</b>
Fortum's share in the State Nuclear Waste Management Fund	899	858

### Nuclear provision and fund accounted according to IFRS

Nuclear provisions include the provision for decommissioning and the provision for disposal of spent fuel. The carrying value of the nuclear provisions, calculated according to IAS 37, increased by EUR 41 million compared to 31 December 2017, totalling EUR 899 million on 31 December 2018. The provisions are based on the same cash flows for future costs as the legal liability, but the legal liability is not discounted to net present value. The increase is mainly arising from the change in the assumptions used for the provisions.

The carrying value of the Fund in the balance sheet cannot exceed the carrying value of the nuclear provisions according to IFRIC Interpretation 5. The Fund is from an IFRS perspective overfunded with EUR 254 million, since Fortum's share of the Fund on 31 December 2018 was EUR 1,153 million and the carrying value in the balance sheet was EUR 899 million.

Fortum's share of the Finnish Nuclear Waste Management Fund in Fortum's balance sheet can in maximum be equal to the amount of the provisions according to IFRS. As long as the Fund is overfunded from an IFRS perspective, the effects to operating profit from this adjustment will be positive if the provisions increase more than the Fund and negative if actual value of the fund increases more than the provisions. This accounting effect is not included in Comparable operating profit in Fortum financial reporting. For more information see [▶ Note 7](#) Items affecting comparability.

### Borrowing from the State Nuclear Waste Management Fund

Participants in the Finnish State Nuclear Waste Management Fund are allowed to borrow from the fund according to certain rules. Fortum uses the right to borrow back and has pledged shares in Kemijoki Oy as security for the loans. The loans are renewed yearly. See [▶ Note 27](#) Interest-bearing liabilities and [▶ Note 36](#) Pledged assets and contingent liabilities.

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## 29.2 Nuclear power plants in associated companies and joint ventures

OKG, Forsmark and TVO are non-profit making companies, i.e. electricity production is invoiced to the owners at cost including depreciations, interest costs and production taxes. Invoiced cost is accounted for according to local GAAP. In addition to the invoiced electricity production cost, Fortum makes IFRS adjustments to comply with Fortum's accounting principles. These adjustments include also Fortum's share of the companies' nuclear waste funds and nuclear provisions.

The tables below present the 100% figures relating to nuclear funds and provisions for the companies as well as Fortum's net share.

### TVO's total nuclear related assets and liabilities (100%)

EUR million	2018	2017
<b>Carrying values in TVO's balance sheet</b>		
Nuclear provisions	1,016	953
Share of the State Nuclear Waste Management Fund	1,016	953
<b>of which Fortum's net share consolidated with equity method</b>	<b>0</b>	<b>0</b>
<b>TVO's legal liability and actual share of the State Nuclear Waste Management Fund</b>		
Liability for nuclear waste management according to the Nuclear Energy Act	1,506	1,482
Share of the State Nuclear Waste Management Fund	1,471	1,437
Share of the fund not recognised in the balance sheet	455	484

TVO's legal liability, provision and share of the fund are based on the same principles as described above for Loviisa nuclear power plant and includes in 2018 the impact from adjustments following the reassessment.

TVO's share of the Finnish State Nuclear Waste Management Fund is from an IFRS perspective overfunded with EUR 455 million (of which Fortum's share EUR 121 million), since TVO's share of the Fund on 31 December 2018 was EUR 1,471 million and the carrying value in the balance sheet was EUR 1,016 million.

Participants in the Finnish State Nuclear Waste Management Fund are allowed to borrow from the fund according to certain rules. Fortum is using the right to reborrow funds through TVO based on its ownership. See more information in [▶ Note 27](#) Interest-bearing liabilities.

### OKG's and Forsmark's total nuclear related assets and liabilities (100%)

EUR million	2018	2017
<b>OKG's and Forsmark's nuclear related assets and liabilities <sup>1)</sup></b>		
Nuclear provisions	3,930	3,398
Share in the State Nuclear Waste Management Fund	3,230	3,105
<b>Net amount</b>	<b>-701</b>	<b>-293</b>
<b>of which Fortum's net share consolidated with equity method</b>	<b>-242</b>	<b>-114</b>

1) Accounted for according to Fortum's accounting principles. Companies' statutory financial statements are not prepared according to IFRS.

In Sweden Svensk Kärnbränslehantering AB (SKB), a company owned by the nuclear operators, takes care of all nuclear waste management related activities on behalf of nuclear operators. SKB receives its funding from the Swedish State Nuclear Waste Management Fund, which in turn is financed by the nuclear operators.

Nuclear waste fees and guarantees are updated every third year by governmental decision after a proposal from Swedish Radiation Safety Authority (SSM). The proposal is based on cost estimates done by SKB. A new technical plan for nuclear waste management was decided by SKB during 2016. In 2017 SKB submitted the cost estimates based on the revised technical plan to SSM. In December 2017 the Swedish government decided the waste fees and guarantees for years 2018–2020. Nuclear waste fees are currently based on future costs with the assumed lifetime of 50 years (40 years in previous decision) for each unit of a nuclear power plant.

In addition to nuclear waste fees nuclear power companies provide guarantees for any uncovered liability and unexpected events.

For more information regarding Fortum's guarantees given on behalf of nuclear associated companies, see [▶ Note 36](#) Pledged assets and contingent liabilities.

## 30 Other provisions

### ACCOUNTING POLICIES

Provisions for environmental obligations, asset retirement obligations, restructuring costs and legal claims are recognised when the Group has a present legal or constructive obligation as a result of past events to a third party, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognised as interest expense.

### ENVIRONMENTAL PROVISIONS

Environmental provisions are recognised, based on current interpretation of environmental laws and regulations, when it is probable that a present obligation has arisen and the amount of such liability can be reliably estimated. Environmental expenditures resulting from the remediation of an existing condition caused by past operations, and which do contribute to current or future revenues, are expensed as incurred.

Environmental provisions include provisions for obligations to cover landfills and clean-up obligations for contaminated land areas. Provisions are determined based on the surface area of the landfill site, remaining land area to be landscaped or otherwise cleaned-up, and the unit cost of conducting the coverage and clean-up activities in the future.

Environmental provisions are also booked for aftercare and monitoring obligations arising from landfill permit holder's requirement to take into account potential danger to health or the environment posed by a landfill site for a period of at least 30 (up to 60) years after the coverage. The aftercare and monitoring provision is determined on the basis of estimated costs and estimated number of years of filling the landfill.

### ASSET RETIREMENT OBLIGATIONS

Asset retirement obligation is recognised either when there is a contractual obligation towards a third party or a legal obligation and the obligation amount can be estimated reliably. Obligating event is e.g. when a plant is built on a leased land with an obligation to dismantle and remove the asset in the future or when a legal obligation towards Fortum changes. The asset retirement obligation is recognised as part of the cost of an item of property, plant and equipment when the asset is put in service. The costs will be depreciated over the remainder of the asset's useful life.

### RESTRUCTURING PROVISIONS

A restructuring provision is recognised when the Group has developed a detailed formal plan for the restructuring and has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement the plan

or announcing its main features to those affected by it. The measurement of a restructuring provision includes only the direct expenditures arising from the restructuring, which are those amounts that are both necessarily entailed by the restructuring and not associated with the ongoing activities of the entity. Restructuring provisions comprise mainly employee termination payments and lease termination costs.

### CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS MADE WHEN ESTIMATING PROVISIONS

Provisions for present obligations require management to assess the best estimate of the expenditure needed to settle the present obligation at the end of the reporting period. The actual amount and timing of the expenditure might differ from estimates made.

EUR million	2018			2017		
	Environ-mental	Other	Total	Environ-mental	Other	Total
<b>1 January</b>	<b>43</b>	<b>79</b>	<b>122</b>	<b>47</b>	<b>82</b>	<b>129</b>
Acquisitions	0	0	0	0	7	7
Provisions for the period	0	25	25	0	31	31
Provisions used	0	-33	-33	0	-35	-35
Provisions reversed	0	-4	-4	0	-10	-10
Exchange rate differences and other changes	-1	-3	-4	-4	4	0
<b>31 December</b>	<b>41</b>	<b>65</b>	<b>106</b>	<b>43</b>	<b>79</b>	<b>122</b>
Of which current provisions <sup>1)</sup>	0	14	14	0	22	22
<b>BS</b> Of which non-current provisions	41	50	91	43	57	100

1) Included in trade and other payables in the balance sheet, see ▶ **Note 33** Trade and other payables.

Environmental provisions include mainly provisions for obligations to cover and monitor landfills as well as to clean contaminated land areas. Main part of the provisions are estimated to be used within 10–15 years.

Dismantling provisions for the Finnish coal fired power plants are included in Other provisions.

Regarding provisions for decommissioning and provision for disposal of spent fuel for nuclear production, see ▶ **Note 29** Nuclear related assets and liabilities.

## 31 Pension obligations

### ACCOUNTING POLICIES

The Group companies have various pension schemes in accordance with the local conditions and practises in the countries in which they operate. The schemes are generally funded through payments to insurance companies or the Group's pension funds as determined by periodic actuarial calculations. The Group has both defined benefit and defined contribution plans.

The Group's contributions to defined contribution plans are charged to the income statement in the period to which the contributions relate.

For defined benefit plans, pension costs are assessed using the projected unit credit method. The cost of providing pensions is charged to the income statement as to spread the service cost over the service lives of employees. The net interest is presented in financial items and the rest of the income statement effect as pension cost.

The defined benefit obligation is calculated annually on the balance sheet date and is measured as the present value of the estimated future cash flows using interest rates of high-quality corporate bonds that have terms to maturity approximating to the terms of the related pension liability. In countries where there is no deep market in such bonds, market yields on government bonds are used instead. The plan assets for pensions are valued at market value. The liability recognised in the balance sheet is the defined benefit obligation at the closing date less the fair value of plan assets. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss related to a curtailment is recognised immediately in profit or loss. Gains or losses on settlements of defined benefits plans are recognised when the settlement occurs.

### CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS USED TO DETERMINE FUTURE PENSION OBLIGATIONS

The present value of the pension obligations is based on actuarial calculations that use several assumptions.

Any changes in these assumptions will impact the carrying amount of pension obligations.

### Fortum's pension arrangements

#### Finland

In Finland statutory pension benefits (as determined in Employee's Pension Act /TyEL) provide the employees pension coverage for old age, disability and death of a family provider. The benefits are insured with an insurance company and determined to be defined contribution plans.

In addition the Group has additional old-age and survivors pension benefits arranged with the Fortum Pension Fund. The Fortum Pension Fund is a closed fund managed by a Board, consisting of both employers' and employees' representatives. The Fund is operating under regulation from Financial Supervisory Authority (FSA). The liability has to be fully covered according to the regulations. The national benefit obligation related to the defined benefit plans is calculated so that the promised benefit is fully funded until retirement. After retirement the benefits payable are indexed yearly with TyEL-index. The promised benefit is defined in the rules of the Fund, mostly 66% at a maximum of the salary basis. The salary basis is an average of the ten last years' salaries, which are indexed with a common salary index to the accounting year.

#### Sweden

In Sweden the Group operates several defined benefit and defined contribution plans like the general ITP-pension plan and the PA-KL and PA-KFS plans that are eligible for employees within companies formerly owned by municipalities. The defined benefit plans are fully funded and have partly been financed through Fortum's own pension fund and partly through insurance premiums. The pension arrangements comprise normal retirement pension, complementary retirement pensions, survivors' pension and disability pension. The most significant pension plan is the ITP-plan for white-collar employees in permanent employment (or temporary employees after a certain waiting period), who fulfil the age conditions. To qualify for a full pension the employee must have a projected period of pensionable service, from the date of entry until retirement age, of at least 30 years.

The Swedish pension fund is managed by a Board, consisting of both employers' and employees' representatives. The fund is operating under regulation from Swedish Financial Supervisory Authority and the County Administrative Board and governed by Swedish law (no. 1967:531). The fund constitutes a security for the employers' defined benefit pension plan liability and the fund has no obligations in relation to pension payments. The employer must have a credit insurance from PRI Pensionsgaranti Mutual Insurance Company for the liability. The liability does not have to be fully covered by the fund according to the regulations.

The part of the ITP multiemployer pension plan that is secured by paying pension premiums to Alecta, in Fortum's case the collective family pension, is accounted for as a defined contribution plan due to that there is no consistent and reliable basis to allocate assets or liabilities to the participating entities within the ITP insurance. The reason for this is that it is not possible to determine from the terms of the plan to which extent a surplus or a deficit will affect future contributions.

#### Norway

Group companies operate both defined contribution and defined benefit plans. Some defined benefit schemes offer benefits common for municipalities in Norway and some are private pension schemes. Benefits include old

age pensions, disability pension and survivor's pension, including pension benefits from the National Insurance Scheme (Folketrygden). The schemes are fully funded within the rules set out in the Norwegian insurance legislation.

The majority of the defined benefit plans are closed, either private plans or public plans, that are operated by the Fortum Pension Fund. The Fortum Pension Fund was established in 2018 and the participants were transferred there from the Hafslund and Infratek's Pension Fund. The Group has also a closed public defined benefit plan operated by Oslo Pensjonsforsikring AS. In addition, the Group has defined benefit plans with various insurance companies.

### Pension arrangements in other countries

Pension arrangements in Russia include payments made to the state pension fund. These arrangements are treated as defined contribution plans. The Russian (in addition to the defined contribution plans) and Polish companies participate in certain defined benefit plans, defined by collective agreements, which are unfunded and where the company meets the benefit payment obligation as it falls due. The benefits provided under these arrangements include, in addition to pension payments, one-time benefits paid in case of employee mortality or disability as well as lump sum payments for anniversary and financial support to honoured workers and pensioners.

In other countries the pension arrangements are done in accordance with the local legislation and practice, mostly being defined contribution plans.

## Main risks relating to defined benefit plans – Finland and Sweden

### Overall risks

Finland – If the return of the fund's assets is not enough to cover the raise in liability and benefit payments over the financial year then the employer funds the deficit with contributions unless the fund has sufficient equity.

Sweden – As the pension fund is separated from the funding companies Fortum is not obliged to make additional contributions to the pension fund in any case of deficit. However if the assets decrease to a level lower than the liability according to Swedish GAAP, Fortum's credit insurance cost from PRI will increase.

### Change in discount rate

Finland – The discount rate which is used to calculate the defined benefit obligation (according to IFRS) depends on the value of corporate bond yields as at reporting date. A decrease in yields increases the benefit obligation that is offset by increase in the value of fixed income holdings.

### Investment and volatility risk

Finland – The pension fund's board accepts yearly an Investment Plan, which is based on an external asset-liability analysis. The assets are allocated to stocks and stock funds, fixed income instruments and real estate. The investments are diversified into different asset classes and to different asset managers taking into account the regulation of the Financial Supervisory Authority.

Sweden – The pension fund operation is regulated by law and supervised by central administrative authorities (Finansinspektionen and the County Administrative Board). The pension fund board decides yearly on a policy for asset allocation and a risk management model that stipulates a maximum acceptable market value decrease of the assets. The major assets are fixed income instruments, stock index funds and cash.

### Risks relating to assumptions used

Actuarial calculations use assumptions for future inflation and salary levels and longevity. Should the actual outcome differ from these assumptions, this might lead to higher liability.

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### Movement in the net defined benefit liability

EUR million	Defined benefit obligation		Fair value of plan assets		Net defined benefit asset(-)/liability(+)	
	2018	2017	2018	2017	2018	2017
<b>Balance at 1 January</b>	<b>501</b>	<b>452</b>	<b>-401</b>	<b>-378</b>	<b>101</b>	<b>74</b>
<b>Included in profit or loss</b>						
Current service cost	8	6			9	7
Past service cost	-1	0			-1	0
Settlements	-4	-3	2	5	-1	2
Net interest <sup>1)</sup>	9	9	-7	-7	2	2
	<b>13</b>	<b>12</b>	<b>-4</b>	<b>-2</b>	<b>9</b>	<b>10</b>
<b>Included in OCI</b>						
Remeasurement gains(-)/losses(+)	-8	10	2	7	-6	17
Actuarial gains/losses arising from changes in financial assumptions	-12	16			-12	16
Actuarial gains/losses arising from experience adjustments	4	-6			4	-6
Return on plan assets (excluding amounts included in net interest expense)			2	7	2	7
Exchange rate differences	-7	-5	5	4	-2	-1
	<b>-15</b>	<b>5</b>	<b>7</b>	<b>11</b>	<b>-8</b>	<b>16</b>
<b>Other</b>						
Contributions paid by the employer			-1	-3	-1	-3
Benefits paid	-17	-18	13	14	-4	-3
Acquisitions of subsidiary companies	0	50	0	-43	0	7
<b>Balance at 31 December</b>	<b>483</b>	<b>501</b>	<b>-386</b>	<b>-401</b>	<b>97</b>	<b>101</b>
Present value of funded defined obligation					480	497
Fair value of plan assets					-386	-401
<b>Funded status</b>					<b>94</b>	<b>96</b>
Present value of unfunded obligation <sup>2)</sup>					3	4
<b>Net liability arising from defined benefit obligation</b>					<b>97</b>	<b>101</b>
Pension assets included in other non-current assets in the balance sheet					1	2
<b>BS Pension obligations in the balance sheet</b>					<b>98</b>	<b>102</b>

1) Net interest is presented among financial items in income statement, the rest of costs related to defined benefit plans are included in staff costs (row defined benefits plans in the staff cost specification in ► Note 11 Employee benefits).

2) The unfunded obligation relates to arrangements in Russia and Poland.

At the end of 2018 a total of 833 (2017: 985) Fortum employees are included in defined benefit plans providing pension benefits. During 2018 pensions or related benefits were paid to a total of 3,375 (2017: 3,160) persons.

Contributions expected to be paid during year 2019 are EUR 3 million.

### Fair value of plan assets

EUR million	2018	2017
Equity instruments	129	126
Debt instruments	173	156
Cash and cash equivalents	51	48
Real estate, of which EUR 1 million (2017: 42) occupied by the Group	12	47
Investment funds	1	1
Company's own ordinary shares	5	5
Other assets	16	18
<b>Total</b>	<b>386</b>	<b>401</b>

When the pension plan has been financed through an insurance company, a specification of the plan assets has not been available. In these cases the fair value of plan assets has been included in other assets.

The actual return on plan assets in Finland, Sweden and Norway totalled EUR 5 million (2017: 0).

### Amounts recognised in the balance sheet by country 2018

EUR million	Finland	Sweden	Norway	Other countries	Total
Present value of funded obligations	269	147	64	0	480
Fair value of plan assets	-233	-102	-52	0	-386
<b>Deficit(+)/surplus(-)</b>	<b>37</b>	<b>45</b>	<b>12</b>	<b>0</b>	<b>94</b>
Present value of unfunded obligations				3	3
<b>Net asset(-)/liability(+) in the balance sheet</b>	<b>37</b>	<b>45</b>	<b>12</b>	<b>3</b>	<b>97</b>
Pension asset included in non-current assets	0	0	1	0	1
<b>BS Pension obligations in the balance sheet</b>	<b>37</b>	<b>45</b>	<b>13</b>	<b>3</b>	<b>98</b>

### Amounts recognised in the balance sheet by country 2017

EUR million	Finland	Sweden	Norway	Other countries	Total
Present value of funded obligations	295	141	61	0	497
Fair value of plan assets	-245	-105	-51	0	-401
<b>Deficit(+)/surplus(-)</b>	<b>50</b>	<b>36</b>	<b>10</b>	<b>0</b>	<b>96</b>
Present value of unfunded obligations				4	4
<b>Net asset(-)/liability(+) in the balance sheet</b>	<b>50</b>	<b>36</b>	<b>10</b>	<b>4</b>	<b>101</b>
Pension asset included in non-current assets	0	1	1	0	2
<b>BS Pension obligations in the balance sheet</b>	<b>50</b>	<b>37</b>	<b>11</b>	<b>4</b>	<b>102</b>

## The principal actuarial assumptions used

%	2018			2017		
	Finland	Sweden	Norway	Finland	Sweden	Norway
Discount rate	1.60	2.30	2.60	1.50	2.40	2.30
Future salary increases <sup>1)</sup>	1.70	2.90	2.75	1.90	2.80	2.50
Future pension increases <sup>2)</sup>	1.80	1.90	1.33	2.00	1.80	1.34
Rate of inflation	1.50	1.90	1.50	1.70	1.80	1.50

1) The percentage in Finland for 2017 has been corrected to 1.90% from 2.90%.

2) The percentage in Sweden for 2017 has been corrected to 1.80% from 2.80%.

The discount rate in Finland is based on high quality European corporate bonds with maturity that best reflects the estimated term of the defined benefit pension plans. The discount rate in Sweden is based on yields on Swedish covered bonds with maturity that best reflects the estimated term of the defined benefit pension plans. The covered bonds in Sweden are considered high quality bonds as they are secured with assets.

## The life expectancy is the expected number of years of life remaining at a given age

Longevity at age 65	Finland	Sweden	Norway
45 - male	22	23	23
45 - female	27	25	27
65 - male	21	22	22
65 - female	25	24	25

The discount, inflation and salary growth rates used are the key assumptions used when calculating defined benefit obligations. Effects of 0.5 percentage point change in the rates to the defined benefit obligation on 31 December 2018, holding all other assumptions stable, are presented in the table below.

## Sensitivity of defined benefit obligation to changes in assumptions

Change in the assumption	Impact to the pension obligation increase(+)/decrease(-)		
	Finland	Sweden	Norway
0.5% increase in discount rate	-7%	-11%	-10%
0.5% decrease in discount rate	7%	11%	11%
0.5% increase in benefit	6%	10%	7%
0.5% decrease in benefit	-6%	-9%	-7%
0.5% increase in salary growth rate	1%	2%	4%
0.5% decrease in salary growth rate	-1%	-3%	-3%

The methods used in preparing the sensitivity analysis did not change compared to the previous period. Change in mortality basis so that life expectancy increases by one year would increase the net liability in Finland, Sweden and Norway with EUR 17 million (19%).

## Maturity profile of the undiscounted defined benefit obligation for Finland, Sweden and Norway as of 31 December 2018

EUR million	Future benefit payments
Maturity under 1 year	17
Maturity between 1 and 5 years	72
Maturity between 5 and 10 years	89
Maturity between 10 and 20 years	172
Maturity between 20 and 30 years	135
Maturity over 30 years	107

The weighted average duration of defined benefit obligation in Finland, Sweden and Norway at the end of year 2018 is 14 years.

# 32 Other non-current liabilities

EUR million	2018	2017
Connection fees	109	109
Other liabilities	73	66
<b>BS Total</b>	<b>182</b>	<b>175</b>

Fees paid by the customer when connected to district heating network in Finland were refundable until 2013. These connection fees have not been recognised in the income statement and are included in other liabilities in the balance sheet.

## 33 Trade and other payables

EUR million	2018	2017
Trade payables	334	318
Accrued expenses and deferred income		
Accrued personnel expenses	103	97
Accrued interest expenses	98	113
Contract liabilities	40	-
Other accrued expenses and deferred income	80	174
Other liabilities		
VAT-liability	34	43
Current tax liability	30	25
Energy taxes	2	15
Advances received	110	98
Current provisions <sup>1)</sup>	14	22
Other liabilities	212	209
<b>BS Total</b>	<b>1,058</b>	<b>1,112</b>

1) See also ▶ [Note 30](#) Other provisions.

Based on IFRS 15 a contract liability is presented for an obligation to transfer goods or services to a customer when payment has already been received. Contract liabilities on 31 December 2018 are comprised mainly of project and waste management services that are invoiced but not delivered at the reporting date. Fortum has adopted the new IFRS 15 “Revenue from Contracts with Customers” standard from 1 January 2018 onwards and comparative information 2017 has not been restated. See additional information on adoption of IFRS 15 in ▶ [Note 1](#) Accounting policies and ▶ [Note 6](#) Segment reporting.

The management considers that the amount of trade and other payables approximates fair value.

## 34 Lease commitments

### ACCOUNTING POLICIES

#### OPERATING LEASES

Leases of property, plant and equipment, where the Group does not have substantially all of the risks and rewards of ownership are classified as operating leases. Payments made under operating leases are recognised in the income statement as costs on a straight-line basis over the lease term.

Payments received under operating leases where the Group leases out fixed assets are recognised as other income in the income statement.

#### FINANCE LEASES

Leases of property, plant and equipment, where the Group has substantially all the risks and rewards of ownership, are classified as finance leases. Finance leases are capitalised at the commencement of the lease term at the lower of the fair value of the leased property and the present value of the minimum lease payments determined at the inception of the lease.

### 34.1 Leases as a lessor

#### Operating leases

The operating rental income recognised in income statement was EUR 12 million (2017: 6).

#### Finance leases

Fortum does not have material finance lease arrangements where the Group is acting as a lessor.

## 34.2 Leases as lessee

### Operating leases

Fortum leases mainly land and office buildings under various non-cancellable operating leases, some of which contain renewal options. The future costs for non-cancellable operating lease contracts are stated below. Lease rental expenses amounting to EUR 32 million (2017: 33) are included in the income statement in other expenses.

#### Future minimum lease payments on operating leases

EUR million	2018	2017
Not later than 1 year	30	23
Later than 1 year and not later than 5 years	88	72
Later than 5 years	98	65
<b>Total</b>	<b>216</b>	<b>160</b>

### Finance leases

Fortum does not have material finance lease arrangements where the Group is acting as a lessee.

## 35 Capital commitments

EUR million	2018	2017
Property, plant and equipment	322	362

Capital commitments are capital expenditures contracted for at the balance sheet date but not recognised in the financial statements. The decrease in capital commitments compared to previous year comes mainly from progressing of the automation investment in Loviisa nuclear power plant and Zabrze CHP investments, partly offset by the new Kivenlahti Bio-HOB investment.

For more information regarding capital expenditure, see [Note 18](#) Property, plant and equipment.

### Other commitments

Fortum has committed to provide a maximum of EUR 85 million to Voimaosakeyhtiö SF, for its participation in the Fennovoima nuclear power project in Finland. Furthermore, Fortum's remaining direct commitment regarding the construction of a waste-to-energy combined heat and power plant (CHP) in Kaunas, Lithuania is EUR 7 million at maximum. The investment is made through Kauno Kogeneracinė Jėgainė (KKJ), a joint venture owned together with Lietuvos Energija.

Fortum has also committed to provide a maximum of EUR 12 million to a joint venture with Numaligarh Refinery Limited (NRL) and Chempolis to build and operate a biorefinery in Assam, India.

Teollisuuden Voima Oyj (TVO) is building Olkiluoto 3, the nuclear power plant, which is funded through external loans, share issues and shareholder loans according to shareholders' agreement between the owners of TVO. As of January 1, 2018 TVO shareholder loans EUR 145 million has been classified as participation in joint ventures, which is described in [Note 1.6](#) New IFRS standards adopted from 1 Jan 2018. At end of December 2018 Fortum had EUR 170 million (2017: 145) outstanding receivables regarding Olkiluoto 3 and is additionally committed to provide at maximum EUR 63 million.

In June 2018 the Swedish Government approved the legislation regarding Sweden's national strategy for implementation of the EU's Water Framework Directive. The largest hydro industry companies will create a common hydro-power fund to finance large parts of the environmental actions needed. The fund will have a total financial cap of SEK 10 billion to be paid over a 20-year period, and the largest operators will contribute to the fund proportionately based on their respective market share of hydro-power production. Fortum's share is expected to be 20–25% of the fund's total financing.

# 36 Pledged assets and contingent liabilities

## ACCOUNTING POLICIES

### CONTINGENT LIABILITIES

A contingent liability is disclosed when there is a possible obligation that arises from past events and whose existence is only confirmed by one or more doubtful future events or when there is an obligation that is not recognised as a liability or provision because it is not probable that an outflow of resources will be required or the amount of the obligation cannot be reliably estimated.

EUR million	2018	2017
Pledged assets on own behalf		
For debt		
Pledges	288	300
Real estate mortgages	137	177
For other commitments		
Pledges	346	346
Real estate mortgages	21	141
Pledged assets on behalf of others		
Pledges	31	12
Contingent liabilities on own behalf		
Other contingent liabilities	167	161
On behalf of associated companies and joint ventures		
Guarantees	622	598

### 36.1 Pledged assets for debt

Finnish participants in the State Nuclear Waste Management Fund are allowed to borrow from the fund. Fortum has pledged shares in Kemijoki Oy as a security. The value of the pledged shares was EUR 269 million on 31 December 2018 (2017: 269).

Fortum Tartu in Estonia (60% owned by Fortum) has given real estate mortgages for a value of EUR 96 million (2017: 96) as a security for an external loan. Real estate mortgages have also been given for loan from Fortum's pension fund for EUR 41 million (2017: 41).

The mortgage for loans of Russian solar plants was released during the beginning of 2018 (2017: 41).

Regarding the relevant interest-bearing liabilities, see [▶ Note 27](#) Interest-bearing liabilities.

### 36.2 Pledged assets for other commitments

Pledges also include restricted cash given as trading collateral of EUR 346 million (2017: 346) for trading of electricity and CO<sub>2</sub> emission allowances in Nasdaq Commodities, in Intercontinental Exchange (ICE), European Energy Exchange (EEX) and Polish Power Exchange (TGE). See also [▶ Note 21](#) Interest-bearing receivables.

Fortum has given real estate mortgages in power plants in Finland, total value of EUR 21 million in December 2018 (2017: 141), as a security to the Finnish State Nuclear Waste Management Fund for the uncovered part of the legal liability and unexpected events relating to future costs for decommissioning and disposal of spent fuel in Loviisa nuclear power plant. According to the Nuclear Energy Act, Fortum is obligated to contribute the funds in full to the State Nuclear Waste Management Fund to cover the legal liability. Any uncovered legal liability relates to periodising of the payments to the fund. The size of the securities given is updated yearly in Q2 based on the decisions regarding the legal liabilities and the funding target determined at the end of the previous year. Due to the yearly update, the amount of real estate mortgages given as a security decreased by EUR 120 million.

See also [▶ Note 29](#) Nuclear related assets and liabilities.

### Pledged assets on behalf of others

Pledged assets on behalf of others consist of restricted cash EUR 31 million (2017: 12) posted as collateral toward Nasdaq Clearing AB covering Fortum's required contribution to the Commodity Market Default Fund (default fund). The default fund is a mutualised fund whereby all participants on the Nordic power exchange (Nasdaq Commodities) post collateral in relation to their exposure on the market in order to cover potential defaults by members which may cause losses exceeding the members' own collateral. The increase in the pledged amount is due to the replenishment given in September 2018. See also [▶ Note 21](#) Interest-bearing receivables.

### 36.3 Contingencies on own behalf

Fortum owns the coal condensing power plant Meri-Pori in Finland. Teollisuuden Voima Oyj (TVO) has the contractual right to participate in the plant with 45.45%. Based on the participation agreement Fortum has to give a guarantee to TVO against breach in contract. The amount of the guarantee is set to EUR 125 million (2017: 125). The guarantee was released on 1 January 2019, see [▶ Note 39](#) Events after the balance sheet date.

### 36.4 Contingencies on behalf of associated companies

Guarantees and other contingent liabilities on behalf of associated companies and joint ventures mainly consist of guarantees relating to Fortum's associated nuclear companies Teollisuuden Voima Oyj (TVO), Forsmarks Kraftgrupp AB (FKA) and OKG AB (OKG). The guarantees are given in proportion to Fortum's respective ownership in each of these companies.

According to law, nuclear companies operating in Finland and Sweden shall give securities to the Finnish State Nuclear Waste Management Fund and the Swedish Nuclear Waste Fund respectively, to guarantee that sufficient funds exist to cover future expenses of decommissioning of the power plant and disposal of spent fuel.

In Finland, Fortum has given a guarantee on behalf of TVO to the Finnish State Nuclear Waste Management Fund to cover Fortum's share of TVO's uncovered part of the legal liability and for unexpected events. The amount of guarantees is updated every year in June based on the legal liability decided in December the previous year. Due to the yearly update, the amount of guarantees given were EUR 36 million (2017: 50). The guarantee covers the unpaid legal liability due to periodisation as well as risks for unexpected future costs.

In Sweden, Fortum has given guarantees on behalf of FKA and OKG to the Swedish Nuclear Waste Fund to cover Fortum's part of FKA's and OKG's liability. Guarantees for the period of 2015–2017 has been given on behalf of Forsmarks Kraftgrupp AB and OKG AB amounting to SEK 5,393 million (EUR 526 million) at 31 December 2018 (2017: EUR 548 million). There are two types of guarantees given on behalf of Forsmarks Kraftgrupp AB and OKG AB. The Financing Amount is given to cover Fortum's share of the uncovered part in the Nuclear Waste Fund, assuming no further production and that no further nuclear waste fees are paid in. The uncovered amount is calculated by the authorities and is based on the difference between the expected costs and the funds to cover these costs at the time of the calculation. The amounts for the guarantees are updated every third year by governmental decision. The Supplementary Amount constitutes a guarantee for deficits that can arise as a result of unplanned events. The Financing Amount given by Fortum on behalf of Forsmarks Kraftgrupp AB and OKG AB was SEK 3,843 million (EUR 375 million) and the Supplementary Amount was SEK 1,550 million (EUR 151 million) at 31 December 2018.

Fortum has given guarantees to secure bank loans obtained by WEDF Second Wind Farm LLC and WEDF Third Wind Farm LLC, which are subsidiaries of the 50–50 Wind-fund with Rusnano. The guarantees given on pro rata basis are security for loans relating to wind farms' development and amount to RUB 3,840 million (EUR 48 million) at 31 December 2018.

### 36.5 Other contingent liabilities

Fortum's 100% owned subsidiary Fortum Heat and Gas Oy has a collective contingent liability with Neste Oyj of the in 2004 demerged Fortum Oil and Gas Oy's liabilities based on the Finnish Companies Act's (734/1978) Chapter 14a Paragraph 6.

## 37 Legal actions and official proceedings

### 37.1 Group companies

#### Tax cases in Finland

No tax cases with material impact in Finland.

#### Tax cases in Sweden

##### Cases relating to Swedish interest deductions

In March 2018 the Swedish Supreme Administrative Court decided not to grant leave to appeal to Fortum with respect to the interest deduction cases relating to the years 2009–2012. The unfavourable decision of the Administrative Court of Appeal from June 2017 therefore remains in force. The additional tax and interest claimed, in total SEK 1,175 million (EUR 122 million), was paid in 2016 and booked as a cost in 2017. There are strong grounds to argue that the aforementioned decisions of the Administrative Court of Appeal and the Supreme Administrative Court violate EU law and fundamental rights under EU law. On these grounds Fortum has in December 2018 filed a summons application to the District Court of Stockholm in which damages are claimed from the Swedish state in these cases. Moreover, Fortum has filed a request to initiate a mutual agreement procedure between Sweden and the Netherlands for the year 2012.

Fortum has received income tax assessments in Sweden for the years 2013, 2014 and 2015 in December 2015, December 2016 and October 2017, respectively. The assessments concern the loans given in 2013, 2014 and 2015 by Fortum's Dutch financing company to Fortum's subsidiaries in Sweden. The interest income for these loans was taxed in the Netherlands. The tax authorities considered, based on 2013 tax regulation, over a half of the interest relating to each loan as deductible, i.e. deriving from business needs. The rest of the interest is seen as non-deductible. After Fortum received a negative decision from the Administrative Court in Stockholm in 2017, Fortum filed an appeal to the Administrative Court of Appeal in Stockholm. In October 2018 the Administrative Court of Appeal in Stockholm, Sweden announced its decision relating to the income tax assessment for the year 2013. The decision was favorable to Fortum. The Administrative Court of Appeal confirmed that Fortum had sufficient business reasons for the loans and accepted Fortum's appeal. The decision regarding the year 2013 is final.

The Administrative Court of Stockholm announced its decisions in the cases for 2014 and 2015 in November 2018. Also these decisions, like the decision from the Administrative Court of Appeal for 2013, were favorable to Fortum and in line with the tax authorities' changed opinion based on the year 2013 decision. The decisions will become non-appealable by the end of January 2019.

Fortum had not made provisions for the cases regarding the years 2013–2015. Therefore, the favorable decisions issued by the Administrative Court of Appeal in October 2018 and by the Administrative Court in November 2018 do not have any impact on profits.

The amount of additional tax claimed by the Swedish tax authority has originally been SEK 273 million (EUR 26 million) for the year 2013, SEK 282 million (EUR 27 million) for the year 2014, and SEK 200 million (EUR 19 million) for the year 2015. The additional tax for 2013 was paid in 2017 and was refunded to Fortum due to the favorable decision from the Administrative Court of Appeal in the fourth quarter of 2018. Additional taxes and interest for the years 2014 and 2015 have not been paid by Fortum.

### Cases relating to the Swedish hydro real estate tax

Fortum Sverige AB has through an appeal process in Swedish courts claimed that the property tax rate for hydropower plants shall be lowered to the normal 0,5 percent of the tax assessment value. The case concerns the years 2009–2014 and includes several legal arguments for the claim including state aid arguments. Fortum Sverige AB did not receive a permission to appeal from the Supreme Administrative Court in this matter. As the Administrative Court, the Administrative Court of Appeal in Stockholm and the Supreme Administrative Court have handled only the arguments concerning state aid, the case is now transferred back to the Administrative Court concerning the other legal arguments. The disputed amount, excluding interest for the time period, totals approximately SEK 510 million (approximately EUR 50 million).

Moreover, Swedish Fortum companies have appeals for 2011–2016 pending in the Administrative Court relating to the property tax rate for their hydropower plants referring to the same legal grounds. Fortum has paid the real estate tax in accordance with the legislation. If the final court decision would be unfavorable to Fortum, this would not have any result impact for Fortum.

Fortum Sverige AB has in December 2018 filed a complaint to the EU commission regarding the Swedish property tax for hydropower plants regarding 2017 and prior years. Fortum has asked the commission to investigate whether the Swedish legislation regarding the property tax for hydropower plants and the Swedish court decisions are in line with EU state aid rules.

### Tax cases in Belgium

Fortum has received income tax assessments in Belgium for the years 2008, 2009, 2010 and 2011. The tax authorities disagree with the tax treatment of Fortum EIF NV. Fortum finds the tax authorities interpretation not to be based on the local regulation and has appealed the decisions. The court of First instance in Antwerpen rejected Fortum's appeal for the years 2008 and 2009 in June 2014. Fortum found the decision unjustifiable and appealed to the Court of Appeal.

In January 2016 Fortum received a favourable decision from the Court of Appeal in which the Court disagreed with the tax authorities' interpretation and the tax assessment for 2008 was nullified. The tax authorities disagreed with the decision and filed an appeal to Hof van Cassatie (Supreme Court) in March 2016. Fortum's

appeals concerning 2009–2011 are still pending and Fortum expects the remaining years to follow the final decision for 2008. Based on legal analysis and a supporting legal opinion, no provision has been accounted for. The amount of additional tax claimed is approximately EUR 36 million for the year 2008, approximately EUR 27 million for the year 2009, approximately EUR 15 million for the year 2010 and approximately EUR 21 million for the year 2011. The tax has already been paid.

In November 2015 Fortum received an income tax assessment from the Belgian tax authorities for the year 2012. The tax authorities disagree with the tax treatment of Fortum Project Finance NV. Fortum finds the tax authorities' interpretation not to be based on the local regulation and has filed an objection against the tax adjustment. In line with treatment of the cases concerning 2008–2011, no provision has been accounted for. The amount of additional tax claimed is approximately EUR 15 million for the year 2012. The tax has already been paid.

For critical accounting estimates regarding uncertain tax positions, see [▶ Note 28](#) Income taxes in balance sheet. See also [▶ Note 13](#) Income tax expense.

In addition to the litigations described above, some Group companies are involved in other routine tax and other disputes incidental to their normal conduct of business. Based on the information currently available, management does not consider the liabilities arising out of such litigations likely to be material to the Group's financial position.

### 37.2 Associated companies

In Finland, Fortum is participating in the country's fifth nuclear power plant unit, Olkiluoto 3 (OL3), through the shareholding in Teollisuuden Voima Oyj (TVO) with an approximately 25% share representing some 400 MW in capacity.

OL3 was procured as a fixed-price turnkey project from a consortium (Supplier) formed by AREVA GmbH, AREVA NP SAS and Siemens AG. As stipulated in the plant contract, the consortium companies have joint and several liability for the contractual obligations. In accordance with the Supplier's schedule updated in November 2018, regular electricity generation at the plant unit will commence in January 2020. According to the Supplier, nuclear fuel will be loaded into the reactor in June 2019 and the first connection to the grid takes place in October 2019. According to the Supplier's plant ramp-up program the unit will produce 2–4 TWh of electricity, at varying power levels, during the period of time between the first connection to the grid and the start of regular electricity production.

According to the comprehensive settlement agreement signed in March 2018, TVO and the Supplier jointly withdrew the pending arbitration proceedings under the International Chamber of Commerce (ICC) rules with respect to costs and losses incurred in relation to delays in the construction of the OL3 EPR project. In June 2018, the ICC tribunal confirmed the arbitration settlement by a consent award, and the arbitration proceedings were terminated. The parties also withdrew the pending appeals in the General Court of the European Union.

The settlement agreement between TVO and the plant supplier consortium companies Areva NP, Areva GmbH and Siemens AG as well as with Areva Group parent company Areva SA, a company wholly owned by the French State, concerning the completion of the OL3 EPR project and related disputes entered into force late March 2018.

The settlement agreement stipulates that:

- In order to provide and maintain adequate and competent technical and human resources for the completion of the OL3 EPR project, Areva will source the necessary additional resources from Framatome S.A.S., whose majority owner is Electricité de France (EDF). The supplier consortium companies undertake that the funds dedicated to the completion of the OL3 EPR project will be adequate and will cover all applicable guarantee periods, including setting up a trust mechanism funded by Areva companies to secure the financing of the costs of completion of the OL3 EPR project.
- The turnkey principle of the OL3 EPR plant contract and the joint and several liability of the supplier consortium companies remain in full force. The agreement also noted the plant supplier's schedule at the time the agreement was signed, according to which regular electricity production in the unit will commence in May 2019. The ICC arbitration concerning the costs and losses caused by the delay of the OL3 EPR project is settled by financial compensation of EUR 450 million to be paid to TVO in two installments by the supplier consortium companies.
- The parties withdraw all on-going legal actions related to OL3 EPR, including the ICC arbitration and appeals in the General Court of the European Union.
- The supplier consortium companies are entitled to receive an incentive payment, in a maximum amount of EUR 150 million, upon timely completion of the OL3 EPR project.
- In the event that the supplier consortium companies fail to complete the OL3 EPR project by the end of 2019, they will pay a penalty to TVO for such delay in an amount which will depend on the actual time of completion of the OL3 EPR project and may not exceed EUR 400 million.

TVO received the first payment of EUR 328 million of the settlement amount in March 2018 at the entry into force of the settlement agreement. The second payment of EUR 122 million is payable upon completion of the OL3 EPR project or, in any event, on December 31, 2019 at the latest. The amount corresponding to the total settlement amount has been entered as property, plant and equipment in the TVO Group balance sheet.

In addition to the litigations described above, some Group companies are involved in other routine tax and other disputes incidental to their normal conduct of business. Based on the information currently available, management does not consider the liabilities arising out of such litigations likely to be material to the Group's financial position.

## 38 Related party transactions

### 38.1 The Finnish State and companies owned by the Finnish State

At the end of 2018, the Finnish State owned 50.76% of the Company's shares (2017: 50.76%). The Finnish Parliament has authorised the Government to reduce the Finnish State's holding in Fortum Corporation to no less than 50.1% of the share capital and voting rights.

All transactions between Fortum and other companies owned by the Finnish State are on arm's length basis.

### 38.2 Board of Directors and Fortum Executive Management

The key management personnel of the Fortum Group are the members of Fortum Executive Management and the Board of Directors. Fortum has not been involved in any material transactions with members of the Board of Directors or Fortum Executive Management. No loans exist to any member of the Board of Directors or Fortum Executive Management at 31 December 2018. The total compensation (including pension benefits and social costs) for the key management personnel for 2018 was EUR 9 million (2017: 9).

See [▶ Note 11](#) Employee benefits for further information on the Board of Directors and Fortum Executive Management remuneration and shareholdings.

### 38.3 Associated companies and joint ventures

In the ordinary course of business Fortum engages in transactions on commercial terms with associated companies and other related parties, which are on same terms as they would be for third parties, except for some associates as discussed later in this note.

Fortum owns shareholdings in associated companies and joint ventures which in turn own hydro and nuclear power plants. Under the consortium agreements, each owner is entitled to electricity in proportion to its share of ownership or other agreements. Each owner is liable for an equivalent portion of costs regardless of output. These associated companies are not profit making, since the owners purchase electricity at production cost including interest costs and production taxes.

For further information on transactions and balances with associated companies and joint ventures, see [▶ Note 19](#) Participations in associated companies and joint ventures.

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### 38.4 Pension fund

The Fortum pension funds in Finland, Sweden and Norway are stand-alone legal entities which manage pension assets related to part of the pension coverage in Finland, Sweden and Norway. In 2018 Fortum paid a capital contribution of EUR 3 million to the newly established pension fund in Norway. Fortum has not paid contributions to the pension funds in Finland and Sweden neither in 2018 nor in 2017. The assets in the pension fund in Finland include Fortum shares representing 0.04% (2017: 0.04%) of the company's outstanding shares. Real estate mortgages have also been given for a loan from Fortum's Finnish pension fund for EUR 41 million (2017: 41).

## 39 Events after the balance sheet date

On 1 January 2019, Fortum acquired all remaining C-shares of TVO entitling to the power production of the Meri-Pori coal condensing power plant. Fortum is now entitled to 100% of the power production of the plant, an increase from 67% previously. The Meri-Pori power plant is mainly used in Fingrid's capacity reserve and as back-up capacity. See more information in [▶ Note 19](#) Participations in associated companies and joint ventures.

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## 40 Subsidiaries by segment on 31 December 2018

**C** = City Solutions      1) New company  
**CS** = Consumer Solutions    2) Shares held by the parent company  
**G** = Generation  
**R** = Russia  
**O** = Other Operations

Company name	Domicile	Segment	Group holding, %
Ekopartnerit Turku Oy	Finland	C	51.0
Fincumet Oy <sup>1)</sup>	Finland	C	100.0
Fortum Asiakaspalvelu Oy <sup>2)</sup>	Finland	CS	100.0
Fortum Assets Oy	Finland	O	100.0
Fortum C&H Oy	Finland	O	100.0
Fortum Environmental Construction Oy	Finland	C	100.0
Fortum Growth Oy	Finland	O	100.0
Fortum Heat and Gas Oy <sup>2)</sup>	Finland	C, O	100.0
Fortum Markets Oy <sup>2)</sup>	Finland	CS	100.0
Fortum Norm Oy <sup>2)</sup>	Finland	O	100.0
Fortum Power and Heat Holding Oy	Finland	G	100.0
Fortum Power and Heat Oy <sup>2)</sup>	Finland	C, G, O, R	100.0
Fortum Real Estate Oy <sup>2)</sup>	Finland	O	100.0
Fortum Waste Solutions Oy <sup>2)</sup>	Finland	C	100.0
Kiinteistö Oy Espoon Energiatalo	Finland	O	100.0
Koillis-Pohjan Energiantuotanto Oy	Finland	G	100.0
Kotimaan Energia Oy	Finland	CS	100.0
Niemen Romukauppa Oy <sup>1)</sup>	Finland	C	100.0
NJS-Patentti Oy <sup>1)</sup>	Finland	C	100.0
Oy Pauken Ab	Finland	O	100.0
Oy Tersil Ab	Finland	O	100.0
Oy Tertrade Ab	Finland	O	100.0
Vindin Böle Ab/Oy	Finland	O	100.0
Vindin Kalax Ab/Oy	Finland	O	100.0
Vindin Molpe Ab/Oy	Finland	O	100.0
Vindin Pjelas Ab/Oy	Finland	O	100.0
Vindin Poikel Norra Ab/Oy	Finland	O	100.0
Vindin Pörtom Ab/Oy	Finland	O	100.0
Fortum Project Finance N.V. <sup>2)</sup>	Belgium	O	100.0
Barry Danmark ApS <sup>1)</sup>	Denmark	O	100.0
Fortum Energi A/S	Denmark	CS	100.0
Fortum Waste Solutions A/S	Denmark	C	100.0

Company name	Domicile	Segment	Group holding, %
Fortum Waste Solutions OW A/S	Denmark	C	100.0
AS Anne Soojus	Estonia	C	100.0
AS Fortum Tartu	Estonia	C	60.0
AS Tartu Joujaam	Estonia	C	100.0
AS Tartu Keskkatlamaja	Estonia	C	100.0
Fortum CFS Eesti OU	Estonia	O	100.0
Fortum Eesti AS	Estonia	C	100.0
Fortum France S.A.S	France	O	100.0
Fortum Deutschland SE	Germany	O	100.0
Fortum Service Deutschland GmbH	Germany	C	100.0
Plugsurfing GmbH <sup>1)</sup>	Germany	O	100.0
Fortum Carlisle Limited	Great Britain	C	100.0
Fortum Energy Ltd	Great Britain	O	100.0
Fortum Glasgow Limited	Great Britain	C	100.0
Fortum O&M (UK) Limited	Great Britain	C	100.0
IVO Energy Limited	Great Britain	G	100.0
Fortum Insurance Ltd	Guernsey	O	100.0
Fortum India Private Limited <sup>2)</sup>	India	O	100.0
Fortum Solar India Private Limited	India	O	100.0
Fortum Solar Plus Private Limited <sup>1)</sup>	India	O	100.0
Fortum Finance Ireland Designated Activity Company <sup>2)</sup>	Ireland	O	100.0
Fortum P&H Ireland Limited	Ireland	O	100.0
Fortum Participation Ltd	Ireland	O	100.0
Fortum Jelgava, SIA	Latvia	C	100.0
Fortum Latvia SIA	Latvia	C	100.0
SIA BK Energija <sup>1)</sup>	Latvia	C	100.0
SIA Energy & Communications <sup>1)</sup>	Latvia	C	100.0
SIA Lake Development <sup>1)</sup>	Latvia	C	100.0
SIA Sprino <sup>1)</sup>	Latvia	C	100.0
UAB Fortum Heat Lietuva	Lithuania	C	100.0
UAB Fortum Klaipeda	Lithuania	C	96.0
UAB Joniskio energija	Lithuania	C	66.2
UAB Svencioniu energija	Lithuania	C	50.0
Fortum Consumer Solutions AS	Norway	CS	100.0
Fortum Forvaltning AS	Norway	O	100.0
Fortum Hedging AS	Norway	CS	100.0
Fortum Kundesenter AS	Norway	CS	100.0

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## Basis of preparation

## Risks

## Income statement

## Balance sheet

## Off balance sheet items

## Group structure and related parties

Company name	Domicile	Segment	Group holding, %
Fortum Markets AS	Norway	CS	100.0
Fortum Oslo Varme AS	Norway	C	50.0
Fortum Tellier AS	Norway	CS	100.0
Fortum Waste Solutions Norway AS	Norway	C	100.0
FOV OT AS <sup>1)</sup>	Norway	C	100.0
Fredrikstad EnergiSalg AS	Norway	CS	100.0
Hafslund Strøm AS	Norway	CS	100.0
Hallingkraft AS	Norway	CS	100.0
Mitt Hjem Norge AS	Norway	CS	100.0
NorgesEnergi AS	Norway	CS	100.0
Nygårdsfjellet Vindpark AS	Norway	O	100.0
Oslo Energi AS	Norway	CS	100.0
Solvencia AS	Norway	CS	100.0
Sørfjord Vindpark AS	Norway	O	100.0
Ånstadblåheia Vindpark AS	Norway	O	100.0
AMB Energia Sprzedaż Sp. z o.o.	Poland	CS	100.0
Fortum Customer Services Polska Sp. z o.o.	Poland	CS	100.0
Fortum Marketing and Sales Polska S.A.	Poland	CS	100.0
Fortum Markets Polska S.A.	Poland	CS	100.0
Fortum Network Częstochowa Sp. z o.o.	Poland	C	100.0
Fortum Network Płock Sp. z o.o.	Poland	C	100.0
Fortum Network Wrocław Sp. z o.o.	Poland	C	100.0
Fortum Power and Heat Polska Sp. z o.o.	Poland	C, CS	100.0
Fortum Silesia SA	Poland	C	100.0
Fortum Sprzedaż Sp. z o.o.	Poland	CS	100.0
Rejonowa Spółka Ciepłownicza Sp. z o.o.	Poland	C	100.0
Fortum New Generation I LLC <sup>1)</sup>	Russia	R	100.0
Fortum New Generation LLC	Russia	R	100.0
Joint Stock Company Chelyabenergoremont	Russia	R	100.0
LLC Bugulchanskaya Solar power station	Russia	R	100.0
LLC Grachevskaya Solar power station	Russia	R	100.0
LLC Pleshanovskaya Solar power station	Russia	R	100.0
PAO Fortum	Russia	R	98.2
Ural Heat Networks Company Joint Stock Company	Russia	R	100.0
HQ Services Limited <sup>1)</sup>	Rwanda	C	49.0
Escandinava de Electricidad S.L.U	Spain	CS	100.0
Blybergs Kraftaktiebolag	Sweden	G	66.7
Brännälven Kraft AB	Sweden	G	67.0
Bullerforsens Kraft Aktiebolag	Sweden	G	88.0
Energibolaget i Sverige Holding AB	Sweden	CS	100.0

Company name	Domicile	Segment	Group holding, %
Energikundservice Sverige AB	Sweden	CS	100.0
Fortum I AB	Sweden	R	100.0
Fortum Fastigheter AB	Sweden	O	100.0
Fortum Markets AB	Sweden	CS	100.0
Fortum Produktionsnät AB	Sweden	G	100.0
Fortum Sweden AB <sup>2)</sup>	Sweden	O	100.0
Fortum Sverige AB	Sweden	C, G, O	100.0
Fortum Waste Solutions AB	Sweden	C	100.0
Fortum Waste Solutions Holding AB	Sweden	C	100.0
Fortum Vind Norr AB	Sweden	O	100.0
Göta Energi AB	Sweden	CS	100.0
Hafslund Energi AB	Sweden	CS	100.0
LPN Transformator AB <sup>1)</sup>	Sweden	G	100.0
Mellansvensk Kraftgrupp Aktiebolag	Sweden	G	86.9
Nordgroup Waste Management AB	Sweden	C	100.0
Oreälvens Kraftaktiebolag	Sweden	G	65.0
SverigesEnergi Elförsäljning AB	Sweden	CS	100.0
Sävar Vindkraft AB <sup>1)</sup>	Sweden	O	100.0
Tellier Service AB	Sweden	CS	100.0
Uddeholm Kraft Aktiebolag	Sweden	G	100.0
VG Power Tools AB	Sweden	C	100.0
VG Power Turbo AB	Sweden	C	100.0
Värmlandskraft-OKG-delägarna Aktiebolag	Sweden	G	73.3
FB Generation Services B.V.	The Netherlands	O	100.0
Fortum 2 B.V.	The Netherlands	O	100.0
Fortum 3 B.V.	The Netherlands	O	100.0
Fortum Charge & Drive B.V.	The Netherlands	O	100.0
Fortum Finance B.V.	The Netherlands	O	100.0
Fortum Holding B.V. <sup>2)</sup>	The Netherlands	C, G, O, CS	100.0
Fortum Hydro B.V.	The Netherlands	O	100.0
Fortum India B.V.	The Netherlands	O	100.0
Fortum Power Holding B.V.	The Netherlands	O	100.0
Fortum Russia B.V.	The Netherlands	R	100.0
Fortum Russia Holding B.V.	The Netherlands	O	100.0
Fortum SAR B.V.	The Netherlands	O	100.0
Fortum Star B.V.	The Netherlands	O	100.0
Fortum Wave Power B.V.	The Netherlands	O	100.0
PolarSolar B.V.	The Netherlands	O	100.0
RPH Investment B.V.	The Netherlands	R	100.0
Valo Ventures I LP Fund <sup>1)</sup>	USA	O	99.0

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## Financial key figures

Fortum has adopted the IFRS 9 and IFRS 15 standards from 1 January 2018 onwards. Fortum has applied the transition relief for not restating the comparative figures from 2017. See additional information in [▶ Note 1 Accounting policies](#)

For information of Alternative Performance Measures used by Fortum, see [▶ Definitions of key figures](#) and [▶ Note 1 Accounting policies](#).

EUR million or as indicated	2018	2017	Change 18/17 %
<b>Income statement</b>			
Sales	5,242	4,520	16
EBITDA <sup>1)</sup>	1,674	1,623	3
Comparable EBITDA	1,523	1,275	19
Operating profit	1,138	1,158	-2
- of sales %	21.7	25.6	
Comparable operating profit	987	811	22
Share of profit/loss of associates and joint ventures	38	148	-74
Profit before income tax	1,040	1,111	-6
- of sales %	19.8	24.6	
Profit for the period	858	882	-3
- of which attributable to owners of the parent	843	866	-3
<b>Financial position and cash flow</b>			
Capital employed	18,170	18,172	0
Interest-bearing net debt	5,509	988	-458
Capital expenditure and gross investments in shares	4,672	1,815	157
- of sales %	89.1	40.2	
Capital expenditure	584	690	-15
Net cash from operating activities	804	993	-19

EUR million or as indicated	2018	2017	Change 18/17 %
<b>Key ratios</b>			
Return on capital employed, %	6.7	7.1	
Return on shareholders' equity, %	6.8	6.6	
Interest coverage	10.0	8.7	
Interest coverage including capitalised borrowing costs	9.2	7.8	
Funds from operations/interest-bearing net debt, %	26.8	83.9	
Gearing, %	46	7	
Comparable net debt/EBITDA	3.6	0.8	
Equity-to-assets ratio, %	54	61	
<b>Other data</b>			
Dividends	977 <sup>2)</sup>	977	0
Research and development expenditure	56	53	6
- of sales %	1.1	1.2	
Average number of employees	8,767	8,507	

1) EBITDA is defined as Operating profit + Depreciation and amortisation.

2) Board of Directors' proposal for the planned Annual General Meeting on 26 March 2019.

## Share key figures

EUR million or as indicated	2018	2017	Change 18/17 %
<b>Data per share</b>			
Earnings per share	0.95	0.98	-3
Cash flow per share	0.91	1.12	-19
Equity per share	13.33	14.69	-9
Dividend per share	1.10 <sup>1)</sup>	1.10	0
Payout ratio, %	115.8 <sup>1)</sup>	112.2	
Dividend yield, %	5.8 <sup>1)</sup>	6.7	
Price/earnings ratio (P/E)	20.1	16.8	
<b>Share prices</b>			
At the end of the period	19.10	16.50	
Average	19.10	15.28	
Lowest	16.43	12.69	
Highest	22.91	18.94	
<b>Other data</b>			
Market capitalisation at the end of the period, EUR million	16,966	14,658	
<b>Trading volumes <sup>2)</sup></b>			
Number of shares, 1,000 shares	474,705	582,873	
In relation to weighted average number of shares, %	53.4	65.6	
Number of shares, 1,000 shares	888,294	888,367	
Number of shares excluding own shares, 1,000 shares	N/A	N/A	
Average number of shares, 1,000 shares	888,312	888,367	
Diluted adjusted average number of shares, 1,000 shares	888,312	888,367	

1) Board of Directors' proposal for the Annual General Meeting on 26 March 2019.

2) Trading volumes in the table represent volumes traded on Nasdaq Helsinki. In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market as well. In 2018, approximately 68% (2017: 61%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

See [Definitions of key figures](#).

## Segment key figures

Sales by segment, EUR million	2018	2017
Generation	1,837	1,677
- of which internal	2	15
City Solutions	1,094	1,015
- of which internal	37	19
Consumer Solutions	1,759	1,097
- of which internal	11	3
Russia	1,069	1,101
- of which internal	0	0
Other Operations	129	102
- of which internal	80	67
Eliminations and Netting of Nord Pool transactions	-646	-470
<b>Total</b>	<b>5,242</b>	<b>4,520</b>

Comparable operating profit by segment, EUR million	2018	2017
Generation	631	478
City Solutions	113	98
Consumer Solutions	53	41
Russia	271	296
Other Operations	-79	-102
<b>Comparable operating profit</b>	<b>987</b>	<b>811</b>
Impairment charges	-4	6
Capital gains and other	102	326
Changes in fair values of derivatives hedging future cash flow	98	14
Nuclear fund adjustment	-45	1
<b>Operating profit</b>	<b>1,138</b>	<b>1,158</b>

Comparable EBITDA by segment, EUR million	2018	2017
Generation	762	603
City Solutions	284	262
Consumer Solutions	110	57
Russia	417	438
Other Operations	-50	-83
<b>Total</b>	<b>1,523</b>	<b>1,275</b>

Depreciation and amortisation, EUR million	2018	2017
Generation	131	125
City Solutions	171	163
Consumer Solutions	57	16
Russia	147	142
Other Operations	30	18
<b>Total</b>	<b>536</b>	<b>464</b>

Share of profit of associates and joint ventures by segment, EUR million	2018	2017
Generation	-72	-1
City Solutions	74	80
Russia	36	31
Other Operations	0	38
<b>Total</b>	<b>38</b>	<b>148</b>

Capital expenditure by segment, EUR million	2018	2017
Generation	186	174
City Solutions	190	170
Consumer Solutions	47	7
Russia	54	152
Other Operations	108	187
<b>Total</b>	<b>584</b>	<b>690</b>

Gross investments in shares by segment, EUR million	2018	2017
Generation	8	90
City Solutions	32	386
Consumer Solutions	0	486
Russia	63	125
Other Operations	3,985	39
<b>Total</b>	<b>4,088</b>	<b>1,125</b>

[Financial key figures](#)
[Share key figures](#)
[Segment key figures](#)
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<b>Gross divestments of shares by segment, EUR million</b>	<b>2018</b>	<b>2017</b>
Generation	160	0
City Solutions	0	0
Consumer Solutions	0	55
Russia	0	0
Other Operations	147	687
<b>Total</b>	<b>306</b>	<b>742</b>

<b>Comparable net assets by segment, EUR million</b>	<b>2018</b>	<b>2017</b>
Generation	6,295	5,672
City Solutions	3,743	3,728
Consumer Solutions	648	638
Russia	2,789	3,161
Other Operations	4,264	276
<b>Total</b>	<b>17,739</b>	<b>13,474</b>

<b>Comparable return on net assets by segment, %</b>	<b>2018</b>	<b>2017</b>
Generation	11.2	8.4
City Solutions	5.0	5.5
Consumer Solutions	7.8	11.7
Russia	10.3	10.1
Other Operations	-4.5	-13.3

<b>Average number of employees</b>	<b>2018</b>	<b>2017</b>
Generation	1,087	1,036
City Solutions	1,940	1,807
Consumer Solutions	1,473	1,180
Russia	3,378	3,710
Other Operations	888	774
<b>Total</b>	<b>8,767</b>	<b>8,507</b>

# Definitions of key figures

## Alternative performance measures

Business performance	Definition	Reason to use the measure	Reference to reconciliation	Business performance	Definition	Reason to use the measure	Reference to reconciliation
Comparable EBITDA	Operating profit + depreciations and amortisations - items affecting comparability	Comparable EBITDA is representing the underlying cash flow generated by the total Group and segments. Used as a component in the capital structure target of Comparable net debt /EBITDA.	► <a href="#">Note 5</a> Capital risk management	Changes in fair values of derivatives hedging future cash flow	Effects from financial derivatives hedging future cash-flows where hedge accounting is not applied according to IFRS 9, which are adjusted from other income.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement
Comparable operating profit	Operating profit - items affecting comparability	Comparable operating profit is used in financial target setting and forecasting, management's follow up of financial performance and allocation of resources in the group's performance management process.	Income statement	Nuclear fund adjustment	Effects from the accounting of Fortum's part of the Finnish Nuclear Waste Fund where the asset in the balance sheet cannot exceed the related liabilities according to IFRIC interpretation 5, which are adjusted from materials and services. In addition adjustments are made for accounting effects from valuation according to IFRS.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement
Items affecting comparability	Impairment charges + capital gains and other + changes in fair values of derivatives hedging future cash flow + nuclear fund adjustment	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement	Comparable return on net assets, %	$\frac{\text{Comparable operating profit} + \text{share of profit (loss) in associated companies and joint ventures} + \text{adjustment for share of profit of associated companies and joint ventures}}{\text{Comparable net assets average}} \times 100$	Comparable return on net assets is used in financial target setting and forecasting, management's follow up of financial performance and allocation of resources in the group's performance management process.	► <a href="#">Note 6</a> Segment reporting
Impairment charges	Impairment charges and related provisions (mainly dismantling), which are adjusted from depreciation and amortisation.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement	Adjustment for Share of profit of associated companies and joint ventures	Adjustment for material items affecting comparability.	Share of profit of associates and joint ventures is included in profit component in the comparable RONA calculation and the adjustments are done based on similar components as in Items affecting comparability.	► <a href="#">Note 6</a> Segment reporting
Capital gains and other	Capital gains and transaction costs from acquisitions, which are adjusted from other income and other expenses respectively. Profits from the capital recycling business model are presented in comparable operating profit because the business results are realised through divesting the shareholding, either partially or totally.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement	Comparable net assets	Non-interest bearing assets + interest-bearing assets related to the Nuclear Waste Fund - non-interest bearing liabilities - provisions (non-interest bearing assets and liabilities do not include finance related items, tax and deferred tax and assets and liabilities from fair valuations of derivatives used for hedging future cash flows).	Comparable net assets is a component in Comparable return on net assets calculation where return on capital allocated directly to the businesses is measured.	► <a href="#">Note 6</a> Segment reporting

Capital structure	Definition	Reason to use the measure	Reconciliation
Comparable net debt / EBITDA	$\frac{\text{Interest-bearing net debt}}{\text{Comparable EBITDA}}$	Financial targets give guidance on Fortum's view of the company's long-term value creation potential, its growth strategy and business activities. Comparable net debt to EBITDA is one of the Fortum's long-term over-the-cycle financial targets measuring the capital structure of the Group.	► <b>Note 5</b> Capital risk management
Interest-bearing net debt	Interest-bearing liabilities - liquid funds	Interest-bearing net debt is used in the follow-up of the indebtedness of the group i.e. capital structure especially as a component in the long-term over-the-cycle financial target of Comparable net debt / EBITDA in the Group.	► <b>Note 27</b> Interest-bearing liabilities
Return on capital employed (ROCE), %	$\frac{\text{Profit before taxes + interest and other financial expenses}}{\text{Capital employed average}} \times 100$	Return on capital employed (ROCE) is a long-term over the cycle financial ratio measuring the profitability and how efficiently invested capital is used. It gives guidance on company's long-term value creation potential, its growth strategy and business activities.	► <b>Note 5</b> Capital risk management
Capital employed	Total assets - total non-interest bearing liabilities	Capital employed is the book value of the invested capital and it is used as a component when calculating the Return of capital employed in the group.	► <b>Note 5</b> Capital risk management

## Other key figures

### Share based key figures

Earnings per share (EPS)	$\frac{\text{Profit for the period - non-controlling interests}}{\text{Average number of shares during the period}}$
Cash flow per share	$\frac{\text{Net cash from operating activities}}{\text{Average number of shares during the period}}$
Equity per share	$\frac{\text{Shareholders' equity}}{\text{Number of shares at the end of the period}}$
Payout ratio, %	$\frac{\text{Dividend per share}}{\text{Earnings per share}} \times 100$
Dividend yield, %	$\frac{\text{Dividend per share}}{\text{Share price at the end of the period}} \times 100$
Price/earnings (P/E) ratio	$\frac{\text{Share price at the end of the period}}{\text{Earnings per share}}$
Average share price	$\frac{\text{Amount traded in euros during the period}}{\text{Number of shares traded during the period}}$
Market capitalisation	Number of shares at the end of the period x share price at the end of the period
Trading volumes	Number of shares traded during the period in relation to the weighted average number of shares during the period

[Financial key figures](#)
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### Other key figures

Funds from operations (FFO)	Net cash from operating activities before change in working capital
Capital expenditure	Capitalised investments in property, plant and equipment and intangible assets including maintenance, productivity, growth and investments required by legislation including borrowing costs capitalised during the construction period. Maintenance investments expand the lifetime of an existing asset, maintain usage/availability and/or maintains reliability. Productivity investments improve productivity in an existing asset. Growth investments' purpose is to build new assets and/or to increase customer base within existing businesses. Legislation investments are done at a certain point of time due to legal requirements.
Gross investments in shares	Investments in subsidiary shares, shares in associated companies and other investments. Investments in subsidiary shares are net of cash and grossed with interest-bearing liabilities in the acquired company.
Return on shareholders' equity (ROE), %	$\frac{\text{Profit for the year}}{\text{Total equity average}} \times 100$
Gearing, %	$\frac{\text{Interest-bearing net debt}}{\text{Total equity}} \times 100$
Equity-to-assets ratio, %	$\frac{\text{Total equity including non-controlling interests}}{\text{Total assets}} \times 100$
Interest coverage	$\frac{\text{Operating profit}}{\text{Net interest expenses}}$
Interest coverage including capitalised borrowing costs	$\frac{\text{Operating profit}}{\text{Net interest expenses - capitalised borrowing costs}}$
Average number of employees	Based on monthly average for the whole period

### Definitions for tax figures

Effective income tax rate, %	=	$\frac{\text{Income tax expense}}{\text{Profit before income tax}} \times 100$
Comparable effective income tax rate, %	=	$\frac{\text{Income tax expense - effects from tax rate changes and major one time income tax effects}}{\text{Profit before income tax decreased by profits from associated companies and joint ventures as well as tax exempt capital gains or losses}} \times 100$
Weighted average applicable income tax rate	=	Sum of the proportionately weighted share of profits before taxes of each group operating country multiplied with an applicable nominal tax rate of the respective countries.

## Parent company financial statements, Finnish GAAP (FAS)

### Income statement

EUR million	Note	2018	2017
Sales	2	82	73
Other income	3	8	6
Employee costs	4	-36	-32
Depreciation, amortisation and write-downs	8	-8	-6
Other expenses		-78	-79
<b>Operating profit</b>		<b>-33</b>	<b>-38</b>
Financial income and expenses	6	751	823
<b>Profit before appropriations</b>		<b>719</b>	<b>785</b>
Group contributions <sup>1)</sup>		85	157
<b>Profit before income tax</b>		<b>803</b>	<b>943</b>
Income tax expense	7	-5	-10
<b>Profit for the period</b>		<b>798</b>	<b>933</b>

1) Taxable profits transferred from Finnish subsidiaries.

### Balance sheet

EUR million	Note	31 Dec 2018	31 Dec 2017
<b>ASSETS</b>			
<b>Non-current assets</b>			
Intangible assets	8	23	10
Property, plant and equipment	8	10	21
Shares in Group companies	8	16,725	16,725
Participations in associated companies	8	0	2
Interest-bearing receivables from Group companies	8	2,954	212
Interest-bearing receivables from associated companies	8	1	15
Other non-current assets	8	0	0
Derivative financial instruments	13, 14	157	242
Deferred tax assets		1	0
<b>Total non-current assets</b>		<b>19,870</b>	<b>17,226</b>
<b>Current assets</b>			
Other current receivables from Group companies	9	99	173
Other current receivables from associated companies	9	0	0
Derivative financial instruments	13, 14	167	132

EUR million	Note	31 Dec 2018	31 Dec 2017
Other current receivables	9	10	14
Deposits and securities (maturity over three months)		27	714
Cash and cash equivalents		132	2,792
Liquid funds		159	3,506
<b>Total current assets</b>		<b>435</b>	<b>3,825</b>
<b>Total assets</b>		<b>20,305</b>	<b>21,052</b>
<b>EQUITY</b>			
<b>Shareholders' equity</b>			
Share capital	10	3,046	3,046
Share premium		2,822	2,822
Hedging reserve		-11	-11
Retained earnings		4,205	4,249
Profit for the period		798	933
<b>Total shareholders' equity</b>		<b>10,859</b>	<b>11,038</b>
<b>Provisions for liabilities and charges</b>		<b>0</b>	<b>0</b>
<b>LIABILITIES</b>			
<b>Non-current liabilities</b>			
External interest-bearing liabilities	11, 13, 14	4,386	3,448
Interest-bearing liabilities to Group companies		3,400	3,290
Interest-bearing liabilities to associated companies		293	285
Derivative financial instruments	13, 14	51	94
Other non-current liabilities		35	44
<b>Total non-current liabilities</b>		<b>8,165</b>	<b>7,160</b>
<b>Current liabilities</b>			
External interest-bearing liabilities	11	1,074	657
Trade and other payables to Group companies	12	13	1,991
Trade and other payables to associated companies	12	2	4
Derivative financial instruments	13, 14	103	102
Trade and other current payables	12	88	100
<b>Total current liabilities</b>		<b>1,281</b>	<b>2,854</b>
<b>Total liabilities</b>		<b>9,446</b>	<b>10,014</b>
<b>Total equity and liabilities</b>		<b>20,305</b>	<b>21,052</b>

## Cash flow statement

EUR million	2018	2017
<b>Cash flow from operating activities</b>		
<b>Profit for the period</b>	<b>798</b>	<b>933</b>
<b>Adjustments:</b>		
Income tax expense	5	10
Group contributions	-85	-157
Finance costs - net	-751	-823
Depreciations, amortisation and write-downs	8	6
<b>Operating profit before depreciations (EBITDA)</b>	<b>-24</b>	<b>-32</b>
Non-cash flow items	0	0
Interest and other financial income	18	6
Interest and other financial expenses paid	-104	-101
Dividend income	796	944
Group contribution received	157	145
Realised foreign exchange gains and losses	16	-28
Income taxes paid	-6	23
<b>Funds from operations</b>	<b>853</b>	<b>957</b>
Other short-term receivables increase(-)/decrease(+)	9	-12
Other short-term payables increase(+)/decrease(-)	-4	12
Change in working capital	4	0
<b>Net cash from operating activities</b>	<b>857</b>	<b>957</b>
<b>Cash flow from investing activities</b>		
Capital expenditures	-16	-15
Acquisition of shares and capital contributions in subsidiaries	0	-380
Acquisition of other shares	0	0
Capital returns	0	-
Proceeds from sales of fixed assets	0	0
Change in interest-bearing receivables and other non-current assets	-2,744	504
<b>Net cash used in investing activities</b>	<b>-2,760</b>	<b>109</b>
<b>Cash flow before financing activities</b>	<b>-1,903</b>	<b>1,066</b>

EUR million	2018	2017
<b>Cash flow from financing activities</b>		
Proceeds from long-term liabilities	1,762	35
Payment of long-term liabilities	-530	-482
Change in cash pool liabilities	110	967
Change in short-term liabilities	-1,810	-2,038
Dividends paid	-977	-977
<b>Net cash used in financing activities</b>	<b>-1,444</b>	<b>-2,495</b>
<b>Net increase(+)/decrease(-) in liquid funds</b>	<b>-3,347</b>	<b>-1,429</b>
<b>Liquid funds at the beginning of the period</b>	<b>3,506</b>	<b>4,935</b>
<b>Liquid funds at the end of the period</b>	<b>159</b>	<b>3,506</b>

# Notes to the Parent Company Financial Statements, FAS

## 1 Accounting policies and principles

The financial statements of Fortum Oyj are prepared in accordance with Finnish Accounting Standards (FAS).

### 1.1 Sales

Sales include sales revenue from actual operations and exchange rate differences on trade receivables, less discounts and indirect taxes such as value added tax.

### 1.2 Other income

Other income includes gains on the sales of property, plant and equipment and shareholdings, as well as all other operating income not related to the sales of products or services, such as rents.

### 1.3 Foreign currency items and derivative instruments

Transactions denominated in foreign currencies have been valued using the exchange rate at the date of the transaction. Receivables and liabilities denominated in foreign currencies outstanding on the balance sheet date have been valued using the exchange rate quoted on the balance sheet date. Exchange rate differences have been entered in the financial net in the income statement.

Fortum Oyj enters into derivative contracts mainly for hedging foreign exchange and interest rate exposures in Fortum Group.

Accounting principles of financial derivatives, see [▶ Note 4](#) Financial risk management, [▶ Note 15](#) Financial assets and liabilities by categories and [▶ Note 16](#) Financial assets and liabilities by fair value hierarchy in the Consolidated financial statements.

### 1.4 Income taxes

Income taxes presented in the income statement consist of accrued taxes for the financial year and tax adjustments for prior years.

### 1.5 Shares in group companies

The balance sheet value of shares in group companies consists of historical costs less write-downs. If the estimated future cash flows generated by a non-current asset are expected to be permanently lower than the balance of the carrying amount, an adjustment to the value must be made to write-down the difference as an expense. If the basis for the write-down can no longer be justified at the balance sheet date, it must be reversed.

### 1.6 Property, plant and equipment and depreciation

The balance sheet value of property, plant and equipment consists of historical costs less depreciation and possible impairments. Property, plant and equipment are depreciated using straight-line depreciation based on the expected useful life of the asset.

The depreciation is based on the following expected useful lives:

Buildings and structures	15–40 years
Machinery and equipment	3–15 years
Other intangible assets	5–10 years

### 1.7 Pension expenses

Statutory pension obligations are covered through a compulsory pension insurance policy or Group's own pension fund. Costs for pension fund are recorded in the income statement based on contributions paid pursuant to the Finnish pension laws and regulations.

### 1.8 Long-term incentive schemes

Costs related to the Fortum long-term incentive plans are accrued over the earnings period and the related liability is booked to the balance sheet.

### 1.9 Provisions

Foreseeable future expenses and losses that have no corresponding revenue to which Fortum is committed or obliged to settle, and whose monetary value can be reasonably assessed, are entered as expenses in the income statement and included as provisions in the balance sheet.

### 1.10 Presentation of the primary statements and notes

Information presented in the notes is given separately for Fortum Group companies and for associated companies of the Group.

## 2 Sales by market area

EUR million	2018	2017
Finland	52	46
Other countries	30	27
<b>Total</b>	<b>82</b>	<b>73</b>

## 3 Other income

EUR million	2018	2017
Rental and other income	8	6
<b>Total</b>	<b>8</b>	<b>6</b>

## 4 Employee costs

EUR million	2018	2017
Personnel expenses		
Wages, salaries and remunerations	26	25
Indirect employee costs		
Pension costs	6	5
Other indirect employee costs	1	1
Other personnel expenses	3	1
<b>Total</b>	<b>36</b>	<b>32</b>

EUR thousand	2018	2017
	Pekka Lundmark, President and CEO	Pekka Lundmark, President and CEO
<b>Compensation for the President and CEO</b>		
Salaries and fringe benefits	1,048	998
Performance bonuses <sup>1)</sup>	228	187
Share-based incentives <sup>1)</sup>	297	334
Pensions (statutory)	250	231
Pensions (voluntary)	252	229
Social security expenses	36	41
<b>Total</b>	<b>2,112</b>	<b>2,019</b>

1) Based on estimated amounts.

EUR thousand	2018	2017
<b>Compensation for the Board of Directors</b>	<b>483</b>	<b>492</b>

The compensation above is presented on accrual basis. Paid salaries and remunerations for the President and CEO Pekka Lundmark were EUR 1,594 thousand (2017: 1,405).

For the President and CEO Pekka Lundmark the retirement age of old-age pension is 63. The pension obligations are covered through insurance company.

Board members are not in an employment relationship or service contract with Fortum, and they are not given the opportunity to participate in Fortum's STI or LTI programme, nor does Fortum have a pension plan that they can opt to take part in. The compensation of the board members is not tied to the sustainability performance of the Group.

See ▶ **Note 11** Employee benefits and ▶ **Note 31** Pension obligations in the Consolidated financial statements.

	2018	2017
Average number of employees	265	258

## 5 Auditor's fees

EUR thousand	2018	2017
Audit fees	364	295
Audit related assignments	58	64
Tax assignments	0	0
Other assignments	0	81
<b>Total</b>	<b>422</b>	<b>440</b>

Deloitte Oy is the appointed auditor until the next Annual General Meeting, to be held in 2019. Audit fees include fees for the audit of the consolidated financial statements, review of the interim reports as well as the fees for the audit of Fortum Oyj. Audit related assignments include fees for assurance of sustainability reporting and other assurance and associated services related to the audit. Tax assignments include fees for tax advice services. Other assignments consist of advisory services.

## 6 Financial income and expenses

EUR million	2018	2017
Dividend income from group companies	796	944
Dividend income from associated companies and other companies	0	0
Interest and other financial income from group companies	16	12
Write-downs of participations in group companies	0	-35
Write-downs of participations in associated companies	-2	-3
Write-downs on loan receivables	-17	-1
Interest and other financial income	0	0
Exchange rate differences	37	22
Changes in fair values of derivatives	1	-16
Interest and other financial expenses to group companies	-2	-1
Interest and other financial expenses	-78	-99
<b>Total</b>	<b>751</b>	<b>823</b>
Interest income	17	13
Interest expenses	-75	-81
<b>Interest costs - net</b>	<b>-58</b>	<b>-68</b>

## 7 Income tax expense

EUR million	2018	2017
Taxes on regular business operations	-12	-21
Taxes on group contributions	17	31
<b>Total</b>	<b>5</b>	<b>10</b>
Current taxes for the period	5	6
Current taxes for prior periods	0	0
Changes in deferred tax	0	3
<b>Total</b>	<b>5</b>	<b>10</b>

## 8 Non-current assets

### Intangible assets total

EUR million	Intangible assets total
<b>Cost 1 January 2018</b>	<b>39</b>
Additions	20
Disposals	11
<b>Cost 31 December 2018</b>	<b>48</b>
<b>Accumulated depreciation 1 January 2018</b>	<b>30</b>
Disposals	-11
Depreciation for the period	6
<b>Accumulated depreciation 31 December 2018</b>	<b>25</b>
<b>Carrying amount 31 December 2018</b>	<b>23</b>
Carrying amount 31 December 2017	10

### Property, plant and equipment

EUR million	Buildings and structures	Machinery and equipment	Advances paid and construction in progress	Total
<b>Cost 1 January 2018</b>	<b>1</b>	<b>7</b>	<b>18</b>	<b>27</b>
Additions and transfers between categories	0	5		5
Disposals	1	3	14	18
<b>Cost 31 December 2018</b>	<b>0</b>	<b>10</b>	<b>4</b>	<b>14</b>
<b>Accumulated depreciation 1 January 2018</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>6</b>
Disposals	-1	-3		-4
Depreciation for the period	0	2		2
<b>Accumulated depreciation 31 December 2018</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>Carrying amount 31 December 2018</b>	<b>0</b>	<b>5</b>	<b>4</b>	<b>10</b>
Carrying amount 31 December 2017	0	2	18	21

## Investments

EUR million	Shares in Group companies	Participation in associated companies	Receivables from Group companies	Receivables from associated companies	Other non-current assets	Total
<b>Cost 1 January 2018</b>	<b>17,847</b>	<b>6</b>	<b>212</b>	<b>16</b>	<b>8</b>	<b>18,089</b>
Additions <sup>1)</sup>		0	2,742	0		2,742
Disposals	0					0
<b>Cost 31 December 2018</b>	<b>17,847</b>	<b>6</b>	<b>2,954</b>	<b>17</b>	<b>8</b>	<b>20,831</b>
<b>Accumulated write-downs 1 January 2018</b>	<b>1,123</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>8</b>	<b>1,135</b>
Impairment charges		2		14		17
<b>Accumulated write-downs 31 December 2018</b>	<b>1,123</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>8</b>	<b>1,152</b>
<b>Carrying amount 31 December 2018</b>	<b>16,725</b>	<b>0</b>	<b>2,954</b>	<b>1</b>	<b>0</b>	<b>19,680</b>
Carrying amount 31 December 2017	16,725	2	212	15	0	16,954

1) Additions regarding shares comprise acquisitions of shares and capital contributions and reclassification between other non-current assets and shares in Group companies.

## 9 Other current receivables

EUR million	2018	2017
<b>Other current receivables from group companies</b>		
Trade receivables	10	9
Group contribution and other receivables	85	157
Accrued income and prepaid expenses	5	6
<b>Total</b>	<b>99</b>	<b>173</b>
<b>Other current receivables from associated companies</b>		
Accrued income and prepaid expenses	0	0
<b>Total</b>	<b>0</b>	<b>0</b>
<b>Other current receivables</b>		
Trade receivables	0	0
Other receivables	0	0
Accrued income and prepaid expenses	10	14
<b>Total</b>	<b>10</b>	<b>14</b>

See ▶ **Note 4.5** Liquidity and refinancing risk in the Consolidated financial statements.

## 10 Changes in shareholders' equity

EUR million	Share capital	Share premium	Hedging reserve	Retained earnings	Total
<b>Total equity 31 December 2017</b>	<b>3,046</b>	<b>2,822</b>	<b>-11</b>	<b>5,182</b>	<b>11,038</b>
Cash dividend				-977	-977
Change in hedging reserve			1		1
Profit for the period				798	798
<b>Total equity 31 December 2018</b>	<b>3,046</b>	<b>2,822</b>	<b>-11</b>	<b>5,002</b>	<b>10,859</b>
<b>Total equity 31 December 2016</b>	<b>3,046</b>	<b>2,822</b>	<b>-23</b>	<b>5,226</b>	<b>11,072</b>
Cash dividend				-977	-977
Change in hedging reserve			11		11
Profit for the period				933	933
<b>Total equity 31 December 2017</b>	<b>3,046</b>	<b>2,822</b>	<b>-11</b>	<b>5,182</b>	<b>11,038</b>

EUR million	2018	2017
<b>Distributable funds</b>		
Retained earnings 31 December	5,002	5,182
Hedging reserve	-11	-11
<b>Distributable funds 31 December</b>	<b>4,991</b>	<b>5,170</b>

## 11 Interest-bearing liabilities

EUR million	2018	2017
<b>External interest-bearing liabilities <sup>1)</sup></b>		
Bonds	1,746	2,521
Loans from financial institutions	1,775	82
Other long-term interest-bearing debt	865	844
<b>Total long-term interest-bearing debt</b>	<b>4,386</b>	<b>3,448</b>
Current portion of long-term bonds	750	422
Current portion of loans from financial institutions	42	122
Other short-term interest-bearing debt	283	114
<b>Total short-term interest-bearing debt</b>	<b>1,074</b>	<b>657</b>
<b>Total external interest-bearing debt</b>	<b>5,460</b>	<b>4,105</b>

### Maturity of external interest-bearing liabilities <sup>1)</sup>

EUR million	2018
2019	1,074
2020	27
2021	2,261
2022	1,039
2023	98
2024 and later	962
<b>Total</b>	<b>5,460</b>

See [► Note 4.5](#) Liquidity and refinancing risk and [► Note 27](#) Interest-bearing liabilities in the Consolidated financial statements.

EUR million	2018	2017
<b>External interest-bearing liabilities due after five years <sup>1)</sup></b>		
Bonds	97	198
Other long-term liabilities	865	844
<b>Total</b>	<b>962</b>	<b>1,042</b>

EUR million	2018	2017
<b>Other interest-bearing liabilities due after five years</b>		
Interest-bearing liabilities to associated companies	293	285
<b>Total</b>	<b>293</b>	<b>285</b>

<sup>1)</sup> Does not include liabilities to group and associated companies.

Non-discounted cash flows of interest-bearing liabilities and their maturities, see [► Note 13](#) Financial derivatives.

## 12 Trade and other payables

EUR million	2018	2017
<b>Trade and other payables to group companies</b>		
Trade payables	3	3
Deposits from group companies and other liabilities	10	1,987
Accruals and deferred income	0	0
<b>Total</b>	<b>13</b>	<b>1,991</b>
<b>Trade and other payables to associated companies</b>		
Accruals and deferred income	2	4
<b>Total</b>	<b>2</b>	<b>4</b>
<b>Trade and other payables</b>		
Trade payables	11	21
Other liabilities	5	2
Accruals and deferred income	73	76
<b>Total</b>	<b>88</b>	<b>100</b>

## 13 Financial derivatives

### Interest rate and currency derivatives by instrument 2018

EUR million	Notional amount Remaining lifetimes				Fair value		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Forward foreign exchange contracts	0	786	0	9,309	99	83	15
Interest rate swaps	1,515	2,242	225	3,982	159	70	88
Interest rate and currency swaps	383	265		648	66	0	66
<b>Total</b>	<b>10,420</b>	<b>3,293</b>	<b>225</b>	<b>13,938</b>	<b>324</b>	<b>154</b>	<b>170</b>
Of which long-term					157	51	106
Short-term					167	103	64

### Interest rate and currency derivatives by instrument 2017

EUR million	Notional amount Remaining lifetimes				Fair value		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Forward foreign exchange contracts	7,790	517		8,307	77	104	-27
Interest rate swaps	305	3,421	102	3,827	205	90	115
Interest rate and currency swaps	311	580		892	92	3	89
<b>Total</b>	<b>8,406</b>	<b>4,518</b>	<b>102</b>	<b>13,025</b>	<b>373</b>	<b>196</b>	<b>177</b>
Of which long-term					242	94	148
Short-term					132	102	29

### Maturity analysis of interest-bearing liabilities and derivatives

Amounts disclosed below are non-discounted expected cash flows (future interest payments and amortisations) of interest-bearing liabilities and interest rate and currency derivatives.

EUR million	2018				2017			
	Under 1 year	1–5 years	Over 5 years	Total	Under 1 year	1–5 years	Over 5 years	Total
Interest-bearing liabilities	1,192	3,582	1,437	6,211	2,752	2,613	1,509	6,875
Interest rate and currency derivatives liabilities	8,946	1,159	16	10,121	8,132	1,256	4	9,392
Interest rate and currency derivatives receivables	-9,037	-1,203	-21	-10,260	-8,191	-1,341	-1	-9,534
<b>Total</b>	<b>1,101</b>	<b>3,538</b>	<b>1,433</b>	<b>6,072</b>	<b>2,693</b>	<b>2,529</b>	<b>1,511</b>	<b>6,733</b>

Interest-bearing liabilities include loans from the State Nuclear Waste Management Fund and Teollisuuden Voima Oyj of EUR 1,158 million (2017: 1,129). These loans are renewed yearly and the related interest payments are calculated for ten years in the table above.

### 14 Derivatives and liabilities by fair value hierarchy

Fair value measurements are classified using a fair value hierarchy i.e. Level 1, Level 2 and Level 3 that reflects the significance of the inputs used in making the measurements. For further information look accounting principles in Fortum consolidated accounts ▶ **Note 16** Financial assets and liabilities by fair value hierarchy.

#### Derivatives in financial assets

EUR million	Level 1		Level 2		Level 3		Total	
	2018	2017	2018	2017	2018	2017	2018	2017
<b>In non-current assets</b>								
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			149	154			149	154
Non-hedge accounting			8	87			8	87
<b>In current assets</b>								
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			21	88			21	88
Non-hedge accounting			146	44			146	44
<b>Total</b>	<b>-</b>	<b>-</b>	<b>324</b>	<b>373</b>	<b>-</b>	<b>-</b>	<b>324</b>	<b>373</b>

#### Derivatives and liabilities at fair value in financial liabilities

EUR million	Level 1		Level 2		Level 3		Total	
	2018	2017	2018	2017	2018	2017	2018	2017
<b>In non-current liabilities</b>								
Interest-bearing liabilities <sup>1)</sup>			930	1,037			930	1,037
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			43	47			43	47
Non-hedge accounting			8	47			8	47
<b>In current liabilities</b>								
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			5	14			5	14
Non-hedge accounting			98	88			98	88
<b>Total</b>	<b>-</b>	<b>-</b>	<b>1,083</b>	<b>1,233</b>	<b>-</b>	<b>-</b>	<b>1,083</b>	<b>1,233</b>

1) Fair valued part of bond in the fair value hedge relationship.

Net fair value amount of interest rate and currency derivatives is EUR 170 million (2017: 177), including assets EUR 324 million (2017: 373) and liabilities EUR 154 million (2017: 196). Fortum Corporation has cash collaterals based on Credit Support Annex agreements with some counterparties. At the end of December 2018 Fortum Corporation had received EUR 75 million (2017: 113) from Credit Support Annex agreements. The received cash has been booked as a short-term interest-bearing liability.

## 15 Contingent liabilities

EUR million	2018	2017
<b>On own behalf</b>		
Other contingent liabilities	2	2
<b>On behalf of group companies</b>		
Guarantees	113	221
<b>On behalf of associated companies</b>		
Guarantees on behalf of Swedish associated companies	532	548
<b>Contingent liabilities total</b>	<b>647</b>	<b>771</b>

## Operating leases

EUR million	2018	2017
<b>Operating lease commitments</b>		
Due within a year	8	7
Due after one year and within five years	28	28
Due after 5 years	14	18
<b>Total</b>	<b>49</b>	<b>54</b>

## 16 Related party transactions

See [Note 38](#) Related party transactions in the Consolidated financial statements.

### Investments in group companies, associated companies and other holdings

		No. of shares units	Holding %
<b>Investments in group companies</b>			
Fortum Waste Solutions Oy	Finland	3,520,800	100.00
Fortum Asiakaspalvelu Oy	Finland	10,010	100.00
Fortum Heat and Gas Oy	Finland	2,000,000	100.00
Fortum Markets Oy	Finland	24,039	100.00
Fortum Norm Oy	Finland	250	100.00
Fortum Power and Heat Oy	Finland	91,197,543	100.00
Fortum Real Estate Oy	Finland	2,000,000	100.00
Fortum Project Finance N.V.	Belgium	727,820	99.99
Fortum Holding B.V.	The Netherlands	61,062	100.00
Fortum India Private Ltd	India	1	0.10
Fortum Finance Ireland Designated Activity Company	Ireland	25,000	100.00
Fortum Sweden AB	Sweden	1,000	100.00
<b>Investments in associated companies</b>			
AW-Energy Oy	Finland	806	13.60
Wello Oy	Finland	1,100,00	18.60
<b>Other holdings</b>			
Clic Innovation Oy	Finland	100	3.80
East Office of Finnish Industries Oy	Finland	1	5.88
Prototype Carbon Fund	USA	N/A	

## Proposal for the use of the profit shown on the balance sheet

The distributable funds of Fortum Corporation as at 31 December 2018 amounted to EUR 4,991,388,741.37 including the profit of the financial period 2018 of EUR 797,840,404.43. The company's liquidity is good and the dividend proposed by the Board of Directors will not compromise the company's liquidity.

Based on the number of registered shares as at 31 January 2019 the total amount of dividend would be EUR 977,123,911.50. The Board of Directors proposes, that the remaining part of the distributable funds be retained in the shareholders' equity.

The Board of Directors proposes to the Annual General Meeting that a dividend of EUR 1.10 per share be paid for 2018.

Signatures for the operating and financial review and financial statements

Espoo, 31 January 2019

Matti Lievonen

Klaus-Dieter Maubach

Heinz-Werner Binzel

Eva Hamilton

Kim Ignatius

Essimari Kairisto

Anja McAlister

Veli-Matti Reinikkala

Pekka Lundmark  
President and CEO

# Auditor's report

To the Annual General Meeting of Fortum Oyj

## Report on the Audit of Financial Statements

### Opinion

We have audited the financial statements of Fortum Oyj (business identity code 1463611-4) for the year ended 31 December, 2018. The financial statements comprise the consolidated balance sheet, consolidated income statement, consolidated statement of comprehensive income, consolidated statement of changes in total equity, consolidated cash flow statement and notes to the consolidated financial statements, including a summary of significant accounting policies, as well as the parent company's balance sheet, income statement, cash flow statement and notes to the financial statements.

### In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position, financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU,
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report submitted to the Audit Committee.

### Basis for opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

In our best knowledge and understanding, the non-audit services that we have provided to the parent company and group companies are in compliance with laws and regulations applicable in Finland regarding these services, and we have not provided any prohibited non-audit services referred to in Article 5(1) of regulation (EU) 537/2014. The non-audit services that we have provided have been disclosed in [▶ Note 9](#) to the consolidated financial statements

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We have also addressed the risk of management override of internal controls. This includes consideration of whether there was evidence of management bias that represented a risk of material misstatement due to fraud.

### Key audit matter

#### Uniper Acquisition

Refer to Notes 3 and 19.

- On 26 June 2018, Fortum closed the Uniper SE (Uniper) offer and became the company's largest shareholder. Fortum holds 49.99% of the shares as of 31 December 2018.
- Fortum consolidates Uniper as an associated company from 30 June 2018. The total acquisition cost approximately EUR 4.0 billion, is reported in the 'Participations in associated companies and joint ventures'.
- As a listed company, Uniper publishes its interim reports later than Fortum, Fortum's share of Uniper's results will be accounted for with a timelag of one quarter with potential adjustments. Fortum's financial statements 2018 includes Fortum's share of Uniper's third quarter result.
- Purchase price allocation is still ongoing and it will be completed within the oneyear window from the acquisition date according to IFRS.
- The assessment of the nature of interest in investee as well as the classification of joint arrangements requires management judgement. Due to the size, the Uniper acquisition may have significant effect on Fortum's financial reporting.

### How our audit addressed the key audit matter

- We have reviewed the relevant agreements and minutes of the board of directors to recognize the material terms affecting the accounting treatment in the financial statements.
- We have assessed management's approach according to which the acquisition has been accounted in the financial statements as well as methods applied in making the significant judgements relating to the acquisition in line with IFRS.
- We have challenged the management judgement relating to the classification of the acquisition as joint arrangements and assessed the classification, the reporting of the share of profit/loss of associates and joint ventures as well as the accounting treatment of the ongoing purchase price allocation in line with IFRS.
- We assessed the adequacy of related disclosures in the financial statements.

### Key audit matter

#### Valuation of fixed assets and goodwill

Refer to Notes 2, 17 and 18.

- The consolidated balance sheet includes property, plant and equipment amounting to EUR 9,981 million and goodwill amounting to EUR 588 million.
- The main assumptions used in the valuation of energy production property, plant and equipment and goodwill relate to the estimated future operating cash flows and the discount rates.
- In acquisition the assumptions relates to determining the fair values and remaining useful lives of acquired intangible and tangible assets.
- The potential indicators for impairment are among other things changes in electricity and fuel prices, regulatory/political changes relating to energy taxes and price regulations.
- The assumptions used in the valuation of the balances in question require management judgment.
- This matter is a significant risk of material misstatement referred to in EU Regulation No 537/241, point (c) of Article 10(2).

### How our audit addressed the key audit matter

- We have evaluated the process how management has assessed the indicators for potential impairment. We have performed audit procedures on impairment models relating to material cash generating units.
- We obtained entity's impairment testing documentation for goodwill and energy production assets when tested and evaluated the rationale of key assumptions applied by management, including commodity price forecasts, profit and cash flow forecasts, terminal values, foreign exchange rates and the selection of discount rates.
- We have compared, that the forecasts used in the impairment testing calculations are based on long term forecast approved by management.
- We challenged management's assumptions and judgments with reference to historical data and, where applicable, external benchmarks.
- We assessed the models used in the impairment testing and carried out our testing for the sensitivity calculations.
- We assessed the adequacy of related disclosures in the financial statements.

### Key audit matter

#### Fair value measurement of derivatives and hedge accounting

Refer to Notes 4, 7, 8, 15 and 16.

- In Fortum's consolidated financial statements total derivative assets amounts to EUR 555 million and total derivative liabilities amounts to EUR 1,191 million. The net effect of changes in fair values of derivatives hedging future cash flow amounts to EUR 98 million in items affecting comparability in the consolidated income statement and the cash flow hedges in other equity components amount to EUR -638 million.
- The fair value and changes in fair values of derivative financial instruments may have significant impacts on Fortum's financial statements. Fortum's business is exposed to fluctuations in prices and volume of commodities used in the production and sales of energy products. The main exposure is toward energy prices. Electricity price risk is hedged by entering into electricity derivative contracts. Fortum uses derivative instruments to reduce the effect of electricity price volatility.

### How our audit addressed the key audit matter

- Our audit procedures included an assessment of internal controls over the hedge accounting documentation and effectiveness testing, measurement of fair value measures, and evaluating the methodologies, inputs, judgments made and assumptions used by management in determining fair values.
- For Fortum's fair valuation models, we evaluated rationale of the models and accounting treatment applied. We have compared the assumptions used by management in valuation against externally available market data.
- We have assessed the existence and completeness of outstanding derivative contracts as of 31 December 2018 by requesting confirmations from the counterparties.
- We have assessed that financial instruments included in hedge relationships are accounted for in accordance with IFRS 9.
- We have assessed the adequacy of the presentation for derivative financial instruments and hedge accounting applied in the financial statements.

### Key audit matter

#### Nuclear related assets and liabilities

Refer to Notes 2 and 29.

- Nuclear related assets and liabilities in consolidated balance sheet amount to EUR 858 million.
- Fortum's nuclear related provisions and the related part of the Finnish State Nuclear Waste Management Fund are both presented separately as disclosed in note 29.
- Fortum's share in the Finnish State Nuclear Waste Management Fund is accounted for according to IFRIC 5 which states that the fund assets are measured at the lower of fair value or the value of the related liabilities.
- Due to complexity and materiality, the accounting treatment for nuclear decommissioning is complex and requires application of special accounting practice and management judgment when forming estimates for the basis of accounting such as technical plans, timing, cost estimates and discount rate.

### How our audit addressed the key audit matter

- We have assessed Fortum's accounting manual and principles for Nuclear Decommissioning Accounting, whether they are in line with IFRS accounting principles.
- We have assessed the assumptions and judgments made and adopted by the management in the accounting for the nuclear waste provisions and share in state nuclear waste management fund have been based on current legislation and decisions set by Finnish State Nuclear Waste Management Fund.
- We assessed the adequacy of related disclosures in the financial statements.

## Responsibilities of the Board of Directors and the President and CEO for the financial statements

The Board of Directors and the President and CEO are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the President and CEO are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the President and CEO are responsible for assessing the parent company's and the group's ability to continue as going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or cease operations, or there is no realistic alternative but to do so.

## Auditor's responsibilities in the audit of financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the President and CEO use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists

related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent or the group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

## Other Reporting Requirements

### Information on our audit engagement

We were first appointed as auditors by the Annual General Meeting on 16.3.2006, and our appointment represents a total period of uninterrupted engagement of 12 years.

### Other information

The Board of Directors and the President and CEO are responsible for the other information. The other information comprises the Operational and Financial Review and the information included in the Financials, but

does not include the financial statements and our auditor's report thereon. We have obtained the Operating and Financial Review prior to the date of this auditor's report, and the Financials is expected to be made available to us after that date.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to Operating and Financial Review, our responsibility also includes considering whether the Operating and Financial Review has been prepared in accordance with the applicable laws and regulations.

In our opinion, the information in the Operating and Financial Review is consistent with the information in the financial statements and the Operating and Financial Review has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

### Other opinions

We support that the financial statements should be adopted. The proposal by the Board of Directors regarding the use of the profit shown on the balance sheet is in compliance with the Limited Liability Companies Act. We support that the Board of Directors of the parent company and the President and CEO should be discharged from liability for the financial period audited by us.

Espoo, 31 January 2019

Deloitte Oy  
Audit Firm

Reeta Virolainen  
Authorised Public Accountant (KHT)

## Financial key figures

### Comparability of information presented in tables and graphs

Fortum announced the sale of Swedish Distribution business in March 2015. After the divestment of the Swedish Distribution business Fortum has no electricity distribution operations and therefore Distribution segment was treated as discontinued operations in 2015, with restatement of year 2014, according to IFRS 5 Non-current Assets Held for Sale and Discontinued Operations

Information in the tables and graphs presented for year 2012 or earlier is not restated due to the adoption of IFRS 10 and IFRS 11. Adoption of standards influences treatment of Fortum's holding in Stockholm Exergi AB (publ) (previously AB Fortum Värme Holding samägt med Stockholms stad) in the consolidated financial statements. From 1 January 2014 onwards Stockholm Exergi is treated as a joint venture and thus consolidated with equity method. Before the change the company was consolidated as a subsidiary with 50% minority interest.

Fortum has adopted the IFRS 9 and IFRS 15 standards from 1 January 2018 onwards. Fortum has applied the transition relief for not restating the comparative figures from 2017. See additional information in [▶ Note 1 Accounting policies](#).

For information of Alternative Performance Measures used by Fortum, see [▶ Definitions of key figures](#) and [▶ Note 1 Accounting policies](#).

EUR million or as indicated	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Change 18/17 %
<b>Income statement</b>											
Sales total Fortum	5,435	6,296	6,161	6,159	5,309	4,751	3,702	3,632	4,520	5,242	16
Sales continuing operations						4,088	3,459	3,632	4,520	5,242	16
EBITDA total Fortum <sup>1)</sup>	2,292	2,271	3,008	2,538	2,129	3,954	4,640	1,006	1,623	1,674	3
EBITDA continuing operations						1,673	196	1,006	1,623	1,674	3
Comparable EBITDA total Fortum	2,398	2,396	2,374	2,416	1,975	1,873	1,265	1,015	1,275	1,523	19
Comparable EBITDA continuing operations						1,457	1,102	1,015	1,275	1,523	19
Operating profit total Fortum	1,782	1,708	2,402	1,874	1,508	3,428	4,245	633	1,158	1,138	-2
- of sales %	32.8	27.1	39.0	30.4	28.4	72.2	114.7	17.4	25.6	21.7	
Operating profit continuing operations						1,296	-150	633	1,158	1,138	-2
- of sales %						31.7	-4.3	17.4	25.6	21.7	
Comparable operating profit total Fortum	1,888	1,833	1,802	1,752	1,403	1,351	922	644	811	987	22
Comparable operating profit continuing operations						1,085	808	644	811	987	22
Share of profit/loss of associates and joint ventures total Fortum	21	62	91	23	178	149	20	131	148	38	-74
Profit before income tax total Fortum	1,636	1,615	2,228	1,586	1,398	3,360	4,088	595	1,111	1,040	-6
- of sales %	30.1	25.7	36.2	25.8	26.3	70.7	110.4	16.4	24.6	19.8	
Profit before income tax continuing operations						1,232	-305	595	1,111	1,040	-6
- of sales %						30.1	-8.8	16.4	24.6	19.8	
Profit for the period total Fortum	1,351	1,354	1,862	1,512	1,212	3,161	4,142	504	882	858	-3
- of which attributable to owners of the parent	1,312	1,300	1,769	1,416	1,204	3,154	4,138	496	866	843	-3
Profit for the period continuing operations						1,089	-228	504	882	858	-3
- of which attributable to owners of the parent						1,081	-231	496	866	843	-3

## Financial key figures

## Share key figures

## Segment key figures

## Operational key figures

EUR million or as indicated	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Change 18/17 %
<b>Financial position and cash flow</b>											
Capital employed total Fortum	15,350	16,124	17,931	19,420	19,183	17,918	19,870	18,649	18,172	18,170	0
Interest-bearing net debt	5,969	6,826	7,023	7,814	7,793	4,217	-2,195	-48	988	5,509	-458
Interest-bearing net debt without Värme financing					6,658	3,664	N/A	N/A	N/A	N/A	
Capital expenditure and gross investments in shares total Fortum	929	1,249	1,482	1,574	1,020	843	669	1,435	1,815	4,672	157
- of sales %	17.1	19.8	24.1	25.6	19.2	17.7	18.1	39.5	40.2	89.1	
Capital expenditure and gross investments in shares continuing operations						695	625	1,435	1,815	4,672	157
Capital expenditure total Fortum	862	1,222	1,408	1,558	1,005	774	626	591	690	584	-15
Capital expenditure continuing operations						626	582	591	690	584	-15
Net cash from operating activities total Fortum	2,264	1,437	1,613	1,382	1,548	1,762	1,381	621	993	804	-19
Net cash from operating activities continuing operations						1,406	1,228	621	993	804	-19
<b>Key ratios</b>											
Return on capital employed total Fortum, %	12.1	11.6	14.8	10.2	9.0	19.5	22.7	4.0	7.1	6.7	
Return on shareholders' equity total Fortum, %	16.0	15.7	19.7	14.6	12.0	30.0	33.4	3.7	6.6	6.8	
Interest coverage total Fortum	12.4	13.7	10.5	7.6	6.7	19.9	27.6	4.6	8.7	10.0	
Interest coverage including capitalised borrowing costs total Fortum	10.3	10.0	8.5	5.7	5.3	15.7	21.5	4.1	7.8	9.2	
Funds from operations/interest-bearing net debt total Fortum, %	37.6	20.5	21.5	19.9	18.8	42.9	-59.7	-1,503.4	83.9	26.8	
Funds from operations/interest-bearing net debt without Värme financing total Fortum, %					22.1	49.3	N/A	N/A	N/A	N/A	
Gearing, %	70	78	69	73	77	39	-16	0	7	46	
Comparable net debt/EBITDA total Fortum	2.5	2.8	3.0	3.2	3.9	2.3	-1.7	0.0	0.8	3.6	
Comparable net debt/EBITDA without Värme financing					3.4	2.0	N/A	N/A	N/A	N/A	
Equity-to-assets ratio, %	43	40	44	43	43	51	61	62	61	54	
<b>Other data</b>											
Dividends	888	888	888	888	977	1,155	977	977	977	977 <sup>2)</sup>	0
Research and development expenditure	30	30	38	41	49	41	47	52	53	56	6
- of sales %	0.5	0.5	0.6	0.7	0.9	1.0	1.4	1.4	1.2	1.1	
Average number of employees total Fortum	13,278	11,156	11,010	10,600	9,532	8,821	8,193	7,994	8,507	8,767	
Average number of employees continuing operations						8,329	8,009	7,994	8,507	8,767	

1) EBITDA is defined as Operating profit + Depreciation and amortisation.

2) Board of Directors' proposal for the planned Annual General Meeting on 26 March 2019.

See [Definitions of key figures](#).

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EUR million or as indicated	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Change 18/17 %
<b>Data per share</b>											
Earnings per share total Fortum	1.48	1.46	1.99	1.59	1.36	3.55	4.66	0.56	0.98	0.95	-3
Earnings per share continuing operations						1.22	-0.26	0.56	0.98	0.95	-3
Earnings per share discontinued operations	-	-	-	-	-	2.33	4.92	-	-	-	
Diluted earnings per share total Fortum	1.48	1.46	1.99	1.59	1.36	3.55	4.66	0.56	0.98	0.95	-3
Diluted earnings per share continuing operations						1.22	-0.26	0.56	0.98	0.95	-3
Diluted earnings per share discontinued operations	-	-	-	-	-	2.33	4.92	-	-	-	
Cash flow per share total Fortum	2.55	1.62	1.82	1.56	1.74	1.98	1.55	0.70	1.12	0.91	-19
Cash flow per share continuing operations						1.38	1.38	0.70	1.12	0.91	-19
Equity per share	9.04	9.24	10.84	11.30	11.28	12.23	15.53	15.15	14.69	13.33	-9
Dividend per share	1.00	1.00	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10 <sup>1)</sup>	0
Extra dividend						0.20	-	-	-	-	
Payout ratio, %	67.6	68.5	50.3	62.9	80.9	36.6	23.6	196.4	112.2	115.8 <sup>1)</sup>	
Dividend yield, %	5.3	4.4	6.1	7.1	6.6	7.2	7.9	7.5	6.7	5.8 <sup>1)</sup>	
Price/earnings ratio (P/E)	12.8	15.4	8.3	8.9	12.2	5.1	3.0	26.1	16.8	20.1	
<b>Share prices</b>											
At the end of the period	18.97	22.53	16.49	14.15	16.63	17.97	13.92	14.57	16.50	19.10	
Average	15.91	19.05	19.77	15.66	15.11	17.89	16.29	13.56	15.28	19.10	
Lowest	12.60	17.18	15.53	12.81	13.10	15.13	12.92	10.99	12.69	16.43	
Highest	19.20	22.69	24.09	19.36	18.18	20.32	21.59	15.74	18.94	22.91	
<b>Other data</b>											
Market capitalisation at the end of the period, EUR million	16,852	20,015	14,649	12,570	14,774	15,964	12,366	12,944	14,658	16,966	
<b>Trading volumes<sup>2)</sup></b>											
Number of shares, 1,000 shares	580,899	493,375	524,858	494,765	465,004	454,796	541,858	611,572	582,873	474,705	
In relation to weighted average number of shares, %	65.4	55.5	59.1	55.7	52.3	51.2	61.0	68.8	65.6	53.4	
Number of shares, 1,000 shares	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,294	
Number of shares excluding own shares, 1,000 shares	N/A										
Average number of shares, 1,000 shares	888,230	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,312	
Diluted adjusted average number of shares, 1,000 shares	888,230	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,312	

1) Board of Directors' proposal for the Annual General Meeting on 26 March 2019.

2) Trading volumes in the table represent volumes traded on Nasdaq Helsinki. In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market as well. In 2018, approximately 68% (2017: 61%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

See ▶ [Definitions of key figures.](#)

## Segment key figures

Fortum renewed its business structure as of 1 March 2014. The reorganisation led to a change in Fortum's external financial reporting structure as previously separately reported segments Heat and Electricity Sales were combined into one segment: Heat, Electricity Sales and Solutions.

Fortum has applied new IFRS 10 Consolidated financial statements and IFRS 11 Joint arrangements from 1 January 2014. The effect of applying the new standards to Fortum Group financial information relates to Stockholm Exergi AB (publ) (previously AB Fortum Värme Holding samägt med Stockholms stad), that is treated as a joint venture and thus consolidated with equity method from 1 January 2014 onwards. Before the change Stockholm Exergi was consolidated as a subsidiary with 50% minority interest.

Fortum announced the sale of Swedish Distribution business in March 2015. After the divestment of the Swedish Distribution business Fortum does not have any distribution operations and therefore Distribution segment has been treated as discontinued operations in 2015 with restatement of year 2014, according to IFRS 5 Non-current Assets Held for Sale and Discontinued Operations.

Fortum reorganised its operating structure as of 1 April 2016. The business divisions are: Generation (mainly the former Power and Technology); City Solutions (mainly the former Heat, Electricity Sales and Solutions) and Russia. Because of the minor financial impact, the comparable segment information for 2015 was not restated.

As of 1 March 2017, the City Solutions division was divided into two divisions: City Solutions and Consumer Solutions, both reported as separate reporting segments. Fortum has restated its 2016 comparison segment reporting figures in accordance with the new organisation structure. See more information in [Note 6](#) Segment reporting.

Fortum has adopted the IFRS 9 and IFRS 15 standards from 1 January 2018 onwards. Fortum has applied the transition relief for not restating the comparative figures from 2017. See additional information in [Note 1](#) Accounting policies.

Sales by segment, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	2,531	2,702	2,481	2,415	2,252	2,156	1,722	1,657	1,677	1,837
- of which internal	254	-281	-24	296	69	85	83	15	15	2
City Solutions					1,516	1,332	1,187	782	1,015	1,094
- of which internal					87	34	-13	1	19	37
Heat	1,399	1,770	1,737	1,628						
- of which internal	23	-8	8	18						
Consumer Solutions								668	1,097	1,759
- of which internal								2	3	11
Electricity Sales	1,449	1,798	900	722						
- of which internal	67	158	95	55						
Russia	632	804	920	1,030	1,119	1,055	893	896	1,101	1,069
- of which internal	-	-	-	-	-	0	0	0	0	0
Other Operations	71	51	108	137	63	58	114	92	102	129
- of which internal	-5	169	115	-66	54	44	75	61	67	80
Distribution	800	963	973	1,070	1,064					
- of which internal	13	18	15	37	19					
Eliminations and Netting of Nord Pool transactions	-1,447	-1,792	-958	-843	-706	-513	-458	-463	-470	-646
<b>Total for continuing operations</b>	<b>5,435</b>	<b>6,296</b>	<b>6,161</b>	<b>6,159</b>	<b>5,309</b>	<b>4,088</b>	<b>3,459</b>	<b>3,632</b>	<b>4,520</b>	<b>5,242</b>
Discontinued operations						751	274			
Eliminations <sup>1)</sup>						-89	-31			
<b>Total</b>						<b>4,751</b>	<b>3,702</b>	<b>3,632</b>	<b>4,520</b>	<b>5,242</b>

1) Sales to and from discontinued operations.

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Comparable operating profit by segment, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	1,454	1,298	1,201	1,146	859	877	561	417	478	631
City Solutions					109	104	108	64	98	113
Heat	231	275	278	271						
Consumer Solutions								48	41	53
Electricity Sales	22	11	27	39						
Russia	-20	8	74	68	156	161	201	191	296	271
Other Operations	-61	-66	-73	-92	-54	-57	-63	-77	-102	-79
Distribution	262	307	295	320	332					
<b>Comparable operating profit</b>	<b>1,888</b>	<b>1,833</b>	<b>1,802</b>	<b>1,752</b>	<b>1,403</b>	<b>1,085</b>	<b>808</b>	<b>644</b>	<b>811</b>	<b>987</b>
Impairment charges							-918	27	6	-4
Capital gains and other	29	93	284	155	61	305	22	38	326	102
Changes in fair values of derivatives hedging future cash flow								-65	14	98
Nuclear fund adjustment								-11	1	-45
Other items affecting comparability <sup>1)</sup>	-135	-218	316	-33	45	-94	-62			
<b>Operating profit, continuing operations</b>	<b>1,782</b>	<b>1,708</b>	<b>2,402</b>	<b>1,874</b>	<b>1,508</b>	<b>1,296</b>	<b>-150</b>	<b>633</b>	<b>1,158</b>	<b>1,138</b>
Discontinued operations						2,132	4,395			
<b>Operating profit</b>						<b>3,428</b>	<b>4,245</b>	<b>633</b>	<b>1,158</b>	<b>1,138</b>

1) Other items affecting comparability comprise Changes in fair values of derivatives hedging future cash flow and Nuclear fund adjustment.

Comparable EBITDA by segment, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2016	2018
Generation	1,547	1,398	1,310	1,260	1,007	998	680	527	603	762
City Solutions					211	204	209	186	262	284
Heat	393	462	471	481						
Consumer Solutions								55	57	110
Electricity Sales	28	13	29	40						
Russia	55	94	148	189	258	304	267	312	438	417
Other Operations	-51	-56	-66	-83	-49	-49	-53	-64	-83	-50
Distribution	426	485	482	529	548					
<b>Total for continuing operations</b>	<b>2,398</b>	<b>2,396</b>	<b>2,374</b>	<b>2,416</b>	<b>1,975</b>	<b>1,457</b>	<b>1,102</b>	<b>1,015</b>	<b>1,275</b>	<b>1,523</b>
Discontinued operations						416	163			
<b>Total</b>						<b>1,873</b>	<b>1,265</b>	<b>1,015</b>	<b>1,275</b>	<b>1,523</b>

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Depreciation and amortisation, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	93	100	109	114	148	121	118	110	125	131
City Solutions					102	100	101	121	163	171
Heat	162	187	193	210						
Consumer Solutions								7	16	57
Electricity Sales	6	2	2	1						
Russia	75	86	108	121	150	147	117	123	142	147
Other Operations	10	10	7	9	5	8	10	13	18	30
Distribution	164	178	187	209	216					
<b>Total for continuing operations</b>	<b>510</b>	<b>563</b>	<b>606</b>	<b>664</b>	<b>621</b>	<b>377</b>	<b>346</b>	<b>373</b>	<b>464</b>	<b>536</b>
Discontinued operations						150	50			
<b>Total</b>						<b>526</b>	<b>395</b>	<b>373</b>	<b>464</b>	<b>536</b>

Share of profit of associates and joint ventures by segment, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	-35	-25	3	-12	4	-14	-111	-34	-1	-72
City Solutions					91	88	59	76	80	74
Heat	30	31	19	20						
Electricity Sales	0	1	2	0						
Russia	20	8	30	27	46	35	32	38	31	36
Other Operations	-4	28	23	-20	32	37	40	51	38	0
Distribution	10	19	14	8	4					
<b>Total for continuing operations</b>	<b>21</b>	<b>62</b>	<b>91</b>	<b>23</b>	<b>178</b>	<b>146</b>	<b>20</b>	<b>131</b>	<b>148</b>	<b>38</b>
Discontinued operations						3	0			
<b>Total</b>						<b>149</b>	<b>20</b>	<b>131</b>	<b>148</b>	<b>38</b>

Capital expenditure by segment, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	96	97	131	190	179	197	187	196	174	186
City Solutions					123	86	105	109	170	190
Heat	358	304	297	464						
Consumer Solutions								3	7	47
Electricity Sales	1	0	5	1						
Russia	215	599	670	568	435	340	285	201	152	54
Other Operations	4	9	16	11	12	3	6	83	187	108
Distribution	188	213	289	324	255					
<b>Total for continuing operations</b>	<b>862</b>	<b>1,222</b>	<b>1,408</b>	<b>1,558</b>	<b>1,005</b>	<b>626</b>	<b>582</b>	<b>591</b>	<b>690</b>	<b>584</b>
Discontinued operations						147	44			

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Total</b>						<b>774</b>	<b>626</b>	<b>591</b>	<b>690</b>	<b>584</b>
<b>Gross investments in shares by segment, EUR million</b>										
Generation	57	25	17	-	2	2	16	7	90	8
City Solutions					11	37	23	698	386	32
Heat	1	1	32	10						
Consumer Solutions								117	486	0
Russia	3	-	24	-	0	27	0	0	125	63
Other Operations	1	1	1	6	2	4	4	22	39	3,985
Distribution	5	0	-	-	0					
<b>Total for continuing operations</b>	<b>67</b>	<b>27</b>	<b>74</b>	<b>16</b>	<b>15</b>	<b>69</b>	<b>43</b>	<b>844</b>	<b>1,125</b>	<b>4,088</b>
Discontinued operations						0	0			
<b>Total</b>						<b>69</b>	<b>43</b>	<b>844</b>	<b>1,125</b>	<b>4,088</b>
<b>Gross divestments of shares by segment, EUR million</b>										
Generation	10	0	3	102	79	67	0	0	0	160
City Solutions					11	446	27	33	0	0
Heat	1	52	203	269						
Consumer Solutions								1	55	0
Electricity Sales	-	-	16	2						
Russia	-	43	23	-	-	0	0	127	0	0
Other Operations	2	6	0	0	-	2	-	0	687	147
Distribution	1	46	323	37	52					
<b>Total for continuing operations</b>	<b>14</b>	<b>147</b>	<b>568</b>	<b>410</b>	<b>142</b>	<b>515</b>	<b>27</b>	<b>161</b>	<b>742</b>	<b>306</b>
Discontinued operations						2,681	6,369			
<b>Total</b>						<b>3,196</b>	<b>6,395</b>	<b>161</b>	<b>742</b>	<b>306</b>
<b>Comparable net assets by segment, EUR million</b>										
Generation							5,931	5,815	5,672	6,295
City Solutions							2,182	2,873	3,728	3,743
Consumer Solutions								154	638	648
Russia							2,561	3,284	3,161	2,789
Other Operations							258	514	276	4,264
<b>Total for continuing operations</b>							<b>10,932</b>	<b>12,641</b>	<b>13,474</b>	<b>17,739</b>

Fortum is disclosing Comparable net assets instead of Net assets from 2016 onwards. Net assets until 2015 are disclosed below.

Net assets by segment, EUR million	2009	2010	2011	2012	2013	2014	2015 <sup>1)</sup>
Generation	5,494	5,806	6,247	6,389	6,355	6,001	5,913
City Solutions					2,295	2,112	2,170
Heat	3,787	4,182	4,191	4,286			
Electricity Sales	125	210	11	51			
Russia	2,260	2,817	3,273	3,848	3,846	2,597	2,561
Other Operations	382	29	208	158	295	496	291
Distribution	3,299	3,683	3,589	3,889	3,745		
<b>Total for continuing operations</b>	<b>15,347</b>	<b>16,727</b>	<b>17,519</b>	<b>18,621</b>	<b>16,537</b>	<b>11,206</b>	<b>10,934</b>
Net assets related to discontinued operations						2,615	
<b>Total</b>						<b>13,820</b>	<b>10,934</b>

1) Fortum is disclosing Comparable net assets instead of Net assets from 2016 onwards.

Comparable return on net assets by segment, %	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	26.4	22.3	19.9	18.5	13.8	14.2	9.5	6.9	8.4	11.2
City Solutions					8.7	8.7	7.9	5.9	5.5	5.0
Heat	7.6	7.7	7.4	7.0						
Consumer Solutions								44.3	11.7	7.8
Electricity Sales	18.6	9.3	33.5	203.1						
Russia	0.0	0.7	3.5	2.7	5.2	5.6	8.2	8.0	10.1	10.3
Distribution <sup>1)</sup>	8.6	9.3	8.6	8.8	8.8	9.3				

1) Classified as discontinued operations from 2014 onwards.

Return on net assets by segment, %	2009	2010	2011	2012	2013	2014	2015 <sup>1)</sup>
Generation	24.5	19.5	24.6	18.7	14.5	13.6	-8.5
City Solutions					9.7	19.1	7.7
Heat	7.9	8.4	9.9	8.8			
Electricity Sales	28.9	38.4	4.2	152.3			
Russia	0.0	2.4	3.5	3.0	5.2	5.6	8.3
Distribution <sup>2)</sup>	8.7	9.7	13.7	9.1	9.3	73.6	

1) Fortum is disclosing Comparable net assets instead of Net assets from 2016 onwards.

2) Classified as discontinued operations from 2014 onwards.

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Average number of employees	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	2,068	1,891	1,873	1,896	1,900	1,685	1,389	1,064	1,036	1,087
City Solutions					2,051	1,913	1,458	1,529	1,807	1,940
Heat	2,652	2,482	2,682	2,354						
Consumer Solutions								877	1,180	1,473
Electricity Sales	629	538	510	515						
Russia	6,170	4,555	4,436	4,301	4,245	4,196	4,180	3,814	3,710	3,378
Other Operations	593	592	607	661	550	536	983	711	774	888
Distribution	1,166	1,098	902	873	786					
<b>Total for continuing operations</b>	<b>13,278</b>	<b>11,156</b>	<b>11,010</b>	<b>10,600</b>	<b>9,532</b>	<b>8,329</b>	<b>8,009</b>	<b>7,994</b>	<b>8,507</b>	<b>8,767</b>
Discontinued operations						492				
<b>Total</b>						<b>8,821</b>				



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**Power generation capacity by segment, MW**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	9,709	9,728	9,752	9,702	9,475	9,063	8,046	8,039	7,862	7,867
Heat	1,446	1,600	1,670	1,569						
City Solutions					793	803	743	760	775	788
Russia	2,785	2,785	3,404	3,404	4,250	4,758	4,903	4,482	4,794	4,912
Other Operations								53	292	157
<b>Total</b>	<b>13,940</b>	<b>14,113</b>	<b>14,826</b>	<b>14,675</b>	<b>14,518</b>	<b>14,624</b>	<b>13,692</b>	<b>13,334</b>	<b>13,722</b>	<b>13,724</b>

**Heat production capacity by segment, MW**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Generation	250	250	250	250	250	0				
Heat	10,284	10,448	10,375	8,785						
City Solutions					4,317	3,936	3,915	3,818	4,671	4,780
Russia	13,796	13,796	14,107	13,396	13,466	13,466	12,696	9,920	10,094	10,229
<b>Total</b>	<b>24,330</b>	<b>24,494</b>	<b>24,732</b>	<b>22,431</b>	<b>18,033</b>	<b>17,402</b>	<b>16,611</b>	<b>13,738</b>	<b>14,765</b>	<b>15,009</b>

Fortum's power generation capacity by type and area, MW	Finland		Sweden		Russia		Poland		Other		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Hydropower	1,548	1,547	3,124	3,125	0	0	0	0	0	0	4,672	4,672
Nuclear power	1,485	1,480	1,334	1,334	0	0	0	0	0	0	2,819	2,814
Combined heat and power	452	452	9	9	4,843	4,760	186	186	139	128	5,629	5,534
Condensing power	376	376	0	0	0	0	0	0	0	0	376	376
Wind power	0	0	75	75	35	0	0	0	84	32	194	107
Solar power	0	0	0	0	35	35	0	0	0	185	35	220
<b>Total</b>	<b>3,860</b>	<b>3,854</b>	<b>4,542</b>	<b>4,543</b>	<b>4,912</b>	<b>4,794</b>	<b>186</b>	<b>186</b>	<b>223</b>	<b>345</b>	<b>13,724</b>	<b>13,722</b>

Fortum's heat production capacity by area, MW	Finland		Sweden		Russia		Poland		Other		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Heat	1,993	1,941	35	35	10,229	10,094	782	786	1,971	1,909	15,009	14,765

## Financial key figures

## Share key figures

## Segment key figures

## Operational key figures

## Sales

Fortum's total power and heat sales in EU and Norway, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Power sales	2,802	3,110	2,868	2,700	2,462	2,344	1,921	1,893	2,244	2 922
Heat sales	1,095	1,309	1,278	1,201	538	468	423	449	524	615

Fortum's total power and heat sales in Russia, EUR million	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Power sales	390	505	590	713	822	758	661	691	837	872
Heat sales	219	287	324	300	290	285	228	199	258	193

Fortum's total power sales by area, TWh	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Finland	26.1	30.7	24.6	21.6	23.4	21.6	22.3	22.8	22.5	23.1
Sweden	26.9	28.3	29.4	30.1	23.3	28.2	29.8	28.8	30.8	29.7
Norway								1.5	7.2	15.3
Russia	19.5	18.7	20.2	23.3	25.6	26.5	29.4	29.5	30.5	34.1
Other countries	3.2	3.2	3.6	3.8	4.3	3.8	2.8	2.1	2.9	1.8
<b>Total</b>	<b>75.7</b>	<b>80.9</b>	<b>77.8</b>	<b>78.8</b>	<b>76.6</b>	<b>80.1</b>	<b>84.3</b>	<b>84.7</b>	<b>93.9</b>	<b>104.0</b>

Fortum's total heat sales by area, TWh	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Finland	8.0	9.6	8.5	5.8	5.5	3.2	3.1	3.6	3.9	3.8
Russia	25.6	26.8	26.7	26.4	24.1	26.0	25.4	20.7	19.8	20.7
Sweden	9.8	10.9	8.5	8.5	-	-	-	0.1	0.3	0.3
Poland	3.7	4.0	4.3	4.3	4.1	3.4	3.4	3.6	3.7	3.5
Other countries	3.5	3.6	3.4	2.9	3.1	2.8	1.2	1.4	2.2	3.2
<b>Total</b>	<b>50.6</b>	<b>54.9</b>	<b>51.4</b>	<b>47.9</b>	<b>36.8</b>	<b>35.4</b>	<b>33.2</b>	<b>29.4</b>	<b>29.9</b>	<b>31.5</b>

Volume of distributed electricity in distribution networks, TWh	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Finland	9.4	10.0	9.5	9.8	9.5	2.8	-	-	-	-
Sweden	14.0	15.2	14.2	14.4	14.1	13.7	6.4	-	-	-
Norway	2.3	2.5	2.3	2.4	2.5	1.1	-	-	-	-
Estonia	0.2	0.2	0.1	0.0	-	-	-	-	-	-
<b>Total</b>	<b>25.9</b>	<b>27.9</b>	<b>26.1</b>	<b>26.6</b>	<b>26.1</b>	<b>17.6</b>	<b>6.4</b>	<b>-</b>	<b>-</b>	<b>-</b>

## Quarterly financial information

Note: Quarterly financial information is unaudited.

### Selected data based on quarterly consolidated income statement

EUR million	Q1/2017	Q2/2017	Q3/2017	Q4/2017	2017	Q1/2018	Q2/2018	Q3/2018	Q4/2018	2018
<b>IS Sales</b>	1,232	937	919	1,432	4,520	1,585	1,087	971	1,599	5,242
<b>Comparable EBITDA</b>	423	219	210	424	1,275	538	282	230	473	1,523
<b>IS Comparable operating profit</b>	313	109	94	295	811	405	153	96	333	987
<b>IS Operating profit</b>	389	66	387	315	1,158	482	256	91	309	1,138
<b>IS Share of profit/loss of associates and joint ventures</b>	59	35	21	34	148	47	24	12	-44	38
<b>IS Finance costs - net</b>	-36	-52	-58	-49	-195	-36	-39	-58	-4	-136
<b>IS Profit before income tax</b>	412	49	351	300	1,111	493	241	45	261	1,040
<b>IS Income tax expense</b>	-72	-118	4	-43	-229	-94	-25	1	-64	-181
<b>IS Profit for the period</b>	340	-69	355	257	882	400	215	46	197	858
<b>IS Non-controlling interests</b>	-5	0	2	-12	-16	-16	1	5	-5	-15
<b>IS Profit for the period, owners of the parent</b>	335	-70	357	244	866	384	216	51	192	843
<b>Earnings per share for profit attributable to the equity owners of the company (EUR per share)</b>										
Basic	0.38	-0.08	0.40	0.28	0.98	0.43	0.24	0.05	0.22	0.95

### Quarterly sales by segment

EUR million	Q1/2017	Q2/2017	Q3/2017	Q4/2017	2017	Q1/2018	Q2/2018	Q3/2018	Q4/2018	2018
Generation <sup>1)</sup>	474	402	367	433	1,677	497	425	359	555	1,837
City Solutions <sup>1)</sup>	290	205	179	340	1,015	375	187	174	358	1,094
Consumer Solutions	242	164	238	453	1,097	547	326	332	555	1,759
Russia	349	238	200	314	1,101	336	228	200	305	1,069
Other Operations <sup>1)</sup>	24	24	25	30	102	32	33	30	34	129
Netting of Nord Pool transactions <sup>2)</sup>	-118	-73	-73	-103	-367	-161	-92	-105	-157	-516
Eliminations	-29	-23	-17	-34	-103	-41	-20	-18	-52	-130
<b>IS Total</b>	<b>1,232</b>	<b>937</b>	<b>919</b>	<b>1,432</b>	<b>4,520</b>	<b>1,585</b>	<b>1,087</b>	<b>971</b>	<b>1,599</b>	<b>5,242</b>

1) Sales, both internal and external, includes effects from realised hedging contracts. Effect on sales can be negative or positive depending on the average contract price and realised spot price.

2) Sales and purchases with Nord Pool Spot is netted on Group level on an hourly basis and posted either as revenue or cost depending on if Fortum is a net seller or net buyer during any particular hour.

### Quarterly comparable operating profit by segments

EUR million	Q1/2017	Q2/2017	Q3/2017	Q4/2017	2017	Q1/2018	Q2/2018	Q3/2018	Q4/2018	2018
Generation	136	78	104	160	478	220	152	70	189	631
City Solutions	56	1	-20	61	98	87	-21	-22	68	113
Consumer Solutions	12	6	5	18	41	17	11	7	17	53
Russia	132	53	26	84	296	104	37	40	89	271
Other Operations	-24	-28	-21	-28	-102	-23	-27	1	-30	-79
<b>IS Comparable operating profit</b>	<b>313</b>	<b>109</b>	<b>94</b>	<b>295</b>	<b>811</b>	<b>405</b>	<b>153</b>	<b>96</b>	<b>333</b>	<b>987</b>
Impairment charges	0	0	0	6	6	0	0	0	-4	-4
Capital gains and other	1	1	317	8	326	26	76	1	-1	102
Changes in fair values of derivatives hedging future cash flow	74	-46	-19	5	14	54	49	-8	2	98
Nuclear fund adjustment	2	4	-5	1	1	-4	-22	2	-21	-45
<b>IS Operating profit</b>	<b>389</b>	<b>66</b>	<b>387</b>	<b>315</b>	<b>1,158</b>	<b>482</b>	<b>256</b>	<b>91</b>	<b>309</b>	<b>1,138</b>

The first and last quarters of the year are usually the strongest quarters for power and heat businesses.

## Investor information

Fortum 2018 reporting entity comprises CEO's Business Review, Financials, Corporate Governance Statement and Remuneration Statement, Tax Footprint as well as Sustainability.

### Annual General Meeting 2019

The Annual General Meeting 2019 of Fortum Corporation will be held on Tuesday, 26 March 2019, starting at 11:00 EET at Finlandia Hall, address: Mannerheimintie 13 e, Helsinki, Finland. The reception of shareholders who have registered for the meeting will commence at 9.30 EET.

### Payment of dividends

The Board of Directors proposes to the Annual General Meeting that Fortum Corporation pays a dividend of EUR 1.10 per share for 2018, totalling approximately EUR 977 million based on the registered shares as of 31 January 2019. The possible dividend related dates planned for 2019 are:

- the ex-dividend date 27 March 2019,
- the record date for dividend payment 28 March 2019 and
- the dividend payment date 4 April 2019.

### Financial information in 2019

Fortum will publish three interim reports in 2019:

- January–March interim report on 26 April
- January–June half year financial review on 19 July, and
- January–September on 24 October.

The reports are published at approximately 9:00 EET in Finnish and English, and are available on Fortum's website at [www.fortum.com/investors](http://www.fortum.com/investors).

Fortum's management hosts regular press conferences, targeted at analysts and the media. Webcasts of these conferences are available online at [www.fortum.com/investors](http://www.fortum.com/investors). Management also gives interviews on a one-on-one and group basis. Fortum observes closed and silent period of 30 days prior to publishing its results.

### Fortum share basics

Listed on Nasdaq Helsinki

Trading ticker: FORTUM

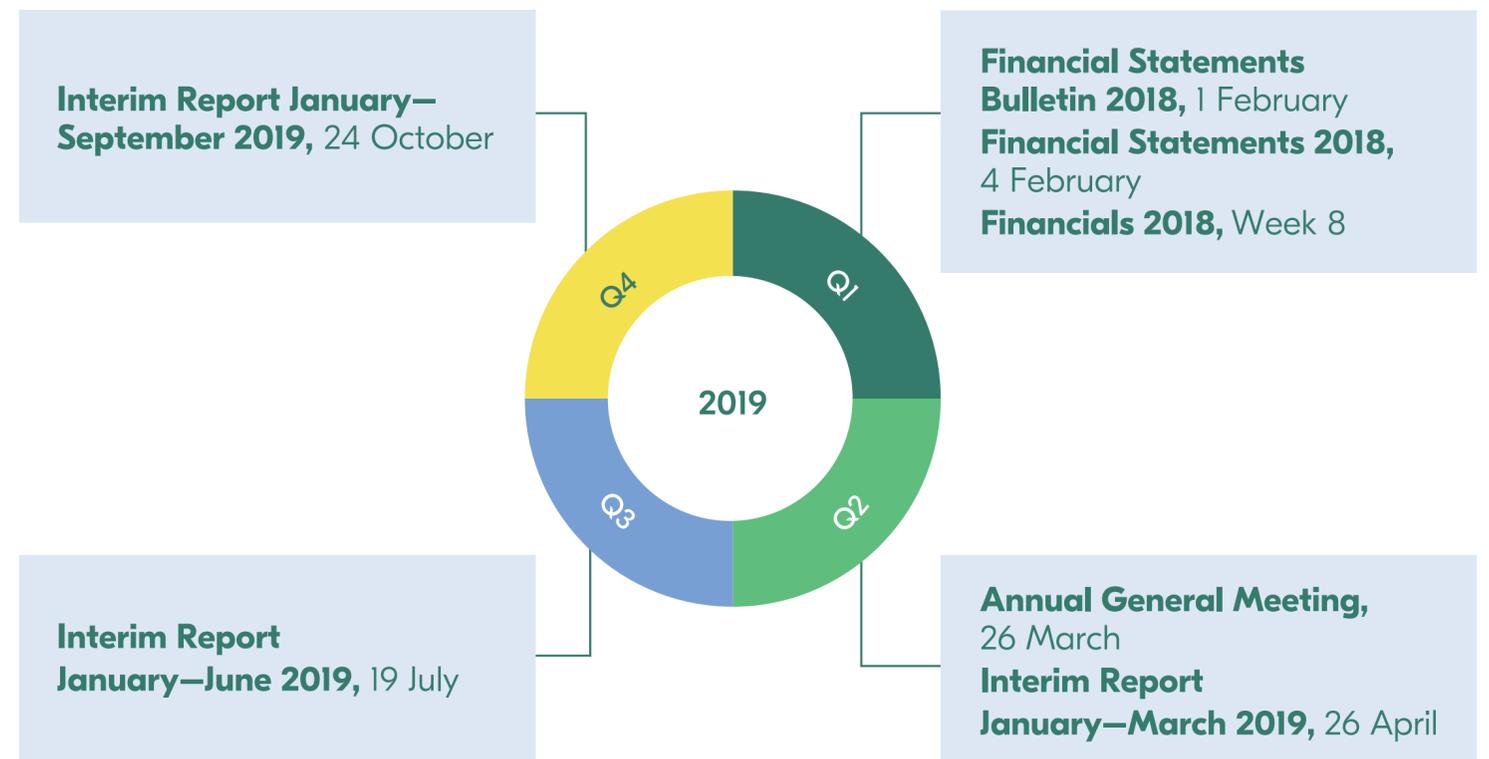
Number of shares, 31 January 2019: 888,294,465

Sector: Utilities

### Fortum's activities in capital markets during 2018

Fortum's Investor Relations activities cover equity and fixed-income markets to ensure full and fair valuation of the Company's shares, access to funding sources and stable bond pricing. The key task of Investor Relations is to provide correct, adequate and up-to-date information regularly and equally to all market participants. By doing this, Investor Relations aims to minimise the investor's risk and reduce the share's volatility. Investors and analysts primarily are met on a regular basis in Europe and North America.

In 2018, Fortum met approximately 500 professional equity investors individually or in group meetings and at investor conferences and maintained regular contact with equity research analysts at investment banks and brokerage firms.



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# Governance 2018



# Corporate Governance Statement 2018

Fortum Corporation (FORTUM) has been listed on Nasdaq Helsinki since 18 December 1998. Fortum’s industrial sector, according to the Global Industry Classification Standard, is Electric Utilities. The State of Finland is the majority owner in Fortum with 50.76% of the shares as of 31 December 2018.

Corporate governance at Fortum is based on Finnish laws and the company’s Articles of Association. Fortum complies fully with and has prepared this corporate governance statement in accordance with the Finnish Corporate Governance Code 2015. The corporate governance statement is issued separately from the operating and financial review, and it has been reviewed by the Audit and Risk Committee of Fortum’s Board of Directors.

Fortum prepares consolidated financial statements and interim reports in accordance with the International Financial Reporting Standards (IFRS), as adopted by the EU, the Finnish Securities Markets Act as well as the appropriate Financial Supervision Authority’s regulations and guidelines and Nasdaq Helsinki’s rules. The company’s operating and financial review and the parent company financial statements are prepared in accordance with the Finnish Companies Act, Accounting Act, Securities Markets Act, and the opinions and guidelines of the Finnish Accounting Board. The auditor’s report covers the consolidated financial statements and the parent company financial statements.

The Finnish Corporate Governance Code 2015 is available on the website of the Securities Market Association at <http://www.cgfinland.fi>

## Governing bodies of Fortum

The decision-making bodies managing and overseeing the Group’s administration and operations are the General Meeting of Shareholders, the Board of Directors with its two Committees, the Audit and Risk Committee and the Nomination and Remuneration Committee, and the President and CEO, supported by the Fortum Executive Management.

Fortum also has an informal Advisory Council consisting of representatives of Fortum’s stakeholder groups as invited by the Board of Directors. The Advisory Council aims to advance Fortum’s businesses by facilitating a dialogue and exchange of views between Fortum and its stakeholders. During 2018, the Advisory Council consisted of 13 representatives of Fortum’s stakeholder groups and three employee representatives.

As sustainability is an integral part of Fortum’s strategy, the highest decision making of these issues falls on the duties of the Board of Directors, who share joint responsibility on sustainability matters. Therefore Fortum has not established a specific Sustainability Committee for decision making on economic, environmental and

social issues. The Audit and Risk Committee, members of the Fortum Executive Management, and other senior executives support the Board of Directors in the decision-making in these matters, when necessary.

## General Meeting of Shareholders

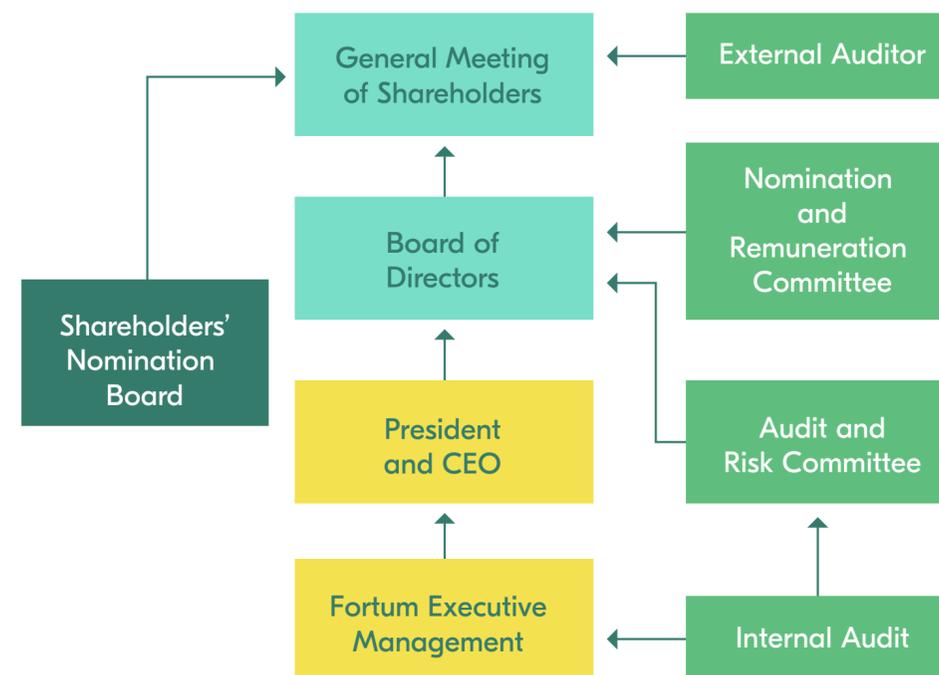
The General Meeting of Shareholders is the highest decision making body of Fortum. Every shareholder has the right to attend the General Meeting, propose items for the agenda of the General Meeting and exercise his/her power of decision in matters belonging to the General Meeting by law, as stipulated in the Finnish Companies Act. Each share is entitled to one vote. A shareholder who is present at the General Meeting of Shareholders also has the right to request information on matters to be considered at the meeting. Before the end of each financial year Fortum states on the Annual General Meeting website and in the Investor Relations calendar the date by which a shareholder must declare his/her proposals to the General Meeting.

Decisions at the General Meeting of Shareholders are primarily made by a simple majority of votes. Such decisions include, for example, resolutions on the adoption of the financial statements, payment of dividends, discharging the members of the Board of Directors and the President and CEO from liability, appointment of the Board of Directors and the external auditors, and deciding on their remuneration.

In accordance with Fortum’s Articles of Association and the Finnish Companies Act, a notice to convene the General Meeting of Shareholders is issued by the Board of Directors. The notice is delivered no more than three months and no less than three weeks before the General Meeting of Shareholders by publishing the notice on the company’s website or in two newspapers chosen by the Board of Directors. The Annual General Meeting of Shareholders is to be held once a year, in June at the latest.

An Extraordinary General Meeting of Shareholders shall be held whenever the Board of Directors finds it necessary or when it is required by law to convene such a meeting.

### Governing bodies of Fortum



### The main duties of Annual General Meeting of shareholders include:

- Adoption of the parent company financial statements and consolidated financial statements
- Resolution on the use of the earnings shown on the balance sheet and the payment of dividends
- Resolutions on the discharge from liability of the members of the Board of Directors and the CEO
- Resolution on the remuneration of the members of the Board of Directors
- Resolution on the number of members of the Board of Directors
- Election of the chairman, deputy chairman and members of the Board of Directors
- Resolution on the remuneration of the external auditor
- Election of the external auditor

### General Meetings in 2018

Fortum's Annual General Meeting 2018 was held at the Finlandia hall in Helsinki on 28 March. No Extraordinary General Meeting of Shareholders was held in 2018.

### Shareholders' Nomination Board

The Annual General Meeting on 9 April 2013 established a permanent Shareholders' Nomination Board. The purpose and task of the Shareholders' Nomination Board is to prepare and present to the General Meeting, proposals on the remuneration, size and members of the Board of Directors. In addition, the Shareholders' Nomination Board seeks candidates for potential board members.

The Shareholders' Nomination Board consists of four members, three of which are appointed by the company's three largest shareholders, who shall appoint one member each. The Chairman of the Board of Directors serves as the fourth member. The members are nominated annually and their term of office ends when new members are nominated to replace them. Fortum's three largest shareholders that are entitled to appoint members to the Shareholders' Nomination Board are determined on the basis of the registered holdings as of the first working day in September in the year concerned. In the event that a shareholder does not wish to exercise their right to appoint a representative, it shall pass the right to the next-largest shareholder. The Shareholders' Nomination Board forwards its proposals for the Annual General Meeting to the Board of Directors by 31 January each year.

### Diversity Principles for the Board of Directors

The Shareholders' Nomination Board uses diversity principles for the Board of Directors in line with the Corporate Governance Code 2015. The principles are applied in preparing the proposal concerning nomination of board members. The diversity principles include, among others, that the board composition shall include expertise from the geographical areas where Fortum conducts its business, the background profession of the board members shall include such competences that support realisation of Fortum's strategy and that enable board members to challenge management decisions and to exercise their role

of having oversight. In addition, the board composition shall include both genders. Fortum's target is to comply with the principles issued in the Finnish Government Resolution dated 17 December 2015 on equal gender representation in the boards of listed companies with the aim of the board consisting of at least 40% each of women and men by 2020. The Shareholders Nomination Board reviews the diversity principles and their implementation annually.

Fortum reports the objectives, actions and progress of the diversity principles in its corporate governance statement. The Shareholders' Nomination Board has applied the diversity principles in preparing the proposal concerning nomination of board members for the Annual General Meeting 2018 and for the upcoming Annual General Meeting of 2019. The Shareholders' Nomination Board deems that the current board composition and the proposed board members for the Annual General Meeting 2019 include all the competences defined in the diversity principles in a well balanced manner.

The proposal for the board members for the Annual General Meeting 2019 consists of 3 women and 6 men. The current Board of Directors consists of 3 women and 5 men, corresponding to a ratio of 37.5% and 62.5%.

### Shareholders' Nomination Board prior to the Annual General Meeting 2019

In October 2018, the following persons were appointed to the Shareholders' Nomination Board: Kimmo Viertola, b. 1961, M.Sc. (Econ.), Director General of the Ownership Steering Department, Prime Minister's Office; Risto Murto, b. 1963, Ph.D. (Econ.), Varma Mutual Pension Insurance Company and Jouko Pölönen, b. 1970, M.Sc. (Econ.), Ilmarinen Mutual Pension Insurance Company. The Chairman of the Board of Directors, Matti Lievonen, acts as a member of the Shareholders' Nomination Board. The Nomination Board convened 4 times and the attendance rate was 100%.

The Shareholders' Nomination Board did not reach a unanimous proposal, and consequently did not make a proposal for the remuneration paid to the Board of Directors for their following term of office. The Chairman of the Nomination Board notified the Nomination



Board and the Company that the State of Finland will make a proposal at the Annual General Meeting for the remuneration to remain unchanged as follows: for the chairman, EUR 75,000 per year; for the deputy chairman, EUR 57,000 per year; and for each member, EUR 40,000 per year, as well as for the chairman of the Audit and Risk Committee EUR 57,000 per year if he/she is not at the same time acting as chairman or deputy chairman of the Board of Directors. In addition, for each Board of Directors and Board Committee meeting the meeting fee is EUR 600. For Board of Directors members living outside Finland in Europe, the fee for each meeting is doubled, and for Board of Directors members living outside Europe, the proposed fee for each meeting is tripled. For Board of Directors members living in Finland, the fee for each Board of Directors and Board Committee meeting is doubled for meetings held outside Finland and tripled for meetings held outside Europe. For Board of Directors and Committee meetings held as a telephone conference, the fee is paid as single to all members. No fee is paid for decisions made without a separate meeting.

The Shareholders' Nomination Board proposed that the Board of Directors consists of 9 members and that the following persons be elected to the Board of Directors for the upcoming term: Eva Hamilton, Kim Ignatius, Essimari Kairisto, Matti Lievonen (Chairman), Klaus-Dieter Maubach (Deputy Chairman), Anja McAlister, Veli-Matti Reinikkala, Marco Ryan and Philipp Rösler.

### Shareholders' Nomination Board prior to the Annual General Meeting 2018

In October 2017, the following persons were appointed to the Shareholders' Nomination Board: Pekka Timonen, b. 1960, Doctor of Laws (LL.D.), Director General of Ministry of Economic Affairs and Employment (Chairman); Timo Ritakallio, b. 1962, D.Sc. (Tech.), LL.M., MBA, President and CEO, Ilmarinen Mutual Pension Insurance Company and Elli Aaltonen, b. 1953, D.Sc. (Soc.), Docent, Director General, Social Insurance Institution of Finland (KELA). The Chairman of the Board of Directors, Sari Baldauf, acted as a member of the Shareholders' Nomination Board.

### Board of Directors

The Board of Directors is responsible for the company's strategic development and for supervising and steering the company's business and management. Further, under the Articles of Association and in line with the Companies Act, the Board of Directors represents the company and is responsible for the proper arrangement of the control of the company's accounts and finances. The Board of Directors is also responsible for defining the company's mission and values.

The Board of Directors comprises five to ten members who are elected at the Annual General Meeting for a one-year term of office expiring at the end of the first Annual General Meeting following the election. The Annual General Meeting also elects the Chairman and the Deputy Chairman of the Board of Directors.

The Board of Directors convenes according to a previously agreed schedule to discuss specified themes and issues on its charter. The Chairman of the Board of Directors prepares the agenda for the Board of Directors meeting based on the proposal by the President and CEO. The members of the Board of Directors have the right to suggest specific matters and have them included on the agenda. More than half of the members must be present at the meeting to constitute a quorum. Decisions of the Board of Directors shall be made by a simple majority. The Board of Directors has approved a written charter for its work, the main content of which is disclosed herein, including the duties of the Board of Directors.

The President and CEO, the Chief Financial Officer, and the General Counsel, as secretary to the Board of Directors, attend the Board meetings on a regular basis. Other Fortum Executive Management members and senior executives attend as required.

As part of its duties, the Board of Directors conducts an annual self-assessment in order to further develop its work. In accordance with the Finnish Corporate Governance Code, the Board of Directors also annually evaluates which of the directors are independent of the company and which are independent of its significant shareholders.

## Board of Directors in 2018

Until the Annual General Meeting held on 28 March 2018, the Board of Directors comprised the following members: Ms Sari Baldauf (Chairman), Mr Matti Lievonen (Deputy Chairman), Mr Heinz-Werner Binzel, Ms Eva Hamilton, Mr Kim Ignatius, Ms Anja McAlister, and Mr Veli-Matti Reinikkala. Mr Tapio Kuula who was elected as member of the Board in the Annual General Meeting 2017 passed away in November 2017. After evaluation, the Shareholders' Nomination Board confirmed the Board of Directors' ability to function with 7 members until the end of the Annual General Meeting 2018.

The Annual General Meeting on 28 March 2018 re-elected Mr Matti Lievonen as Chairman, and Mr Heinz-Werner Binzel, Ms Eva Hamilton, Mr Kim Ignatius, Ms Anja McAlister, and Mr Veli-Matti Reinikkala as Members. In addition, Mr Klaus-Dieter Maubach was elected as new member and Deputy Chairman, and Essimari Kairisto as new member until the end of the Annual General Meeting in 2019.

The Chairman, the Deputy Chairman and the members of the Board of Directors are independent of the company and of the company's

significant shareholders. Three members are female and five members are male.

The Board of Directors met 11 times, and the attendance rate was 100%.

The Board of Directors focused especially on the development and implementation of the company's strategy, digitalisation, growth options, investments and acquisitions, including the Uniper transaction and Hafslund integration. Other focus areas included market outlook and market development, GDPR, and Fortum's competitiveness in the energy market transition. The Board of Directors conducted the annual self-assessment during the year to further enhance the efficiency of the board work.

### The main duties of the Board of Directors include:

#### Strategy

- Strategic development and steering of the company's business and fields of activity

#### Corporate values, policies

- Confirming the Group's Code of Conduct, operating principles and Group policies, including sustainability, and overseeing their implementation

#### Supervision and oversight

- Ensuring that the administration and operations of the company are properly organised
- Ensuring that the accounting, financial administration and the risk management are arranged appropriately

#### Financial matters of significance

- Confirming the Group's business plan on an annual basis
- Setting and following up the annual performance targets for the company and its management

- Reviewing the interim reports and approving the consolidated financial statements, the parent company financial statements and the operating and financial review
- Defining the dividend policy
- Deciding on major investments, divestments and business arrangements

#### Decisions having effect on the corporate organisation

- Confirming the Group's organisational structure at the top management level, and appointing and dismissing the members of the Fortum Executive Management
- Appointing and dismissing the President and CEO; deciding on his/her remuneration
- Appointing the Chairman and Deputy Chairman as well as members of the Fortum Corporation Advisory Council

#### Other

- Convening the Annual General Meeting and the Extraordinary General Meeting, when necessary
- Deciding on the donations policy

## Fortum's Board of Directors on 31 December 2018

### Matti Lievonen

#### Chairman

Born 1958, nationality: Finnish

B.Sc. (Eng.), eMBA, D.Sc. (Tech) h.c.

Independent member of Fortum's Board of Directors since 2017

Chairman of the Nomination and Remuneration Committee

Fortum shareholding 31 Dec 2018: 1,500

**Main occupation:** Non-executive Director

**Primary work experience:** President & CEO of Neste Corporation 2008–2018;

President of the Fine and Speciality Papers Division at UPM-Kymmene

Corporation and number of other senior positions at UPM 1986–2008, and prior

to that at ABB, Member of UPM-Kymmene's Executive Board 2002–2008

**Key positions of trust:** Member of the Board of European Business Leaders'

Convention and Solvay SA; Member of the Supervisory Board of Suomen Messut

Osuuskunta and the Finnish Business and Policy Forum (EVA)

### Klaus-Dieter Maubach

#### Deputy Chairman

Born 1962, German citizen

Ph.D. (Electrical Engineering)

Independent member of Fortum's Board of Directors since 2018

Member of the Nomination and Remuneration Committee

Fortum shareholding 31 Dec 2018: 0

**Main occupation:** Managing Partner, maubach.icp GmbH

**Primary working experience:** CEO of Encavis AG (former Capital Stage AG)

2015–2016; Member of the Management Board and CTO of E.ON SE 2010–2013;

CEO of E.ON Energie AG 2007–2010 and Member of the Management Board

2006–2007; CEO of Avacon AG 2003–2006 and Member of the Management

Board 2001–2003; CEO and Member of the German Executive Committee

of Fortum Group in Elektrizitätswerk Wesertal GmbH 2000–2001, Managing

Director 1998–2000 and Corporate head of department 1998; Head of technical

planning of Energieversorgung Offenbach AG 1996–1998 and Head of

dispatching centre 1995–1996; Research assistant, head of system optimization at University of Wuppertal 1989–1994

**Key positions of trust:** Chairman of the Supervisory Board of Klöpfer & Königer GmbH & Co KG; Member of the Supervisory Board of ABB Deutschland AG and Encavis AG; Member of the Board of Directors of Axpo Power AG; Chairman of the Advisory Board and shareholder of SUMTEQ GmbH

### Heinz-Werner Binzel

Born 1954, nationality: German

Economics and electrical engineering degree

Independent member of Fortum's Board of Directors since 2011

Member of the Audit and Risk Committee

Fortum shareholding 31 Dec 2018: 0

**Main occupation:** Independent consultant

**Primary work experience:** Member of the Executive Board, procurement and sale of electricity, gas, and water of RWE Energy AG 2003–2005; Member of

the Executive Board as CFO of RWE Solutions AG in 1999–2002 and as CEO in 2002–2003; several senior executive positions in Germany and the USA with

NUKEM GmbH 1981–1999

**Key positions of trust:** Member of the Supervisory Board and Chairman of the Audit Committee of TÜV Rheinland Holding AG

### Eva Hamilton

Born 1954, nationality: Swedish

B.A. Journalism, honorary doctorate degree at Mid Sweden University (Mittuniversitetet)

Independent member of Fortum's Board of Directors since 2015

Member of the Nomination and Remuneration Committee

Fortum shareholding 31 Dec 2018: 40

**Main occupation:** Senior adviser

**Primary work experience:** CEO of Sveriges Television (SVT) 2006–2014, Head of SVT Fiction 2004–2006, Head of SVT News, 2000–2004, and Head of Foreign

Correspondent in Brussels 1993–1996; News Reporter at Aftonbladet 1978–1979, Svenska Dagbladet 1979–1988 and Dagens Industri 1988–1989

**Key positions of trust:** Chairman of the Board of Nexiko Media AB; Member of the Board of Kungliga Dramatiska Teatern AB, LKAB, Stockmanngroup, IVA (Royal Swedish Academy of Engineering) and Arholma Landsort AB; Chairman of Näringslivsrådet and Swedish Film & TV Producers Association

### Kim Ignatius

Born 1956, nationality: Finnish

B.Sc. (Econ.), Helsinki School of Economics and Business Administration

Independent member of Fortum's Board of Directors since 2012

Chairman of the Audit and Risk Committee

Fortum shareholding 31 Dec 2018: 4,000

**Main occupation:** Non-executive Director

**Primary work experience:** Chief Financial Officer in 2008–2016 and Executive Vice President in 2017 of Sanoma Corporation; Executive Vice President and CFO

of TeliaSonera AB 2003–2008; Executive Vice President and CFO of Sonera Oyj 2000–2002; Group CFO of Tamro Oyj 1997–2000

**Key positions of trust:** Member of the Board and Chairman of Audit and Remuneration Committees of Rovio Entertainment Corporation

### Essimari Kairisto

Born 1966, Finnish and German citizen

Diploma in Business Administration (Germany)

Independent member of Fortum's Board of Directors since 2018

Member of the Audit and Risk Committee

Fortum shareholding 31 Dec 2018: 0

**Main occupation:** Independent consultant

**Primary working experience:** Member of the Executive Board/CFO of Hochtief Solutions AG 2013–2016; General Manager Finance/CFO of Sasol O&S Group

International 2008–2013; Managing Director and CFO of Sasol Germany GmbH 2007–2013; Managing Director and CFO of Lahmeyer International

GmbH 2004–2007; Head of Special Purpose Controlling of RWE Solutions

AG 2003–2004; Head of Commercial Services Infrastructure Management of RWE Solutions AG & RWE Industrie-Lösungen GmbH 2002–2003; several management positions in Germany, Norway and USA at Schlumberger 1995–2001

**Key positions of trust:** Member of the Supervisory Board, the Board of Partners, and the Audit Committee of Freudenberg Global Technology Group

### Anja McAlister

Born 1960, nationality: Finnish

M.Sc., Energy technology, MBA

Independent member of Fortum's Board of Directors since 2017

Member of the Nomination and Remuneration Committee

Fortum shareholding 31 Dec 2018: 0

**Main occupation:** Independent consultant

**Primary work experience:** Executive Vice President, Head of Strategy, Transformation, and HR of Pöyry PLC in 2017 and President of Energy Business Group in 2015–2017; Vice President at Pöyry Management Consulting Oy 2014–2015; Managing Director of Renewa Oy 2013; Senior Vice president, Head of Energy Business at UPM Group 2004–2013; Senior Vice President, Head of the Management Consulting Northern Europe of Electrowatt-Ekono Oy (part of the Pöyry Group) 2000–2004; Industrial Counsellor, Head of Energy Policy and Analyses team of Ministry of Trade and Industry, Finland 1998–2000; Operations Manager and Managing Director of Kymppivoima Oy 1995–1998; Senior Consultant at Energia-Ekono Oy 1993–1995; Technical Manager at Sheffield Heat and Power Ltd., UK 1990–1993; Operations Manager of MW biomass CHP plant of City of Kuopio, Finland 1984–1989

### Veli-Matti Reinikkala

Born 1957, nationality: Finnish

Executive Master of Business Administration

Independent member of Fortum's Board of Directors since 2016

Member of the Audit and Risk Committee

Fortum shareholding 31 Dec 2018: 3,000

**Main occupation:** Non-executive Director

**Primary work experience:** President of Region Europe 2015 and Member of the Group Executive Committee of ABB Group in 2006–2015, President of the

Process Automation division in 2006–2014, Head of Business Area Process Automation in 2005; Automation Technologies Division Manager at ABB China 2003–2004; Business Area Manager at ABB Drives & Power Electronics 2002; Manager at ABB Drives 1996–2002; CFO of ABB Industry Oy 1994–1996; various positions in paper and packaging companies in Finland before 1994

**Key positions of trust:** Chairman of the Board of Cramo Plc, Member of the Board of UPM-Kymmene Corporation

Chairman of the Board of Directors and member of the Nomination and Remuneration Committee until 28 March 2018:

### Sari Baldauf

Born 1955, nationality: Finnish

M.Sc. (Econ)

Independent Member of Fortum's Board of Directors 2009–2018

## Board Committees

The committees of the Board of Directors are the Audit and Risk Committee and the Nomination and Remuneration Committee. The committees assist the Board of Directors by preparing and reviewing in more detail matters falling within the duties of the Board of Directors.

The Board of Directors appoints members of the Audit and Risk Committee and the Nomination and Remuneration Committee from amongst its members. Each committee shall have at least three members. The members shall have the expertise and experience required by the duties of the respective committee.

Members are appointed for a one-year term of office expiring at the end of the first Annual General Meeting following the election. All the members of the Board of Directors have the right to attend the committee meetings. The Chairman of the committee reports on the committee's work to the Board of Directors regularly after each meeting, and the committee meeting materials and minutes are available to all members of the Board of Directors. The Board of Directors has approved written charters for the committees; the charters are reviewed regularly and updated as needed.

### Audit and Risk Committee

The Audit and Risk Committee assists the Board of Directors in matters relating to financial reporting and control in accordance with the duties specified for audit committees in the Finnish Corporate Governance Code. The Board of Directors regularly determines the role and duties of the Audit and Risk Committee in a written charter. The committee monitors the Group's reporting process of financial statements and the efficiency of the internal controls, internal audit and risk management systems. In addition, the committee monitors and assesses the legal compliance and the business ethics compliance.

Pursuant to the Finnish Corporate Governance Code, the members of the Audit and Risk Committee shall have the qualifications necessary to perform the responsibilities of the committee, and at least one of the members shall have expertise specifically in accounting, bookkeeping or auditing. The members shall be independent of the company, and

at least one member shall be independent of the company's significant shareholders.

The external auditors, Chief Financial Officer, Head of Internal Audit, Corporate Controller, and General Counsel, as secretary to the committee, attend the committee meetings on a regular basis. Other senior executives attend the meetings as invited by the committee.

The Audit and Risk Committee carries out a self-assessment of its work and approves the internal audit charter and the internal audit plan and its budget. The committee evaluates the independence of the external auditors, reviews the external auditor's audit plan and meets with them regularly to discuss the audit plan, audit reports and findings.

### Audit and Risk Committee in 2018

After the Annual General Meeting on 28 March 2018, the Board of Directors elected the following members to the Audit and Risk Committee: Kim Ignatius as Chairman and Heinz-Werner Binzel, Essimari Kairisto and Veli-Matti Reinikkala as members. Until the Annual General Meeting, the committee comprised Kim Ignatius as Chairman and Heinz-Werner Binzel, Anja McAlister and Veli-Matti Reinikkala as members.

In 2018, the members were all independent of the company and of its significant shareholders. The Audit and Risk Committee met 5 times in 2018 and the attendance rate was 100%.

### Nomination and Remuneration Committee

The Nomination and Remuneration Committee assists the Board of Directors in issues related to nomination and remuneration of the company's management. The committee has a written charter in which its duties have been defined. Pursuant to the Finnish Corporate Governance Code, the majority of the members of a remuneration committee shall be independent of the company. The regular participants at the committee meetings are the President and CEO, Senior Vice President of Strategy, People and Performance, and General Counsel as Secretary to the Committee.

The Nomination and Remuneration Committee conducts annually a self-evaluation of its work.

### The main duties of the Audit and Risk Committee include:

- Monitoring the financial position of the company
- Supervising the financial reporting process
- Monitoring the reporting process of financial statements
- Monitoring the statutory audit of the financial statements and consolidated financial statements
- Preparing for the Board of Directors the proposal for resolution on the election of the auditor
- Evaluating the independence of the statutory auditor or audit firm, particularly the provision of related services to the company to be audited and pre-approval of non-audit services
- Monitoring the efficiency of the company's internal control, internal audit, compliance and risk management systems
- Reviewing the description in the company's Corporate Governance Statement of the main features of the internal control and risk management systems in relation to the financial reporting process
- Reviewing annually the Group Risk Policy and risk exposures
- Approving the internal audit charter, the annual audit plan, the budget of the internal audit function and reviewing the internal audit reports
- Monitoring and assessing legal compliance and business ethics compliance

### Nomination and Remuneration Committee in 2018

After the Annual General Meeting on 28 March 2018, the Board of Directors elected the following members to the Nomination and Remuneration Committee: Matti Lievonen as Chairman and Eva Hamilton, Klaus-Dieter Maubach and Anja McAlister as members. Until the Annual General Meeting, the committee comprised Matti Lievonen as Chairman and Sari Baldauf, Eva Hamilton and Tapio Kuula (until 7 November 2017) as members.

In 2018, the members were all independent of the company and of its significant shareholders. The committee met 5 times during 2018 and the attendance rate was 100%.

### The main duties of the Nomination and Remuneration Committee include:

- Preparing nomination and remuneration issues and proposals to the Board of Directors concerning the President and CEO, the executives reporting directly to the President and CEO as well as the Fortum Executive Management
- Reviewing and preparing succession plans for the President and CEO and for the members of the Fortum Executive Management
- Evaluating the performance and the remuneration of the President and CEO, the executives reporting directly to the President and CEO as well as the Fortum Executive Management
- Preparing for the Board of Directors recommendations on the Group's and its management's pay structures, bonus, and incentive systems and remuneration policy
- Monitoring the functioning of the bonus systems to ensure that the management's bonus systems will advance the achievement of the company's strategic objectives and that they are based on performance
- Monitoring, planning and promoting competence development in the Group based on strategic target setting

### President and CEO

The President and CEO holds the position of Managing Director under the Companies Act and is the Chairman of the Fortum Executive Management. The President and CEO is in charge of the day-to-day management of the Group, in accordance with the Companies Act and the instructions and orders issued by the Board of Directors. Under the Companies Act, the President and CEO is responsible for ensuring that the accounts of the company comply with the applicable laws and that its financial affairs have been arranged in a reliable manner.

### Fortum Executive Management

The President and CEO is supported by the Fortum Executive Management. The Fortum Executive Management assists the President

### Number of the Board meetings and Board Committee meetings in 2018 and the attendance rate of the members

Member	Board of Directors	Nomination and Remuneration Committee	Audit and Risk Committee
Sari Baldauf (member until 28 March)	2/2		
Heinz-Werner Binzel	11/11		5/5
Eva Hamilton	11/11	5/5	
Kim Ignatius	11/11		5/5
Essimari Kairisto (member since 28 March 2018)	9/9		5/5
Matti Lievonen	11/11	5/5	
Klaus-Dieter Maubach (member since 28 March 2018)	9/9	5/5	
Anja McAlister	11/11	5/5	
Veli-Matti Reinikkala	11/11		5/5

and CEO in implementing the strategic and sustainability targets within the framework approved by the Board of Directors, preparing the Group's business plans, and deciding on investments, mergers, acquisitions and divestments within its authorisation.

Financial and sustainability results are reviewed in the monthly reporting by the Fortum Executive Management. Quarterly Performance Review meetings with the management are embedded in the Fortum Performance Management process.

Fortum's organisation consists of four business divisions: Generation, City Solutions, Consumer Solutions and Russia. Generation comprises power production in the Nordics. City Solutions develops sustainable solutions for urban areas into a growing business for Fortum. Consumer Solutions comprises electricity and gas retail businesses in the Nordics and Poland, including the customer service, invoicing, and debt collection business. Russia division comprises Fortum's power and heat generation and sales activities in Russia. Until November 2018, there were two development units focusing on growing new businesses: M&A and Solar and Wind Development and Technology and New Ventures. In November Fortum announced the reorganisation of the solar and wind businesses. The wind operations became a business area within the Generation division and the solar operations within the City Solutions division. The Russian wind and solar operations continued as a part of the Russia division. In addition, the organisation has four staff functions: Finance; Legal; Strategy, People and Performance, as well as Corporate Affairs and Communications.

Each member of the Fortum Executive Management is responsible for the day-to-day operations and the implementation of operational decisions in their respective organisations. The Fortum Executive Management meets on a monthly basis.

The Fortum Executive Management has 9 members in addition to the President and CEO. Mr. Pekka Lundmark is the President and CEO of Fortum Corporation. The other members of the Executive Management are Arun Aggarwal, Alexander Chuvaev, Per Langer, Risto Penttinen, Markus Rauramo, Arto Rätty, Mikael Rönöblad, Sirpa-Helena Sormunen, and Tiina Tuomela.

All the members of the Executive Management report to the President and CEO, apart from the General Counsel who administratively reports to the CFO.

### Changes in Fortum Executive Management in 2018

At the end of September, Kari Kautinen, Senior Vice President, M&A and Solar & Wind Development and member of the Executive Management left his position at Fortum.

In September, Arun Aggarwal, M.Sc. (Eng.), 49, was appointed Senior Vice President, Business Technology and member of Fortum's Executive Management. The position is new at Fortum. Mr Aggarwal has Group-wide responsibility to lead Fortum's strategic IT as well as digital innovation and transformation. He assumed this position in mid-October 2018 and reports to the President and CEO.

# Fortum Executive Management on 31 December 2018

## Pekka Lundmark

### President and Chief Executive Officer since 2015

Born 1963, nationality: Finnish

M.Sc. (Eng.)

Member of the Executive Management since 2015

Employed by Fortum since 2015

Fortum shareholding 31 Dec 2018: 67,166

**Previous positions:** President and CEO of Konecranes Plc in 2005–2015 and Group Executive Vice President in 2004–2005; President and CEO of Hackmann Oyj Abp 2002–2004; Managing Partner of Startupfactory Oy 2000–2002; various executive positions at Nokia Corporation 1990–2000

**Key positions of trust:** Chairman of the Confederation of Finnish Industries and Chairman of the Board of Helsinki Metropolitan Smart & Clean Foundation, Member of the Board of Directors of East Office of Finnish Industries, Climate Leadership Council and Fortum Foundation

## Arun Aggarwal

### SVP, Business Technology since 17 October 2018

Born 1969, nationality: American

M.Sc. (Manufacturing Systems Eng.)

Member of the Executive Management since 17 October 2018

Employed by Fortum since 17 October 2018

Fortum shareholding 31 Dec 2018: 0

**Previous positions:** Executive Advisor at IBM Corporation 2018; Global CIO, Digital Transformation Leader of Cemex Inc. 2015–2017; Executive Advisor at Cemex Inc. 2012–2015; President of The Waterside Group 2006–2015; Director at Bearing Point Inc. (formerly KPMG Consulting) 2001–2005; Senior Manager at KPMG Consulting Inc. 1992–2001

## Alexander Chuvaev

### Executive Vice President,

### Russia Division and General Director of PAO Fortum since 2009

Born 1960, nationality: Russian

M.Sc. (Eng.)

Member of the Executive Management since 2009

Employed by Fortum since 2009

Fortum shareholding 31 Dec 2018: 22,053

**Previous positions:** Regional Executive Director of GE Oil & Gas, Russia and CIS 2009; Investment Development Director of SUEK, Russia 2008–2009; Managing Director of JSC Power Machines, Russia 2006–2008; Regional General Manager of GE Oil & Gas, Russia 2006; Chief Operations Officer of JSC OMZ, Russia 2005–2006; Various positions at GE in the USA and Canada 1999–2005; various positions at Solar Turbines Europe S.A. in Europe and the USA 1991–1999

**Key positions of trust:** Deputy Head of the Supervisory Board of Energy Producers Council; Member of the Board & Chairman of Commission on Public Utility of Russian Union of Industrialists and Entrepreneurs; Member of the Board of Directors of TGC-I; Member of Government Commission on the Development of the Electric Power Industry; Non-executive member of the Management Board of Aggreko Eurasia LLC, General Director of Wind Power AM LLC

## Per Langer

### Executive Vice President, City Solutions since 2017

Born 1969, nationality: Swedish

M.Sc. (Econ.)

Member of the Executive Management since 2009

Employed by Fortum since 1999

Fortum shareholding 31 Dec 2018: 33,191

**Previous positions:** Senior Vice President, Technology and New Ventures of Fortum Corporation 2016–2017; Executive Vice President, Hydro Power and Technology of Fortum Corporation 2014–2016; Executive Vice President, Heat Division of Fortum Power and Heat Oy 2009–2014; President of Heat of Fortum Power and Heat Oy 2007–2009; President of Portfolio Management and

Trading of Fortum Power and Heat Oy 2004–2007; managerial positions at Fortum Oyj 1999–2004; managerial positions at Gullspång Kraft 1997–1999

**Key positions of trust:** Chairman of the Board of Stockholm Exergi AB; Deputy chairman of the Board of Fortum Oslo Varme AS; Member of the Board of Exeger Sweden AB

## Risto Penttinen

### Senior Vice President, Strategy, People and Performance since 2016

Born in 1968, nationality: Finnish

M.Sc. (Econ.)

Member of the Executive Management as of 1 April 2016

Employed by Fortum since 2011

Fortum shareholding 31 Dec 2018: 12,355

**Previous positions:** Vice President, Corporate Strategy of Fortum Corporation 2014–2016; Vice President, Strategic Ventures of Fortum Power Division 2011–2014; Partner at McKinsey & Company 2005–2011; Consultant and Project Leader at McKinsey & Company 1996 and 1997–2005

**Key positions of trust:** Deputy member of the Board of Varma Mutual Pension Insurance Company

## Markus Rauramo

### Chief Financial Officer since 2017

Born 1968, nationality: Finnish

M.Sc. (Econ. and Pol. Hist.)

Member of the Executive Management since 2012

Employed by Fortum since 2012

Fortum shareholding 31 Dec 2018: 34,135

**Previous positions:** Executive Vice President, City Solutions of Fortum Corporation 2016–2017; Executive Vice President, Heat, Electricity Sales and Solutions of Fortum Corporation 2014–2016; CFO of Fortum Corporation 2012–2014; CFO of Stora Enso Oyj 2008–2012; SVP, Group Treasurer of Stora Enso International 2004–2008; VP, Strategy and Investments at Stora Enso Oyj

2001–2004; VP Head of Funding of Stora Enso Financial Services 1999–2001; several financial tasks at Enso Oyj 1993–1999

**Key positions of trust:** Vice Chairman of the Supervisory Board of Uniper SA; Member of the Board of Wärtsilä Oyj Abp and Teollisuuden Voima Oyj

### Arto Rätty

**Senior Vice President, Corporate Affairs & Communications since 2016**

Born 1955, nationality: Finnish

Lieutenant General (Ret.)

Member of the Executive Management since 2016

Employed by Fortum since 2016

Fortum shareholding 31 Dec 2018: 0

**Previous positions:** Permanent Secretary at the Ministry of Defence of Finland 2011–2015; Director of the National Defence Policy Unit 2005–2008; Various positions within Finnish Defence Forces including: Deputy Chief of Staff, Operations at Defence Command 2009–2010, Chief of Staff at Army Command 2008–2009, Brigade Commander, Pori Brigade 2000–2002, Commanding Officer of the Finnish Battalion in KFOR in Kosovo 2000, Deputy Chief of the International Department, Defence Command 1997–2000, Director of the National Defence Courses of the Finnish Government 2003–2004 and Finnish Liaison Officer at NATO HQ and PCC SHAPE in Brussels, Belgium 1994–1997

**Key positions of trust:** Chairman of the Board of Destia Group Oyj; Member of the Board of Aalto University Executive Education Oy, Suomi Gas Distribution Holding Oy, AC Cleantech Management Oy, Fortum Art Foundation and Urlus Foundation; Deputy member of the Board of Fennovoima Oy; Member of the Board of Trustees of Savonlinna Opera Festival

### Mikael Rönneblad

**Executive Vice President, Consumer Solutions since 2017**

Born 1969, nationality: Finnish

M.Sc. (Econ.)

Member of the Executive Management since 2017

Employed by Fortum since 2017

Fortum shareholding 31 Dec 2018: 0

**Previous positions:** SVP & GM of New Digital Services Businesses and Consumer Customers Executive Board Member of Elisa Corporation 2009–2017; VP,

Corporate Strategy and Acquisitions of Elisa Corporation 2004–2009; Director and Global Head of Nordic Sector of ABN AMRO Global Equities 2000–2004; General Manager and Head of Department at Pannon, Hungary 1999–2000; Manager, Corporate Venturing and International Mobile Operations at Sonera Corporation 1997–2000; Project Director and Assistant Professor (acting) at Hanken Swedish School of Economics 1995–1997; Junior Strategy Consultant at Vectia Ltd 1994–1995; In-house Consultant, Major Accounts Sales at Nokia Corporation 1991–1993

**Key positions of trust:** Chairman of the Board of Nikus Oy Ab

### Sirpa-Helena Sormunen

**General Counsel since 2014**

Born 1959, nationality: Finnish

LL.M, Trained on the bench

Member of the Executive Management since 2014

Employed by Fortum since 2014

Fortum shareholding 31 Dec 2018: 6,656

**Previous positions:** General Counsel of Patria Oyj 2012–2014; several legal and managerial positions at Nokia and Nokia Siemens Networks 2004–2012; Vice President, Head of Legal, Mergers & Acquisitions and Finance of TeliaSonera Finland Oyj 2003–2004; Senior Legal Counsel, Head of Legal, Merger & Acquisitions of Sonera Oyj 2000–2002

**Key positions of trust:** Member of the Board of Directors of Nammo AS, Association of Finnish Fine Arts Foundations, and OPR-Finance Oy, Chairman of the Board of Fortum Art Foundation

### Tiina Tuomela

**Executive Vice President, Generation since 2016**

Born 1966, nationality: Finnish

M.Sc. (Eng.), MBA

Member of the Executive Management since 2014

Employed by Fortum since 1990

Fortum shareholding 31 Dec 2018: 17,671

**Previous positions:** Executive Vice President, Nuclear and Thermal Power Division of Fortum Corporation 2014–2016; Vice President, Finance in Power Division at Fortum Power and Heat Oy 2009–2014; Vice President, Business Control

and Support, Generation at Fortum Power and Heat Oy 2005–2009; several managerial positions at Fortum 1990–2005

**Key positions of trust:** Chairman of the Board of Kemijoki Oy; Member of the Board of Finnish Energy, YIT Corporation and Teollisuuden Voima Oyj

Member of the Executive Management until 30 September 2018:

### Kari Kautinen

Born 1964, nationality: Finnish

LL.M

Employed by Fortum 1998–2018; Member of the Executive Management Team 2014–2018; Senior Vice President, M&A and Solar & Wind Development 2016–2018

## The main features of the Internal Control and Risk Management Systems

The internal control and risk management systems relating to financial reporting are designed to provide reasonable assurance regarding the reliability of financial reporting and aim to ensure compliance with applicable laws and regulations.

### Risk management systems

Fortum’s Board of Directors approves the Group Risk Policy that defines the objective, main principles and division of responsibilities for risk management. The Group Risk Policy also includes a description of the main features of the risk management process which is applicable to all processes including financial reporting.

### Internal controls in relation to financial reporting

Fortum’s internal control framework is based on the main elements from the framework introduced by the Committee of Sponsoring Organisations of the Treadway Commission (COSO). The controls including financial reporting controls, have been defined based on the main risks in the process. Internal controls are an integral part of compliance in Fortum covering key areas of business ethics, regulatory compliance and internal controls.

### Control environment

The standards, processes and structures in internal control are set through Group policies, Group instructions and the Fortum internal control framework. Fortum’s internal control framework is designed to support operational effectiveness and efficiency, reliable financial reporting, and compliance with laws, regulations and policies. The internal control framework defines the key controls and minimum requirements for the key processes. Corporate Accounting and Control is responsible for the overall control structure of the financial reporting process. Fortum Controllers’ manual defines instructions and guidelines relating to financial reporting.

## Financial reporting framework in Fortum



Fortum’s organisation is decentralised, and a substantial degree of authority and responsibility is delegated to the divisions in the form of control responsibilities. Fortum’s control governance follows the so-called “Three lines of defense” model as illustrated in the graphic.

**Risk assessment**

Risks are continuously identified and analysed as part of the risk management process. Material risks, that might, if realised, have financial impact or lead to non-compliance are reported at least annually to the Audit and Risk Committee, and follow-up of actions and improvements are integrated in operational management.

**Control activities**

Control activities are applied in the processes and, from the financial reporting perspective, they ensure that errors or deviations are prevented or detected and corrected.

The Corporate Accounting and Control unit together with the Record-to-Report internal controls process team determine the control requirements and the scope covering the financial reporting process. Divisions and units define their controls based on these common requirements. Responsibilities are assigned for the control activities and for ensuring that the control coverage is in accordance with the defined requirements and scope.

Control requirements for the financial reporting process include controls regarding the initiation, recognition, measurement, approval, accounting and reporting of financial transactions as well as disclosure of financial information. The general IT controls support the financial reporting controls in areas like access control and back-up management.

Responsibilities are assigned to finance functions ensuring that analyses of the business performance, including analyses on volumes, revenues, costs, working capital, and asset values are performed in accordance with the control requirements.

**Information and communication**

The Controllers’ manual includes the Fortum Accounting manual, Investment manual and reporting instructions, and other instructions

**Fortum's Control Governance**



relating to financial reporting. Regular core controllers’ meetings, headed by the Corporate Controller, steer the Finance function. Regular Accounting Network Forum meetings are to inform about upcoming changes in IFRS, new accounting policies and other changes in reporting requirements.

**Monitoring and follow-up**

Financial performance and key short-term risks and uncertainties related to business operations are reported monthly to the Fortum Executive Management.

As part of the Fortum internal control framework, divisions and units regularly assess the maturity of the control activities they are responsible for including the financial reporting process controls. The Head of Internal Controls reports the maturity assessments results and improvement actions to the management and to the Audit and Risk Committee. Internal control design and operating effectiveness are also assessed as part of the audits by Internal Audit. Audit results, including corrective actions and their status, are regularly reported to the management and to the Audit and Risk Committee.

## Auditing

### Internal Audit

Fortum's Internal Audit is an independent and objective assurance function that is responsible for examining and evaluating the appropriateness and effectiveness of the Group's management and corporate governance processes, internal control system, risk management, and operational processes. The Standards for the Professional Practice of Internal Audit form the basis for the work of Internal Audit.

### External Audit

The Group and the parent company have one external auditor, which shall be an audit firm certified by the Central Chamber of Commerce. Due to ongoing mergers and acquisition processes some of the target companies have other audit firms during the transition period. The external auditor is elected by the Annual General Meeting for a term of office that expires at the end of the first Annual General Meeting following the election.

Fortum's Annual General Meeting on 28 March 2018 elected Authorised Public Accountant Deloitte Oy as the company's external auditor, with Authorised Public Accountant Reeta Virolainen having the principal responsibility.

The Annual General Meeting also decided on that the auditor's fee be paid pursuant to invoice approved by the company. The fee paid to the auditor for services rendered and invoiced in 2018 totalled approx. EUR 1,731,000. In addition, the audit firm was paid a total of approx. EUR 1,790,000 for non-audit and advisory services rendered and invoiced.

### Code of Conduct and Compliance Programme

Fortum's Code of Conduct is based on the shared corporate values which form the ethical basis for all work at Fortum. The Code of Conduct has been approved by the Board of Directors. Fortum values were updated in 2017. Fortum's Code of Conduct was rebranded and relaunched in 2017 (originally launched in 2007 and updated 2015) to whole company,

including Recycling and Waste Solutions and Hafslund, and is published in ten languages. During 2018 a new Code of Conduct eLearning was launched to all Fortum. Fortum employees are responsible for reporting any suspected misconduct to their own supervisors, to other management members or, if necessary, directly to Internal Audit. Additionally, Fortum employees and partners can report suspicions of misconduct confidentially to the Fortum Head of Internal Audit via the "raise-a-concern channel" on Fortum's internal and external web pages. The report can be submitted in several languages and anonymously if necessary. In Russia, Fortum even has a separate compliance organisation with compliance officers in place.

Prevention of corruption is one of the Code of Conduct's focus areas. Fortum has procedures for anti-corruption including prevention, oversight, reporting and enforcement based on the requirements prescribed in international legislation. Fortum also has a country and partner risk evaluation process to support the understanding and management of compliance needs at the local business and partner level. These also cover export control (incl. economic sanctions) and anti-money laundering aspects. Compliance requirements are also part of the partly-owned company management in Fortum.

Fortum has a compliance programme which covers key areas of regulatory compliance and business ethics. It is managed with risk-based prioritisation. Internal Controls are integral part of the compliance and both the Group Compliance Officer and the Head of Internal Controls report to the General Counsel independently of the business.

The Code of Conduct and compliance topics and instructions are communicated through internal and external communication channels. Alignment is enforced by top management with their full commitment.

### Insider Administration

Fortum complies with the EU regulation No. 596/2014 on market abuse (MAR) and EU regulation No. 1227/2011 on wholesale Energy Market Integrity and Transparency (REMIT) and related regulation. Fortum complies also with the Guidelines for Insiders issued by Nasdaq Helsinki.

### Persons discharging managerial responsibilities

Persons discharging managerial responsibilities and the persons associated with them are under a duty to disclose their transactions with Fortum's financial instruments. Fortum has defined persons discharging managerial responsibilities to be the members of the Board of Directors and Fortum Executive Management.

### Duty to disclose and Closed Window

Fortum's Board of Directors and Executive Management members as well as persons related to them are under a disclosure duty towards the Finnish Financial Supervision Authority and Fortum regarding their transactions with Fortum's financial instruments. Fortum makes the said transactions public with a stock exchange release.

Fortum's Board of Directors and Executive Management members as well as other Fortum personnel defined to have access to sensitive financial information of Fortum may not trade in Fortum's financial instruments within 30 days prior to the publication of interim reports and financial statements (Closed Window).

### Internal supervision of insider affairs

Fortum's own internal insider rules are regularly updated and made available to all employees of Fortum. Fortum arranges training on insider rules. The coordination and control of insider affairs are included in the responsibilities of Fortum's General Counsel. Fortum regularly monitors the trading of its insiders.

Join the  
change

# Remuneration 2018



## Remuneration Statement 2018

Dear shareholders,

Over the previous years Fortum has worked relentlessly on delivering the strategy set out in 2016. By executing the strategy Fortum has grown its waste-to-energy and biomass-fired heat and power generation capacity, expanded into recycling and waste solutions, become the largest electricity retailer in the Nordics, stepped up the investments in solar and wind generation, and significantly increased its engagement in building new ventures. Furthermore, through the investment in Uniper Fortum owns a significant share of a large Central-European utility. With these achievements, Fortum has implemented the strategy laid out in early 2016.

Meeting the challenges of the future operating environment will require power and heat companies to continue to change. Consequently, we updated Fortum's strategy in the fall of 2018 to position Fortum for the decarbonisation opportunities in the 2020s – the decade of electricity. In order to secure successful delivery of Fortum's updated strategy we will continuously focus on developing the corporate culture. New competences, e.g. digitalisation as well as sales and commercialisation competences, will be key enablers for the future success. It is essential that Fortum is able to attract and retain high calibre employees and leaders. Therefore, we emphasise good leadership skills, clear roles, measurable targets, follow-up of targets, and rewarding high performance in line with the company's strategy and values.

During the year we have continued developing the leadership skills of our managers through Strategy and Open Leadership workshops which have received very positive feedback. The Nomination and Remuneration Committee and the Board of Directors have followed the journey throughout the year. The upcoming implementation of the European Union's Shareholders' Rights Directive will pose requirements on exchange-listed companies. At Fortum we closely follow the development and have already taken steps in order to adapt Fortum's Remuneration Policy and this report to the upcoming requirements.

The criteria for Fortum's short-term incentive plan are set annually by the Board of Directors and are based on the company's financial



and operational performance. 2018 was a good year for Fortum and the outcome of the financial targets were around the target level. Even though the group target for lost workday injury frequency improved clearly, we cannot be satisfied. During 2018 we had four severe accidents, including two fatalities, and we need to do our utmost to avoid them in the future.

The criteria for Fortum's long-term incentive plans are set by the Board of Directors at the beginning of each plan. The performance during the earning period 2015–2017 was satisfactory and the 2015–2020 long-term incentive plan exceeded the minimum performance criteria. This resulted in an average pay-out of 26% of annual salary and approximately 140,000 shares being awarded to the eligible participants in 2018. During the past years, our earnings have improved clearly and

the share price development has been very good, both in absolute figures and compared to our competitors. Consequently, the performance for the earnings period 2016–2018 reached the maximum level, resulting in a maximum pay-out.

Setting the right strategic direction will not alone be enough to secure the continued performance of Fortum. Retaining our employees and developing them in order to grow, to be excellent leaders, and to have the competences required in the future will be essential. With the commitment and hard work of our employees we can help shape the future energy market and secure the continued success of Fortum.

**Matti Lievonen**

Chairman of the Nomination and Remuneration Committee

## Remuneration Policy

### Decision-making process in remuneration related matters

Remuneration at Fortum is governed by the Finnish Companies Act, Fortum’s Remuneration Policy, as well as guidance set out in the Government Resolution on State-Ownership Policy. This Remuneration Statement has been prepared and issued in accordance with the Finnish Corporate Governance Code 2015.

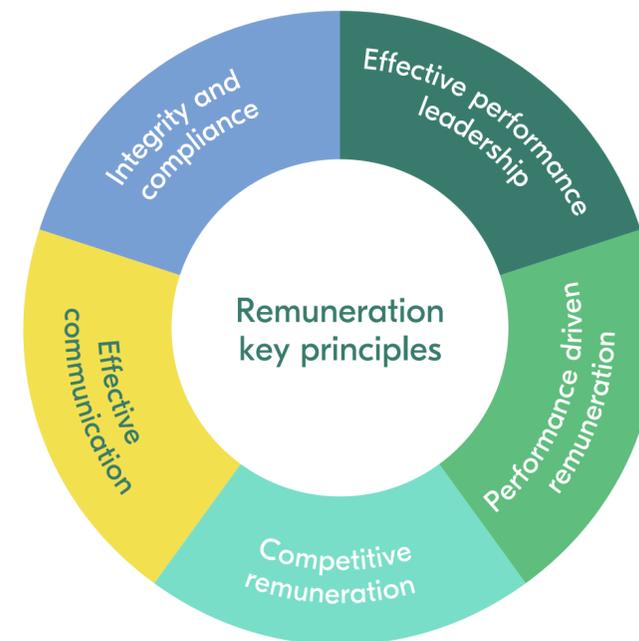
The Shareholders’ Nomination Board, the General Meeting of Shareholders, the Board of Directors, and the Nomination and Remuneration Committee are all involved in the preparations and decision-making regarding remuneration at Fortum.

### Remuneration Principles

At Fortum, we strive for a performance-focused culture where our people understand:

- the company, its strategy, and performance targets,
- how they as individuals can impact the results,
- the link between business performance and remuneration, and
- the importance of delivering sustainable business results.

This philosophy underpins our remuneration principles which are designed to encourage and recognise high performance and behaviour in line with Fortum’s values. Fortum follows a total compensation approach where all remuneration elements are taken into account when setting and reviewing salaries; base salaries, short- and long-term incentive opportunities, as well as benefits. No separate remuneration is paid for acting in management bodies of Fortum Group companies.



### Key Remuneration Principles

Effective performance leadership	We motivate our people by setting challenging targets. We encourage initiative taking, active leadership of own and team performance, as well as collaboration to enable the desired behaviour and achieve business success. We emphasise setting and cascading clear targets aligned with Fortum’s strategy as an essential part of good leadership on all levels. We emphasise cross-unit and cross-function collaboration in reaching our business objectives, which is also reflected in the target setting. Rewarding is tightly linked to the overall performance leadership in Fortum.
Performance driven remuneration	We reward concrete achievements in implementing Fortum’s strategy and achieving business targets and the desired change. We differentiate performance and pay for real achievement. Both low and high performance have consequences.
Competitive remuneration	We take into consideration relevant market and industry practices as well as different business models and their needs when defining the level and nature of remuneration, aiming at being an attractive employer for the relevant persons with needed skills and competences.
Effective communication	To gain full advantage of the rewarding programs, we emphasise clear, transparent, and regular communication about the company’s as well as the individual’s performance, in particular clarifying the link between performance and variable compensation. We invest in developing managers’ knowledge of performance and reward practices and programmes.
Integrity and compliance	We run our performance and reward processes and programmes with high integrity and follow local legislation in each country where we operate. We follow the Corporate Governance Code for Finnish listed companies as well as the guidelines regarding remuneration for the management of state-owned companies. We don’t accept any kind of compliance breach.

## Remuneration overview of the President and CEO and other members of the Fortum Executive Management

Element	Purpose	Description and performance measures
Base salary (fixed salary including taxable car and phone benefits)	Compensate for the job responsibilities and to reflect the skills, knowledge, and experience of the individual.	The remuneration of the President and CEO and Fortum Executive Management, including base salaries, are reviewed annually by the Nomination and Remuneration Committee and any changes are approved by the Board of Directors.  A broad review of business and individual performance is included in the annual review.
Supplementary pensions	Provide a retirement benefit in addition to the statutory pensions, in line with local market practices.	All supplementary pension arrangements since the year 2008, including the pension plan for the President and CEO, are defined contribution plans with a maximum premium of 25% of the annual salary.  For members joining the Fortum Executive Management after the end of the year 2016 as well for those current members to whom the premium has been below 20% of the annual salary, the pension premium is 20% of the annual base salary as of 1 January 2017. In case the contract is terminated before retirement age, the member is entitled to retain the funds that have accrued in the pension arrangement.  The retirement age for the President and CEO Pekka Lundmark is 63, and for the other members of the Fortum Executive Management the retirement age varies between 62 and 65.
Short-term incentives	Support achievement of the Group's annual financial, strategic and sustainability targets.	The target incentive opportunity is 20% and the maximum 40% of the annual base salary.  For the President and CEO, and function heads the incentive is based on Group's financial performance, safety, and individual strategic targets. For the division heads 50% of the financial and sustainability targets are based on divisional and 50% on Group level targets.
Long-term incentives	Support the delivery of sustainable long-term performance, align the interests of management with those of shareholders, and support in committing and retaining key individuals.	The combined value of all variable compensation, before taxation, paid during a calendar year cannot exceed 120% of the participant's annual base salary.  Under the current LTI programme a new LTI plan, with performance measures over a three-year earnings period, commences annually, subject to decision of the Board of Directors. If the minimum performance criteria are exceeded, the resulting award, net of tax, is paid in shares which are subject to the shareholding requirement. Awards vest based on Fortum's share-based performance measured over a three-year earnings period.  The President and CEO participates in the LTI programme starting from the 2014–2019 LTI plan. The LTI awards are calculated on a pro rata basis from 7 September 2015, when Pekka Lundmark started as President and CEO of Fortum.
Other benefits	Provide a competitive level of benefits.	Other benefits currently include insurance for permanent total disability and critical illness, life insurance, and voluntary participation in the sickness fund (in Finland).
Company rights and claw back provisions	Ensure that payments are based on real achievements.	At its discretion the Board of Directors has the right to adjust the set targets during the plan period for well-grounded reasons or cancel the STI and LTI plan reward or apply claw back provisions to the rewards in exceptional circumstances such as misconduct or misstatement of financial results.
Shareholding requirement	Ensure alignment of the interests of Fortum Executive Management with those of shareholders.	Members of the Fortum Executive Management (including the President and CEO) are required to build and maintain a holding in Fortum shares equivalent to 100% of their gross annual salary.
Service contracts	Ensure clarity of contractual terms.	For the President and CEO, the notice period for both parties is six months. If the company terminates the contract, the President and CEO is entitled to the salary for the notice period and a severance pay equal to 12 months' salary. For other members of the Executive Management, the notice period for both parties is six months, and in case the company terminates the contract, members are entitled to the salary for the notice period and a severance pay equal to 6 months' salary, except for one member who is entitled to a payment of 18 months' salary in case of notice by the company.

## Short-term incentives (STI)

Fortum's STI programme is designed to support the achievement of the company's financial and other relevant targets on an annual basis. As a main principle, all employees are covered by the programme or alternatively by a business specific or a comparable local variable pay arrangement.

The Board of Directors determines the performance criteria and award levels for the Fortum Executive Management. The awards are based on the achievement of Group financial performance, divisional targets, and individual targets. The target incentive opportunity is 20% and the maximum incentive opportunity is 40% of the annual base salary. The Board of Directors assesses the performance of the President and CEO and the members of the Fortum Executive Management on a regular basis.

Awards for other employees are based on a combination of Group, divisional or functional, and personal targets. The targets are set in annual performance discussions held at the beginning of the year. Awards under the STI programme are paid solely in cash.

In addition to the STI programme, other variable pay mechanisms may be used to reward employees for limited specific purposes, e.g. projects with significant importance and impact on Fortum level or to reward for extraordinary commitment and effort.

### Long-term incentives (LTI)

The purpose of Fortum’s long-term incentive programme is to support the delivery of sustainable long-term performance, align the interests of management with those of shareholders, and support in committing and retaining key individuals.

Fortum’s LTI programme provides participants with the opportunity to earn company shares. Under the LTI programme and subject to the decision of the Board of Directors, a new LTI plan commences annually.

The Board of Directors approves participation of the Fortum Executive Management members in each annually commencing LTI plan. Subject to a decision by the Board of Directors the President and CEO is authorised to decide on individual participants and potential maximum awards for other participants than the Fortum Executive Management in accordance with the nomination guidelines approved by the Board of Directors. Participation in the LTI plan precludes the individual from being a member in the Fortum Personnel Fund.

Each LTI plan begins with a three-year earnings period, during which participants may earn shares if the performance criteria set by the Board of Directors are fulfilled.

If the minimum performance criteria are not exceeded, no shares will be awarded. If performance is exceptionally good and the targets approved by the Board of Directors are achieved, the combined gross value of all variable compensation cannot exceed 120% of the participant’s annual salary during any calendar year.

After the earnings period has ended and the relevant taxes and other employment-related expenses have been deducted, participants are paid the net balance in the form of shares.

For LTI plans commencing in 2013 to 2016, any shares awarded to Fortum Executive Management members are subject to a three-year lock-up period in accordance with the State-Ownership Guidelines in force at the time the LTI plan was introduced. Subject to a decision by the Board of Directors, the lock-up period can be reduced to one year for those Fortum Executive Management members whose

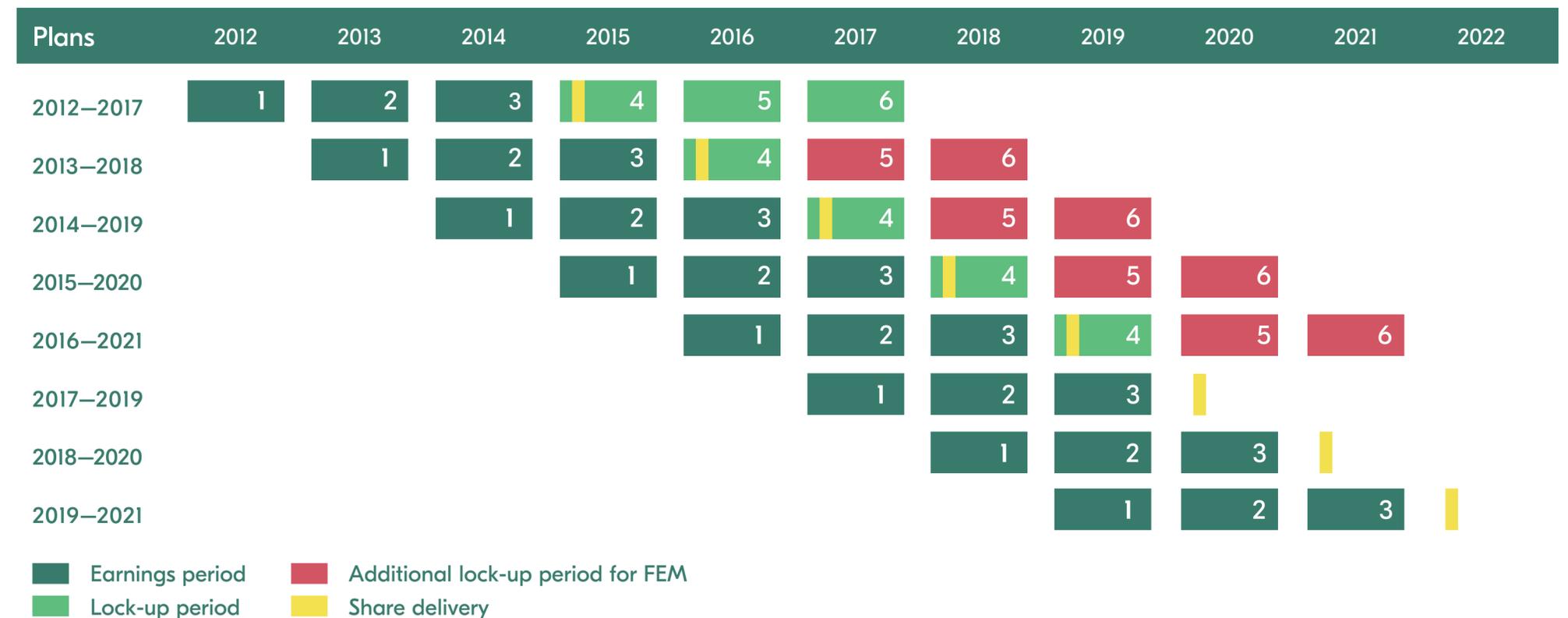
aggregate ownership of Fortum shares is greater than or equal to their annual salary. For other participants (i.e. below the Fortum Executive Management), the lock-up period is one year. For LTI plans commencing prior to 2013, the lock-up period is three years for all LTI plan participants.

To reflect the changes in the State-Ownership Guidelines in 2016, for LTI plans commencing in 2017 and later, the share awards will not be subject to a minimum lock-up period. However, Fortum Executive Management members whose aggregate ownership of Fortum shares does not yet fulfil the shareholding requirement are required to retain at least 50% of the shares received until the required level of shareholding is met.

If the value of the shares decreases or increases during the lock-up or retention period, the participant will carry the potential loss or gain.

The Board of Directors has the right to revise the targets set in the incentive plans, deviate from the payment based on achievement of the set earnings criteria, or to discontinue any ongoing incentive plan. Remuneration that has been paid out without grounds shall be reclaimed in accordance with the regulations on returning an unjust enrichment and remuneration. A payment which has been influenced by the recipient’s unethical conduct, may be recovered based on the terms of the LTI programme.

The Nomination and Remuneration Committee is using independent advisors in support of its work.



## Pensions

Members of the Fortum Executive Management in Finland participate in the Finnish TyEL pension system, which provides a retirement benefit based on earnings in accordance with the prescribed statutory system. In the Finnish pension system earnings are based on base pay, annual bonuses, and taxable fringe benefits, but gains realised from the LTI plans are not included. Members of the Fortum Executive Management outside Finland participate in pension systems based on statutory pension arrangements and market practices in their local countries.

In addition to the statutory pensions, the members of the Fortum Executive Management have supplementary pension arrangements. The Group principle is that all new supplementary pension arrangements for the President and CEO as well as the Fortum Executive Management are defined contribution plans.

The retirement age for Fortum's President and CEO is 63, and for the other members of the Fortum Executive Management the retirement age varies between 62 and 65. For the President and CEO and other members of the Fortum Executive Management, the maximum supplementary pension premium is 25% of the annual base salary. For members joining the Fortum Executive Management after the end of the year 2016 as well as for those current members to whom the premium has been below 20% of the annual salary, the pension premium is 20% of the annual base salary as of 1 January 2017. Finnish members of the Fortum Executive Management, who joined Fortum prior to 1 January 2009, are entitled to a supplementary defined benefit pension plan. This currently applies to only one member of the Fortum Executive Management and in this case, the pension is provided by Fortum's Pension Fund.

## Fees for the Board of Directors

The Shareholders' Nomination Board is responsible for presenting a proposal for remuneration of the members of the Board of Directors to the Annual General Meeting (AGM). The decision on the remuneration of the members of the Board of Directors is made in the AGM. The AGM on 28 March 2018 confirmed the following annual fees for the members of the Board of Directors:

Thousands of euros	2018	2017
Chairman	75	75
Deputy Chairman	57	57
Chairman of the Audit and Risk Committee <sup>1)</sup>	57	57
Members	40	40

1) If not Chairman or Deputy Chairman simultaneously

Every member of the Board of Directors receives a fixed yearly fee and additional fees for each meeting attended. The annual fees have remained unchanged since 2012.

A meeting fee of EUR 600 is paid for board and committee meetings. For board members living outside Finland in Europe, the meeting fee is EUR 1,200; for board members living outside Europe, the meeting fee is EUR 1,800. For board and committee meetings held as a telephone conference, the meeting fee is EUR 600 for all members. No fee is paid for decisions made without a separate meeting.

Board members are not in an employment relationship or service contract with Fortum, and they are not given the opportunity to participate in Fortum's STI or LTI programme, nor does Fortum have a pension plan that they can opt to take part in. The compensation for the board members is not tied to the sustainability performance of the Group.

Board members are entitled to travel expense compensation in accordance with the company's travel policy.

## Remuneration Report 2018

This part of the report describes the outcomes of the performance measures of the STI and LTI plans based on Fortum's Remuneration Policy, and accordingly sets out the remuneration payable to the President and CEO, members of the Fortum Executive Management and the Board of Directors.

### Remuneration of the President and CEO and the Fortum Executive Management

The following table includes the annual salaries and fringe benefits as well as STI and LTI programme payments to the President and CEO and to the Fortum Executive Management.

The STI and LTI programme payments to Fortum Executive Management members, including the President and CEO, amounted to a total of EUR 2.4 million (EUR 2.2 million in 2017), which corresponds to 0.69% (0.73% in 2017) of the total compensation in the Fortum Group. The table also includes payments made to supplementary pension arrangements for the President and CEO and for Fortum Executive Management.

### Salary and fringe benefits

The base salary levels are set taking into account the nature of the role, local and international market conditions, as well as individual experience and performance. The base salaries for the President and CEO and other members of the Fortum Executive Management were reviewed as a part of the normal company practices, and increases were allocated to the President and CEO and two other members of the Fortum Executive Management. President and CEO Pekka Lundmark's monthly base salary was EUR 80,000 from 1 January 2018 to 31 March 2018, and was increased by 5.0% to EUR 84,000 as of 1 April 2018. The base salary includes free car and phone allowance as fringe benefits. In addition, the President and CEO received an electric vehicle subsidy of 30% of the taxable value of the free car benefit in accordance with company's car instructions. The President and CEO did not receive any compensation paid by other Fortum Group or partly owned companies.

Thousands of euros	President & CEO Pekka Lundmark			Other Members of Fortum Executive Management		
	2018	2017	2016	2018	2017	2016
Salaries and fringe benefits	1,048	998	982	3,101	3,387	3,581
Short-term incentive	313	271	30	926	962	233
Long-term incentive	233	136	-	885	877	1,694
Supplementary pensions	252	229	356	533	636	560
<b>Total</b>	<b>1,846</b>	<b>1,634</b>	<b>1,368</b>	<b>5,445</b>	<b>5,862</b>	<b>6,068</b>

The figures include actual payments and shares delivered during the calendar year. The amounts differ from those presented in the consolidated financial statements (Note 11.4). The financial statements include costs accrued for the year, part of which will be paid later

### Short-term incentives

#### Short-term incentives for 2017 (paid in 2018)

The STI for 2017 for the members of Fortum Executive Management was based on:

Weighting	Measure	Outcome
60%	Comparable operating profit + share of profits from associates and joint ventures	Between target and maximum
10%	Lost workday injury frequency	Below threshold
30%	Individual targets	Individually assessed

The STI payments for the Fortum Executive Management were on average 34% of the annual base salary (85% of the maximum). The aggregate STI payment to members of Fortum Executive Management for 2017 performance was EUR 1.2 million (EUR 1.2 million for 2016). No recovery or claw-back actions were carried out in 2018 for the Fortum Executive Management.

In total, EUR 20.7 million (EUR 16.6 million for 2016) was paid as short-term incentives across the Group for the financial year 2017. The amount paid increased compared to the previous year, mainly due to increased headcount.

#### Short-term incentives for 2018 (payable in 2019)

The STI for 2018 for the members of Fortum Executive Management was based on:

Weighting	Measure	Outcome
40%	Comparable operating profit + share of profits from associates and joint ventures	Between minimum and target
20%	Operational free cash flow	Between target and maximum
10%	Lost workday injury frequency <sup>1)</sup>	Between target and maximum
30%	Individual targets	Individually assessed

<sup>1)</sup> In some cases other relevant sustainability measures have been used

The outcome of the Group level comparable operating profit was slightly below the target level and the operational free cash flow slightly above the target. The Group level lost workday injury frequency (LWIF) improved clearly and was above the target level. Due to four severe accidents including two fatalities during 2018, the management proposed and the Board of Directors approved a 20% cut of the LWIF achievement rate for the Fortum Executive Management and the division and function management team members.

The achieved performance based on the individual targets is evaluated in connection with the individual performance review at the beginning

of the year. The accrued incentives for the year 2018 are paid out in April 2019.

### Short-term incentives for 2019 (payable in 2020)

As in 2018, the STI targets for the Fortum Executive Management in 2019 are based on the achievement of divisional targets, Group financial performance as well as individual targets. The STI performance measures and weighting are: 60% comparable operating profit, 10% LWIF (or other relevant sustainability measures), and 30% individual targets.

### Long-term incentives

The table sets out the pipeline of recently granted LTI awards, including details of the shares delivered in the reporting period. No recovery or claw-back actions were carried out in 2018 for the Fortum Executive Management.

The Board of Directors approved the amended LTI programme in December 2016. The share awards will not be subject to a minimum lock-up period but members of the Fortum Executive Management will be required to retain 50% of the shares until they have achieved their required shareholding level of 100% of the annual salary. For other key employees included in the new LTI plan no lock-up period will be applied. Under the 2018–2020 LTI plan, the Board-approved earnings criteria are based on earnings per share (50%) and relative total shareholder return (50%) measured against the European utilities peer group. Under the plan, the maximum gross number of shares to be delivered after the earnings period in 2021 is 572,781 shares (based on the participant status as of 31 December 2018). In December 2018, the Board of Directors approved the 2019–2021 LTI plan. The earnings criterion for the plan is the relative total shareholder return (100%).

Due to extraordinarily strong performance in the 2016–2021 LTI plan as well as a good performance in 2018, the combined outcomes of the LTI and STI might reach more than 120% of the annual salary for some managers and other key employees. In accordance with Fortum's Remuneration Policy the LTI payments will, in such cases, be cut to limit the total variable compensation to a maximum of 120% of the individual's annual base salary.

LTI plan	2013–2018	2014–2019	2015–2020	2016–2021	2017–2019	2018–2020
Earnings period	2013–2015	2014–2016	2015–2017	2016–2018	2017–2019	2018–2020
Share delivery year	2016	2017	2018	2019	2020	2021
Number of participants (31 December 2018)	73	84	94	101	86	111
Number of shares delivered <sup>1)</sup>	241,699	153,956	141,865	-	-	-
Measures	A combination of EBITDA, EPS and share price development	50% EPS, 25% TSR & 25% Reputation Index	30% EPS, 30% Return on Net Assets (Group or Divisional), 20% TSR and 20% Group EBITDA	50% EPS & 50% TSR	50% EPS & 50% TSR	50% EPS & 50% TSR
Payment (% of annual salary)	42%	27%	26%	93%		
<b>Shares delivered to members of Fortum Executive Management: <sup>2)</sup></b>						
Pekka Lundmark (President and CEO since 7 September 2015)	-	4,463	6,453			
Arun Aggarwal (Member of FEM from 17 October 2018)	-	-	-			
Alexander Chuvayev <sup>3)</sup>	27,897	15,480	15,930			
Kari Kautinen (Member of FEM until 30 September 2018)	4,014	2,274	2,059			
Per Langer	4,677	2,358	1,621			
Risto Penttinen (Member of FEM from 1 April 2016)	n/d <sup>4)</sup>	1,793	1,767			
Markus Rauramo	7,383	4,185	2,103			
Arto Rätty (Member of FEM from 1 April 2016)	-	-	-			
Mikael Rönnblad (Member of FEM from 15 May 2017)	-	-	-			
Sirpa-Helena Sormunen (Member of FEM from 1 September 2014)	-	1,777	1,879			
Tiina Tuomela	3,902	2,563	2,117			
<b>Shares delivered to former members of the Fortum Executive Management during their term:</b>						
Former FEM members, total	25,111	7,802	-			

<sup>1)</sup> For the 2013–2018, 2014–2019, and 2015–2020 LTI plans, the number of shares delivered after deduction of taxes and tax related expenses. For the 2016–2021, 2017–2019, and 2018–2020 LTI plans, the shares will be delivered after the three-year earnings period subject to achievement of the earnings criteria

<sup>2)</sup> After deduction of taxes and tax related expenses

<sup>3)</sup> Estimated number of shares after deduction of local taxes and tax related expenses. Due to local legislation, share rights will be paid in cash instead of shares after the three-year lock-up period

<sup>4)</sup> Shares delivered before or after the term in the Fortum Executive Management are not disclosed

### Shareholdings for Members of the Fortum Executive Management at 31 December 2018

The following table shows the shareholdings of the President and CEO and other members of the Fortum Executive Management at 31 December 2018. Members of the Fortum Executive Management are required to build and maintain a shareholding equivalent to 100% of their gross annual salary.

		Fortum shareholding
Pekka Lundmark	President and CEO	67,166
Arun Aggarwal	Senior Vice President, Business Technology	0
Alexander Chuvayev	Executive Vice President, Russia Division	22,053
Per Langer	Executive Vice President, City Solutions	33,191
Risto Penttinen	Senior Vice President, Strategy, People and Performance	12,355
Markus Rauramo	Chief Financial Officer	34,135
Arto Rätty	Senior Vice President, Corporate Affairs and Communications	0
Mikael Rönnblad	Executive Vice President, Consumer Solutions	0
Sirpa-Helena Sormunen	General Counsel	6,656
Tiina Tuomela	Executive Vice President, Generation	17,671

### Fortum Personnel Fund

Fortum employees in Finland, who are not participating in the long-term incentive programme, are eligible for the Fortum Personnel Fund. The amount paid annually to the Personnel Fund is based on the achievement of annual targets. The payments to the fund in 2018 totalled EUR 2.0 million (2017: EUR 2.8 million).

### Remuneration for the Board of Directors

The following table includes the compensation paid to the Board of Directors during 2016, 2017, and 2018. The amounts include fixed yearly fees and meeting fees.

Thousands of euros	2018	Board service 2018	2017	Board service 2017	2016	Board service 2016
<b>Board members at 31 December 2018</b>						
Matti Lievonen, Chairman	80	1 Jan–31 Dec	49	4 Apr–31 Dec	-	-
Klaus-Dieter Maubach, Deputy Chairman	54	28 Mar–31 Dec	-	-	-	-
Heinz-Werner Binzel	54	1 Jan–31 Dec	57	1 Jan–31 Dec	61	1 Jan–31 Dec
Eva Hamilton	54	1 Jan–31 Dec	54	1 Jan–31 Dec	56	1 Jan–31 Dec
Kim Ignatius, Chairman of the Audit and Risk Committee	65	1 Jan–31 Dec	67	1 Jan–31 Dec	70	1 Jan–31 Dec
Essimari Kairisto	42	28 Mar–31 Dec	-	-	-	-
Anja McAlister	60	1 Jan–31 Dec	47	4 Apr–31 Dec	-	-
Veli-Matti Reinikkala	54	1 Jan–31 Dec	58	1 Jan–31 Dec	44	5 Apr–31 Dec
<b>Former board members</b>						
Mino Akhtarzand			16	1 Jan–4 Apr	61	1 Jan–31 Dec
Sari Baldauf	20	1 Jan–28 Mar	84	1 Jan–31 Dec	87	1 Jan–31 Dec
Tapio Kuula <sup>1)</sup>			43	1 Jan–7 Nov	52	1 Jan–31 Dec
Petteri Taalas			-	-	17	1 Jan–5 Apr
Jyrki Talvitie			17	1 Jan–4 Apr	70	1 Jan–31 Dec

1) In November 2017, Tapio Kuula passed away

The following table shows the shareholdings of the Board of Directors at 31 December 2018.

	Fortum shareholding
Matti Lievonen, Chairman	1,500
Klaus-Dieter Maubach, Deputy Chairman	0
Heinz-Werner Binzel	0
Eva Hamilton	40
Kim Ignatius, Chairman of the Audit and Risk Committee	4,000
Essimari Kairisto	0
Anja McAlister	0
Veli-Matti Reinikkala	3,000

Join the  
change

# Tax Footprint 2018



## Fortum as a tax payer 2018

The energy sector, including Fortum, is in the middle of a transition. Global megatrends, such as climate change, emerging new technologies, digitalisation, changes in consumer behaviour, and questions regarding resource efficiency, are having a major impact on the energy sector

globally. Also, regulation is changing making it difficult to predict what rules are in place for the mid and long term future. These changes make it harder for Fortum to have the predictability that we need to be able to operate in this capital-intensive sector and to finance operations

in an efficient and safe manner. We therefore need to have as much predictability as possible in other areas such as tax.

Based on our tax principles, we aim to identify simple and cost-efficient solutions to manage our taxes in a sustainable manner. The goal is to ensure that our businesses can continue to invest, to operate flexibly and efficiently, and to safeguard returns to our shareholders.

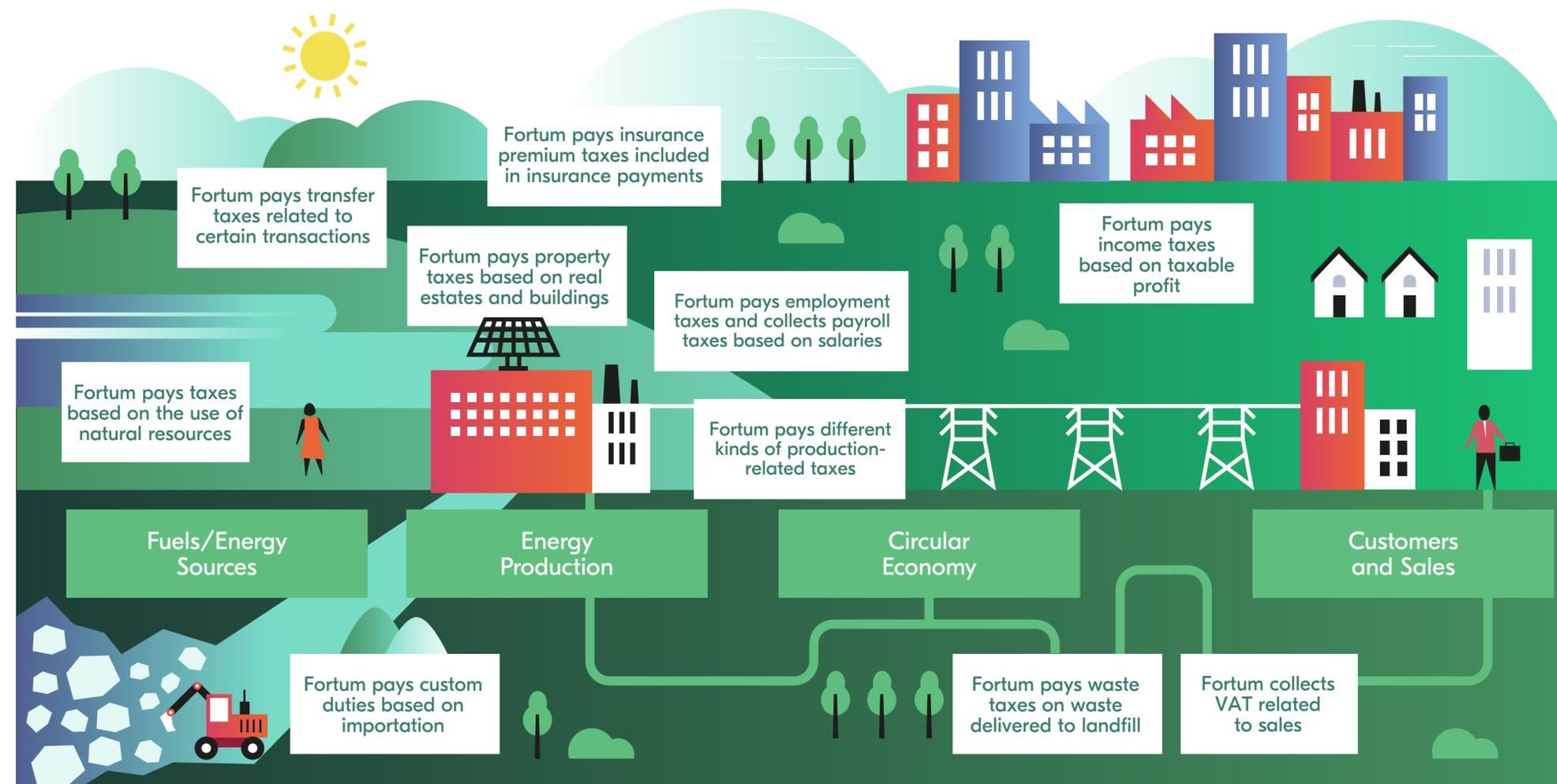
Fortum operates in more than 20 countries. The majority of our business is based on local fuels and energy sources, local production, local distribution of heat, and sale of energy to customers locally. Therefore our profits are typically generated locally and similarly the taxes are paid locally.

Taxation is always a consequence of business operations and is therefore always based on business decisions and needs. The main driver for taxes borne and allocation of taxes is profitability. For us, this means that there will always be tax impacts arising from the long lifetimes of our capital intensive investments, from price levels which are set locally and from the efficiency of our financing. It is important that we can operate and finance our businesses efficiently, carry out investments and manage financing risks in all the countries where we operate. Financing, which underpins all our operations, is one of the international aspects of Fortum's tax profile. Therefore predictability and stability of our operating environment are crucial for us.

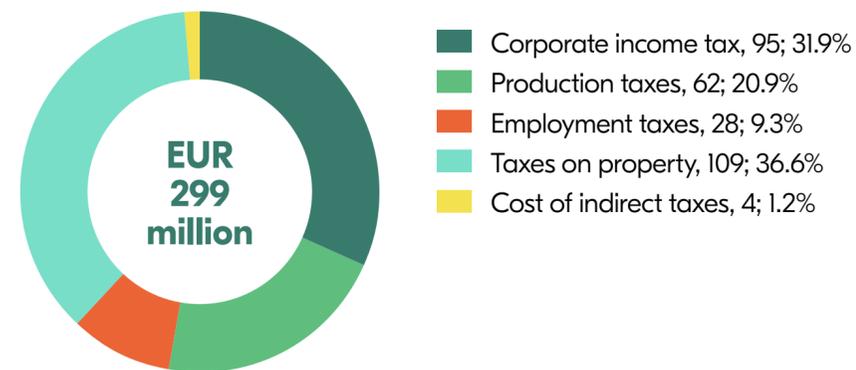
The extent and nature of the taxes Fortum pays is shown by our total tax contribution. In 2018, it was EUR 703 (2017: 966) million of which EUR 299 (2017: 445) million related to taxes borne and EUR 404 (2017: 521) million to taxes collected. Finland, Sweden and Russia are our biggest production countries. In 2018, the taxes borne in Finland were EUR 73 (2017: 98) million, in Sweden EUR 78 (2017: 246) million and in Russia EUR 75 (2017: 38) million.

Taxes borne include corporate income taxes (excluding deferred taxes), production taxes, employment taxes, taxes on property, and the cost of indirect taxes. Taxes collected include VAT, payroll taxes, excise taxes and withholding taxes.

### Taxes cover the entire value chain



Taxes borne 2018, EUR million and %



While income taxes are paid on taxable profit, Fortum also pays other taxes based on, for example, fuel usage, waste, production capacity, and the value of real estate. As a major part of our taxes are not based on profits, our total taxes borne in relation to our accounting profit (total tax rate) will increase if the profit level decreases.

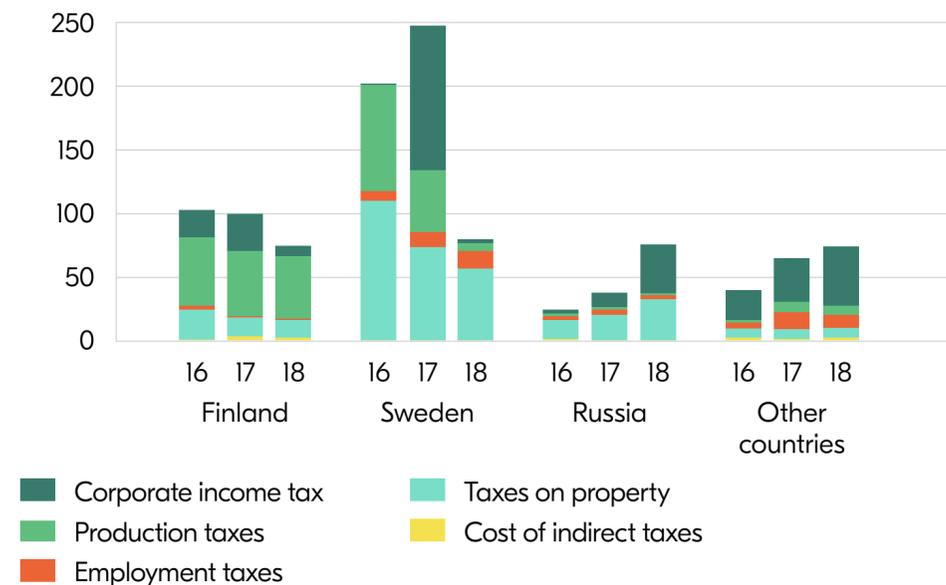
**Tax environment in 2018**

The operating environment has been affected by the global macro economic problems, trends and related challenges to the public finances. One trend is the increased amount of tax rules which

the OECD and EU have generated. The new rules are concentrating on tax aspects and leaving the operative environment in the background. This is especially challenging for capital intensive industries. An example of a new rule is limitation of interest deductibility of financing. Cost of equity for business is higher than debt financing, new rules increase cost of financing and limit investment capabilities. The balance between fiscal and operational interests is disturbed.

2018 can partly be seen as a turning point for the energy sector as the profits were increasing. While few countries continued to increase taxes especially for production and property taxes, Sweden

Taxes borne by country, EUR million



Case | **Low predictability in Sweden**

Fortum invests in sustainable production. These investments need to be financed. Financing, especially group internal financing, has been in focus and often assumed as aggressive tax planning. This has resulted in speedily drafted unclear laws. Tax authorities have actively assessed financing with narrow interpretation of the jurisprudence. For us this means lost predictability. Tax authorities assessments since 2011 have resulted in appeals. The legal process is still open for tax years 2009–2012. The legal processes for tax years 2013–2016 were closed in late 2018 when Fortum received positive decisions confirming that Fortum’s financing is not aggressive tax planning and allowing Fortum to deduct the interest costs. Instead of knowing the tax treatment prior to any investment, tax treatment is cleared five years after the fiscal year and nine or ten years later than that after the actual investment decision.

Uncertainty over the tax treatment regarding investments can take ten years.



continued to lower real estate taxes for hydro power. At the same time the capacity tax on nuclear power was completely abolished in Sweden. The approach taken in Sweden was welcome as it makes the tax burden sustainable again.

Intense political interest in taxes and especially the focus on aggressive tax planning has generated a number of new rules and proposals. The focus of these new rules and proposals is in tax revenue. Work against aggressive tax behaviour is important but if the focus is solely on aggressive tax planning, normal business operations and needs may be ignored. In a sustainable tax system, both fiscal and operative interests should be respected to create a balance between these two interests. In this area the EU has an important role.

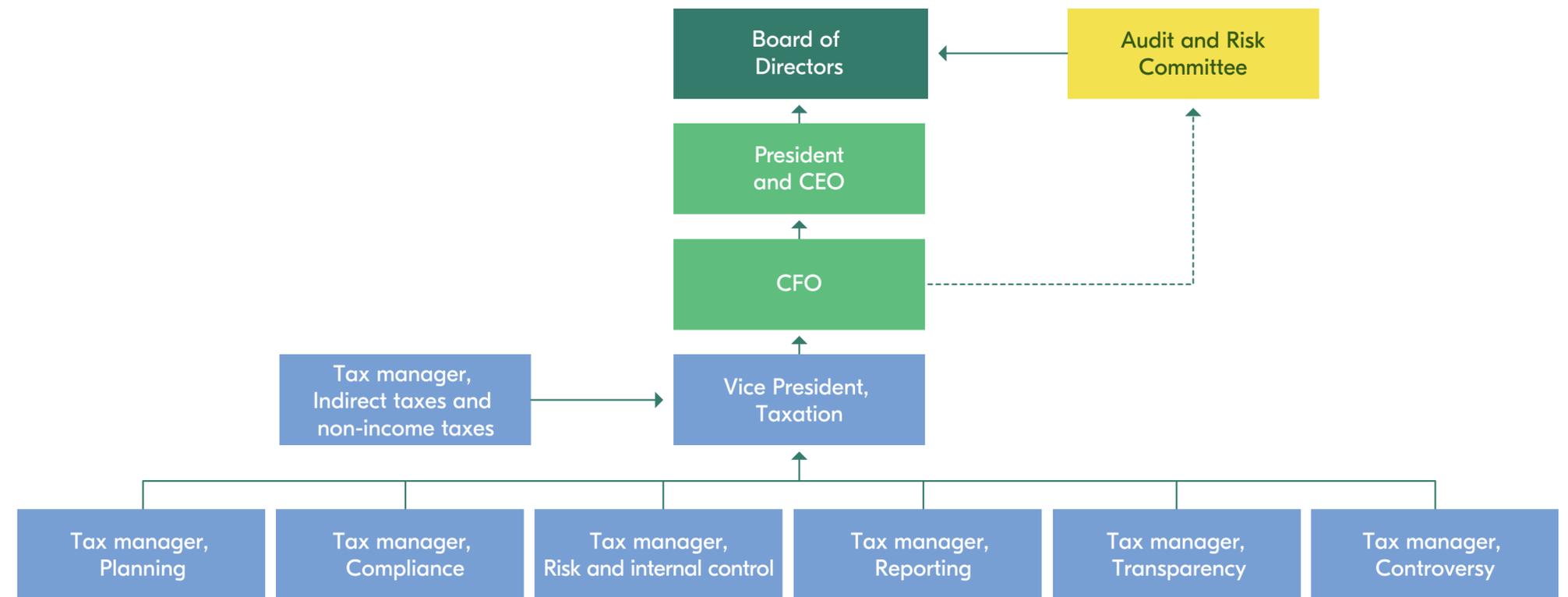
### Fortum’s approach to taxation – our tax principles

Fortum operates in the energy sector which is characterised by long term capital-intensive investments. We aim to manage our taxes in a sustainable manner in order to ensure that our businesses can continue to invest, to operate flexibly and efficiently, and to safeguard returns to our shareholders.

**Governance** – Fortum has tax principles which have been approved by the Fortum Oyj Board of Directors. These principles are published on Fortum’s internet pages. The Chief Financial Officer is accountable for tax governance and strategy. The Vice President of Taxation, who reports to the CFO, implements our tax principles and is responsible for ensuring that principles and procedures which support them are in place, maintained and implemented in the same manner in all countries. The VP of Taxation is supported by a team of professionals, the Corporate Tax Team. The VP of Taxation is responsible for ensuring that the Corporate Tax Team has the adequate proficiency and experience to implement our principles appropriately.

Tax issues, such as tax strategy, legal processes and tax-related risks are followed on a regular basis by the Audit and Risk Committee of Fortum’s Board of Directors.

During the year we regularly assess the uncertainties relating to taxation in our business. We report tax risks and how they are managed and assured annually to the Audit and Risk Committee in line with our



internal calendar and risk-related work. We present an action plan of how to mitigate the risks. Our Corporate Tax Team manages tax-related uncertainties by targeting predictability in the taxes for the business operations in all our operating countries.

For 2018, the main uncertainties were identified to be changing tax legislation, with low level of harmonisation and unbalance between national fiscal and business interests resulting in lowered predictability as well as increased compliance obligations. As risk mitigation actions, we have identified simplifying legal structures, seeking strategic clearance from tax authorities, improved transparency, and technical solutions for compliance purposes. We have also identified, that Fortum as a shareholder is, due to new requirements set in Finnish CFC legislation (so called Controlled Foreign Company law), unable to comply with all the new tax compliance rules on reporting CFC income.

This applies to the associated companies and joint ventures in which Fortum has, due to other pre-emptory legislation, limited access to the information needed to comply with these rules. Fortum has discussed this issue with Finnish tax authorities and is acting jointly with them to find a reasonable solution to the problem.

Fortum code of conduct is fully applicable to all parts of tax work.

**Compliance** – We have a consistent compliance process to ensure that regulations are followed in all parts of our operations and that the correct amount of tax is paid at the right time in the countries in which we operate. We respect existing regulations, such as market-based pricing of internal transactions (the arm’s length principle). In unclear cases we discuss with tax authorities or seek advice from experts to clarify interpretations. We pay special attention to the accuracy and

transparency of our tax returns, and we discuss our positions with tax authorities.

**Business structure** – We will only use business structures that are driven by commercial considerations, are aligned with business activities and have genuine substance. We do not seek abusive tax results.

To support our strategy and dividend policy, Fortum’s legal structure is designed to mitigate various financial risks in our operations, to ensure sound and efficient financing of operations and investments, and to safeguard the parent company’s financial strength and dividend distribution capability in accordance with Fortum’s dividend policy. This means that Fortum Group’s legal structure is planned with risk shields to protect Fortum Oyj by appropriate use of holding and finance companies located in EU countries, in countries where the operating environment is the most predictable. Our Finnish operations are owned through the parent company, our Swedish operations by our Swedish holding company and our operations in other countries mainly by our Dutch and Irish holding companies. The taxes are, however, paid in the country where the revenue is generated independently of the ownership structure.

We do not utilise companies incorporated in “tax havens” – which we define as jurisdictions which do not levy any corporate income tax on companies or low tax jurisdictions – as a means of reducing the Group’s tax liabilities. We report annually in our tax footprint, our companies incorporated in “tax havens”, the purpose of the company and their tax treatment. Furthermore, we don’t use hybrid entities, instruments or artificial structures to lower the group’s tax burden.

**Relationship with others** – Fortum engages with governments and tax authorities to explain the impact of their tax policy and regulations on us. Moreover, we also discuss with various organisations, such as industry groups and EU bodies, in order to develop the regulations which are relevant for us. When there are adverse consequences to our ability to run our businesses effectively and to invest we will initiate a dialogue and explain this to governments.

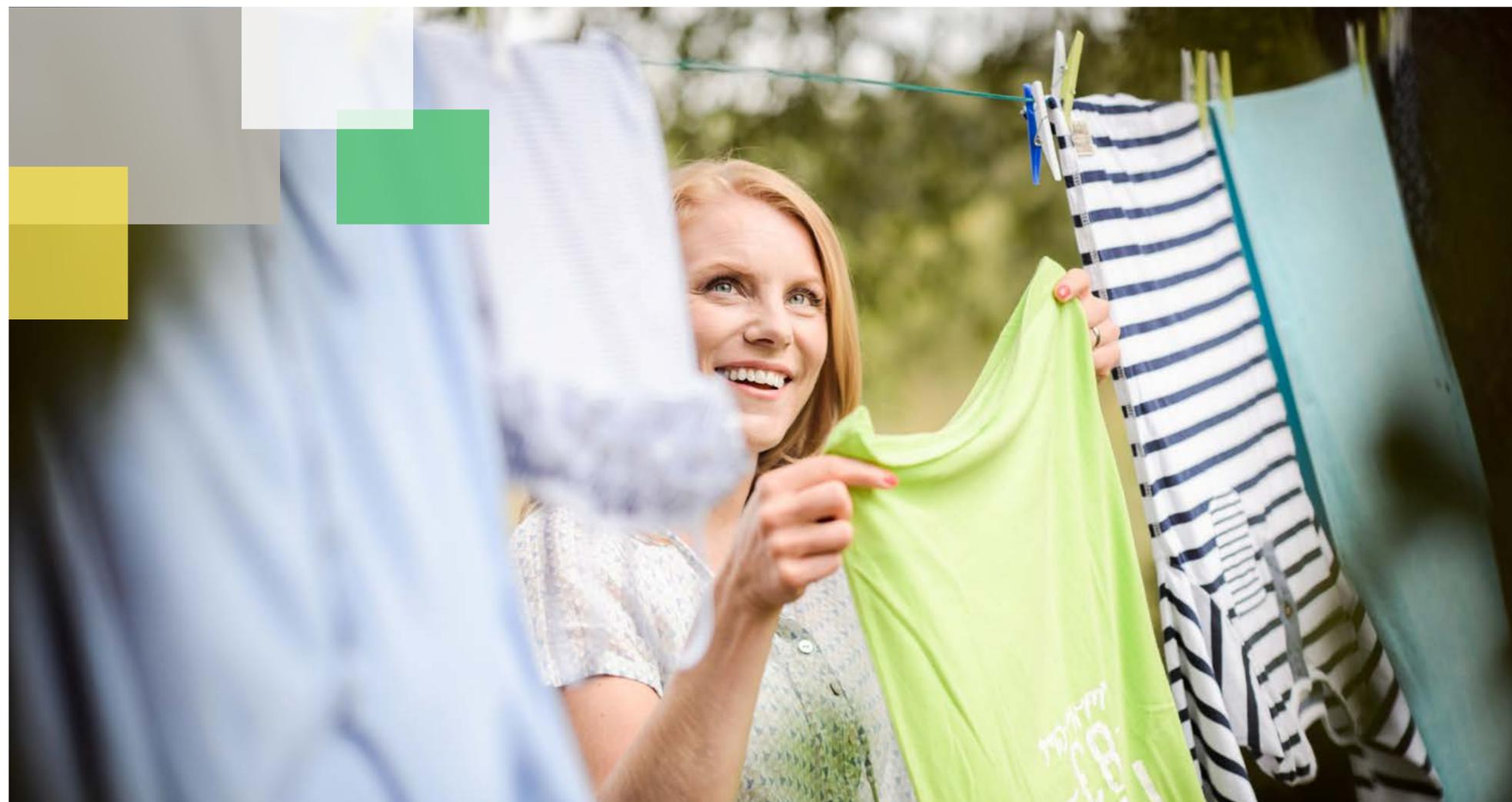
We strive for effective collaboration with authorities to clarify existing rules, so that we can respond to potential challenges in a timely manner and avoid surprises.

**Reporting to stakeholders** – In Fortum’s tax reporting we are committed to ensuring that stakeholders are able to understand the important elements of our tax position and that the information provided is fair and accurate.

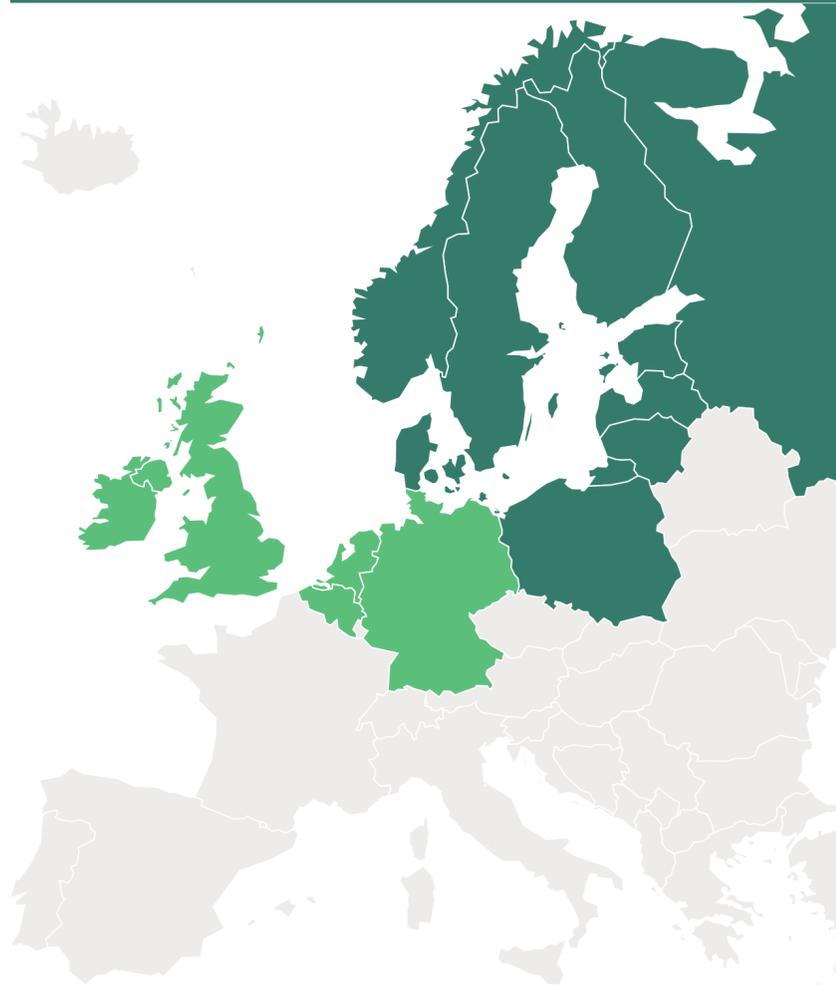
We report our tax position transparently as a part of our financial reporting. Our tax report includes information about our business, country by country information concerning our total tax position as well

as our legal processes concerning tax. We use a materiality threshold in our tax report to improve the clarity of our reporting.

**Tax team bonus system** – Fortum corporate tax team is part of Forum’s normal bonus systems. Targets set are related to process improvements and support to operations. In 2018 the main targets were support to the Uniper transaction, development of risk identification and accounting related tax issues. Bonuses are not connected to tax borne nor taxes collected.



## Case | Acquisitions and ownership restructuring



■ Fortum's main production countries in 2018: Finland, Sweden, Denmark, Russia, Poland, Norway, Estonia, Lithuania and Latvia

■ Other main Fortum countries: India, Ireland, Germany, the Netherlands, Great Britain and Belgium

Within Fortum Group, there are a number of active holding and finance companies. The purpose of these companies is to protect the parent company from financial risks concerning investments in subsidiaries and operations and to maintain Fortum Oyj's capability to fulfil its dividend policy.

In June 2018, Fortum settled its voluntary Public Takeover Offer (PTO) for the outstanding shares of Uniper SE. In the PTO, Fortum acquired altogether 47.12% of the share capital and the voting rights of Uniper SE. This acquisition is the largest acquisition for Fortum in its history. Due to the size of this acquisition, special attention to organise the acquisition and to manage the risks concerning this investment were crucial. The holding and financing set up of this acquisition was crucial in this sense. By owning shares through holding companies these risks can be shielded efficiently from the parent company, Fortum Oyj. Simultaneously tax exemption of dividend income can be maintained. By owning Uniper shares through Irish and German holding companies risk mitigation and an efficient dividend route to Fortum Oyj could be reached.

An example illustrating shielding risk from Fortum Oyj is the granting of debt to the Irish and German holding companies. This resulted in an improved financial position for Fortum Oyj. Both the interests as well as equity levels have been set at arm's length level. More detailed information is available in [▶ the public tender offer documentation](#).

As in other material investments, tax issues were taken up in the decision process by the management team and board as one part of the investment decision.

### Why do you have separate financing and holding companies? Why is Fortum Oyj not financing and owning operations directly from the parent company Fortum Oyj?

Fortum Group needs to have a corporate legal structure that provides the necessary flexibility to deal with negative events. Financing and holding companies independently bear the risks associated with their operations and

so protect Fortum Oyj's, the parent company's, distributable funds as losses from financing operations and other negative events are primarily booked in holding and finance companies.

### How are Fortum finance entities taxed?

Each financing company is taxed on its profits from financing operations based on normal local standards and rules. Interest income is taxable income in our finance companies. Netherlands taxes profits at 25% and Ireland at 12.5%. Financing companies distribute part of their profits to Fortum Oyj.

### Why does Fortum have a finance company in Ireland as you don't have any other operations there?

Ireland has stable and predictable legislation concerning financing and holding operations. Ireland also offers a favourable statutory tax rate of 12.5%.

### How are financing operations managed?

Each finance company has its own local personnel capable of executing financing operations. Fortum finance companies have their own offices for their operations. Each finance company carries their own risks independently from other group companies and from any other business operation. Financing companies fund our commercial financing needs such as acquisitions and investments in capital intensive power and heat production.

### Why was Uniper acquired through Ireland?

Owning Uniper through Ireland is effective risk mitigation as financing costs and risk on write downs are in practical terms primarily in Fortum Finance Ireland DAC, not in Fortum Oyj. The selected set up is also tax efficient ensuring shareholder value. As Fortum Oyj's profit is higher and risks lower, Fortum Oyj can execute safely its dividend policy. Tax treatment of dividend is though neutral independently how Uniper would be owned.

## Financial statement disclosures

Fortum publishes tax information as part of its financial statements. Income taxes and deferred taxes in the balance sheet are included and explained in the tax notes to the financial statements. The most relevant parts of these tax notes are reproduced below, with some commentary to explain some of the drivers of the numbers. See [► Note 13](#) Income tax expense and [► Note 28](#) Income taxes in balance sheet for further information.

The effective income tax rate according to the income statement was 17.5% (2017: 20.6%). The tax rate used in the income statement is always impacted by the fact that the share of profits from associates and joint ventures is recorded based on Fortum's share of profits after tax. Other major items affecting the effective income tax rate are one-time tax exempt capital gains and losses, tax rate changes and major one-time tax effects.

### Income tax expense

EUR million	2018	%	2017	%	2016	%
<b>Profit before tax</b>	<b>1,040</b>		<b>1,111</b>		<b>595</b>	
Profits from associated companies and joint ventures	-38		-148		-131	
Tax exempt capital gains or losses	-100		-323		-13	
<b>Profit before income tax decreased by profits from associated companies and joint ventures and by tax exempt capital gains or losses</b>	<b>901</b>		<b>641</b>		<b>451</b>	
Income tax at nominal rate	-180	20.0%	-128	20.0%	-90	20.0%
Differences in tax rates and regulations	2	-0.2%	21	-3.2%	21	-4.6%
Income not subject to tax	1	-0.1%	0	-0.0%	0	-
Expenses not deductible for tax purposes	-13	1.5%	-3	0.4%	-5	1.1%
Changes in tax valuation allowance related to not recognised tax losses	10	-1.1%	-2	0.2%	-6	1.4%
Adjustments recognised for taxes of prior periods	0	-	-2	0.4%	-2	0.4%
Taxes related to dividend distributions	-14	1.6%	-10	1.6%	-8	1.8%
Other items	-3	0.3%	3	-0.5%	0	0.0%
<b>Comparable effective income tax rate</b>	<b>-198</b>	<b>22.0%</b>	<b>-121</b>	<b>18.8%</b>	<b>-90</b>	<b>20.0%</b>
Tax rate changes	17		6		0	
Other major one time tax effects	0		-115		0	
<b>Income tax expense</b>	<b>-181</b>		<b>-229</b>		<b>-90</b>	

### Key tax indicators, %

	2018	2017	2016
Effective income tax rate	17.5%	20.6%	15.2%
Weighted applicable tax rate	19.4%	21.7%	20.2%
Comparable effective income tax rate	22.0%	18.8%	20.0%
Total tax rate	24.0%	32.5%	40.0%
Comparable total tax rate	27.0%	48.1%	47.5%

The comparable effective income tax rate is presented to better reflect the Group's tax position when comparing the current period to previous periods. Items affecting comparability are not included in the comparable effective income tax rate. The comparable effective income tax rate for 2018 was 22.0% (2017: 18.8%). The table below

explains the difference between the statutory tax rate in Finland compared to the rate at which Fortum is taxed on its profit before income tax. This is then decreased by profits from associated companies and joint ventures and by tax exempt capital gains or losses as per the tax charge on the income statements excluding tax rate changes and major one-time tax effects.

The effective income tax rate and comparable effective income tax rate reflect the income tax expense recognised in the income statement including changes in deferred taxes. When the pre-tax profit is close to nil or negative, the total tax rate does not illustrate the tax contribution in an informative way.

### Deferred taxes in the balance sheet

Deferred taxes illustrate timing differences between the treatment of costs under accounting and tax rules. The timing differences give rise to deferred tax assets and liabilities, the most significant of which for Fortum are explained below.

EUR million	1 Jan 2018	Change 2018	31 Dec 2018
Intangible assets	-101	-5	-106
Property, plant and equipment	-806	18	-788
Pension obligations	21	-2	20
Provisions	7	-22	-15
Derivative financial instruments	35	133	169
Tax losses and tax credits carry-forward	116	-46	70
Other	-20	19	-1
<b>Net deferred tax liability</b>	<b>-747</b>	<b>96</b>	<b>-651</b>

The change in deferred taxes in 2018 is mainly related to the change in derivative financial instruments through other comprehensive income. The deferred tax related to tax loss carry-forwards decreased mainly because of the use of losses carry-forwards in Russia and Sweden.



## Case | Tax losses and timing of income taxes paid

If a company's income is less than costs, it makes tax losses that cannot be utilised in the period in which they arise. The loss may be carried forward and used to offset taxable profits in the future. A concrete example of tax losses is the Dutch financing operations which were loss-making in 2017 due to lower interest margins and a one-off realisation of financial risks in its loan portfolio; this gave rise to significant losses that will only be utilised once the Dutch operations return to profit.

As taxes are not repaid in the case of losses, losses create a receivable for the company. This receivable is identified as a deferred tax asset (or reduction of deferred tax liability) in the balance sheet. In years in which the tax loss is utilised, the company will have taxable profits, but will pay no tax, as the losses from previous years are used to offset the taxable profits arising in the current year. The tax contribution of Fortum with its capital intensive businesses should be considered over a longer period of years rather than over one year.

## Fortum's tax indicators and country-by-country taxation

In line with the 2018 guidelines of the Ownership Steering Department of the Finnish Prime Minister's Office for majority state-owned companies, Fortum has selected key indicators that reflect the nature of its business operations and the related tax. As Fortum's operations

are capital-intensive and have a long lifetime, the net assets has been selected as the best determinant of our value creation in each country. Our operations are not labour-intensive, nor is revenue the most relevant base for a value creation indicator. Therefore, for our operations, the table below presents assets used in operations along with taxes borne and taxes collected for the eleven of the most significant countries

of operation. To ensure a good understanding of our value creation, we also present interest bearing loan receivables, as financing is crucial for the success of our operations. We trust this is the best determinant of value creation for our operations.

### Countries of operations

EUR million	Finland			Sweden			Russia			Poland			Estonia			Norway		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016
<b>Taxes borne</b>																		
Corporate income tax	8	29	21	3	113	1	38	11	3	6	9	4	2	1	1	16	1	0
Production taxes <sup>1)</sup>	49	51	54	6	48	83	2	2	2	0	1	1	0	0	0	0	0	0
Employment taxes	1	1	3	14	12	8	3	4	3	1	1	1	1	1	1	5	9	0
Taxes on property	14	15	23	56	73	109	32	20	15	6	6	6	0	0	0	2	2	0
Cost of indirect taxes	2	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<b>Total taxes borne</b>	<b>73</b>	<b>98</b>	<b>101</b>	<b>78</b>	<b>246</b>	<b>201</b>	<b>75</b>	<b>38</b>	<b>23</b>	<b>13</b>	<b>17</b>	<b>12</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>23</b>	<b>12</b>	<b>0</b>
Assets used in operations <sup>2)</sup>	4,589	3,882	3,958	4,202	4,304	4,341	2,408	2,812	2,967	645	559	513	195	193	196	1,622	1,533	27
Interest bearing loan receivables <sup>2) 3)</sup>	2,932	549	522	742	779	860	0	0	0	13	3	2	0	0	0	1	28	0
Number of employees	2,238	2,165	2,029	981	968	724	2,941	3,494	3,745	754	827	894	203	207	201	667	654	43
Effective income tax rate	22.7%	23.4%	34.5%	19.3%	61.3%	-20.9%	18.7%	20.1%	19.1%	37.9%	71.7%	15.0%	16.9%	13.7%	28.1%	5.2%	-0.7%	0.0%
Total tax rate	41.0%	67.6%	72.6%	16.6%	66.0%	81.8%	25.3%	12.7%	10.5%	57.6%	88.4%	34.8%	11.7%	11.9%	18.2%	51.5%	3.0%	0.8%
<b>Taxes collected</b>																		
Net VAT	14	1	13	5	7	0	87	76	48	0	0	18	5	5	5	102	56	0
Sales VAT	459	323	351	310	325	292	281	290	240	154	129	105	20	19	18	238	109	12
VAT on Purchases	444	322	338	305	317	309	194	215	192	155	131	87	15	13	13	135	52	14
Payroll taxes	44	44	42	17	18	12	7	8	7	4	3	3	2	2	2	15	7	1
Excise taxes	1	1	4	24	208	152	0	0	0	1	3	2	0	0	0	0	0	0
Withholding taxes	54	55	53	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
<b>Total taxes collected</b>	<b>113</b>	<b>101</b>	<b>112</b>	<b>46</b>	<b>233</b>	<b>165</b>	<b>94</b>	<b>84</b>	<b>55</b>	<b>5</b>	<b>7</b>	<b>23</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>117</b>	<b>64</b>	<b>1</b>

1) Taxes on property in Finland 2016 include EUR 9 million asset transfer tax (tax on transfer of shares and real estate)

2) Group internal eliminations between the countries are not included

3) Including cash collaterals

EUR million	Denmark			The Netherlands			Ireland			Belgium			Germany			Other countries		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016
<b>Taxes borne</b>																		
Corporate income tax	2	2	1	8	-8	8	9	10	4	4	18	6	0	0	0	0	1	0
Production taxes <sup>1)</sup>	6	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employment taxes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Taxes on property	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cost of indirect taxes	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0
<b>Total taxes borne</b>	<b>8</b>	<b>8</b>	<b>2</b>	<b>7</b>	<b>-8</b>	<b>9</b>	<b>9</b>	<b>10</b>	<b>4</b>	<b>4</b>	<b>19</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>
Assets used in operations <sup>2)</sup>	119	125	131	14	16	8	53	68	0	0	0	0	24	0	0	203	384	293
Interest bearing loan receivables <sup>2) 3)</sup>	0	0	11	6,423	6,715	9,442	10,445	9,558	9,827	1,040	1,573	2,069	0	0	6	31	44	45
Number of employees	178	178	181	8	8	10	4	3	2	2	2	2	56	35	35	254	244	242
Effective income tax rate	54.5%	24.4%	-19.1%	73.9%	18.9%	46.7%	7.6%	13.0%	1.6%	-12.5%	13.2%	24.8%	5.2%	36.1%	30.9%	19.8%	N/A	208.9%
Total tax rate	117.0%	99.3%	74.5%	60.1%	5.9%	31.8%	6.2%	9.3%	3.8%	13.3%	13.6%	9.8%	N/A	59.7%	90.2%	20.9%	109.2%	51.4%
<b>Taxes collected</b>																		
Net VAT	5	7	2	0	0	0	0	0	0	0	0	0	1	1	1	6	5	7
Sales VAT	12	13	5	2	3	0	1	0	0	0	0	0	1	1	1	15	12	14
VAT on Purchases	8	6	2	2	3	1	1	12	0	0	0	0	0	0	0	9	7	7
Payroll taxes	4	8	1	0	0	0	0	0	0	0	0	0	0	0	0	3	3	2
Excise taxes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withholding taxes	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total taxes collected</b>	<b>9</b>	<b>14</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>8</b>	<b>9</b>

1) Taxes on property in Finland 2016 include EUR 9 million asset transfer tax (tax on transfer of shares and real estate)

2) Group internal eliminations between the countries are not included

3) Including cash collaterals

## Comments by country

**Finland:** Both profit and taxable income on operations remain on low level for 2018 and consequently low amounts of corporate income tax. The taxable income was negatively impacted among others mainly by the volatility in timing differences and the one-time effect from the default of a Nasdaq Commodities' default fund member.

**Sweden:** Profitability has improved in Sweden during 2018. The property and production taxes were reduced based on Swedish parliament's decision to gradually reduce these taxes in 2017, which positively impacts both profitability and total tax rate in 2018.

**Russia:** Taxes on property were increased by tax rate changes and extension of tax base. For 2018, also movable property is included in tax base of property taxes.

**Poland:** Non-deductible costs increased due to new income tax legislation. This leads to high tax rates.

**Estonia:** Undistributed corporate profits are tax exempt. The taxation of profits is postponed until the profits are distributed as dividends.

**Norway:** Profitability has improved in Norway during 2018 resulting in an increase in income taxes. The restructuring of Hafslund was done in August 2017. Prior to the restructuring, Hafslund was an associated

company, which had an impact on effective tax rate. From 2018, Hafslund was included with full year impact.

**Denmark:** Tax rates were mainly impacted by low profitability and high non-income related taxes.

**The Netherlands:** The taxes borne for 2018 include withholding tax paid at their source on dividends received. Capital gains and dividends are tax exempted meanwhile financing related income is taxed normally. The Dutch financing operations were loss-making in 2017, but making a low profit in 2018. The loss may be carried forward and used to offset taxable profits in the future.

**Ireland:** Large one-time tax-free capital gain from the sale of 10% stake in Hafslund Produksjon AS decreased the effective tax rate. Financing related income is included normally in taxable income taxed at 12.5%.

**Belgium:** In 2018 the nominal tax rate is lowered and the so called notional interest deduction has been abolished.

**Germany:** Fortum acquired altogether 49.99% of Uniper SE in 2018. The impact of Uniper's result will be accounted for as profit/loss after tax in the Share of profit from associates and joint ventures. Taxes that Uniper SE paid are not included in Fortum taxes borne based on normal accounting standards.

**Other:** Operations in Luxembourg were closed in 2018.

### Other payments to the public sector

In addition to taxes borne and taxes collected, we make other compulsory tax-like payments to the public sector, payments that are not compensation for goods or services received. For example, in 2018 we paid EUR 43 (2017: 43) million in employer's statutory pension contributions.

We are also a significant dividend payer. Fortum's Board of Directors proposes to the 2019 Annual General Meeting that a dividend of EUR 977 (2018: 977) million be paid for 2018. The Finnish State's share of this would be about EUR 496 (496) million.

### Ongoing tax appeals

Fortum had tax audits ongoing during 2018. Based on these and earlier audits Fortum has received income tax assessments in Sweden for the years 2009–2015 and Belgium for the years 2008–2012.

Fortum has appealed all assessments received.

In recent years, the tax treatment of interest costs has received much attention both locally and internationally. This has led to uncertainty in defining the correct tax treatment for interest, even in traditional businesses and investments.

These unclear and changing rules, combined with even less clear interpretations and a lack of advance rulings on tax treatment, results

in an increased likelihood of tax assessments and costly controversy processes. This has especially occurred in Sweden in the last 10 years.

In Sweden, Fortum has received a positive decision from the Administrative Court of Appeal in Stockholm in October 2018 relating to the income tax assessment for the year 2013. The decision was favourable to Fortum. The Administrative Court of Appeal confirmed that Fortum had sufficient business reasons for the loans and accepted Fortum's appeal. The cases regarding the year 2014 and the year 2015 followed with positive decision from the Administrative Court in November 2018.

Contrary to this decision and regarding the same financing needs in Sweden, the Swedish Supreme Administrative Court decided in March 2018 not to grant leave to appeal to Fortum with respect to the interest deduction cases relating to the years 2009–2012. The unfavourable decision of the Administrative Court of Appeal from June 2017 therefore remains in force.

Sweden has been an example of how lack of clarity in tax legislation and changes in the interpretation of tax rules can result in a long delay between a transaction taking place and its tax treatment being agreed with the relevant tax authority.

Fortum has received a negative decision from the Administrative Court of Appeal in Stockholm in June 2018 relating to hydro property tax for years 2009–2014 in Sweden. According to the decision the property tax rate on hydro power (that is higher than the tax on other types of electricity production) does not comprise unlawful state aid (i.e. the tax law is against EU legislation) and the property tax shall not be set to 0.5 percent of the tax assessment value. The disputed amount for the five years totalled EUR 50 million. The decision is contrary to the Administrative Court's earlier decision. In November 2018, Fortum's leave to appeal to the Supreme Administrative Court was denied.

In Belgium, based on legal analyses, no provision has been accounted for in the financial statements relating to 2008–2012 tax audits.

See **▶ Note 37** Legal actions and official proceedings for more information.



## Information about companies registered in countries considered to be tax havens

The EU, the OECD and the Global Forum have established a list of countries considered to be tax havens. Fortum has a fully-owned captive insurance company in Guernsey, for insurance reasons; it also has a stake in Nature Elements Asia Renewable Energy and Cleantech Fund L.P., which makes research and development investments and is located in the Cayman Islands. Fortum's earnings from both companies are subject to normal taxation in Finland. The taxes borne on these operations were EUR 314 thousand in 2018.

Fortum operates internationally and, therefore, our international financing operations are located in EU countries with stable operating environments and predictable taxation. We have financing and leasing companies in Ireland, the Netherlands and Belgium. In the recent tax management debate, the Netherlands and Ireland have also been mentioned as tax havens. We pay taxes in each of these countries of operation based on local rules and normal tax rates: the Netherlands 25%, Belgium 29.58% and Ireland 12.5%. Fortum's subsidiary companies are listed by country in [▶ Note 40](#), Subsidiaries by segment, of the consolidated financial statements.

## Fortum tax footprint – Key terms

Term	Definition
Corporate income tax	All taxes that are based on the taxable profits of a company and temporary differences between accounting values and tax bases, as defined in the International Financial Reporting Standard IAS12.
Current tax	The corporate income tax due with respect to taxable profits of an accounting period, as defined in the International Financial Reporting Standard IAS12.
Deferred tax	The corporate income tax due with respect to temporary differences between accounting values and tax bases, as defined in the International Financial Reporting Standard IAS12.
Effective income tax rate	Income tax expense divided by Profit before income tax.
Comparable effective income tax rate	Income tax expense minus effects from tax rate changes and major one-time tax effects divided by Profit before income tax decreased by profits from associated companies and joint ventures and by tax exempt capital gains or losses.
Weighted average applicable income tax rate	Sum of the proportionately weighted share of profits before taxes of each group operating country multiplied with an applicable nominal tax rate of the respective countries.
The Group / Fortum Group	Fortum Oyj and its subsidiaries and Fortum Group associated companies and joint ventures.
Indirect tax	Tax that is required to be paid to a government by one person or company at the expense of another person or company.
Profit before tax	Accounting profit for a period before deducting a charge for corporate income taxes.
Tax	Any amount of money required to be paid to a government without receiving any services, whether by law or by agreement, including without limitation corporate income tax, production taxes, property taxes, employment taxes, sales taxes, asset transfer tax, and any other required payments.
Taxes borne	Taxes that a company is obliged to pay to a government, directly or indirectly, on that company's own behalf with respect to an accounting period. Taxes borne include corporate income taxes (excluding deferred taxes), production taxes, employment taxes, taxes on property and cost of indirect taxes. Production taxes include also taxes paid through electricity purchased from associated companies.
Taxes collected	Tax that a company is obliged to pay to a government on behalf of another person or a company. Taxes collected include VAT, and excise taxes on power consumed by customers, payroll taxes and withholding taxes.
Total tax rate	Taxes borne divided by profit before tax increased by taxes borne in operating profit.
Comparable total tax rate	Taxes borne divided by profit before tax increased by taxes borne in operating profit and decreased by profits from associated companies and joint ventures and by tax exempt capital gains or losses.
Other payments to and from the public sector	Other compulsory tax-like payments to the public sector, payments that are not compensation for goods or services received.
Assets used in operations	Non-interest bearing assets plus interest bearing assets related to the Nuclear Waste Fund (non-interest bearing assets do not include finance related items, taxes, participations in associates and joint ventures and assets from fair valuations of derivatives used for hedging future cash flows).

Join the  
change

# Sustainability 2018



# Highlights 2018

Material recovery rate of waste received from our customers was

**59%**

We arranged

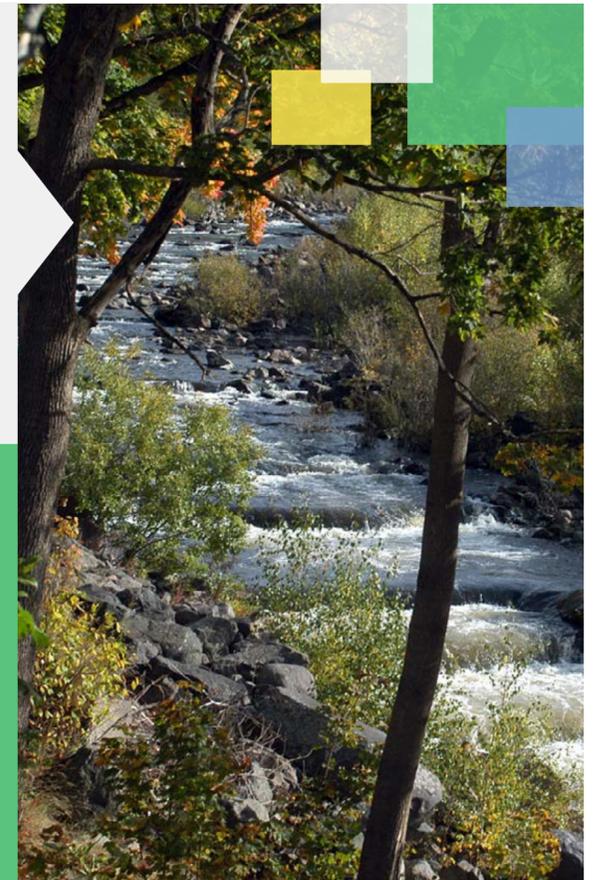
**1,350**

man-hours of safety training for Fortum division management and other personnel responsible for safety

We paid attention to equality by joining the **Work does not discriminate** campaign promoting Finnish workplace equality and the international Equal by 30 campaign promoting gender equality

We implemented hydropower environmental projects valued at EUR

**5.9** million



The preliminary planning phase for the Carbon Capture and Storage (CCS) project at Oslo's waste incineration plant got under way; when realised, the project will capture up to

**90%**

of the plant's CO<sub>2</sub> emissions

The Fortum-Rusnano investment fund has been granted the right to build almost

**2 GW**

of new wind power in Russia

The power upgrades at the Loviisa nuclear power plant in 2016–2018 enable us to produce about an additional

**180 GWh**

of CO<sub>2</sub>-free electricity



The **electric vehicle charging corridor** being built by Fortum between Helsinki and Oslo received its first high-power charging stations in Norway, Sweden and Finland

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## Fortum's 2018 reporting entity



CEO's Business Review



Financials



Governance



Remuneration



Tax Footprint



Sustainability

# Sustainability approach



The entire energy sector is undergoing a transformation. The faster pace of climate change is accelerating the need for structural changes in society. The need for low-carbon energy is growing because fossil fuels must be replaced in transportation, industry and heating. Clean electricity is a significant enabler in this. In fact, we believe that the 2020s will be the decade of electricity.

In addition to climate change, changes in the regulatory environment and the fast pace of technological development create new challenges and opportunities for us. Our role is to respond to the changing operating environment by reshaping the energy system, improving resource efficiency and providing smart solutions. This way we deliver excellent shareholder value, minimise our adverse impacts, and ensure sustainable and low-emissions business.

Sustainability is at the core of Fortum's strategy and our values – curiosity, responsibility, integrity and respect – form the foundation for all our activities. In our operations, we give balanced consideration to climate and resource issues, as well as our impacts on personnel and society. We see sustainable energy and circular economy solutions as today's competitive advantage and a prerequisite for business growth and success.

- ▶ [Fortum's vision, mission and strategy](#)
- ▶ [Fortum's values](#)

# Our contribution to the Sustainable Development Goals

As a producer of energy and circular economy solutions, Fortum impacts most of the Sustainable Development Goals (SDGs) and their specific targets. In line with our strategy, we are driving the change towards a cleaner world.

## Sustainable Development Goals and Fortum's activities

The Sustainable Development Goals adopted by the United Nations in 2015 define international sustainable development focus areas and goals to 2030. We want to do our part to promote the achievement of the goals in our value chain by increasing our positive impacts and decreasing our negative impacts. The Sustainable Development Goals offer business opportunities as well as the opportunity to create value for our stakeholder groups.

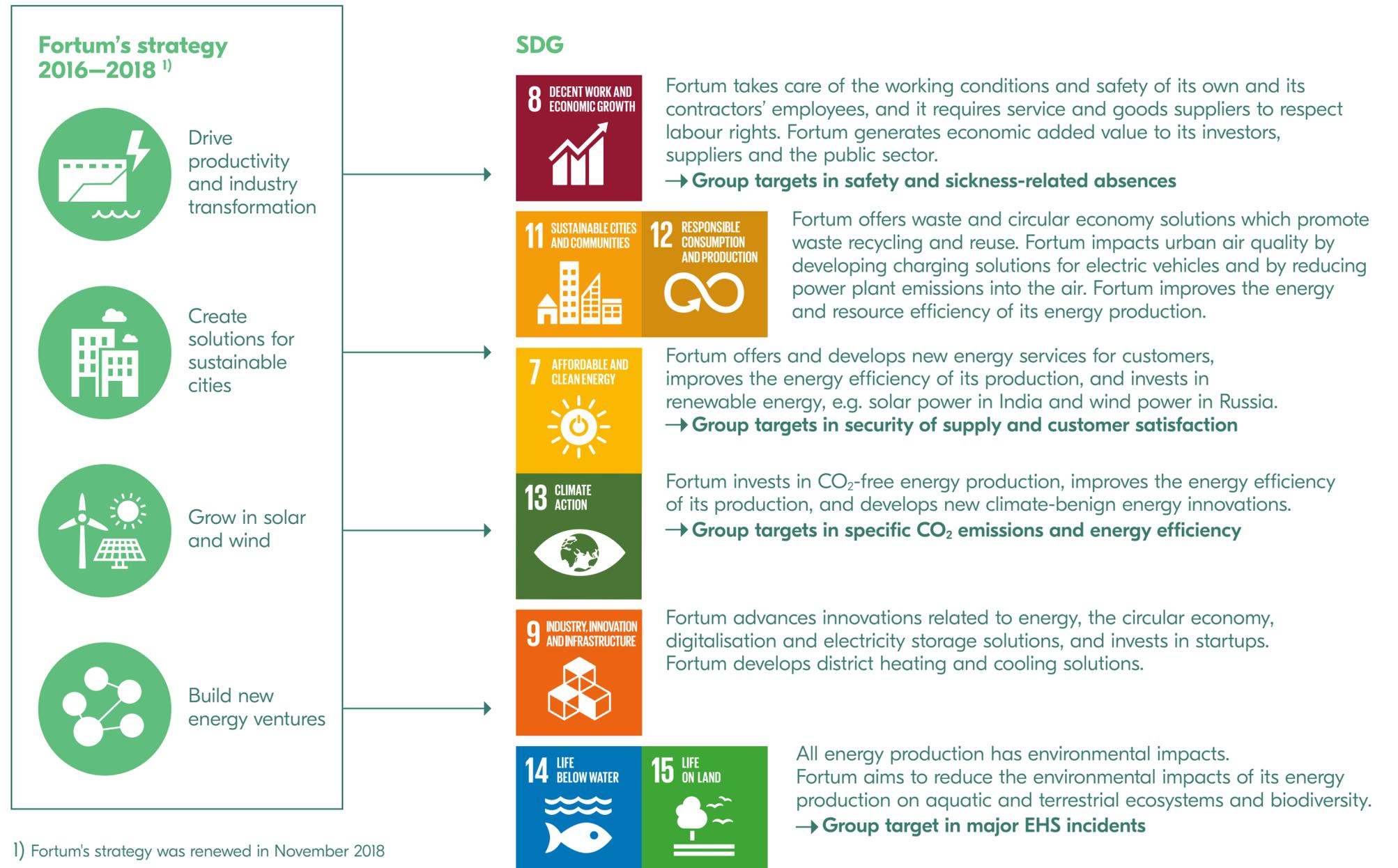
The graphic presents the SDGs for which we have the biggest impact to their achievement, as well as the most important ways we contribute and our related Group sustainability targets.

Fortum contributes to Sustainable Development Goals also by being a member in the UN Global Compact initiative. Global Compact participants are committed to aligning their operations with the ten universally accepted principles in the areas of human rights, labour, the environment and anti-corruption.



Fortum supports the Sustainable Development Goals.

## Our contribution to the Sustainable Development Goals (SDGs)



1) Fortum's strategy was renewed in November 2018

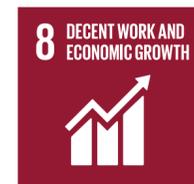
## Examples of measures we implemented in 2018 that promote the achievement of the Sustainable Development Goals

### Sustainable Development Goal (SDG)

#### Measure



- We invested in **renewable energy production**: solar, wind and hydropower
- We commissioned 123 MW of new wind power in Russia, Sweden and Norway
- The Fortum-Rusnano investment fund has been granted the right to build almost 2 GW of new wind power in Russia
- We started the first **Solar2Go pilot project** in India in collaboration with Futurice and Boond
- We invested in energy efficiency, e.g., at the Loviisa nuclear power plant in Finland and at hydropower plants in Sweden
- **Our energy-efficiency investments** in 2018 totalled 135 GWh/a
- We launched the preliminary planning phase for a **carbon capture and storage (CCS) project** with the City of Oslo in Norway
- We signed a letter of intent with the purpose of enabling the supply of renewable electricity to Unilever from Fortum's wind farm in Russia
- We started development collaboration with the City of Joensuu in Finland with the goal of a carbon-neutral Joensuu by 2025
- We started the supply of the biggest portfolio of a **roof-top solar electricity system** in the Nordic countries for S-Group in Finland



- We conducted 13 supplier audits covering work conditions and other issues
- A safety training programme, provided by an external safety service provider, was organised for the management level and key individuals leading safety and procurement work as well as for the most challenging business areas; in total 1,350 man-hours of training
- We published **Fortum Tax Principles** in December 2018
- Our subsidiaries in Great Britain published **a statement** required by the Modern Slavery Act in June 2018



- We committed to invest EUR 150 million in the new **Valo Ventures growth fund** investing in digital and scalable technology startups whose products or services have the potential to produce long-term social and environmental benefits
- We launched the Nordic countries' biggest flexible heat demand project in Espoo, Finland
- We enabled single-family homes to participate in energy demand response as part of the **Fortum Spring Virtual Battery**
- We collaborated with universities in our operating countries, and Fortum Foundation awarded over EUR 680,000 in **scholarships**
- We celebrated the **ground-breaking event** for building a bamboo-based biorefinery in India with our partners; the project is part of our Bio2X research and development programme
- We used EUR 56 million in total for research and development

### Sustainable Development Goal (SDG)

#### Measure



- We opened the first high-power charging stations as part of the Nordic charging corridor for EVs in Finland, Sweden and Norway
- **Fortum Charge & Drive and Plugsurfing** joined forces to facilitate cross-border charging of EVs
- We joined the international **EV30@30 campaign** to promote the electrification of vehicles
- We started **collaboration with Clean Motion** to accelerate the electrification of three-wheeled vehicles in India with a battery swap system
- We advanced electric aviation in Finland by participating in the Helsinki Electric Aviation Association's project
- We acquired Fincumet's metal recycling business and expanded our recycling services portfolio
- We recovered as materials about 660,000 tonnes of the waste received from our customers
- We supplied NO<sub>x</sub> emissions-reducing combustion solutions to customers in, among others, Poland, Finland and India



- We implemented **voluntary hydropower environmental projects** valued at EUR 400,000
- In collaboration with partners, we launched a three-year habitat restoration project at Lake Oulujärvi to protect endangered species
- In Sweden, we removed the Kolsjö dam, which had proven to be insignificant for hydropower production; concurrently we restored the river aquatic habitat
- The spring flood water release strategy was implemented at the River Klarälven hydropower plants to facilitate the downstream migration of salmon smolts
- We worked with partners on the planning and modelling of measures to improve the reproduction areas for the endangered Gullspång landlocked salmon
- The first season in the use of the trap and transport facility at the Montta hydropower plant on the River Oulujoki provided encouraging results with salmonoids swimming upstream into the facility
- We made preparations for the Chain of Custody certification of wood-based biomass purchases

## Towards the decade of electricity

Fortum presented its updated strategy in November 2018. The goal of our renewed strategy is to ensure the value of investments made and to propel Fortum into the 2020s. The four priorities of the strategy are:

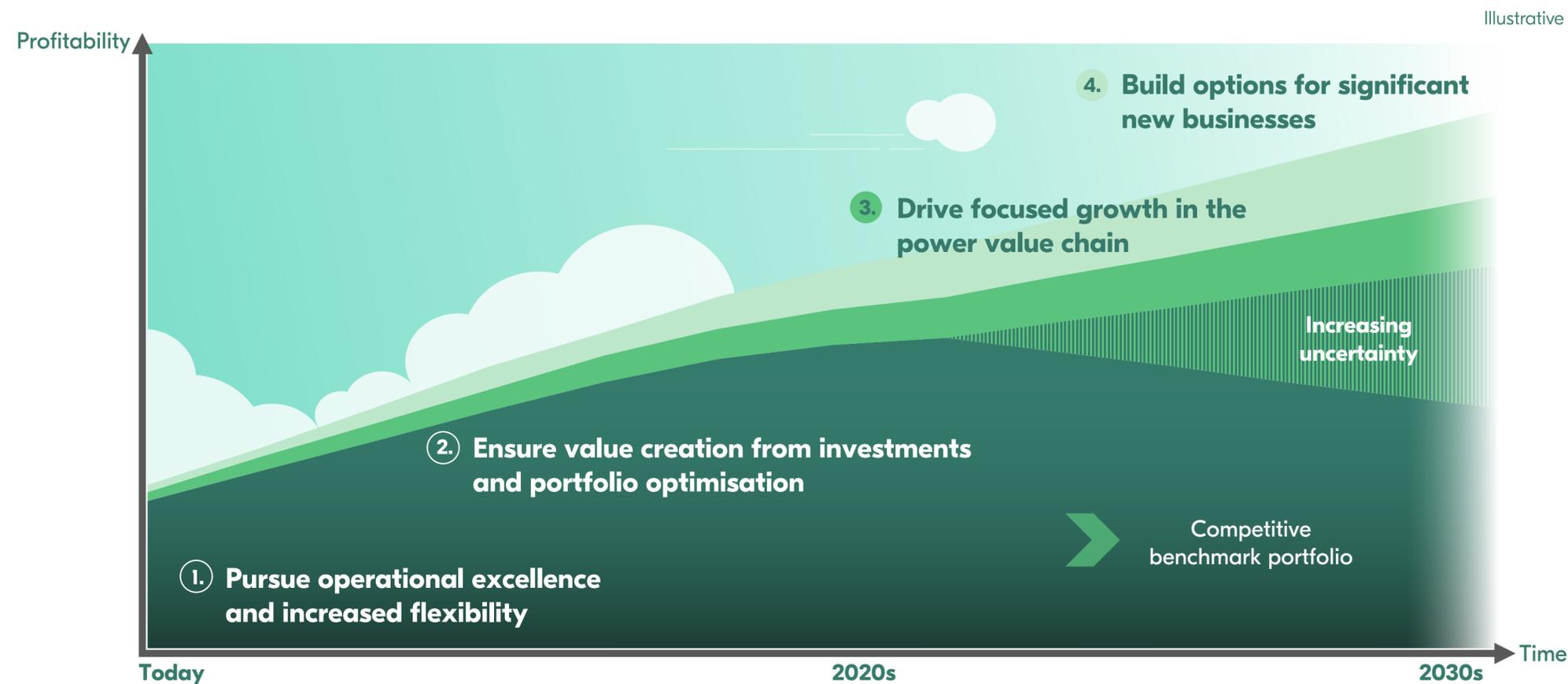
1. Pursue operational excellence and increased flexibility,
2. Ensure value creation from investments and portfolio optimisation,
3. Drive focused growth in the power value chain, and
4. Build options for significant new businesses.

The first priority of our renewed strategy is to create value from our existing businesses. At the same time, we want to ensure that our current portfolio aligns with the changing operating environment and its requirements. In this respect, flexibility – both in terms of our production forms and demand response – serves this purpose. Since 2016 we have invested nearly EUR 7 billion, and now we want to ensure the value creation of these investments.

The aim to reduce carbon dioxide emissions impacts the industry and its value chains across sectors and increases demand for clean electricity. We want to promote the electrification of society in transportation, industry and service sectors, and we will continue our growth in low-carbon electricity production. We will invest in solar and wind power, and selectively in hydropower. Also partnerships with consumers, and particularly with major electricity-intensive industry players, are important for us as we offer added value for customers in the form of new service and energy solutions. Technology, digitalisation and software applications are at the core of this offering.

We believe that the uncertainty in the energy market and in our whole operating environment will grow in the latter part of the 2020s. Forecasting the long-term development of the power price, as well as the regulatory environment, is becoming increasingly difficult. Therefore we aspire to create totally new business in sectors that are not dependent on the price of electricity. We aim to build new industrial logic by creating synergies with our existing business and expertise. We believe that the circular economy, waste recycling and recovery as well as new bio-based products offer us promising growth opportunities in the future.

▶ [CEO's Business Review 2018](#)



# Key sustainability topics

Our sustainability focus areas have been defined to support sustainable business. In our operations, we take into consideration climate and resource issues as well as our impact on personnel and society. The focus areas reflect not only the views of our personnel and stakeholders regarding our fundamental impacts, but also our values – curiosity, responsibility, integrity and respect towards each other and our stakeholder groups.

Our sustainability focus areas are based on Fortum’s and our stakeholders’ views of the significance of the impacts of our operations on the company and its ability to create value for its stakeholders and to the environment. Our understanding of stakeholder views is based on the results of the extensive stakeholder survey conducted annually as well as on information gained through other stakeholder collaboration.

Our most recent separate sustainability survey was conducted in 2015; a total of 2,133 stakeholder representatives, more than 60% of them representing personnel, participated. In that survey, decision makers, organisations, employees and the general public put special emphasis on the significance of security of supply of heat and electricity, management

of sustainability-related risks, and sustainable ways of operating. Our personnel emphasised the safety of operations. The general public considered the use of renewable energy sources as important. Our goal is to conduct our separate sustainability survey again during 2019.

## Sustainability targets affect every Fortum employee

Sustainability targets affect every Fortum employee and safety-related targets are part of Fortum’s short-term incentive (STI) scheme. In addition to the Group-level targets, divisions have their own targets.

Fortum’s Board of Directors annually decides on the sustainability targets to be included in the incentive scheme. The injury frequency for Fortum employees and for contractors was included in the incentive scheme in 2018. However, the Board can, at its discretion, take into consideration in the result also other safety-related incidents and especially the number of severe occupational accidents. The target for severe occupational accidents is zero.

In 2018, four severe occupational accidents took place in our operations. In light of these accidents, the Board decided to reduce the Group safety STI result by 20%. The reduction will directly address Fortum Executive Management members and all members of Divisional and Functional management teams. Furthermore, it was decided that Division heads will cascade the adjustment down to their respective organisations in a way they see appropriate to execute the principle of line responsibility.

The 2019 incentive scheme remains unchanged in terms of safety targets (the injury frequency rate for personnel and contractors). Likewise, as in 2018, the Board has the option to take into consideration also other safety incidents. The weight of the target in the incentive scheme is 10% (2018: 10%).



## Group sustainability targets and performance in 2018

Group target	Target for 2018	Status at the end of 2018	Status at the end of 2017
<b>Climate and resources</b>			
<b>Specific CO<sub>2</sub> emissions</b>			
Specific CO <sub>2</sub> emissions from total energy production, g CO <sub>2</sub> /kWh, 5-year average	<200	186	188
<b>Energy efficiency</b>			
Energy-efficiency improvement by 2020, baseline 2012, GWh/a	>1,900	1,637	1,502
<b>EHS incidents</b>			
Major EHS incidents <sup>1)</sup>	≤20	18	20
<b>Personnel and society</b>			
<b>Reputation and customer satisfaction</b>			
Reputation index, based on One Fortum Survey	73.0 *	72.5	72.3
Customer Satisfaction Index (CSI), based on One Fortum Survey, and Net Promoter Score (NPS) <sup>2)</sup> in Consumer Solutions division	70–74 -6	63–83 -18	64–76 -
<b>Security of supply</b>			
CHP plant energy availability, %	>95.0	96.4	96.1
<b>Occupational safety</b>			
Lost Workday Injury Frequency (LWIF) <sup>3)</sup> , own personnel and contractors	≤2.1	1.8	2.4
Number of severe occupational accidents <sup>4)</sup> , own personnel and contractors	0	4	1
Quality of investigation process of occupational accidents, major EHS incidents and near misses	Level 3.0	Level 3.0	Level 2.0 **
GAP index, implementation of EHS minimum requirements	Level 3.0	Level 2.0	-
<b>Employee wellbeing</b>			
Sickness-related absences, %	≤2.2	2.8	2.2 ***

1) Major fires, leaks, explosions, dam safety incidents, environmental non-compliances and INES events level ≥ 1

INES = International Nuclear and Radiological Event Scale

2) NPS = Net Promoter Score measuring customer loyalty

3) LWIF = Lost Workday Injury Frequency, injuries per million working hours

4) Fatality or an accident leading to permanent disability or an accident with severe and life-threatening injuries

\* The target is not comparable with the status of year 2017, because the target group is different

\*\* Scaling revised

\*\*\* Excluding DUON and Hafslund

## Successes and development needs

- In 2018, our specific CO<sub>2</sub> emissions from total energy production increased by 4%. However, we achieved our Group target in specific CO<sub>2</sub> emissions (5-year average).
- By taking proactive actions, we managed to keep major EHS incidents below the target level (20).
- We did not achieve our reputation target mainly due to more critical views by opinion leaders and non-governmental organisations. The growing concern about climate change and the questions around the Uniper transaction, among other things, contributed to the critical views. Our most significant reputation related strengths are operational expertise and reliability as an employer. Areas in most need of improvement are social responsibility and customer centricity.
- Customer satisfaction is good or very good for the majority of our business operations. The most room for improvement is with charging solutions for electric vehicles (Fortum Charge & Drive).
- We strive to be a safe workplace for our own and our contractors' employees. However, in 2018, four severe occupational accidents occurred, two of which led to contractor fatality. The occurred severe occupational accidents were a big disappointment for us.
- During 2018, we focused on establishing Fortum's safety practices in our new operations.
- The GAP index measures how well the Group's EHS minimum requirements are realised at the power plant level. In 2018, we did not achieve the set target (level 3.0) for the GAP index; we remained at level 2.0. The most significant deviations were detected in companies that Fortum had acquired in recent years and at production facilities operated by contractors.
- The percentage of sickness-related absences rose to 2.8; thus we didn't achieve the set target (2.2%). The sickness absence rate increased slightly in all countries, but particularly in Sweden, Norway and Poland.

## Our targets for 2019

Our sustainability targets are based on continuous operational improvement. However, the nature of our business and the related risks have changed during the past two years with the business acquisitions we have made and with the growth of circular economy services. This change also impacts our target setting.

In 2018, we managed to get back to the pre-business-acquisition level (1.8) for Lost Workday Injury Frequency for own employees and contractors (LWIF combined), and we reached our target ( $\leq 2.1$ ). The new target set for 2019 (LWIF combined) is  $\leq 1.7$ . The target is challenging, as it requires the City Solutions division in particular to continue the same good development as in 2018 when its Recycling and Waste Solutions business unit managed to reduce its injury frequency by half. We have zero tolerance for severe accidents.

Even though the injury frequency for our own personnel was at a historically low level (LWIF 0.2), contractor safety continues to be a challenge (LWIF 4.8). For this reason, we will adopt a proactive indicator (Contractor safety improvement index) at the Group level to measure how well we have managed to implement measures targeting improvements in contractor safety. At the division level, too, we will focus increasingly on measuring the improvement in safety based on measures taken, not just the number of injuries that have already occurred.

In 2019, we aim to reduce sickness-related absences by, e.g., ensuring similar practices in all countries for remote and alternative work, and by focusing on factors that wellbeing surveys have identified as being supportive of working capacity and wellbeing. The sickness-related absence target was raised to 2.5% to allow enough time for the effectiveness of development measures to manifest and to gain control of companies acquired through business acquisitions.

## Group-level sustainability targets in 2019

Group target	Target 2019
<b>Climate and resources</b>	
<b>Specific CO<sub>2</sub> emissions</b>	
Specific CO <sub>2</sub> emissions from total energy production, g CO <sub>2</sub> /kWh, 5-year average	<200
<b>Energy efficiency</b>	
Energy-efficiency improvement by 2020, baseline 2012, GWh/a	>1,900
<b>EHS incidents</b>	
Major EHS incidents <sup>1)</sup>	$\leq 18$ *
<b>Personnel and society</b>	
<b>Reputation and customer satisfaction</b>	
Reputation index, based on One Fortum Survey	73.0
Customer Satisfaction Index (CSI), based on One Fortum Survey	Level good (70–74)
<b>Security of supply</b>	
CHP plant energy availability, %	>95.0
<b>Occupational safety</b>	
Lost Workday Injury Frequency (LWIF) <sup>2)</sup> , own personnel and contractors	$\leq 1.7$
Number of severe occupational accidents <sup>3)</sup> , own personnel and contractors	0
Quality of investigation process of occupational accidents, major EHS incidents and near misses	Level 3.0
GAP index, implementation of EHS minimum requirements	Level 3.0
Contractor safety improvement index	Level 2.0
<b>Employee wellbeing</b>	
Sickness-related absences, %	$\leq 2.5$

1) Major fires, leaks, explosions, dam safety incidents, environmental non-compliances and INES events level  $\geq 1$

INES = International Nuclear and Radiological Event Scale

2) LWIF = Lost Workday Injury Frequency, injuries per million working hours

3) Fatality or an accident leading to permanent disability or an accident with severe and life-threatening injuries

\* The figure does not include the exceedances caused by possible changes in permit limits in Russia

## Governance and management

Sustainability management at Fortum is strategy-driven and is based on the company's values, the Code of Conduct, the Supplier Code of Conduct, the Sustainability Policy and other policies and their specifying instructions defined at the Group level.

We comply with laws and regulations. All of our operations are guided by good governance, effective risk management, adequate controls and the internal audit principles supporting them.

Fortum's goal is a high level of environmental and safety management in all business activities. Calculated in terms of sales, 99.9% (2017: 99.8%) of Fortum's electricity and heat production operations at the end of 2018 were ISO 14001 environmentally certified and 97.0% (2017: 98.4%) were either OHSAS 18001 or ISO 45001 safety-certified. The level of safety certification slightly dropped due to acquisitions and investments. The divisions and sites develop their operations with internal and external audits required by environmental, occupational safety and quality management systems.

### Responsibilities

Sustainability is an integral part of Fortum's strategy, so the highest decision-making authority in these issues is with the Board of Directors, which has joint responsibility in matters related to sustainability. For this reason, Fortum has not designated a Sustainability Committee for decision-making on economic, environmental and social issues. The Audit and Risk Committee, members of the Fortum Executive Management, and other senior executives support the Board of Directors in the decision making in these matters, when necessary.

The Fortum Executive Management decides on the sustainability approach and Group-level sustainability targets that guide annual planning. The targets are ultimately approved by Fortum's Board of Directors. Fortum Executive Management monitors the achievement

of the targets in its monthly meetings and in quarterly performance reviews. The achievement of the targets is regularly reported also to Fortum's Board of Directors.

Fortum's line management is responsible for the implementation of the Group's policies and instructions and for day-to-day sustainability management. Realisation of the safety targets is a part of Fortum's short-term incentive scheme. Fortum's Corporate Sustainability unit is responsible for coordination and development of sustainability at the Group level and for maintaining an adequate situation awareness and oversight regarding sustainability.

### Sustainability management by topic

Sustainability management in the areas of economic responsibility, environmental responsibility and social responsibility is described in more detail in [Appendix 4](#). Additionally, more detailed information about the management of different aspects and impacts is presented by topic in this Sustainability Report.

- ▶ [Corporate Governance Statement 2018](#)
- ▶ [Remuneration Statement 2018](#)
- ▶ [Code of Conduct](#)
- ▶ [Supplier Code of Conduct](#)
- ▶ [Sustainability Policy](#)



# Policies and commitments

Fortum is a participant of the UN Global Compact initiative and the UN Caring for Climate initiative. We support and respect the international initiatives and commitments, and national and international guidelines listed in the table. They guide our operations in the areas of economic, environmental and social responsibility.

Fortum's EHS minimum requirements were updated in 2018. We continued to further define the practices related to contractor management in order to improve contractor safety. We further defined, e.g., the safety assessments used in the contractor selection process as well as the qualification classifications needed for high risk work requiring special expertise. We also increased Fortum employees' and contractors' requirements for contractor work supervision. We are monitoring the implementation of the updated guidelines using the new index we deployed in 2019 to measure contractor safety.

We report on the training related to the updated instructions in the sections [► Business ethics and compliance](#), [► Sustainable supply chain](#) and [► Occupational and operational safety](#).

The company's Group-level policies are approved by Fortum's Board of Directors. The Group-level instructions are approved by either the President and CEO or Fortum Executive Management. Fortum's main internal policies and instructions guiding sustainability are listed in the table in [► Appendix 5](#).

## International and national initiatives, commitments and guidelines

	Economic responsibility	Environmental responsibility	Social responsibility		
			Social and personnel issues	Human rights	Anti-corruption and bribery
UN Universal Declaration of Human Rights			x	x	
International Covenant on Economic, Social and Cultural Rights	x		x	x	
International Covenant on Civil and Political Rights			x	x	
UN Convention on the Rights of the Child			x	x	
Core conventions of the International Labour Organisation			x	x	
UN Global Compact initiative	x	x	x	x	x
UN Caring for Climate initiative		x			
UN Guiding Principles on Business and Human Rights			x	x	
OECD Guidelines for Multinational Enterprises	x	x	x	x	x
International Chamber of Commerce's anti-bribery and anti-corruption guidelines	x				x
Bettercoal initiative's Code on responsible coal mining	x	x	x	x	x
Responsible advertising and marketing guidelines			x		
Environmental marketing guidelines			x		

## Business ethics and compliance

We believe there is a clear connection between high standards of ethical business practices and excellent financial results. As an industry leader, we obey the law, we embrace the spirit of integrity, and we uphold ethical business conduct wherever we operate.

### Code of Conduct sets the basic requirements

The Fortum Code of Conduct and Fortum Supplier Code of Conduct define how we treat others, engage in business, safeguard our corporate assets, and how we expect our suppliers and business partners to operate.

Fortum's Board of Directors is responsible for the company's mission and values and has approved the Fortum Code of Conduct. The online training on the Code of Conduct is part of the induction programme for new employees. The Supplier Code of Conduct is based on the ten principles of the UN Global Compact and has been approved by the Head of Procurement in collaboration with the purchasing steering group.

About 97% of Fortum's total purchasing volume is purchased from suppliers with a purchasing volume of EUR 50,000 or more. Geographically they target mainly suppliers in Russia, Finland, Sweden and Norway. The Supplier Code of Conduct is part of purchase agreements with a contract value of at least EUR 50,000.

In line with the Code of Conduct, Fortum has zero tolerance for corruption and fraud and does not award donations to political parties or political activities, religious organisations, authorities, municipalities or local administrations.

### Compliance risks

The compliance risks related to our business operations include the potential risk of bribery or corruption, fraud and embezzlement, non-compliance with legislation or company rules, conflicts of interest,

improper use of company assets, and working under the influence of alcohol or drugs. Compliance risk management is an integrated part of business operations. Key compliance risks, including action plans, are identified, assessed and reported annually. This applies also to the management of risks related to sustainability.

### Training

Fortum has a Compliance programme covering key areas of regulatory compliance and business ethics. It is managed with a risk-based prioritisation.

Training is a fundamental part of Fortum's Compliance programme. In 2018, training was provided to employees in the Consumer Solutions and New Business units in Norway, Sweden and Germany. The Code of Conduct online training was updated and more than 90% of Group employees worldwide completed the training.

Training on the Market Abuse Regulation and insider regulations was provided for new individuals who needed it based on their role. Targeted training on internal controls and focusing on the process-level improvement of controls was also arranged. Training on competition law issues was provided also for new individuals responsible for sales.

Training related to privacy protection (GDPR) was provided for Fortum personnel working in the EU area. More than 90% of the EU area employees participated in the training. This training wasn't provided for personnel in Russia because it has its own privacy protection legislation in effect.

### Reporting misconduct

In addition to internal reporting channels, Fortum has an external > "Raise a concern" channel. The same mechanism is used for reporting any suspected misconduct relating to the environment, labour practices or human rights violations, and it is available to all stakeholders. In Russia, Fortum has a separate compliance organisation in place and employees there are encouraged to use the channels

provided by the compliance organisation. They may, however, also use the "Raise a concern" channel should they so wish. In 2018, a project was launched to renew the misconduct reporting channel.

Suspected misconduct and measures related to ethical business practices and compliance with regulations are regularly reported to the Audit and Risk Committee.

### Suspected cases of misconduct

A total of 190 reports of suspected misconduct were made in 2018. By year-end, all cases had been reviewed. More than 80% of the investigated cases were related to non-compliance with company rules. In these cases, corrective action was taken by reviewing and developing existing processes and instructions and by providing training for employees.

Fortum has zero tolerance towards alcohol and drug use, and thousands of random breathalyser tests are conducted annually. About 30% of the investigated cases were related to alcohol abuse by either Fortum's or contractors' employees during working hours. In 26 cases, alcohol abuse during working hours resulted in either the termination of employment, or, in contractors' cases, in a ban from working at the job site. In addition, as a result of the investigations, four employment contracts were terminated either by immediate dismissal or by mutual agreement, and 16 written warnings were given. There was no cause for action to be taken in 55 of the cases investigated.

No cases of suspected corruption or bribery related to Fortum's operations were reported in 2018. Fortum also requires its goods and service suppliers as well as its business partners to comply with a zero tolerance policy towards corruption and bribery. In Poland, a Fortum employee reported an incident, based on which one fuel supplier was deemed to be guilty of attempted bribery. The supply agreement with the fuel supplier in question was terminated and the incident was reported to the prosecutor's office.

We deal with potential cases of corruption in a professional manner, in accordance with the defined compliance investigation process, in line

with applicable laws and with respect to the rights and personal integrity of all parties involved.

### Restricting competition

In 2018 there was one ongoing investigation case in Russia for which Fortum was ordered to pay a fine of RUB 1.1 million (EUR 14,904) and one Fortum employee was ordered to pay a fine of RUB 15,000 (EUR 203).

### Other significant fines

In 2018 Fortum was ordered to pay a fine of DKK 180,000 (EUR 24,152) for work-related accidents that took place in 2015 and 2016 at Fortum Waste Solutions A/S. No other significant fines were issued during the year. Fines related to environmental non-compliances are discussed in chapter ▶ **Environmental non-compliances**.

- ▶ Fortum Code of Conduct
- ▶ Fortum Supplier Code of Conduct
- ▶ Environmental grievances
- ▶ Labour practices and human rights grievances
- ▶ Incidents of discrimination



# Stakeholders

Our way of operating responsibly includes a close dialogue with our stakeholders and continuously identifying their views. Good collaboration and openness are the key ways to promote a mutual understanding with our stakeholders.

## Stakeholder collaboration

Collaboration with different stakeholder groups helps Fortum to assess and meet the expectations that stakeholder groups have towards the company. We engage in an active dialogue with the different stakeholders associated with our operations. We conduct annual stakeholder surveys. We monitor and assess the public dialogue in the countries where we operate, and we have increased the dialogue with our stakeholders also through social media channels. Feedback from customers drives the development of our products and services. Additionally, our activities in national and international organisations help to deepen our understanding of global sustainability issues and their connections to our business.

Management of stakeholder collaboration at Fortum is assigned particularly to communications, public affairs, group sustainability, the functions responsible for electricity and heat sales and energy production, as well as many of our experts. Responsibilities for managing stakeholder collaboration are primarily determined by stakeholder group or interaction themes. Key interaction areas, e.g., public affairs, and corporate communications, have annual plans that guide the activities.

Fortum has an informal Advisory Council consisting of representatives of Fortum’s key stakeholder groups as invited by the Board of Directors. The Advisory Council aims to increase the dialogue and the exchange of views between the company and its stakeholders.

## Information through surveys

In collaboration with third parties, we annually conduct surveys regarding stakeholder collaboration. The aim of these surveys is to help Fortum assess and respond to the important stakeholder groups’ expectations of the company. The surveys also measure the success of our stakeholder collaboration. Additionally, the surveys provide information about emerging sustainability trends and risks we should acknowledge. We use the survey results in business planning and development and in identifying material aspects in corporate responsibility.

The One Fortum Survey and its results in terms of customer satisfaction and reputation are presented in the section [▶ Customer responsibility and reputation](#). As part of the One Fortum Survey, we regularly survey what our stakeholders consider to be the [▶ most important areas of sustainability](#).

## Our stakeholder surveys

Survey	Target groups	Target countries	Frequency
One Fortum Survey	Customers General public Public administration Capital markets Non-governmental organisations Opinion leaders Personnel Media	Finland, Sweden, Norway, Poland, Baltic countries, Russia, India	Customer satisfaction is measured semi-annually Reputation is measured annually
Media tracking	Media	All operating countries	Daily
Brand tracking	General public and customers	Finland, Sweden, Norway, Poland, Baltic countries	Continuously in Finland, Sweden and Norway, annually in other countries
Pulse survey	Own personnel	All operating countries	Monthly

## Most important expectations stakeholders have towards Fortum, and Fortum's actions in response to them

	Stakeholder expectations	Fortum's actions		Stakeholder expectations	Fortum's actions
Lenders and share-holders	<ul style="list-style-type: none"> <li>• Long-term value creation</li> <li>• High-yield share</li> <li>• Responsible operations</li> </ul>	<ul style="list-style-type: none"> <li>• In 2018, we updated our strategy to strengthen competitiveness and ensure a benchmark portfolio for the 2020s</li> <li>• We are committed to achieving our financial targets</li> <li>• Our goal is to pay a stable, sustainable and over time increasing dividend of 50–80% of earnings per share excluding one-off items</li> <li>• Our responsibility for climate, resources, personnel and society plays a key role in our business</li> </ul>	Authorities and decision makers	<ul style="list-style-type: none"> <li>• Compliance</li> <li>• Integration of sustainability with strategy and business, risk management</li> <li>• Transparency and reliable reporting</li> <li>• Maintaining dialogue</li> <li>• Constructive, knowledgeable and open lobbying, reliable partner in policy development</li> </ul>	<ul style="list-style-type: none"> <li>• We comply with laws, regulations and permits</li> <li>• We develop our business and the management of environmental and safety risks</li> <li>• We communicate openly and we actively engage in a dialogue with authorities and decision makers about energy and climate issues: in 2018 we called for, e.g., <a href="#">▶ more ambitious long-term EU climate policy</a> and <a href="#">▶ closer Nordic collaboration</a> in energy and climate policies</li> <li>• We provide authorities with constructive suggestions on legislative proposals: in 2018, we participated actively in the preparation of the <a href="#">▶ EU plastics strategy</a> and Sweden's and Finland's corresponding national strategies</li> <li>• We communicate proactively and openly</li> </ul>
Customers	<ul style="list-style-type: none"> <li>• Competitively priced products</li> <li>• Useful additional services and advice</li> <li>• Reliability</li> <li>• Ensuring data protection</li> </ul>	<ul style="list-style-type: none"> <li>• With efficient operations and high-quality products, we ensure that we are competitive and our customers feel they get their money's worth</li> <li>• In collaboration with customers, we develop new products and services by, e.g., leveraging the opportunities brought by digitalisation</li> <li>• We deliver what we promise to our customers, and we offer constantly better customer service through different channels</li> <li>• We interviewed over 8,000 customers and 4,700 other stakeholders for our One Fortum Survey in 2018</li> </ul>	Media	<ul style="list-style-type: none"> <li>• Relevant, reliable and transparent communication</li> </ul>	<ul style="list-style-type: none"> <li>• In line with our <a href="#">▶ Disclosure Policy</a>, we communicate proactively and openly: in 2018, we had a special focus on communicating Fortum's strategy and development of our digital channels</li> <li>• We communicate about issues of topical and media interest through multiple channels and in a timely manner</li> <li>• We are easily accessible and we meet regularly with media representatives</li> <li>• We continuously improve our crisis communication preparedness</li> </ul>
Personnel	<ul style="list-style-type: none"> <li>• Equal treatment and open interaction</li> <li>• Job security and incentivising compensation</li> <li>• Opportunities for professional development</li> <li>• Occupational safety and work wellbeing</li> </ul>	<ul style="list-style-type: none"> <li>• We operate in line with Fortum's Code of Conduct and our Values, updated in 2017</li> <li>• In 2018, we arranged a Code of Conduct online course</li> <li>• In 2017, we launched our Open Leadership concept and Leadership Principles based on positive psychology. Related training has been carried out during 2018 for nearly one thousand supervisors in all Fortum's operating countries. In the same conjunction, the employees were included in the strategy update, and supervisors were offered tools to communicate the strategy (<a href="#">▶ Strategy &amp; Open Leadership project</a>).</li> <li>• Our employee compensation is based on standardised principles</li> <li>• Occupational safety and wellbeing are our important focus areas: several functions arranged <a href="#">▶ Safety training</a> and the <a href="#">▶ Energise Your Day</a> work wellbeing project expanded to several of our circular economy operating countries</li> <li>• The employee training that started in 2017 related to the change process in culture and ways of operating continued: in 2018, the training covered, among others, new ways of working, change readiness, new IT tools and personnel working capacity in change situations</li> </ul>	Energy sector organisations	<ul style="list-style-type: none"> <li>• Advocating on behalf of shared interests</li> <li>• Dialogue and expertise</li> </ul>	<ul style="list-style-type: none"> <li>• We advocate our shareholders' and the sector's shared interests and actively participate in organisational activities in our sector</li> <li>• We publish position papers and views on energy sector and policy development, and we actively communicate them in multiple media: in 2018, we published one Energy Review</li> <li>• In addition to sector organisations, Fortum has joined several joint business initiatives promoting market-driven energy and climate policy: the UN Caring for Climate initiative, the World Bank's Carbon Pricing Leadership Coalition and the Finnish Climate Leadership Coalition</li> <li>• We participate in the international <a href="#">▶ Corporate Responsibility and Sustainability Council</a>, which is part of The Conference Board of Europe</li> </ul>
Service and goods suppliers	<ul style="list-style-type: none"> <li>• Good financial position and the ability to take care of the agreed obligations</li> <li>• Fair and equal treatment of suppliers</li> <li>• Long-term business relations and collaborative development of business and products/services</li> <li>• Responsible operations</li> </ul>	<ul style="list-style-type: none"> <li>• We comply with the Fortum Code of Conduct, agreements and legislation</li> <li>• We conduct a supplier qualification process, and we actively develop our relations with existing suppliers</li> <li>• In 2018, we implemented <a href="#">▶ Contractor management procedures</a> in order to address challenges with contractor safety</li> <li>• In 2018, we updated our lawful principles related to information security and the protection of suppliers' personal data</li> </ul>	NGOs	<ul style="list-style-type: none"> <li>• Responsibility for operations and risk management</li> <li>• Promoting renewable energy production</li> <li>• Reliable and open reporting</li> </ul>	<ul style="list-style-type: none"> <li>• We develop environmental and safety risk management</li> <li>• We invest in renewable energy: in 2018, a total of EUR 180 million in hydro, wind and solar power and bioenergy</li> <li>• We collaborate with Finnish and Swedish nature conservation associations regarding our environmentally benign electricity products</li> <li>• In Sweden, we received the Bra Miljöval label for the bedding-manure mixture collected from horse stables and used as fuel at power plants</li> <li>• In 2018, we had an active dialogue with NGOs about transitioning to emissions-free production, the transition period, and the importance of policy-making in defining the regulating framework</li> <li>• We communicate actively and we report openly</li> </ul>
			Local communities	<ul style="list-style-type: none"> <li>• Operational safety</li> <li>• Developing employment, infrastructure and recreational use</li> <li>• Reducing emissions, noise and other detriments</li> </ul>	<ul style="list-style-type: none"> <li>• We invest in infrastructure and operational safety. In 2018, we arranged the annual emergency preparedness exercise at the Loviisa nuclear power plant. Additionally, we carried out operational safety assessments at power plants in the Nordic countries, Poland and Russia.</li> <li>• We collaborate with local communities in all our operating countries: <a href="#">▶ Examples of our activities in 2018</a></li> <li>• We reduce emissions and local environmental impacts</li> <li>• We communicate proactively and openly</li> </ul>

## Dialogue around Fortum's Uniper investment continued

Fortum announced towards the end of 2017 a voluntary public takeover offer for all shares in the energy company Uniper SE. The investment in Uniper finalised the redeployment of capital received from the divestment of Fortum's electricity distribution business and delivered on its strategic goal to drive productivity and industry transformation.

Fortum closed the offer in February 2018, but the public takeover was conditional on regulatory approvals in the EU and Russia. These were received in June, making Fortum the largest shareholder in Uniper with a shareholding of 47.35%. On 31 December 2018, Fortum owned 49.99% of the shares in Uniper. The authority clearances in compliance with Russian competition legislation and strategic investment law enabled Fortum to acquire up to 50% of shares in Uniper SE.

Fortum's nearly four-billion-euro investment in Uniper was one of the most significant energy sector M&As in Europe in 2018, and it received a lot of media attention both in Finland and internationally. Uniper's management opposed Fortum's offer, which added to the transaction's interest in the public eye. There was also a lot of dialogue around the Russian authority clearances.

Other Fortum stakeholder representatives, such as sustainability-specialised investors and NGOs, also contacted Fortum about the issue. The biggest concerns raised by the various stakeholders have been the strategic fit of Uniper's fossil-based production with Fortum low-carbon assets and its impact on Fortum's carbon footprint.

### Dialogue with NGOs

In early 2018, a group of Finnish and international environmental and civic organisations sent an appeal to Fortum, requesting Fortum to shut-down its own and Uniper's coal-fired power plants. **Fortum responded to the organisations' letter** and invited the organisations' representatives to an engagement event in June. In November, the NGOs published a new appeal, to which **Fortum also responded**. It is important to Fortum that a broad-based dialogue is held on the means

by which Europe can transition towards low-carbon energy production in the upcoming decades.

Together Fortum and Uniper have the strategic mix of assets – both clean and secure – as well as the expertise required to successfully drive the transition towards a low-carbon energy system. As a Uniper shareholder, Fortum continues to be fully committed to its strategy and sustainability targets. Fortum's carbon footprint (gCO<sub>2</sub>/kWh) is already one of the smallest among European power companies, and we have a proven track-record on driving transition to a low-CO<sub>2</sub> direction. This is something that we consider one of our core competences and a competitive advantage.

### Policy decisions frame the phase out of coal

Fortum supports the target of a carbon-neutral EU by 2050, and we, along with other Nordic energy companies, have encouraged the European Commission to have a **more ambitious policy** to achieve the goal. In addition to energy production, actions to reduce emissions are needed also in all other sectors of society. The EU and the member countries must mutually agree on a path on which this transition can be achieved in a controlled manner without compromising security of supply. We believe that a well-functioning, market-based emissions trading system is the best way, in terms of security of supply, to implement the transition to a low-carbon energy system at the lowest cost to society.

In virtually every European country where Fortum or Uniper own coal-fired power plants, there is an ongoing dialogue about national decisions to discontinue the use of coal in energy production. These countries, along with the Nordic countries, are Great Britain, Netherlands, France and Germany. It is clear that the EU and governments are driving the phase out of coal and are assessing how they can simultaneously ensure security of supply and affordable energy for their citizens. Companies operating in the sector will abide by the decisions made by the governments.



Fortum owns less than 50% of Uniper's shares. Uniper is an independently operating listed company where operational decisions are made by the acting management. As a shareholder, we have influence in the Supervisory Board regarding the company's long-term strategy and on how the company responds to emissions reduction targets, while at the same time ensuring the security of supply and competitively priced energy for its own customers.

## Case | Solutions for promoting clean transportation



Fortum developed solutions in 2018 to promote clean transportation in Finland and internationally.

Fortum Charge & Drive is currently building the first high-power charging corridor for electric vehicles between Oslo and Helsinki to facilitate EV mobility in the Nordics. The first high-power charging station was opened outside Oslo, Norway, in April; in Kristinehamn, Sweden, in August; and in Lohja, Finland, in November 2018. The network enables the newest generation EV models, which have a range of over 300 kilometres, to drive from Helsinki to Oslo in the same amount of time as combustion engine cars.

Enhancing EV mobility in Europe was boosted early in the year when Fortum Charge & Drive and Plugsurfing joined forces; Fortum's Nordic charging network was connected as part of Plugsurfing's charging and payment application. Previously, a challenge for EV drivers was the numerous different charging networks requiring registration and the use of different payment applications. Now Plugsurfing connects 60,000 EV drivers to more than 200 charging networks, thus offering access to over 100,000 charging points in 31 European countries.

In India, the government is pursuing full electric mobility by 2030. Fortum's collaboration with the Clean Motion company supports the target by aiming to accelerate India's electrification of three-wheeled vehicles with a battery swap system. In September 2018, Fortum joined the international EV30@30 campaign to promote the electrification of vehicles. The campaign's goal is to accelerate EV adoption and reach a 30% sales share for electric vehicles by 2030.

In addition to external activities, Fortum is electrifying also its own employees' transportation. Since the beginning of 2018 in Finland, the company's employee car policy has allowed for only new EVs or plug-in hybrids as company cars. The same policy was adopted in November 2018 for employees in Sweden.

## Sustainability indices



Fortum was ranked in category B (scale from D to A, A being the highest score) among the Electric utility sector in the annual CDP Climate Change rating 2018. CDP collects information on climate risks and low carbon opportunities from the world's largest companies. CDP is an international, not-for-profit organisation involving several different market players.



Fortum is included in the Euronext Vigeo Eurozone 120 and Euronext Vigeo Europe 120 indices. Euronext Vigeo Eiris indices are composed of the 120 highest-ranking listed companies in the region according to their ESG performance. Ratings measure company performance against a set of risks that the rating agency defines to monitor and assess corporate responsibility. The assessment is based on 330 indicators.



In 2018, Fortum received a rating A (on a scale of AAA–CCC) in the MSCI ESG Ratings assessment. MSCI ESG Research LLC is the world's largest provider of ESG rating and research, and annually rates more than 13,000 companies. MSCI ESG Ratings helps investors to identify the environmental, social and governance related risks and opportunities in the investment portfolio.



ISS-oekom Corporate Rating has awarded Fortum a Prime Status (B-) rating. Prime status is awarded to companies that meet specific minimum requirements in Corporate Ratings and achieve the best ESG scores among their sector peers.



Fortum is included in the STOXX Global ESG Leaders index. The index offers a representation of the leading global companies in terms of environmental, social and governance criteria. The index is made of three ESG sub-indices.



Fortum is included among the Equileap Gender Equality TOP 200 companies, climbing in 2018 from place 134 to place 50. In 2018, Fortum received a ranking of B- (on a scale with A+ being the best and F the worst). The assessment criteria are related to the gender balance in leadership and workforce, equal compensation, work/life balance, and policies promoting gender equality in, e.g., recruiting and career development.

▶ [Fortum's sustainability indices and ratings](#)

# Climate and resources



Fortum's aim is to provide customers environmentally benign and reliable products and services. We strive to continuously reduce the impacts our operations have on the environment by using the best available practices and technologies.

In our operations, we emphasise a circular economy, better resource and energy efficiency, and climate change mitigation. We base our energy production mainly on carbon dioxide-free hydro and nuclear power production, and on energy-efficient combined heat and power production, and we invest in renewable energy production, such as wind and solar power.

### Environmental impacts

Some of the environmental impacts of energy production are global or wide-reaching, some are regional or local. We manage our environmental impacts with environmental management systems. 99.9% of our electricity and heat production globally has ISO 14001 certified environmental management system.

In terms of Fortum's operations, the key environmental aspects include:

- Climate change
- Renewable energy production
- Circular economy and resource efficiency
- Flue-gas emissions
- Hydropower's environmental impacts and biodiversity
- Fuel procurement

### Climate change mitigation

We can reduce our greenhouse gas emissions by increasing carbon dioxide-free energy production and the use of renewable energy, and by improving the energy efficiency of our production. Our strategy is targeting to a multi-gigawatt wind and solar portfolio. In 2018, we made several new investment decisions and investments in wind and solar power.

### Circular economy boosts resource efficiency

We recycle significant amounts of waste and energy production by-products generated in our operations. Additionally, in circular economy services, we recycle, reuse and recover waste received from customers as materials or energy production. The continuous improvement of resource and energy efficiency is important in terms of the sufficiency of natural resources and climate change mitigation.

### Advanced combustion technology

Fuel use generates sulphur dioxide, nitrogen oxide and particle emissions that degrade air quality and cause acidification of soil and water systems. Flue-gas emissions can be effectively reduced with various flue-gas cleaning technologies and combustion technology solutions. All our power plants operate in line with environmental permits. We have supplied also other energy companies with combustion technology solutions designed to reduce nitrogen oxides.

### Mitigation of hydropower's environmental impacts

Damming rivers and regulating water systems change the natural water levels and cause changes in aquatic habitats. We actively take part in research activities in the sector and implement voluntary and permit-based measures to develop the biodiversity, fish populations and the multi-use of water systems where we produce hydropower.

- ▶ Environmental impacts from our energy production
- ▶ Sustainable fuel purchasing

**57%**

**Share of carbon dioxide-free electricity production of total power generation**



### Key figures related to climate and resource efficiency

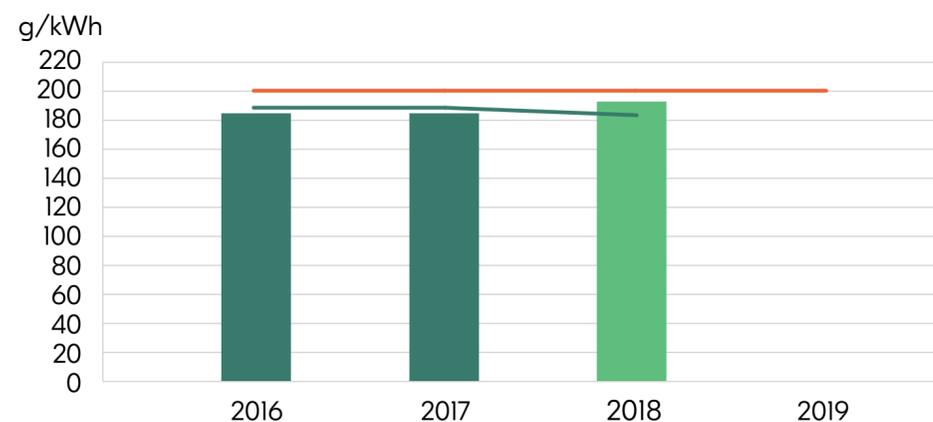
The table and graphs present our key targets and figures related to climate and resource efficiency.

### Key figures related to climate and resource efficiency

	2018	2017	2016
Carbon dioxide emissions (Scope 1), million tonnes	20.1	18.4 *	18.6
Sulphur dioxide emissions, 1,000 tonnes	16.8	18.8	22.5
Nitrogen oxide emissions, 1,000 tonnes	26.1	26.4 *	24.8 *
Particle emissions, 1,000 tonnes	9.6	15.8	16.8
Specific CO <sub>2</sub> emissions of power generation, g/kWh	186	174 *	173
Specific CO <sub>2</sub> emissions of power generation in the EU, g/kWh	26	28	28
Specific CO <sub>2</sub> emissions of total energy production, g/kWh	192	184	184
5-year average, g/kWh	186	188	188
Share of CO <sub>2</sub> -free energy in power generation, %	57	61	62
Share of renewable energy in power generation, %	28	30	30
Share of renewable energy in heat production, %	9	9	7
Energy-efficiency improvement, GWh/a	135	131	245
Utilisation of gypsum originated from energy production, %	99.5	100	100
Utilisation of ash originated from energy production, %	51	47	37
Material recovery rate of waste received from customers, %	59	57	-
Water withdrawal in production operations, million m <sup>3</sup>	2,140	2,130 *	2,140
of which cooling water, million m <sup>3</sup>	2,000	1,990 *	2,035
Major EHS incidents, no.	18	20	22
of which environmental permit violations, no.	2	2	11
ISO 14001 -certified operations in power and heat production, % of sales	99.9	99.8	99.9

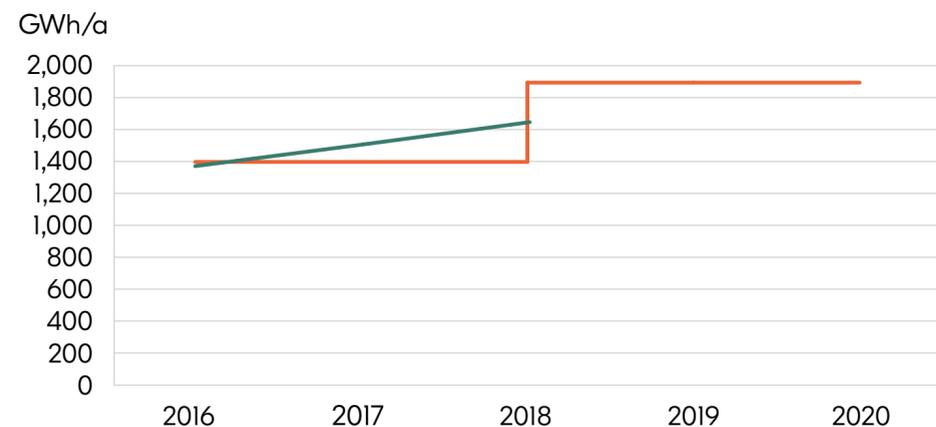
\* Figure revised

### Specific carbon dioxide emissions of total energy production in 2016–2018



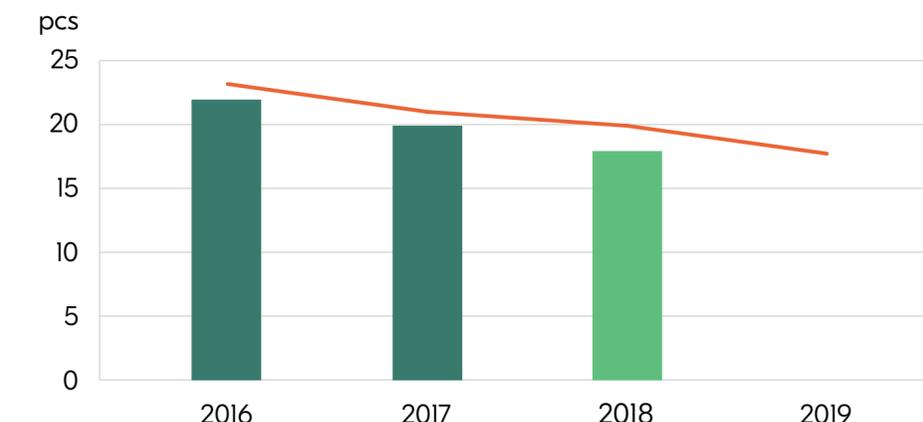
■ Annual specific emissions  
 — Specific emissions (5-year average)  
 — Target (5-year average)

### Annual energy-efficiency improvement achieved in 2016–2018



— Cumulative energy-efficiency improvement from 2012  
 — Target (by 2020)

### Number of major EHS incidents in 2016–2018



■ Number of major EHS incidents  
 — Target

# Sustainable energy production

Our energy production is based primarily on carbon dioxide-free hydro and nuclear power and on energy-efficient combined heat and power. Our strategy is targeting to a multi-gigawatt wind and solar portfolio.

Fortum’s power generation in 2018 was 74.6 (2017: 73.2) TWh and heat production 29.8 (2017: 28.6) TWh. 57% (2017: 61%) of our power generation was carbon dioxide-free and 28% (2017: 30%) was produced from renewable energy sources. About 9% (2017: 9%) of our heat production was produced from renewable, carbon-neutral energy sources.

The figures in the tables and graphs also include figures from Fortum’s share in associated companies and joint ventures that sell their production to the owners at cost.

## More renewable energy

In 2018, we made investment decisions and invested in new wind and solar power. In January, we commissioned the 35-MW Ulyanovsk wind farm in Russia. The wind farm is the first in Russia. In autumn 2018, we commissioned the 50-MW Ånstadblåheia wind farm in Norway, and construction of the 97-MW Sørffjord wind farm continues. In Sweden, we commissioned the 76-MW Solberg wind farm in which Fortum has a 50% stake.

In June 2018, Fortum won the right to build 110 MW of solar capacity in a Russian Capacity Supply Agreement (CSA) auction. Solar power will be commissioned during 2021–2022.

Additionally, Fortum and Rusnano investment fund with 50/50 ownership has the right to build and commission 1,823 MW of new CSA-supported wind power in Russia in 2019–2023. A separate investment decision will be made for each project. In 2018, the investment fund constructed the 50-MW Ulyanovsk wind farm and it was commissioned at

Power generation by energy source in 2016–2018 (GRI 302-1)

TWh	2018	2017	2016
Natural gas	28.4	25.3	24.3
Nuclear power	22.8	23.0	24.1
Hydropower	19.1	20.7	20.7
Coal	2.2	2.6	2.8
Biofuels	0.9	0.8	0.8
Wind, solar	0.8	0.5	0.1
Waste-derived fuels	0.4	0.3	0.2
Other <sup>1)</sup>	0.2	0.1	0.1
<b>Total</b>	<b>74.6</b>	<b>73.2</b>	<b>73.1</b>

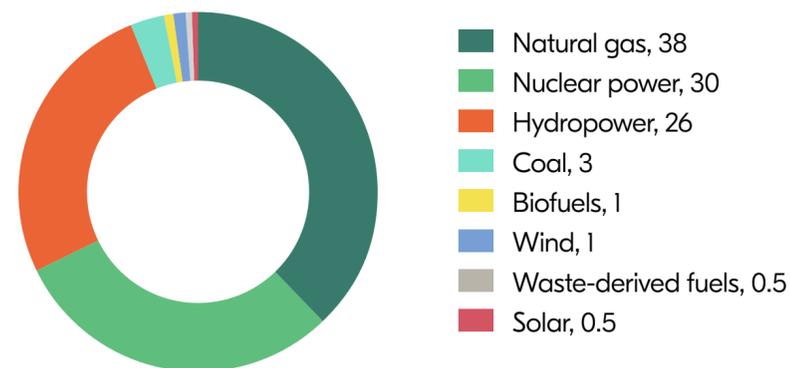
1) Peat, other

Heat production by energy source in 2016–2018 (GRI 302-1)

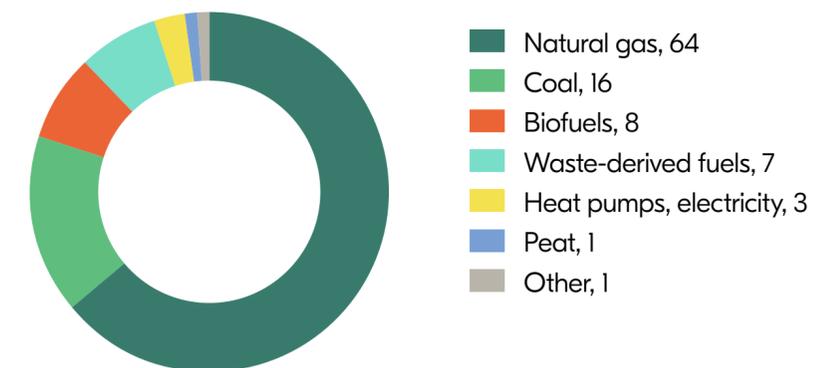
TWh	2018	2017	2016
Natural gas	19.2	18.6	19.7
Coal	4.7	4.8	4.7
Biofuels	2.3	1.9	1.9
Waste-derived fuels	2.0	2.3	0.8
Heat pumps, electricity	0.9	0.6	0.3
Peat	0.4	0.4	0.4
Other <sup>1)</sup>	0.2	0.0	0.0
<b>Total</b>	<b>29.8</b>	<b>28.6</b>	<b>27.8</b>

1) Fuel oil, other

Power generation by energy source, %



Heat production by energy source, %



the beginning of 2019. Additionally, the investment fund had 350 MW of new wind power capacity under construction.

In June 2018, Fortum won the new 250-MW Pavagada solar power project in Karnataka, India. At the beginning of August 2018 Fortum sold its majority share in the 185-MW solar power portfolio in India to free up capital for additional solar power investments. After the divestment, Fortum's share of the solar power plants in India is 85 MW.

Fortum signed a conditional contract with the State of Montenegro to build a 250-MW solar power plant in the Ulcinj solar site in Montenegro.

Refurbishments of Fortum's own hydropower plants in Sweden produced 4.5 MW of new renewable electricity production capacity in 2018.

### New, energy-efficient and low-carbon production

In September 2018, we started the trial run of the new Zabrze CHP production plant in Poland. The plant has a maximum capacity of 75 MW electricity and 145 MW heat. The plant combusts mainly refuse-derived fuel (RDF) and coal. The share of RDF is about 40–50%. Zabrze multi-fuel plant utilises locally collected municipality and industry waste and has a positive impact on the waste management in the area.

The new Zabrze CHP plant represents the best available technology and will eventually replace the old Zabrze and Bytom coal-fired power plants. It improves the energy production efficiency and reduces carbon dioxide and other flue-gas emissions into the environment in relation to the produced energy.

A high-pressure turbine was replaced during the 2018 annual outage of the Loviisa nuclear power plant's unit 2. This modification increased the plant unit's nominal output by 5 MW.

Fortum will replace some of the coal use in heat production in Finland by building a bioheat plant in Kivenlahti, Espoo. Its maximum heat output will be 58 MW. Construction started in late 2018, and production

is estimated to commence in 2020. Fortum and the City of Espoo have jointly committed to making Espoo's district heating carbon-neutral in the 2020s.

### ► Our energy production forms



## Climate change mitigation

Our vision — For a cleaner world — is based on the development of a low-emission energy system and optimal energy and resource use. Our main tools in climate change mitigation are increasing the share of renewable energy production, improving energy efficiency and offering smart energy solutions for customers.

### Climate change creates opportunities for demand growth

We believe that the growing awareness and concern about climate change will increase the demand for low-carbon and resource- and energy-efficient energy products and services. We are leveraging our know-how in carbon dioxide-free hydro, nuclear, wind and solar power and in energy-efficient combined heat and power (CHP) production by offering our customers low-carbon energy solutions. We also believe that the electrification of transportation, industry and services will increase the consumption of low-carbon electricity in particular. Our strategy is targeting to a multi-gigawatt wind and solar portfolio.

Our circular economy services also respond to this demand by utilising waste stream materials as efficiently as possible and by reducing the formation of greenhouse gases generated from biodegradable waste at landfills. Additionally, the use of non-recyclable and non-recoverable waste in energy production replaces fossil fuel.

### Risks related to climate change

The energy business is influenced by national and EU-level energy and climate policies and regulations. The impact of regulatory changes on operations in existing and new market areas has been examined in Fortum's strategy work. We also take into consideration the climate-related transition risks of potential new businesses, investments and

technologies. The Emissions Trading Scheme, carbon price and taxation of fuels have an impact on strategic decisions, for example, on the technology used at production plants and on fuel choices.

Our operations are exposed to the physical risks caused by climate change, including changes in weather patterns that could alter energy production volumes and energy demand. Fluctuating precipitation, flooding and extreme temperatures may affect, for instance, hydropower production, dam safety, availability of cooling water, and the price and availability of biofuels.

Hydrological conditions, precipitation, temperatures and wind conditions also affect the short-term electricity price in the Nordic power market. In addition to climate change mitigation, we also aim to adapt our operations and we take climate change into consideration in, among other things, the assessment of growth projects and investments, and in operation and maintenance planning.

### Towards low-carbon production

In Europe, we produce carbon dioxide-free electricity with hydropower, nuclear power and wind power and at CHP production plants that utilise biofuels and waste-derived fuels. In the EU area, 96% (2017: 96%) of our electricity production was carbon dioxide free in 2018. The rest of the electricity was produced mainly with coal.

Our electricity production in Russia is based on mainly natural gas and coal. Our new plant units in Russia are based on gas turbine technology, which represents the best available technology in natural gas combustion. Investment decisions and investments in new wind and solar power production have been also made in Russia. 57% (2017: 61%) of our total electricity production was carbon dioxide free.

The following investments and projects, among others, directly or indirectly reducing carbon dioxide emissions were completed in 2018:

- New wind farms in Norway, Sweden and Russia
- Replacement of the high-pressure turbine at unit 2 of the Loviisa nuclear power plant in Finland

- Pärnu power plant's boiler refurbishment, and the Tartu district heating and cooling network projects in Estonia
- Refurbishments of hydropower plants in Sweden

We have estimated that these projects will reduce annual carbon dioxide emissions by about 40,000 tonnes. Additionally, we estimate that the new Zabrze CHP plant will reduce carbon dioxide emissions by about 200,000 tonnes in relation to the produced energy. Projects under construction and decisions on new investments are described in more detail in the section [Sustainable energy production](#).

### Climate-benign products and services

We offer our customers a range of [energy services](#) and energy products to help them improve their energy efficiency and reduce their carbon footprint:

- CO<sub>2</sub>-free electricity products and carbon-neutral heat products
- Real-time monitoring and optimisation of energy consumption
- Electric vehicle charging systems
- Solar panel solutions

The growth of renewable energy increases the need for regulating power and storage solutions in the national energy system. In a demand response-based energy service, household customers' water heaters are connected as part of a [Virtual Battery](#), reducing the need to start-up fossil fuel-fired reserve power plants and supporting the use of renewable energy by balancing peak consumption in the electricity network.

Customers can also supply excess heat generated in their buildings and other operations to our open district heating network in Finland. Homes in the district heating network are heated with excess heat generated, for example, by data centres, industrial facilities and wastewater treatment plants.

We are expanding our offering also by investing in startups that are developing new technologies. At the end of 2018, Fortum announced the new ▶ **Valo Ventures** growth fund, which invests in early- and growth-stage technology companies.

### Innovative fuels

▶ **Fortum HorsePower** is a service concept in which Fortum delivers bedding to horse stables and picks up the bedding-manure mixture for combustion. In 2018, the bedding-manure mixture was collected from about 300 horse stables in Finland and about 75 in Sweden. Fortum combusts the bedding-manure mixture at the Järvenpää power plant, and it was delivered also to other energy companies for fuel. In Sweden, the fuel received the Bra Miljöval label in 2018.

In 2018 the Joensuu bio-oil plant produced about 5,000 tonnes of ▶ **bio-oil**, the majority of which was used at a heat plant in the Joensuu power plant area and at the Vermo heat plant in Espoo.

### Emissions trading

About 77% of carbon dioxide emissions from our energy production in the Nordic countries, the Baltic countries and Poland are within the sphere of the EU's emissions trading scheme. We had a total of 53 (2017: 50) plants in six member countries within the EU's emissions trading scheme in 2018. Fortum was granted free emission allowances corresponding to 0.8 (2017: 1.0) million tonnes. Our carbon dioxide emissions within the EU's emissions trading scheme were 2.5 (2017: 2.4) million tonnes. In terms of the emissions allowances, we have a deficit and will purchase the shortfall of emissions allowances from the markets.

Fortum's view is that EU emissions trading is the most cost-efficient and flexible way to achieve emissions targets. In April 2018, a revision to the EU emissions trading directive for 2021–2030 took effect, and the national adoption of it is underway in member countries. The price for an EU emissions allowance has more than tripled during the past

year. Fortum expects that the revised directive will further improve the efficiency of emissions trading.

We also want to promote the establishment of a global carbon pricing and carbon market. We are participating in a number of international initiatives promoting the role of business in climate change mitigation. These include, for example, the UN Global Compact's Caring for Climate initiative and the World Bank's Carbon Pricing Leadership Coalition. In Finland, Fortum is a member of the Climate Leadership Coalition.

### Carbon funds

Fortum is a participant in the international Prototype Carbon Fund (PCF) climate fund. In 2018, we received a total of about 66,000 CER emission reduction units from this fund. So far, we have received a total of 2,820,000 emission reduction units, and we estimate that we will still receive about 52,000 units during the PCF's operating period. Fortum uses the emission reduction units it has received from the PCF to compensate greenhouse gas emissions generated by employee air travel. Emissions from employee air travel have been compensated since 2007.

### Greenhouse gas emissions

Our greenhouse gas emissions in 2018 totalled 26.4 (2017: 23.4) million tonnes. Scope 1 emissions were 20.2 million tonnes, Scope 2 emissions 0.1 million tonnes, and Scope 3 emissions 6.1 million tonnes. Greenhouse gas emissions are reported on a pro forma basis and the figures of the comparison years have not been adjusted because of partially insufficient data.

### Direct greenhouse gas emissions – Scope 1

The majority of our greenhouse gas emissions are generated from the use of fossil fuels in electricity and heat production. A small amount of emissions is generated from the use of company vehicles. Our direct greenhouse gas emissions were 20.2 (2017: 18.5) million CO<sub>2</sub>-equivalent tonnes. The share of carbon dioxide from our direct greenhouse gas

emissions was 99.5%. The share of Scope 1 greenhouse gas emissions from our total greenhouse gas emissions was about 77%. The direct CO<sub>2</sub> emissions figure for 2017 has been revised with the change in the reporting approach in electricity and heat production in Lithuania.

### Direct greenhouse gas emissions (Scope 1) in 2016–2018 (GRI 305-1)

Mt CO <sub>2</sub> -ekv	2018	2017	2016
CO <sub>2</sub>	20.1	18.4 *	18.6
CH <sub>4</sub>	0.01	0.01	0.01
N <sub>2</sub> O	0.09	0.09	0.17
HFCs	0.00	0.00	0.00
SF <sub>6</sub>	0.00	0.00	0.00
<b>Total</b>	<b>20.2</b>	<b>18.5 *</b>	<b>18.8</b>

\* Figure revised

### Direct carbon dioxide emissions by country in 2016–2018 (GRI 305-1)

Million tonnes	2018	2017	2016
Finland	1.7	1.7	2.0
Russia	16.9	15.4	15.5
Poland	0.8	0.7	0.8
Other countries	0.8	0.6 *	0.3
<b>Total</b>	<b>20.1</b>	<b>18.4 *</b>	<b>18.6</b>

\* Figure revised

Of the direct carbon dioxide emissions, 84% (2017: 84%) originated from the Russian operations and 8% (2017: 9%) from Finland. Direct carbon dioxide emissions increased from the previous year by about 1.7 million tonnes, mainly because of the increased electricity production in Russia. Fortum's direct biogenic carbon dioxide emissions were 1.5 (2017: 1.4) million tonnes.

The calculation of greenhouse gas emissions covers carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), fluorinated hydrocarbons

(HFCs) and sulphur hexafluoride (SF<sub>6</sub>). Carbon dioxide emissions as well as methane and nitrous oxide emissions have been calculated on the basis of plant-specific fuel data. The amounts of HFC compounds and SF<sub>6</sub> are reported on the basis of the amounts of gas added to the equipment. Specific emission factors of gases are based on IPCC publications.

### Indirect greenhouse gas emissions – Scope 2

Greenhouse gas emissions from the production of electricity purchased for our own use were 92,200 (2017: 102,700) tonnes of carbon dioxide-equivalent. Carbon dioxide emissions accounted for 99.6% of this in 2018. The share of Scope 2 greenhouse gas emissions of our total greenhouse gas emissions was 0.4%.

About 80% of Scope 2 greenhouse gas emissions have been estimated on the basis of information received from electricity suppliers. The rest, including Scope 2 greenhouse gas emissions in Russia, has been estimated on the basis of country-specific breakdown of electricity production.

### Indirect greenhouse gas emissions (Scope 2) in 2016–2018 (GRI 305-2)

t CO <sub>2</sub> -ekv	2018	2018 (Location-based)	2017	2016
CO <sub>2</sub>	91,800	93,300	102,300	95,000
CH <sub>4</sub>	100	155	75	76
N <sub>2</sub> O	290	555	370	375
<b>Total</b>	<b>92,200</b>	<b>94,000</b>	<b>102,700</b>	<b>95,500</b>

### Other indirect greenhouse gas emissions – Scope 3

The majority of our Scope 3 greenhouse gas emissions are caused by the purchases of goods and services, investments and the production and transportation of fuels. The transportation of waste received

from customers also creates greenhouse gas emissions in our circular economy business. Other operations (e.g. employee travel and waste management) account for less than 1% of Scope 3 greenhouse gas emissions.

Our Scope 3 greenhouse gas emissions in 2018 were an estimated 6.1 (2017: 4.8) million tonnes. The share of Scope 3 emissions was 23% of our total greenhouse gas emissions. We estimate that all our Scope 3 emissions come from fossil energy sources.

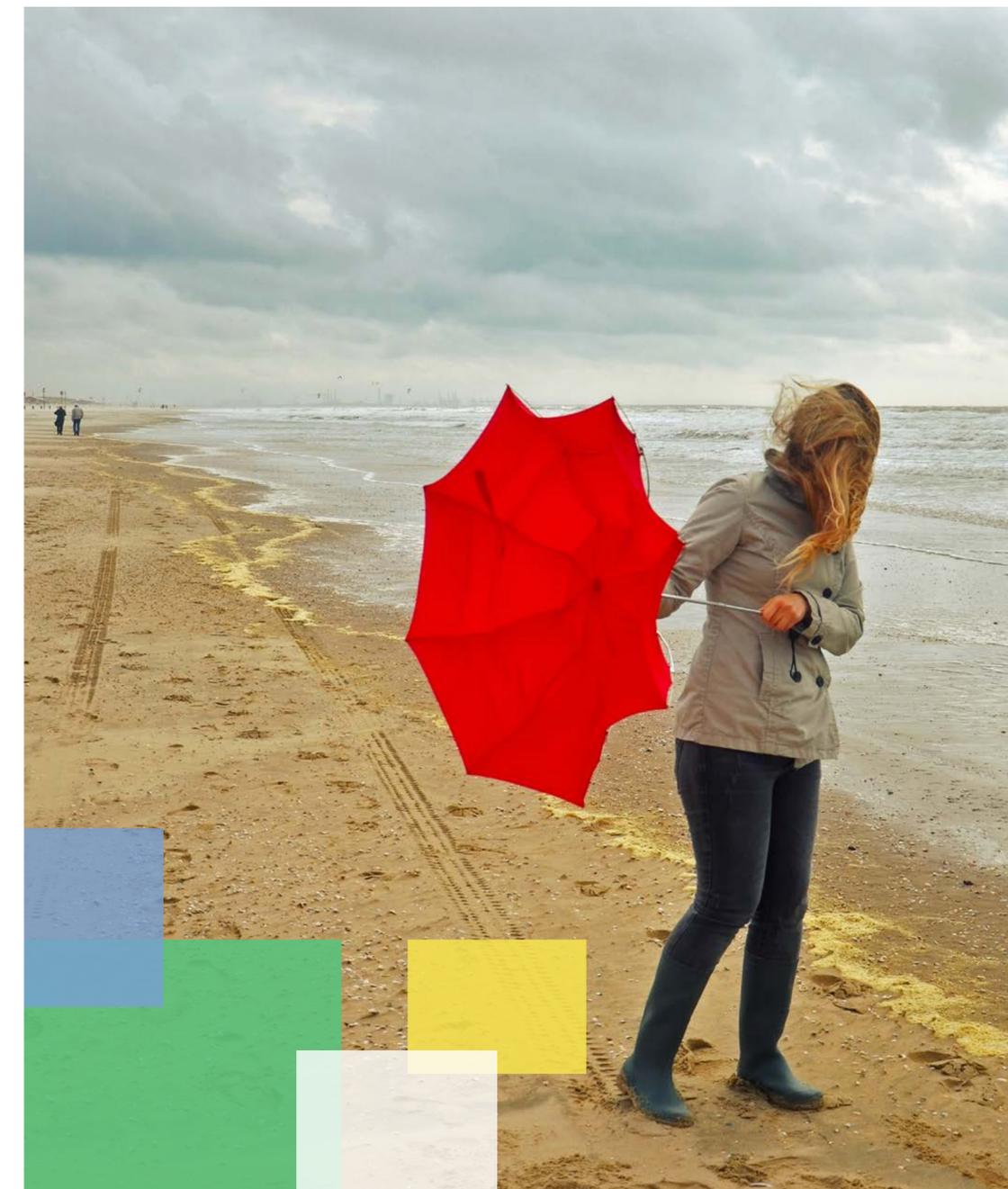
### Indirect greenhouse gas emissions (Scope 3) in 2016–2018 (GRI 305-3)

t CO <sub>2</sub> -ekv	2018	2017	2016
Fuel procurement	5,489,600	4,225,800	4,347,900
Purchased goods and services	260,900	371,700	233,700
Capital goods	310,700	229,400	142,700
Other activities	19,700	17,600	17,500
<b>Total</b>	<b>6,080,900</b>	<b>4,844,500</b>	<b>4,741,800</b>

We report Scope 3 greenhouse gas emissions in accordance with the requirements of the Corporate Value Chain (Scope 3) Accounting and Reporting standard. The volumes describing the scope of the various activities have been obtained from our monitoring and reporting systems.

About 12% (2017: 18%) of the purchases were excluded from the purchasing categories defined by Fortum's Procurement function, due to insufficient reporting. The emissions for these are estimated with the average emissions factor of the specified purchasing categories. The specific emission factors used in calculating the greenhouse gas emissions are based on different literature sources. In 2018, we updated the emissions factors, so the calculated emissions are not fully comparable with previous years.

▶ [Fortum's CDP Climate Change 2018 response](#)



Case | Reducing CO<sub>2</sub> emissions with carbon capture

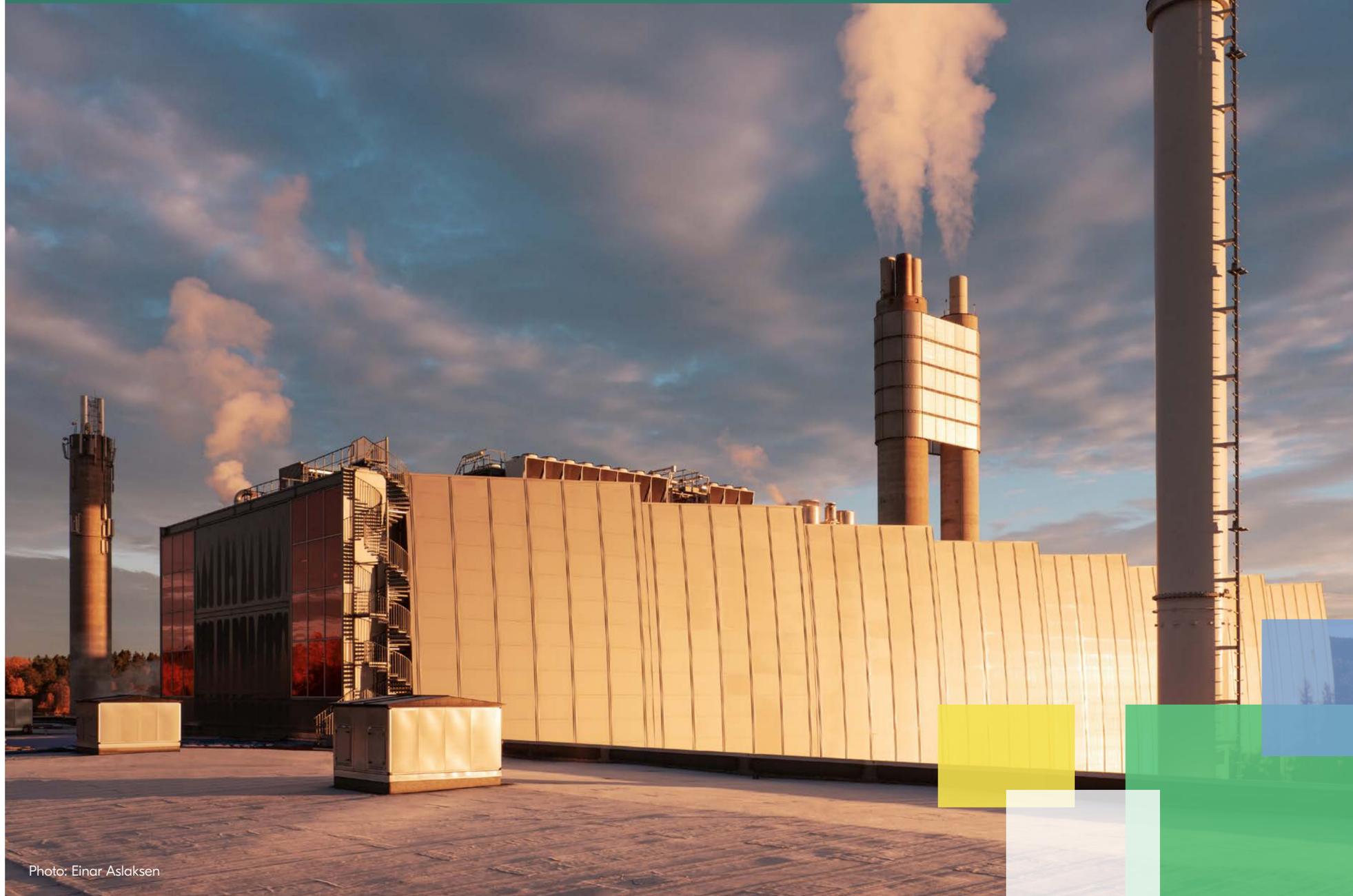


Photo: Einar Aslaksen

In order to take concrete steps towards decarbonisation, the Norwegian government has launched a Carbon Capture and Storage (CCS) project. The City of Oslo is aiming for a 50% reduction in greenhouse gas emissions by 2022 and a 95% reduction by 2030. The CCS project at Fortum Oslo Varme's Klemetsrud waste-to-energy plant is the single most important initiative to achieve the target.

Launched in August 2018, the CCS project at the Klemetsrud waste-to-energy plant is currently in the preliminary planning phase. The plant uses municipal waste in the production of electricity and heat. Because the waste cannot be recycled or recovered as material, using it in energy and heat production reduces the amount of waste ending up in landfills. The process removes hazardous gases and other substances, but still produces carbon dioxide emissions. The problem can be solved using CCS technology that is already in use in Canada.

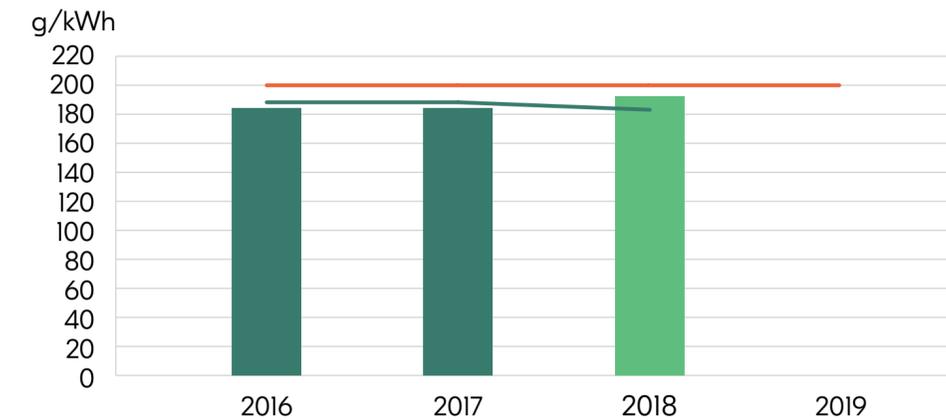
Fortum Oslo Varme's plan is to capture 400,000 tonnes, i.e. 90%, of the waste-to-energy plant's CO<sub>2</sub> emissions. In the plan, the captured carbon dioxide is converted into a liquid form, transported to a port, and shipped to an intermediate storage on the west coast of Norway. Finally, in collaboration with partners (e.g. Equinor), the CO<sub>2</sub> is pumped below the seabed and stored in old, depleted oil and gas reservoirs. In addition to the CO<sub>2</sub> from Norway, the reservoirs can also be used to store liquefied carbon dioxide from other European countries.

The Oslo CCS project's target is to submit the final project plan to the Norwegian government in August 2019. The Parliament's decision on the matter is anticipated in 2020 or 2021. The project is expected to be launched in 2023 or 2024.

### Specific carbon dioxide emissions

Our specific carbon dioxide emissions (Scope 1) from total energy production in 2018 were 192 (2017: 184) g/kWh. The five-year average, including 2018, was 186 (2017: 188) g/kWh, which is below the Group-level target of 200 g/kWh.

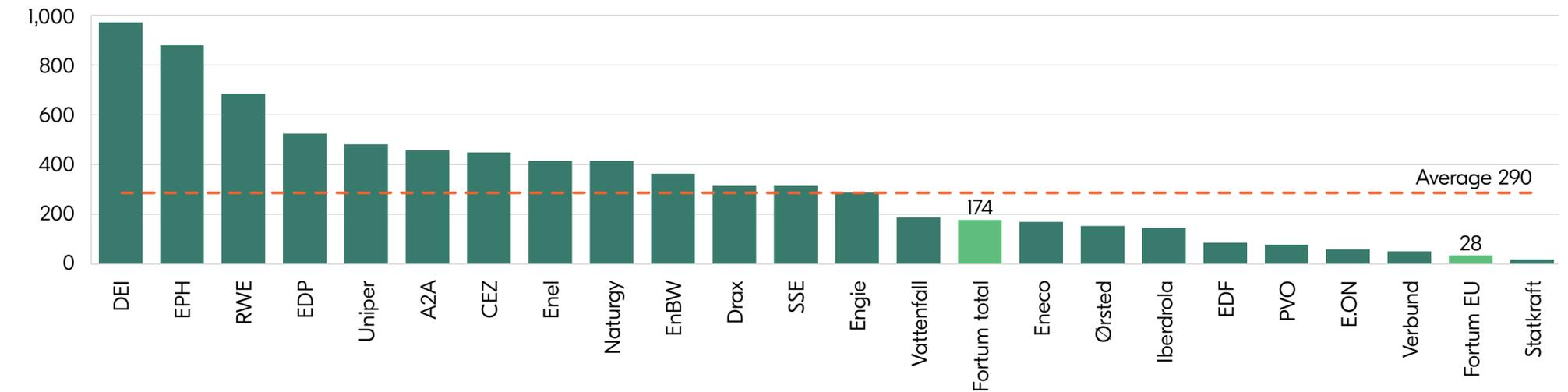
### Specific carbon dioxide emissions of total energy production in 2016–2018 (GRI 305-4)



- Annual specific emissions
- Specific emission (5-year average)
- Target (5-year average)

Our specific carbon dioxide emissions from total electricity production (Scope 1) in 2018 were 186 (2017: 174) g/kWh. Our specific carbon dioxide emissions from electricity production in the EU area were 26 (2017: 28) g/kWh. The specific carbon dioxide emissions from our electricity production, measured as g CO<sub>2</sub>/kWh, are low compared to other European electricity producers. Our specific emissions in 2017 were one of the smallest among European major electricity utilities. European reference data for 2018 is not yet available.

### Specific CO<sub>2</sub> emissions of major utilities in Europe, g CO<sub>2</sub>/kWh electricity, 2017



Note: All figures, except "Fortum total", include only European power generation. Fortum's specific emissions of the power generation in 2018 in the EU were 26 g/kWh and in total 186 g/kWh. Source: PwC, December 2018, Climate Change and Electricity, Fortum

The boundary for specific carbon dioxide emissions generated from electricity production differs from other **environmental reporting principles**. The figures include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners at cost. This electricity production is based on hydro, wind and nuclear power, and the production doesn't cause direct carbon dioxide emissions.

In the calculation of electricity production's specific emissions, CHP plant emissions have been allocated for electricity and heat using the efficiency method presented in the Greenhouse Gas Protocol guidelines, with heat production efficiency of 90% and electricity production efficiency of 40%.

## 186 g/kWh

Specific CO<sub>2</sub> emissions,  
5-year average

Target: <200 g/kWh

## Improving energy efficiency

We can reduce emissions to the environment in relation to the produced energy, mitigate climate change, and decrease our production costs by improving the energy efficiency of electricity and heat production.

Improving energy efficiency at power plants refers to measures we implement to increase the efficiency of production processes or reduce the energy consumption of plants or equipment. This enables us to produce more electricity or heat for our customers without increasing fuel consumption.

The energy efficiency of power plants can be increased through investments and technical improvements, preventive maintenance, and by training personnel in the optimal operation of the plant and in monitoring the plant's operating economy. Improving power plant availability also increases energy efficiency, as unplanned plant start-ups are reduced.

### Energy-efficiency investments

In fuel-based energy production, we aim to utilise the fuel's energy as efficiently as possible. Our most important means to improve the energy efficiency of fuel use is to increase combined heat and power (CHP) production. In CHP production, up to 90% of the energy content of the fuels can be utilised. Separate electricity production's efficiency is about 40–60%.

In 2018, the high-pressure turbine was replaced at the Loviisa power plant's unit 2. The unit's nominal output increased by 5 MW, which means that in an average year it can produce 40 GWh more electric energy. Similar modernisations were implemented at the Loviisa plant during the annual outages in 2016 and 2017.

In addition, other projects to improve energy efficiency were completed in 2018:

- Pärnu power plant's boiler refurbishment and fuel and air supply improvements in Estonia, 28 GWh
- Hydropower plant refurbishments in Sweden, 15 GWh

The combined annual energy savings of the energy-efficiency improvement projects is about 135 GWh. Fortum's target is to achieve an annual energy-efficiency improvement of more than 1,900 GWh by 2020 compared to 2012. By the end of 2018, the annual cumulative energy-efficiency improvement achieved was 1,637 GWh. By the end of 2017, we exceeded the previously set cumulative annual energy-efficiency target of 1,400 GWh by about 100 GWh, so the annual target was raised by 500 GWh.

### Energy-efficiency services for homes and businesses

Fortum has introduced energy-efficiency services for private customers in Finland and Sweden. Fortum's customers can, for instance, monitor their electricity consumption with an in-home display or control and optimise the heating of their homes based on electricity price and use.

Fortum's operation and maintenance services have been improving the energy efficiency of our customers' power plants already for decades. Our energy-efficiency services review, in addition to an individual power plant, the development of a broader urban area and the profitability and environmental impacts of investments related to them. In addition to production, the review takes into consideration the energy distribution to customers and the changes in energy consumption.

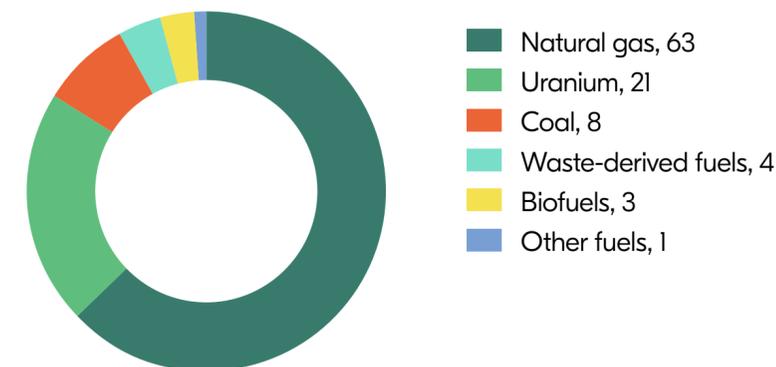
- ▶ [Energy-efficiency services for homes](#)
- ▶ [Energy-efficiency services for businesses](#)



### Fuel consumption

The most significant fuel used in our energy production was natural gas, and the next highest fuel used was uranium and coal. Our goal in the future is to produce increasingly more added value from biofuel and waste-derived fuel. The share of waste-derived fuel used in energy production in 2018 increased due to the growth of our circular economy business.

Fuel consumption in energy production, %



**Fuel use in 2016–2018, energy (GRI 302-I)**

Petajoules	2018	2017	2016
Natural gas	272.7	246.1	247.6
Nuclear fuel	91.4	83.8	91.1
Coal	36.4	39.0	40.6
Waste-derived fuel, fossil	8.8	7.6	3.6
Peat	2.1	1.9	1.8
Other fossil fuels	0.4	0.3	0.6
<b>Non-renewable fuels total</b>	<b>411.8</b>	<b>378.8</b>	<b>385.4</b>
Biofuel	11.9	11.2	10.2
Waste-derived fuel, renewable	6.3	4.4	2.5
<b>Renewable fuels total</b>	<b>18.2</b>	<b>15.6</b>	<b>12.7</b>
<b>Fuels total</b>	<b>430.0</b>	<b>394.4</b>	<b>398.1</b>

**Fuel use in 2016–2018, mass/volume (GRI 301-I)**

	2018	2017	2016
<b>Non-renewable fuels</b>			
Natural gas, million m <sup>3</sup>	8,058	7,151	6,710
Coal, 1,000 t	1,782	1,999	2,208
Waste-derived fuel, fossil, 1,000 t	863	751	344
Peat, 1,000 t	221	190	178
Fuel oil, 1,000 t	16	10	21
Nuclear fuel, t	20	23	20
<b>Renewable fuels</b>			
Biofuel, 1,000 t	1,180	1,142	1,041
Biogas, million m <sup>3</sup>	3	3	3
Waste-derived fuel, renewable, 1,000 t	589	428	225

The energy-specific fuel consumption has been calculated based on the usage volumes and fuel-specific caloric values measured at the power plants. Uranium consumption has been calculated from the thermal heat generation in the reactors. In 2018, Russia's share of our total energy-specific fuel consumption was about 67%. Russia accounted for 98% of our use of natural gas and 56% of our use of coal.

**Energy intensity**

In 2018, our fuel consumption in electricity and heat production was a total of 119 (2017: 110) TWh, or 430 (2017: 390) PJ. Additionally, we acquired 530 (2017: 480) GWh, or 1.9 (2017: 1.7) PJ, of electricity from external electricity suppliers. With these energy resources, we produced 55,600 GWh of electricity, 29,300 GWh of heat, 40 GWh of cooling, and 20 GWh of bio-oil. The total energy consumption, calculated as the difference between the procured energy resources and net production, was 51,000 (2017: 45,000) GWh, or 180 (2017: 160) PJ.

In combustion-based energy production, we aim to utilise the fuel as efficiently as possible. In 2018, our average fuel use efficiency was 58% (2017: 59%). The increased condensing power production in Russia and the increased use of waste-derived fuels have contributed to the decrease in the fuel use efficiency. The efficiency has been calculated by dividing the electricity and heat energy produced with the fuel by the energy content of the fuel used in the production.

The energy intensity of our own production was 1.7 (2017: 1.7). The intensity figure has been calculated by dividing the amount of used energy resources by the total net production of energy products, including also hydropower, wind power and solar power.

▶ **Origin of our fuels**

**Fuel use by country in 2018 (GRI 301-I)**

	Finland	Russia	Poland	Estonia	Denmark	Other countries	Total
<b>Non-renewable fuels</b>							
Natural gas, million m <sup>3</sup>	97	7,932	1	7		21	8,058
Coal, 1,000 t	330	1,093	358				1,782
Waste-derived fuel, fossil, 1,000 t	198		0		196	469	863
Peat, 1,000 t	134			76		10	221
Fuel oil, 1,000 t	8	1	2		3	4	16
Nuclear fuel, t	20						20
<b>Renewable fuels</b>							
Biofuel, 1,000 t	368		154	469		189	1,180
Biogas, million m <sup>3</sup>	3						3
Waste-derived fuel, renewable, 1,000 t	259		0			330	589

# Circular economy

Challenges for rapidly growing major cities and growth centres include not only the management of emissions, but also growth in waste volumes. Our goal is to offer customers sustainable circular economy services and expert solutions. Reliable waste management and resource efficiency are important in a sustainable society.

Fortum's aim is to promote the transition towards a more comprehensive circular economy. By circular economy we mean that materials are utilised as efficiently as possible and hazardous materials are removed from circulation. We also recover by-products and wastes generated in energy production whenever possible.

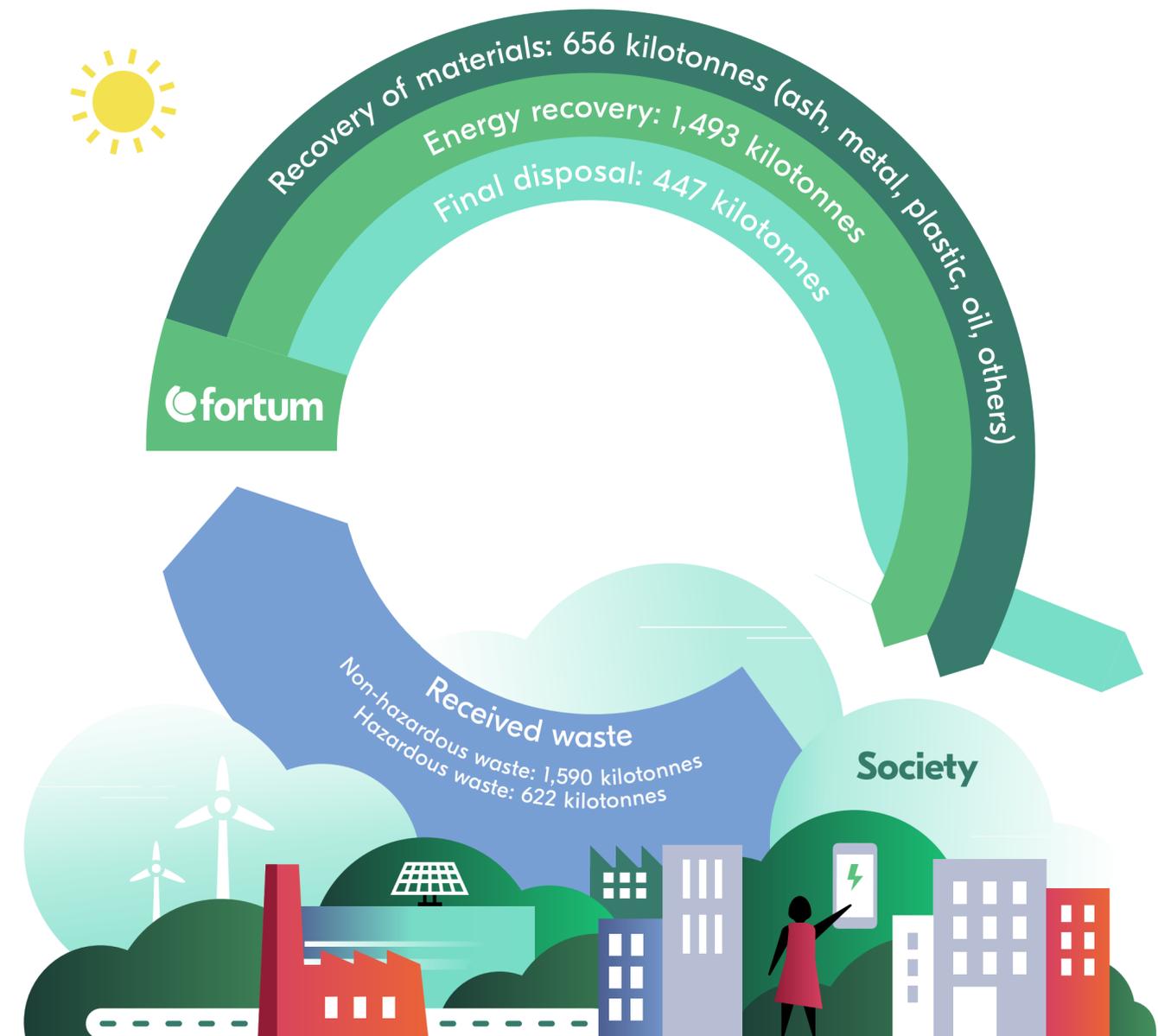
## Circular economy business is expanding

In September 2018, we opened a new processing line at the Riihimäki plastic refinery in Finland. The investment triples the refinery's processing capacity to about 30,000 tonnes a year. At the Riihimäki plastic refinery, Fortum produces mechanically recycled plastic from packaging waste recycled by consumers and industry, saving energy and natural resources.

We expanded high-value recycling to metals by acquiring the recycling business of the Finnish Fincumet in late 2018. The business receives and treats metals. After treating, the raw material is sold for reuse or downstream processing in Finland and abroad.

Additionally, we started the trial run of the new Zabrze CHP plant in Poland. The plant also combusts refuse-derived fuel (RDF), and the share of waste is about 40–50% of the fuel use.

## Received and treated waste from customers in 2018



In 2018, **98%** of Inkoo power plant's demolition waste was recovered.

### Waste management services

We offer waste management services for customers in the Nordic countries and Lithuania. As much of the waste stream as possible received from customers is recycled, reused or recovered as raw material.

In 2018, we received a total of approximately 1.6 (2017: 1.5) million tonnes of non-hazardous, conventional waste from our customers. Of the conventional waste, contaminated soil accounted for 149,000 (2017: 212,000) tonnes, and ash 191,000 (2017: 301,000) tonnes. We also received about 600,000 (2017: 700,000) tonnes of hazardous waste from our customers; contaminated soil accounted for 60,000 (2017: 88,000) tonnes of that amount and ash 79,000 (2017: 88,000) tonnes.

Waste that is unsuitable for recycling or reuse as a material is incinerated in our waste-to-energy plants. This reduces the use of virgin fossil or renewable fuels in electricity and heat production. Waste that is unsuitable for recovery is disposed of at landfilling sites.

### Received and treated waste from customers in 2018

kilotonnes, 1,000 t	Finland	Sweden	Norway	Denmark	Other countries	Total
<b>Received waste from customers</b>						
Non-hazardous waste	743	212	378	0	257	1,590
Hazardous waste	220	185	0	217	0	622
<b>Recovery and disposal</b>						
Recovery of materials <sup>1)</sup>	238	330	53	32	3	656
Energy recovery (waste incineration)	484	163	379	210	257	1,493
Final disposal <sup>1)</sup>	218	73	65	13	79	447

1) Includes received waste from customers and also ash from waste incineration

### Recovery of materials

Various types of waste can be reused as raw materials. Of the waste received from our customers in 2018, we recovered as materials about 656,000 (2017: 634,000) tonnes; environmental construction materials accounted for about 418,000 (2017: 362,000) tonnes of that amount and recoverable ash accounted for about 128,000 (2017: 159,000) tonnes, and processed raw materials and products about 72,000 (2017: 68,000) tonnes. The material recovery rate of the waste was 59% (2017: 57%).

In addition, about 225,000 (2017: 226,000) tonnes of recoverable materials originated at Fortum's own power and heat plants.

We are continuously developing activities that increase the proportion of waste materials kept in circulation:

- We produce **recycled plastic** out of plastic packaging waste received from customers.
- We pick up and process customers' waste oils to be refined and recycled as industrial lubrication oils.

- We recycle scrap metals generated in the maintenance activities of our power plants and other facilities. We also process and recycle metals separated from customers' waste and boiler slag from energy production.
- We process slag, sand, sludge, dredging masses and slurry from energy production and other industries for reuse in various types of environmental construction and earthwork.

### Hazardous waste treatment

We offer solutions to treat hazardous waste, we take hazardous waste out of circulation in a sustainable manner and we clean the hazardous substances from materials that end up in recycling. At the same time, we produce energy and ensure the safe final disposal of waste. High-temperature incineration is the best available solution for the destruction of hazardous substances.

We have three high-temperature incineration plants: in Riihimäki, Finland; Kumla, Sweden; and Nyborg, Denmark. At these facilities, 359,000 (2017: 353,000) tonnes of hazardous waste and 457,000 (2017: 390,000) tonnes of non-hazardous waste were incinerated in 2018, producing electricity and district heating for the surrounding areas.

### Contaminated soil

In 2018, we received and treated about 209,000 (2017: 300,000) tonnes of contaminated soil from our customers. We directed metal, rocks, concrete and wood, sieved from the soil for reuse as raw materials. Soil that is suitable for environmental construction is used at our own construction sites and industrial waste treatment centres. In addition, we treated about 30,000 (2017: 140,000) tonnes of contaminated soil at customers' sites.

## Case | Demolition of Inkoo coal-fired power plant turns waste into raw materials



Fortum is demolishing its old, decommissioned coal-fired power plant in Inkoo, Finland. A circular economy principle is being applied at the demolition site. The demolition project got under way in spring 2017 and is one of the biggest in Finland’s industrial history. Fortum’s waste management services is responsible for the demolition work.

The work site’s biggest recyclable fractions are scrap metal and pulverised concrete. The pulverised concrete is used as fill for the site’s old ash basins and to level the land at the site. Scrap metal is sold as raw material for new products.

In February 2018, a load of scrap metal was shipped – for the first time in Fortum’s history – from Inkoo to Turkey. The scrap metal ended up as raw material for local industry, i.e. the metal from the power plant’s walls will be reused. In 2018, an average of 1,000–2,000 tonnes of scrap steel per month was also transported by truck to Imatra, Finland, to the project’s single biggest scrap metal recycling facility. Recycling metal saves natural resources and reduces carbon dioxide emissions because the metal can be reused in new products again and again.

The demolition of the power plant is estimated to generate a total of about 180,000 tonnes of various materials. In 2018, the demolition project generated a total of 24,000 tonnes of waste, about 1,000 tonnes of which was hazardous waste. In 2018, 98% of the demolition waste was recovered. The amount of recycled scrap metal alone in 2018 was above 19,000 tonnes.

Of all the power plant demolition waste generated from the beginning of the project to the end of December 2018, 96% has been recycled or reused on site. The demolition site is an excellent example of Fortum’s circular economy business, where waste is converted into valuable raw materials.

## Waste and by-products

Ash is a by-product generated in the use of fuels in power and heat production, and gypsum and other desulphurisation products are by-products of flue-gas desulphurisation. Ash and desulphurisation products account for a more than 90% share, on average, of the by-products and waste from our energy production.

The maintenance of power and heat plants generates scrap metal and other conventional industrial waste and, to a smaller extent, waste oil and other hazardous waste. We aim for the highest possible utilisation and recovery of by-products and waste. The waste management service providers we use are properly licensed and reliable waste management companies.

In addition to conventional industrial waste, the Loviisa nuclear power plant also generates radioactive waste, which we treat in accordance with the requirements of Finnish nuclear energy legislation. The volume of radioactive waste generated is small, but special solutions are needed in their treatment and final disposal.

The total volume of by-products and waste generated at all Fortum's power and heat plants in 2018 was about 770,000 (2017: 850,000) tonnes. Of this volume, about 50% (2017: 45%) was recovered. With the growth of our circular economy business, the use of waste-derived fuel has increased and, consequently, the volume of by-products.

### Ash and gypsum

Ash is created in the combustion of all solid fuels. Almost 70% of the ash from our plants operating in Europe is utilised as a raw material, e.g. for the construction industry, road construction and soil improvement, and as backfill. Ash from the power plants in Russia is stored in ash basins, because there is no demand for wet ash sludge in Russia.

Coal-fired power plants generate either a wet or semi-dry desulphurisation by-product. Gypsum created as a by-product in the wet desulphurisation process at the Meri-Pori power plant in Finland is suitable for use as raw material for the construction industry. In 2018, 99.5% (2017: 100%) of the gypsum was recovered. The desulphurisation

product created at the Suomenoja power plant is not suitable for utilisation.

In 2018, about 730,000 (2017: 810,000) tonnes of ash, 3,300 (2017: 4,000) tonnes of gypsum, and 11,600 (2017: 12,800) tonnes of the other desulphurisation product were generated. About 25% of the ash was generated at Russian plants, 24% in Finland and 15% in Poland. The ash recovery rate was 51% (2017: 47%).

By-products that cannot be utilised are transported to the appropriate final disposal at landfilling sites. In 2018, about 373,000 (2017: 446,000) tonnes of by-products were transported for landfilling, or in Russia for ash basins.

The reported volumes of ash and gypsum from our European power plants are based on the weighing of the truckloads. Ash volumes at our Russian power plants are calculated on the basis of the ash content of the coal.

### Ash and gypsum handling in 2016–2018 (GRI 306-2)

t	2018	2017	2016
Ash recovery	370,000	377,000	255,000
Ash disposal	360,000	433,000	440,000
Gypsum recovery	3,300	4,000	8,500
Gypsum disposal	15	0	0

### Other waste

Other, conventional waste generated during the operation and maintenance of power and heat plants is sorted and waste that can be recycled, such as metal, is sent for further processing. Hazardous waste is delivered to licensed hazardous waste treatment facilities.

The power and heat plants generated a total of about 34,700 (2017: 34,200) tonnes of other waste, approximately 1,700 (2017: 3,200) tonnes of which was hazardous waste. In addition, about 800 (2017: 500) tonnes of contaminated soil was removed for disposal in

Finland. The reported volumes of other waste are based mainly on the information provided by the waste management companies.

### Waste handling in energy production plants in 2016–2018 (GRI 306-2)

t	2018	2017	2016
Material recovery of non-hazardous waste	8,900	3,100	5,500
Energy recovery of non-hazardous waste	500	300	300
Final disposal of non-hazardous waste	23,500	27,500	20,900
Material recovery of hazardous waste	450	200	200
Energy recovery of hazardous waste	300	800	300
Disposal of hazardous waste	1,000	2,200	2,300
<b>Total</b>	<b>34,700</b>	<b>34,200</b>	<b>29,400</b>

### Radioactive waste

The Loviisa nuclear power plant's low-level radioactive maintenance waste is disposed of in Loviisa's repository. In 2018, 13.9 (2017: 19.0) tonnes of low-level radioactive waste went into final disposal.

Intermediate-level radioactive liquid is generated mainly from spent ion exchange resins and wastewater from the controlled area. Liquid waste is processed into solid form at the solidification plant for liquid radioactive waste before final disposal in Loviisa's repository.

High-level spent nuclear fuel is stored in an interim storage at the Loviisa power plant site. In 2018, 20.3 (2017: 23.4) tonnes of spent nuclear fuel was removed from Loviisa power plant's reactors. 2.6 (2017: 2.9) g/MWh of spent fuel was generated per produced energy unit.

Fortum and Teollisuuden Voima have established Posiva Oy to handle the technical implementation of the final disposal of the spent fuel, and final disposal is scheduled to begin at Olkiluoto in Eurajoki in the 2020s.

► Nuclear waste management

► Final disposal of spent nuclear fuel

# Biodiversity

The degradation of biodiversity is one of the biggest environmental problems globally. We need to know our impacts and dependencies on biodiversity and ecosystem services to be able to assess the related risks and opportunities.

## Our impacts on biodiversity

Our impacts on biodiversity are primarily related to Fortum's hydropower production operations in Finland and Sweden. Hydropower construction and the related water regulation alter the conditions in water systems and thus impact locally the diversity of the aquatic habitat and, in particular, the fish population. Emissions from fossil fuel-based energy production may decrease local biodiversity, especially in Russia. Indirect impacts may be caused by, for example, large-scale procurement of biomass and other fuels. However, our production of carbon dioxide-free energy replaces fossil fuel-based energy production and thus mitigates climate change, which is globally one of the greatest threats to biodiversity.

## Our biodiversity engagement

In 2017, we updated Fortum's [Biodiversity Manual](#), which defines Fortum's approach in biodiversity management. According to the manual, biodiversity issues are systematically considered as part of our environmental management processes and our operations throughout Fortum. The manual contains specific instructions for biodiversity issues in current operations, new projects and the supply chain, as well as for reporting and communication. In 2018, we also published our first [Biodiversity Action Plan](#), the content of which has been designed based on the voluntary measures compiled by the Generation division. The Biodiversity Action Plan describes Fortum's goals, responsibilities, timelines and partners for biodiversity activities.

Sustainable use of biomass fuels has been actively debated in recent years. Fortum has called for EU-wide, harmonised and binding sustainability criteria for all bioenergy. The sustainability criteria defined in the Renewable Energy directive approved in 2018 are in line with Fortum's position. Sustainability of biomass is assessed on a risk-basis and primarily country-specifically. Certification systems offered by third parties can also be used to show sustainability. The implementation of the directive has started in member countries, and at the same time the Commission is preparing lower level guidance on, e.g., sustainability criteria.

Fortum is a member of the Bettercoal initiative and uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain. Biodiversity aspects related to coal mining are covered in Bettercoal assessments.

We aim to improve biodiversity in connection with our operations, carry out biodiversity-related projects and cooperate with our stakeholders in projects. We assess the impacts of our new projects. We offset and reduce the biodiversity impacts of hydropower production. In 2018, we carried out our obligatory fish care measures valued at EUR 2.5 million and several types of voluntary environmental projects valued at EUR 400,000.

## Habitat restoration and other projects

Most of our habitat restorations and other projects improving biodiversity are related to hydropower production. The actions described below are included in our Biodiversity Action Plan. Additional information about our hydropower-related projects supporting biodiversity is available on our [website](#).

## Hydropower's environmental project portfolio

In 2018, we created a portfolio for hydropower's environmental projects. The purpose of the portfolio is to ensure the systematic assessment of project ideas originating from different entities so that

the most important and most effective projects advance from idea to implementation. At the moment, the portfolio focuses on short-term, realisable measures on Swedish rivers. The portfolio content is affected by not only our own river strategies, but also by collaboration with our external partners, like environmental authorities.

## River continuum renovation projects

In autumn 2018, we removed the dam that regulates Lake Kolsjö in Arvika municipality in Sweden. The dam could be removed because it was deemed to have minor significance in regulating waters and thus in energy production. The project included habitat restoration measures, including the opening of a local passage route for fish and other organisms. The project was jointly financed with Fortum's Bra miljöverbuds environmental fund.

We monitored the development of water levels and riparian vegetation in the vicinity of the outlet of Lake Acksjön, where a dam had been removed for the same reason in 2017. Additionally, we have submitted an application to Sweden's Environmental Court to remove four small dams on the River Klamma.

The above mentioned projects are part of Fortum's small dams programme in Sweden. The programme covers about 80 dams that are no longer of significance for hydropower production. The environmental impacts of each dam removal are assessed. If the dam can be removed without causing adverse impacts on the locals, permission to remove it is applied for. In conjunction with the removal work, the migration connection is restored and, at the same time, the river aquatic habitat is restored. Collaboration with local actors is key so that the measures can be approved and implemented.

## Restoring fish habitat

In 2018, Fortum restored a 1.9 kilometre stretch of the River Bratta, a tributary of the River Norsälven in Sweden. The goal was to increase spawning opportunities for brown trout in the river, so the main

emphasis has been on restoration of spawning gravel areas. The project created a total of 28 spawning areas. The restoration of the River Bratta habitats has also taken into consideration the planned restoration project of the near-by River Rottnan, which also aims to support local brown trout.

### Protection of red-listed species

At Lake Oulujärvi in Finland, we are taking part in biodiversity enhancing measures in the Önnköri area in Käkilahti. The project is focused on the removal of overly dense aquatic vegetation and on creating wetland habitats for moor frogs, dragonflies, other damselflies, and several bird species.

In autumn 2018 in Sweden, we restored the River Klarälven riverbank, which is a natural habitat for an endangered ground beetle (*Cicindela maritima*). The beetle needs open sand but suffers if the habitat becomes overgrown. The restored banks of the River Klaraälven are the only area on the river where the beetle has been observed in recent years. In addition to the river restoration, we have mapped possible measures to support habitat biodiversity of the areas surrounding eight hydropower plants on the River Klarälven.

Downstream of the River Gullspångsälven in Sweden, we have a joint project with the area's authorities, the municipality and Karlstad University to strengthen the life-cycle of the endangered landlocked salmon. In the project we are aiming to restore the remaining and the potential habitats in the lower part of the River Gullspångsälven. In 2018, we measured the river bed, flow rates, and the bottom quality of the rapid areas so that we can plan the optimal restoration for the salmon using advanced 3D habitat modelling. Additionally, for four consecutive years we have taken samples and analysed the DNA of salmon roe taken from spawning nests in the rapids areas. The results indicate a positive trend in the spawn volumes of wild salmon in the River Gullspångsälven.

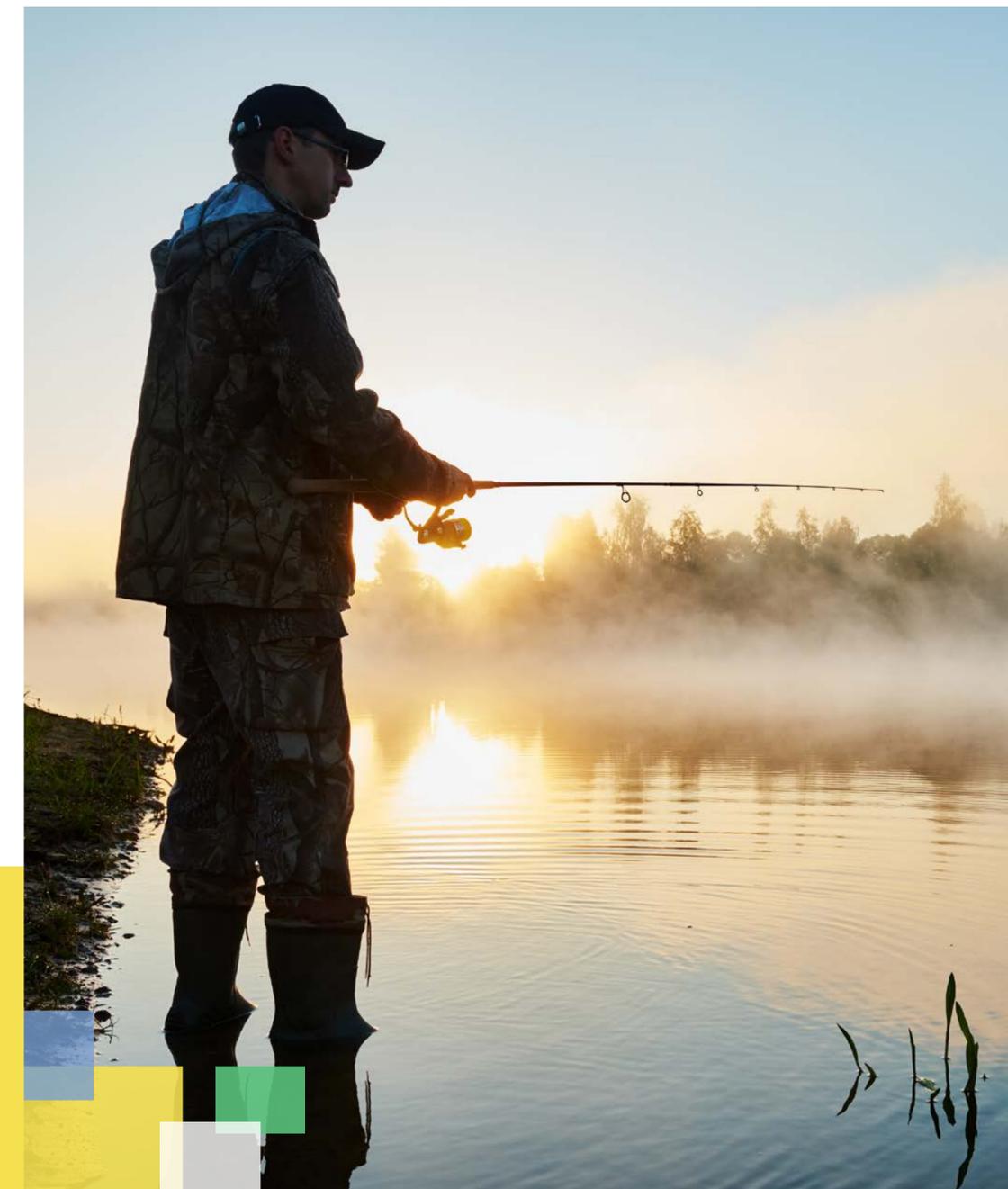
### Biomass fuel-related actions

Forest certification schemes will continue to play a strong role in verifying the sustainability of wood-based biomass. Certified wood-based biomass fuel originates from sustainably managed forests in which special attention is paid to biodiversity. We annually collect data on the volume of certified wood-based biomass fuel used in our power plants in Finland, Sweden, Norway, Poland and the Baltic countries.

In 2018, we built elements of a Chain of Custody management system for wood-based biomass fuel. Our goal is that 80% of all wood-based biomass fuel we use is verified by a third party by the end of 2020.

### Environmental impacts of hydropower production

**In 2018, we published a Biodiversity Action Plan that focuses on environmental impacts from hydropower production and on biodiversity improvements.**



# Emissions into air

Fuel use generates various emissions into the air. We aim to control emissions caused by our operations and to reduce their environmental impacts with combustion technology solutions and flue-gas cleaning technology.

Greenhouse gases that accelerate global climate change are generated primarily from the use of fossil fuels and the combustion of fossil-based waste. Flue-gas emissions causing local environmental and health effects are generated from all incineration.

## Improving air quality

Nitrogen oxides are generated from the nitrogen contained in the fuel and in the combustion air. Sulphur dioxide, in turn, is generated from the sulphur that is an impurity in, for example, coal, peat and oil. Particle emissions are fine-grained ash generated primarily in the combustion of solid fuels and waste. Depending on the origin of the fuel and waste, the particles contain various heavy metals.

It is possible to decrease nitrogen oxide, sulphur dioxide and particle emissions through fuel choices, combustion technology, and various flue-gas cleaning technologies. Fortum has world-class know-how in combustion technology, and we have delivered combustion technology solutions to reduce nitrogen oxide emissions to many customers' power plants. In 2018, we implemented projects to reduce the nitrogen oxide emissions of customers' coal-fired boilers in Poland, Finland and India, and a peat-fired boiler in Ireland.

In Finland, our Meri-Pori and Suomenoja power plants are equipped with a desulphurisation plant. Our waste incineration plants located in Riihimäki, Finland; Kumla, Sweden; Nyborg, Denmark; and Oslo, Norway, are equipped with efficient flue-gas cleaning systems. Harmful emissions into air are minimised with various filters and scrubbers selected on the basis of the waste to be incinerated.

## Stricter standards

The EU has set very strict limits for flue-gas emissions; meeting the requirements necessitates the use of best available technology (BAT). Emissions limits became even stricter when the Industrial Emissions directive came into force in 2016. Our nitrogen oxide, sulphur dioxide and particle emissions have decreased significantly in our European production over the past decades.

All Fortum power plants operate in compliance with the terms of their environmental permits, and the plants meet the new emissions requirements, for the most part. In Finland, to reduce the Suomenoja power plant's nitrogen oxides emissions, modifications were made in 2018 to the coal-fired boiler; an investment was also made to boost the operational efficiency of the desulphurisation plant. In Poland, investments will be made in 2018–2019 at the Rejtana heat plant for a flue-gas cleaning system. The investments reduce nitrogen oxide emissions and sulphur and particle emissions into the air.

Emissions at Russian power plants are limited in accordance with Russian legislation. Upon enactment of new legislation in Russia, the emissions regulations may become stricter.

## Flue-gas emissions

Our nitrogen oxide (NO<sub>x</sub>) emissions were 26,100 (2017: 26,400) tonnes, sulphur dioxide (SO<sub>2</sub>) emissions were 16,800 (2017: 18,800) tonnes, and particle emissions 9,600 (2017: 15,800) tonnes. 80% (2017: 80%) of nitrogen oxide, 75% (2017: 77%) of sulphur dioxide, and 97% (2017: 98%) of particle emissions originated from Russian operations. In 2018, the most significant source of particle emissions, 4,900 (2017: 9,200) tonnes, was the Argayash CHP power plant in Russia.

In 2018, our SO<sub>2</sub> emissions decreased by about 11% and our particle emissions decreased by about 39%. A better quality of coal was used in Russia, and the Argayash CHP plant also used the wet flue-gas cleaning system.

The reporting of sulphur dioxide, nitrogen oxide and particle emissions from our European power plants is based on continuous measurement. Other flue-gas emissions data is based on discontinuous measurements or are calculated using fuel consumption data and specific emission factors. Specific emission factors are based on measurements taken at regular intervals, on information from the equipment supplier, or on regulatory norms.

Carbon dioxide emissions are reported in the section [Greenhouse gas emissions](#).

## Flue-gas emissions in 2016–2018 (GRI 305-7)

t	2018	2017	2016
SO <sub>2</sub> , t	16,800	18,800	22,500
NO <sub>x</sub> , t	26,100	26,400 *	24,800 *
Particles, t	9,600	15,800	16,800
HCl, t	930	960	1,180
Lead, kg	4,240	3,990	4,140
Mercury, kg	118	118	150
Cadmium, kg	103	96	116
Dioxins and furans, mg	630	430	504

\* Figure revised

In 2018, continuous monitoring of flue-gas emissions was implemented at the Chelyabinsk CHP4 plant in Russia. The emissions can be monitored publicly on the Internet.

# Water use

We monitor the water use of our power plants and other functions and implement measures to make water use more efficient when needed. Making water use more efficient reduces environmental impacts and also generates cost savings.

## Risks and opportunities related to water use

The risks related to Fortum’s water availability are, based on our assessment, relatively small. The majority of our water withdrawal is seawater for cooling at condensing power plants. In most cases we don’t consume water in our operations; it is discharged into the same water system from which it was withdrawn.

With efficient water management in hydropower production we can optimise our production and manage the impacts on the environment and on stakeholders. In Sweden, implementation of the EU Water Framework directive will reduce the country’s total amount of hydropower production by about 2% at most. Fortum is a participant in the hydropower environmental fund, which enables compensation for production losses and effective targeting so that the environmental benefits are maximised and the impact on the renewable energy production system is minimised.

Fortum has an advanced risk management process to reduce risks related to dam safety. A long-term program is in place to develop condition monitoring of dams and for securing the discharge capacity in extreme flood situations.

In our operations we are preparing for changes in water availability also in the future as the climate changes. The preparation is related to, for example, production planning, investments, dam safety, flood protection and the rise in the cooling water temperature. In hydropower production planning we are preparing for climate change by taking into consideration changes in precipitation and temperature and extreme weather phenomena, which can cause droughts or flooding. We are also

monitoring the need for adjustments to regulation permits with changes in seasonal variation.

The Loviisa nuclear power plant is prepared for extreme weather phenomena and possible oil spillage resulting from an accident at sea with a seawater-independent back-up cooling system, which includes also air-cooled cooling towers. The temperature increase of the cooling system’s discharge water can be responded to with optimal production planning.

Improving the efficiency of water use at our power plants can reduce environmental impacts, generate cost savings, ensure the acceptability of our operation, and ensure the supply of water also for other purposes.

## Our water use in water-stressed areas

According to the WRI Aqueduct Water Risk Atlas, of Fortum’s power plants the four Chelyabinsk CHP plants and the Argayash CHP plant in Russia are located in an area with a high (40–80%) water-stress level. All Chelyabinsk CHP plants use cooling water towers, which reduces the amount of make-up water needed for cooling. The Argayash CHP plant withdraws cooling water, which is discharged into fresh surface water after use.

The Argayash CHP plant withdraws water from a nearby lake. The water volume of the lake can be increased with water pumped in from another lake. Until 2017, the amount of additional water pumped in wasn’t sufficient and the water level decreased significantly. The permit limits in effect in 2017–2018 have ensured the sufficient availability of water, and the water level has risen again. Fortum is also planning an investment project to improve the efficiency of water use in ash processing. The plan is expected to be ready in 2019; at that time, approval from the authority can be applied for. When the investment project is completed, water will be returned to the plant’s production process, thereby reducing the amount of water withdrawal.

In 2018, temporary permit limits for wastewater discharges were in force at the Russian Chelyabinsk CHP2 and CHP3 and the Argayash CHP plants.

At the end of August 2018 Fortum sold its majority share in the Indian solar power plants, which are located in areas with a high (40–80%) or very high (>80%) water-stress level. Water is used to clean the solar panels at solar power plants.

## Water withdrawal and forms of water use

The majority of our power and heat production capacity is located in the Nordic countries, Russia and Poland. The Baltic Sea and local fresh water systems are the most important water sources for our energy production plants. Additionally, municipal water is used at CHP plants and in waste treatment services. The reported water withdrawal and water use volumes are based on measurements and on calculations of water consumption.

## Water withdrawal in production operations in 2016–2018 (GRI 303-3) <sup>1)</sup>

million m <sup>3</sup> i.e. 1,000 megalitres	2018	2017	2016
Seawater	1,508	1,519	1,533
Fresh surface water	626	605 *	605
Municipal tap water	3	2	2
Groundwater	0.1	0.1	0.1
Other external water supplier	0.3	0.3	0.2
<b>Total water withdrawal</b>	<b>2,140</b>	<b>2,130 *</b>	<b>2,140</b>

<sup>1)</sup> The figures also include the separately reported water withdrawal in water-stressed areas

\* Figure revised

**Water withdrawal in water-stressed areas in 2016–2018 (GRI 303-3)**

million m <sup>3</sup> i.e. 1,000 megalitres	2018	2017	2016
Fresh surface water	306	289	299
Municipal tap water	0.5	0.5	0.6
Groundwater	0.01	0.003	0.004
<b>Total water withdrawal</b>	<b>307</b>	<b>289</b>	<b>299</b>

Our water withdrawal in 2018 was 2,140 (2017: 2,130) million m<sup>3</sup>, of which seawater accounted for about 94%. Our water withdrawal in water-stressed areas was 307 (2017: 289) million m<sup>3</sup>, which was about 14% of our total water withdrawal. Virtually all the water withdrawal in water-stressed areas is in Russia.

From the beginning of 2018 to the end of August, Indian water withdrawal was about 22,000 (2017: 6,000) m<sup>3</sup>, i.e. only 0.001% of our total water withdrawal. While our water withdrawal has been very small, we have aimed to increase the efficiency of water use in India.

**Water use in production operations in 2016–2018 <sup>1)</sup>**

million m <sup>3</sup> i.e. 1,000 megalitres	2018	2017	2016
Cooling water	2,003	1,990 *	2,031 *
of which seawater	1,508	1,519	1,532
and fresh surface water	496	471	499
Process and auxiliary water	125	125 *	97 *
of which at fish farms	37	43	33
and water supplied to external customers	8	8	8
Make-up water for district heating network	9	11	12
Water recycling	13	13	13

1) The figures also include the separately reported water use in water-stressed areas

\* Figure revised

**Water use in water-stressed areas in 2016–2018**

million m <sup>3</sup> i.e. 1,000 megalitres	2018	2017	2016
Cooling water, fresh surface water	242	231	241
Process and auxiliary water, fresh surface water	65	59	58
of which water supplied to external customers	7	7	8
Make-up water for district heating network	8	6	7
Water recycling	6	6	5

**Cooling water in energy production**

Condensing power production requires large volumes of cooling water. Cooling water accounts over 90% of our water withdrawal. Fortum has two condensing power plants in Finland: the Loviisa nuclear power plant and the Meri-Pori power plant. Both are located in coastal areas and use direct seawater cooling. No water is consumed in the cooling process, and water withdrawn from the sea is discharged back into the sea. The only change is an approximately 10°C increase in the temperature of the cooling water. Additionally, in Russia, Fortum has the Nyagan condensing power plant, which uses river water for cooling.

Of the water we withdrew in 2018, we used 2,003 (2017: 1,990) million m<sup>3</sup> as cooling water. The Loviisa nuclear power plant withdrew and discharged back into the sea 1,311 (2017: 1,372) million m<sup>3</sup> of cooling water.

Condensing power is occasionally produced also at our CHP plants. In most cases, the cooling water is withdrawn from a local water system, such as a river or lake. Several CHP production plants in Russia and Poland use cooling towers, in which some of the cooling water evaporates into the atmosphere.

**Process water**

A power plant needs water in the water-steam cycle when electricity is generated with a steam turbine. Because of leaks in the pipes, occasionally water must be added to the water-steam cycle. Water is also needed in power plant auxiliary processes, for example in flue-

gas cleaning with wet scrubber technology, and in radioactive waste handling and storage at nuclear power plants. Additionally, water is used in processes at waste treatment facilities.

**District heating network**

Fortum is a major supplier of district heating in Finland, Norway, Poland, the Baltic countries and Russia. Fortum has a total of about 3,400 kilometres of district heat pipes in these countries. Water is used as the heat transfer medium in district heating. Because of leaks in district heating pipelines, make-up water must be occasionally fed into district heating networks. The volume of make-up water for district heating networks in 2018 was 9 (2017: 11) million m<sup>3</sup>.

**Hydropower production and fish farming**

Fortum produces hydropower from water flowing in rivers in Finland and Sweden. Our power plants are typically located in big rivers that have no problems in terms of water supply. Water is not consumed in hydropower production, the water quality is not changed, and it is not typically directed to another water system. However, the water system is often regulated for hydropower production, and the regulation changes the water flow and level patterns compared to their natural state. The water use-related environmental projects implemented with stakeholder groups are reported in the section **Corporate citizenship**.

We have precise knowledge of the water situation in those waterways where we produce hydropower, and we use real-time hydrological forecasts in production planning. Fortum doesn't report river flows as a hydropower production-related water withdrawal.

We farm and stock fish to offset the impacts of hydropower production. The majority of the fresh water withdrawn for fish farming is returned into the bodies of water with only a slight change in its properties.

### Water discharge

We pipe the majority of cooling water and a significant share of wastewater back into the same water system from which the water was withdrawn. In 2018, the water discharge was 2,063 (2017: 2,054) million m<sup>3</sup>. Of this, wastewater accounted for about 3%. The reported wastewater and other water discharge volumes are based on measurements and calculations.

#### Water discharge by recipient in 2016–2018 (GRI 303-4) <sup>1)</sup>

million m <sup>3</sup> i.e. 1,000 megalitres	2018	2017	2016
Sea, cooling water	1,508	1,519	1,532
Fresh surface water, cooling water	496	471	499
<b>Cooling water total</b>	<b>2,003</b>	<b>1,990</b>	<b>2,031</b>
Sea, process water	0.7	0.7	0.7
Fresh surface water, process water	57	62	54
of which from fish farms	37	43	33
Municipal sewage	1.7	1.7	1.3
Other recipient	0.1	0.1	0.1
<b>Wastewater total</b>	<b>59</b>	<b>64</b>	<b>56</b>
<b>Discharge water total</b>	<b>2,063</b>	<b>2,054</b>	<b>2,087</b>

1) The figures also include the separately reported water discharge in water-stressed areas

#### Water discharge in water-stressed areas in 2016–2018 (GRI 303-4)

million m <sup>3</sup> i.e. 1,000 megalitres	2018	2017	2016
Fresh surface water, cooling water	242	231	241
Fresh surface water, process water	12	11	14
Municipal sewage	0.5	0.6	0.6
Other recipient	0.09	0.09	0.09
<b>Discharge water total</b>	<b>255</b>	<b>242</b>	<b>256</b>

Our water consumption includes cooling water that has evaporated from cooling water towers in Russia and Poland, make-up water added to district heating networks, water used in power plant and other production plant processes, and water used to move ash in Russia. Fortum doesn't include water supplied to external customers, 8 million m<sup>3</sup>, in its own water consumption. In 2018, our own water consumption

was about 68 (2017: 65) million m<sup>3</sup>. In the water-stressed area in Russia, our water consumption was about 44 (2017: 40) million m<sup>3</sup>.

The thermal load discharged into water systems with cooling water was 16 (2017: 17) TWh. The Loviisa nuclear power plant's share of this was 15 TWh. Temperature measurements indicate that the cooling water has increased the temperature of surface water by 1–2°C within a 1–2 kilometre radius from the discharge point.

#### Wastewater treatment and effluents

Wastewater generated at power plants and other production facilities is treated either at the plant's own wastewater treatment plant and discharged into a water system or it is piped to a municipal wastewater treatment plant for further processing. In Russia, the wet method is used to pump ash from power plants into ash ponds. Some of the water from the ponds is recycled back to the power plant and some is released into a water system after sedimentation.

Even after treatment, plant wastewater may contain solids, and nutrients, like nitrogen and phosphorus, and heavy metals. Wastewater effluents can impact local water quality as well as the nutrient and oxygen balance of the water system. In 2018, our plants generated 59 (2017: 64) million m<sup>3</sup> of wastewater, 97% of which was purified, when needed, and discharged back into the environment, and 3% was piped to municipal wastewater treatment plants. About 1.0 (2017: 1.0) tonnes of oil were released into water systems through wastewater.

About 62% of the wastewater is discharged water from fish farms. Discharged water is purified and its nutrient content is monitored in line with permit conditions. The sludge water separated from the process water at the Montta fish farm in Finland has been piped to a municipal wastewater treatment plant since 2016, which has reduced the nutrient load on the water system.

#### ▶ Fortum's CDP Water Security 2018 response



## Environmental non-compliances

At the Group level, we monitor the number of major EHS incidents, which, in part, reflects the quality of environmental management.

In 2018, there were 18 (2017: 20) major EHS incidents, and 6 (2017: 10) of these were significant environmental incidents. Significant environmental incidents include spills and leaks of over 100 litres into the environment, significant environmental violations, and other environmental non-compliances that have a significant impact on environment.

### Spills and leaks into the environment

In 2018, there were four (2017: 8) spills and leaks of more than 100 litres into the environment. There were two incidents of refrigerant leaks at the Suomenoja heat pump plant in Finland. Also a filtrate water leak occurred at a waste treatment plant in Finland. A fly ash leak took place at the Kumla waste incineration plant in Sweden, in conjunction with the emptying of a silo. The incidents have been investigated to develop preventive maintenance activities and to determine the corrective actions. The incidents did not have significant environmental impacts.

### Environmental violations

There were two (2017: 2) significant environmental permit violations in 2018. At the Riihimäki waste incineration plant in Finland, the mercury emissions limit was exceeded in the flue-gas emissions and wastewater. The incidents have been investigated to determine the corrective actions. The incidents did not have significant environmental impacts.

In 2018, one police investigation and one investigation request regarding a possible environmental violation were initiated. The first investigation targets the handling of the water used to extinguish the significant fire at the Kumla waste incineration and treatment site in Sweden in June. In the other investigation, the authority requested a

police investigation of the possible impact on the aquatic habitat arising from the concrete dust created at the Imatra power plant's dam work site in Finland, as well as the reason for the incident.

### Fires

In 2018, there were 11 (2017:5) significant fires. Seven of the fires took places in recycling and waste solutions. The hot and dry spring and summer seasons, which increase the fire risk for stored waste in particular, contributed to the number of fires. The fires have been investigated to develop and improve operations.

### Environmental enquiries and grievances

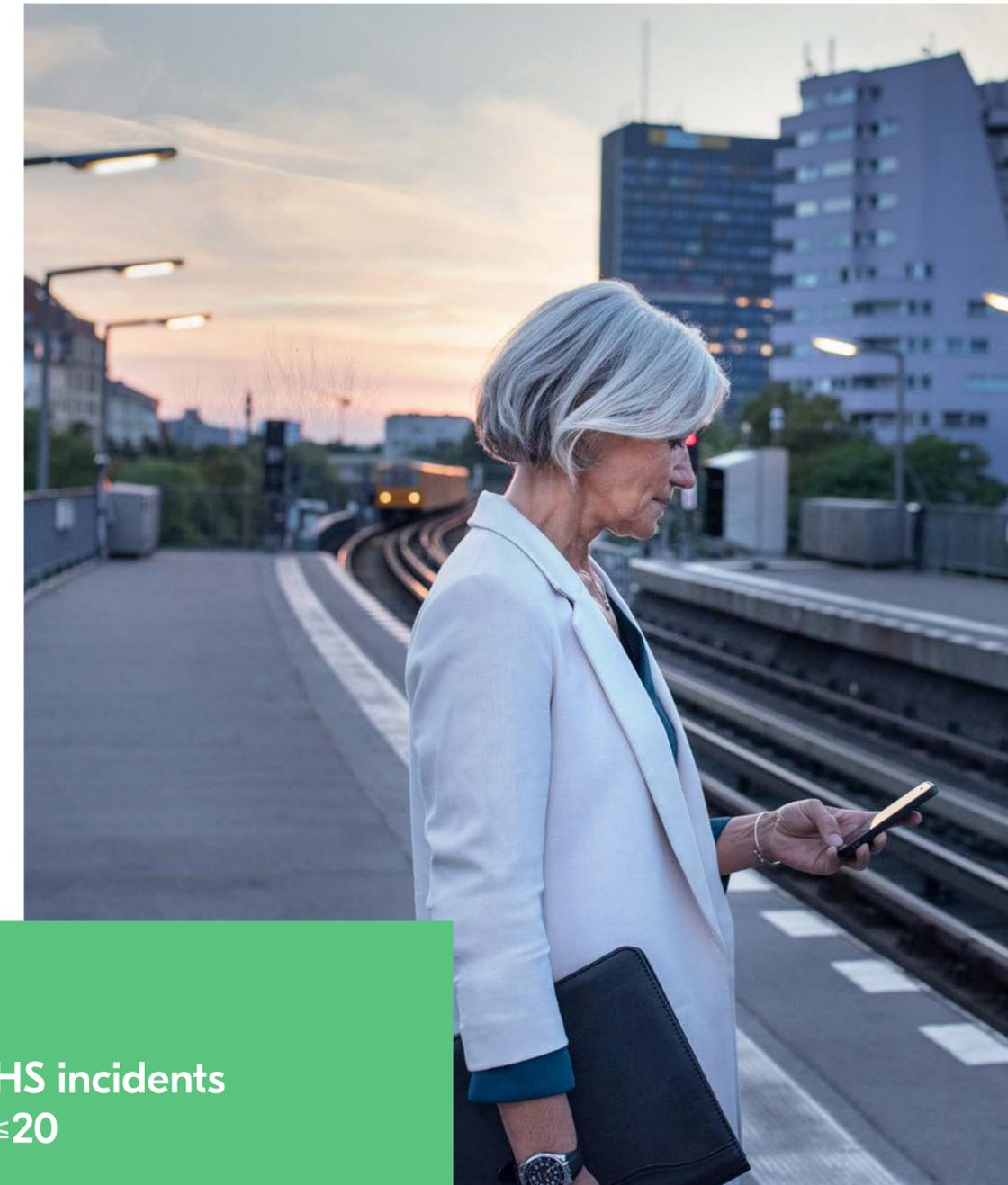
Power plants receive environmental enquiries and other contacts every year, and they are mainly handled locally. The aim is to communicate in advance about upcoming measures that have possible environmental impacts, for example, through local media and at public events.

Fortum's website also has a grievance channel that our stakeholders can use to report problems possibly caused by our operations. No new environment-related grievances were reported to us through this channel in 2018.

### Fines

In 2018, a Fortum employee was fined zloty 400 (EUR 94) for violation of an emission reporting commitment in Poland.

- ▶ Business ethics and compliance
- ▶ Occupational and operational safety



# Personnel and society



We aspire to be a responsible employer and to offer a safe workplace for our employees and for the contractors who work for us. We impact the daily lives of millions of people by securing the functioning of society through an uninterrupted and reliable supply of energy. We engage in an active dialogue with different stakeholder groups and we strive to find a balance between their various expectations.

### Impacts on personnel and society

The emphasis in Fortum’s personnel responsibility is particularly on operational and occupational safety and on employee wellbeing and development. As a financial player, the company has a significant role in Finland, Sweden, Norway, Russia, Poland, and the Baltic countries. An uninterrupted and reliable energy supply for customers is critical for society to function. Satisfied customers are key to Fortum's success and active consumers will have a significant role in the future energy system.

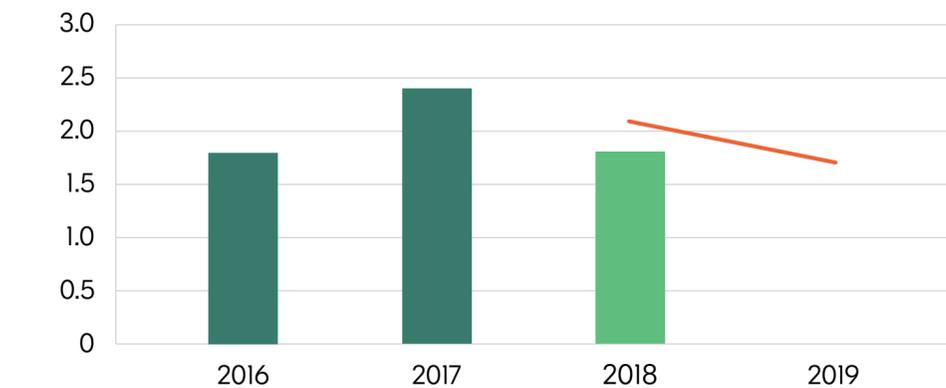
Fortum also has indirect responsibility for its supply chain. We conduct business with viable companies that act responsibly and comply with the Fortum Code of Conduct and the Supplier Code of Conduct. Ethical business practices and respecting internationally recognised human rights are the foundation of Fortum’s Codes of Conduct. Fortum’s sustainability approach also includes being a good corporate citizen and taking care of the surrounding communities.

### Key figures for personnel and social responsibility

Our key figures for personnel and social responsibility are presented in the table and graphs.

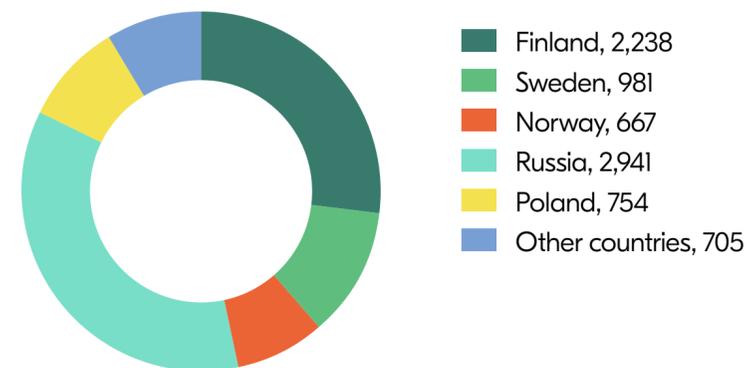
#### Business ethics and compliance

### Combined injury frequency (LWIF), own personnel and contractors



■ LWIF (own personnel and contractors)  
— Target

### Number of employees by country, 31 December 2018



### Key figures for personnel and social responsibility

	2018	2017	2016
CHP plant energy availability, %	96.4	96.1	97.4
Average number of employees	8,767	8,507	7,994
Number of employees, 31 December	8,286	8,785	8,108
Departure turnover, %	16.1	10.5	13.0
Female employees, %	32	32	29
Females in management, %	30	29	25
Sickness-related absences, %	2.8	2.2 *	2.3 *
Lost workday injury frequency (LWIF) <sup>1)</sup> , own personnel	0.2	1.2	1.0
Lost workday injury frequency (LWIF) <sup>1)</sup> , contractors	4.8	4.2	3.0
Severe occupational accidents <sup>2)</sup> , own personnel and contractors	4	1	5
of which fatalities to contractors	2	0	0
Safety-certified <sup>3)</sup> operations in power and heat production, % of sales	97.0	98.4	99.9
Supplier audits, number	13	11	13
Support to society, EUR million	3.8	4.9	2.9

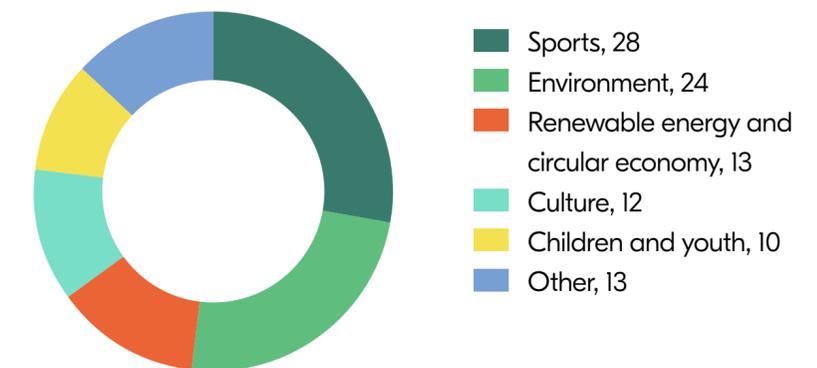
1) LWIF = Lost Workday Injury Frequency, injuries per million working hours

2) Fatality or an accident leading to permanent disability or an accident with severe and life-threatening injuries

3) OHSAS 18001 or ISO 45001

\* Excluding DUON, Hafslund

### Fortum’s support to society by target, %



# Personnel

The change towards a low-carbon energy system requires a new direction in energy production. We can make this change together. We aspire to be a responsible employer that offers a motivating work environment and invests in personnel development and wellbeing.

In 2018, an average of 8,767 (2017: 8,507) employees worked at Fortum. The highest number of employees was in Russia, 3,378 (2017: 3,710) on average. The average and the year-end total personnel figures include 117 employees who are not included in the other figures and tables presented in this report. These individuals are independent contractors working in the Consumer Solutions division in Poland.

Permanent employees accounted for 95.9% (2017: 95.2%) of the personnel. Of these, the share of full-time employees was 98.2% (2017: 98.1%). During the year, 799 (2017: 734) new employees joined Fortum and 1,258 (2017: 855) employment relationships were terminated, 692 of which by the employer. The number of employment relationships terminated due to production and financial reasons was 25. Departure turnover in 2018 was 16.1% (2017: 10.5%). In particular, the transfer of the 500 or so employees to the Yustek joint venture in Russia contributed to the increased turnover. Voluntary departure turnover was 7.2% (2017: 5.4%).

Contractors' employees worked at Fortum sites for a total of approximately 1,007,500 (2017: 1,249,000) days during the year. The figure is based on contractors' hourly logs and on estimates made on the basis of job costs and average hourly rates. The figure has been calculated on the basis of an 8-hour work day.

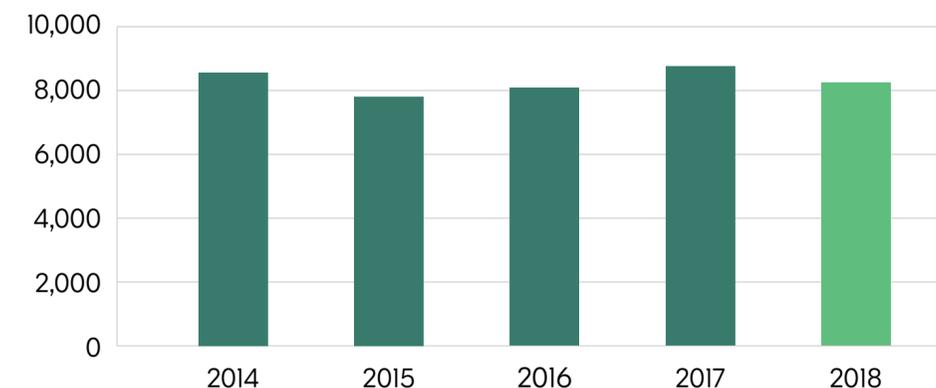
## Personnel statistics from 2018, by country of operation

	Finland	Sweden	Norway	Russia	Poland	Other countries	Total
Personnel at year-end	2,238	981	667	2,941	754	705	8,286
male	1,589	589	403	2,179	441	474	5,675
female	649	392	264	762	313	231	2,611
Personnel, average	2,252	984	670	3,378	798	686	8,767
Personnel expenses, 1,000 euros	194,835	80,853	60,848	68,780	17,848	36,044	459,207
Personnel expenses per person, 1,000 euros	86.5	82.2	90.8	20.4	22.4	52.5	52.4

## Workforce by employment contract and employment type, by region and by gender (GRI 102-8)

	Finland		Sweden		Norway		Russia		Poland		Other countries		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
<b>Employment contract</b>	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Permanent	1,534	615	565	374	392	256	2,123	696	344	257	465	212	5,423	2,410
Fixed-term	56	35	24	18	10	7	56	66	10	26	9	19	165	171
<b>Employment type (permanently employed)</b>	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Full-time	1,518	590	556	336	391	242	2,123	694	344	252	456	190	5,388	2,304
Part-time	16	25	9	38	1	14	0	2	0	5	9	22	35	106

## Number of employees, 31 December



### Diversity and equal opportunity

We promote equal treatment and opportunities in the recruiting, remuneration, development and career advancement of personnel, regardless of the employee’s ethnic background, religion, political views, gender, age, nationality, language, sexual orientation, marital status or disabilities.

The average age of our permanent employees was 42.9 (2017: 43.6) years. The share of employees over 50 years old was 29% (2017: 29%). Females accounted for 32% (2017: 32%) of our total personnel. Females accounted for 30% (2017: 29%) of the Group- and division-level management. At the end of 2018, the Board of Directors comprised eight members, three of them were women.

We have previously reported the personnel distribution by age group, gender and personnel group (blue-collar and white-collar employees). From 2018 onward, we are no longer reporting the distribution of personnel groups because the classification of jobs at Fortum is much more fine-grained, and dividing personnel into the two groups mentioned above is not justified.

Any form of harassment is forbidden and addressed immediately. In Finland, Sweden, and India, for example, there are separate guidelines in place for workplace harassment and discrimination. One incident of discrimination was reported in 2018. The investigation of the incident determined that no further actions were required.

### Service years of permanent employees in 2016–2018, %

Years of service	2018	2017	2016
0–5	39	37	33
6–10	18	20	21
11–15	13	10	10
16–20	8	10	10
21–25	7	8	9
26–30	7	7	8
31+	8	7	8

### Total number and rate of new employee hires and employee turnover, by age group, gender and region (GRI 401-I)

	Finland		Sweden		Norway		Russia		Poland		Other countries	
	M	F	M	F	M	F	M	F	M	F	M	F
<b>New employee hires</b>												
age group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
under 30	26	15	46	25	37	26	60	16	7	18	13	3
30–50	86	29	39	18	23	13	130	51	11	14	23	16
over 50	10	1	6	3	3	1	15	8	0	1	5	1
<b>New recruits, %</b>	<b>8.0</b>	<b>7.3</b>	<b>16.1</b>	<b>12.3</b>	<b>16.1</b>	<b>15.6</b>	<b>9.7</b>	<b>10.8</b>	<b>5.2</b>	<b>12.8</b>	<b>8.8</b>	<b>9.4</b>

	Finland		Sweden		Norway		Russia		Poland		Other countries	
	M	F	M	F	M	F	M	F	M	F	M	F
<b>Employees leaving</b>												
age group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
under 30	17	9	28	19	12	7	77	46	5	11	4	0
30–50	59	27	32	16	30	25	288	167	18	13	20	9
over 50	7	4	7	6	3	2	188	80	1	0	17	4
<b>Departure turnover, %</b>	<b>5.4</b>	<b>6.5</b>	<b>11.9</b>	<b>11.0</b>	<b>11.5</b>	<b>13.3</b>	<b>26.0 *</b>	<b>42.1 *</b>	<b>7.0</b>	<b>9.3</b>	<b>8.8</b>	<b>6.1</b>

\* Departure turnover was impacted by the transfer of employees to a joint venture in the district heating business.

	Finland		Sweden		Norway		Russia		Poland		Other countries	
	M	F	M	F	M	F	M	F	M	F	M	F
<b>Employees leaving, employee initiative</b>												
age group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
under 30	16	9	25	19	11	7	23	10	3	9	4	0
30–50	55	24	30	15	29	25	84	31	15	11	16	9
over 50	4	5	6	4	3	2	33	18	1	0	7	3
<b>Voluntary departure turnover, %</b>	<b>4.9</b>	<b>6.2</b>	<b>10.8</b>	<b>10.2</b>	<b>11.0</b>	<b>13.3</b>	<b>6.6</b>	<b>8.5</b>	<b>5.5</b>	<b>7.8</b>	<b>5.8</b>	<b>5.7</b>

Case | **Non-discrimination and equality vigorously supported at Fortum**



Non-discrimination and gender equality have been central topics in the social debate in 2018. Fortum has participated in the discussion by demonstrating its support for workplace equality both internationally and in Finland.

In May 2018, Fortum joined the Equal by 30 campaign at the Clean Energy Ministerial meeting held in Copenhagen. The campaign aims to get governments, the energy industry and other organisations to endorse the principles of equal pay, equal opportunities, and equal leadership by 2030, in line with the UN Sustainable Development Goals (SDG).

In 2018, Fortum also took part in the Work does not discriminate campaign launched by the Confederation of Finnish Industries. The campaign aims to change attitudes and reduce discrimination in the Finnish workplace and to make workplace equality in Finland self-evident.

Fortum also received recognition for its work to promote equality by ranking 50th in the Equileap Gender Equality TOP 200, climbing up more than 80 places from the previous year. Equileap annually collects data on over 3,000 companies in 23 countries. Its assessment criteria are related to the gender balance in leadership and workforce, equal compensation, work/life balance, and policies promoting gender equality in, e.g., recruiting and career development.



### Equal remuneration

Salary levels at Fortum are compliant with established industry practices in each country, local legislation and sector-specific labour market and other agreements.

Remuneration is based on job grade levels, job performance and the individual's competence development. We remunerate personnel for achievement of the strategic business targets and successful implementation of changes. The short-term incentive pay portion of the annual salary is determined based on the individual's job. The amount of incentive pay to be paid is based on the individual's salary and on the achievement of the goals of the business unit and the individual.

The global human resources data system and the harmonised job-grade classification system enable the examination of pay equality for the base salary in all our operating countries. In the table, we have reported the most significant countries in terms of the number of personnel. There is no reporting for other operating countries due to the low numbers of employees. With the corporate acquisitions made in 2017 and 2018, the companies merged with Fortum – and for which the job-grade classification is not complete – are not included in the figures.

Our reporting covers all personnel groups except individuals working in blue-collar positions, which account for 29% of Fortum's total personnel. A male/female comparison of blue-collar positions is not reported because of the small group sizes.

The total number of personnel included in the comparison was 3,068, of which 1,198 (39%) were female. The base salaries of female employees in 2018 were, on average, 4% lower than the male base salaries. When examining the differences by employee group and by country, the differences ranged between -21% and +8%.

### Basic salary and service years of women compared to men (GRI 405-2)

Country	Difference between basic salaries				Difference between service years
	All roles, %	Operational specialists and managers, %	Broad operational professionals and managers, %	Tactical and strategic leaders and middle management, %	Average service years
Finland	-3	N/A *	-1	-7	-1
Sweden	-4	-3	-3	-9	0
Norway <sup>1)</sup>	-7	-2	-9	N/A <sup>2)</sup>	0
Denmark <sup>2)</sup>	-4				-5
Russia	-16	-11	-21	-17	2
Poland	-6	-9	-6	N/A <sup>2)</sup>	-4
Estonia <sup>2)</sup>	-9				-4
Latvia <sup>2)</sup>	3				3
Lithuania <sup>2)</sup>	8				0

1) Excluding personnel transferred from Hafslund companies

2) Role-specific differences are not reported because of the small group sizes

\* No uniform job-grade classification

### Age distribution of permanent employees, by age group and gender (GRI 405-1)

age group	Finland		Sweden		Norway		Russia		Poland		Other countries		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
under 30	136	59	108	82	88	57	224	52	24	81	35	17	615	348
30–50	909	358	283	189	225	156	1,328	443	161	140	256	133	3,162	1,419
over 50	489	198	174	103	79	43	571	201	159	36	174	62	1,646	643

### Group and division-level management, by age and gender (GRI 405-1)

age group	Male	Female
under 30	0	0
30–50	32	11
over 50	25	14

## Employee-employer relations

Fortum’s business operations are developed and strengthened in good collaboration with employees. We believe that the successful management of business is built on relationships of trust between management and employees and on the free flow of information. Fortum respects employees’ freedom of association and the right to collective bargaining.

In our operating countries, freedom of association and collective bargaining are guaranteed by law. The exception to this is India, which has not ratified the International Labour Organisation’s (ILO) Convention on the right to freedom of association and collective bargaining. In India, we comply with the same practices as in other countries of operation, and we do not limit or prohibit the right to freedom of association.

We apply local collective bargaining agreements in compliance with the scope of each respective agreement in all our operating countries. Collective bargaining agreements cover nearly 85% of Fortum’s employees in our biggest operating countries and range from about 4% coverage in Latvia to about 100% in Finland, Sweden, Norway and Russia. There are no collective bargaining agreements in Lithuania, Poland and India. In these countries, employment contracts are based on local legislation and on the company’s human resources policy.

## Fortum European Council

Fortum European Council (FEC) is Fortum’s Europe-level cooperation function in which personnel and employer representatives meet. In 2018, the FEC held a meeting in Finland, and personnel representatives from Finland, Sweden, Norway, Poland, Estonia and Denmark participated. The Council’s meeting focused on, among other topics, Fortum’s strategy and business outlook, the Open Leadership concept, work capacity and wellbeing in the changing working environment, and occupational safety.

Additionally, the FEC personnel representatives convened on their own twice during the year. In addition to Fortum European Council meetings, local level meetings are held several times a year in different countries as needed.

## Restructuring situations

In situations of organisational restructuring, we negotiate with personnel representatives in compliance with each country’s local legislation and contractual procedures. In situations involving personnel reductions, we want to primarily support the reemployment of the personnel.

In restructuring situations, the length of the obligatory negotiation period depends on the scale of upcoming changes and varies in Fortum’s different operating countries. The shortest period for obligatory negotiations is three weeks (Finland) and the longest is 90 days (India). There is no statutory obligatory negotiation period in Sweden, Norway and Lithuania.

The minimum notice period is based on local legislation, collective labour agreements or employment contracts, which are in harmony with the local legislation and agreements.

In situations involving personnel reductions, we offer outplacement services on a per case and per country basis, and, in cooperation with local unemployment authorities or service providers, we investigate the possibilities to arrange vocational or other training that enhances employability. Retraining for employees who continue working is arranged based on organisational and individual needs. In situations involving personnel reductions, the content of the support package that we offer is decided based on local needs. The financial compensation of the package is usually based on the years of employment at Fortum.

## Employee wellbeing

By improving work wellbeing, we support the work environment and a business culture that promotes our employees’ health, occupational safety and the functionality of the work community.

## Energise Your Day wellbeing programme

The Energise Your Day wellbeing programme aims to support and encourage all Fortum employees to maintain and improve their overall wellbeing.

The Energise Your Day programme starts with a self-assessment-based wellbeing survey, which 400 Fortum employees responded to in 2018, resulting in a response rate of 63%. Based on the responses, the most sought after support and tools are for recovery and stress management.

Based on the wellbeing survey results, employees are offered various wellbeing services, such as lectures, coaching clinics, campaigns and other wellbeing activities. The focus areas in 2018 were smart working methods to support new ways of operating and enhancing wellbeing by utilising brain research studies, as well as sleep and recovery. In conjunction with the move of the headquarters, there was a special focus on ergonomic workstations and on being active during the work day, e.g., by providing physical activity stations for use during breaks and other opportunities to exercise.

In 2018, we adopted a new survey related to employee wellbeing. The Wellbeing Pulse Survey is carried out twice a year. Based on the feedback of the total 6,900 Fortum employees who responded to the survey, work wellbeing is at a good level. According to the personnel, wellbeing can be further improved, e.g., by focusing on work-life balance.

**The Energise Your Day programme was expanded to Fortum Recycling and Waste Solutions’ sites in Finland, Sweden and Denmark, and is now under way in ten of our operating countries.**

We promote wellbeing at the workplace also through what is called an early-support model. We increase open communication between employees and supervisors by discussing and mapping the reasons for absences. Training is arranged for supervisors in the management of working capacity and work wellbeing.

### Occupational safety and health care

Occupational safety and health care are organised in our operating countries in line with local legislative requirements. The occupational safety committees represent all personnel groups, and they regularly address issues related to occupational safety and workplace wellbeing.

All our employees are within the sphere of occupational health care. We emphasise the significance of preventive activities in promoting wellbeing in the company. The occupational health care costs per person in Finland, before the share reimbursed by Kela (The Social Insurance Institution of Finland), were EUR 485 (2017: 533).

Fortum conducts regular medical examinations of its personnel in accordance with local laws. Employees who in their work are exposed to, e.g., noise, dust, radiation or who perform shift work are within the sphere of the examinations. Occupational health care also participates in various discussions and assessments in the work community. The occupational health care professionals support supervisors by providing information on preventive actions as well as alternatives when the ability to work decreases. Occupational health care also offers methods and tools for these situations. In 2018, there was a special emphasis on the use of occupational physiotherapist services for preventive purposes in Finland.

In 2018, the percentage of sickness-related absences was 2.8 (2017: 2.2), which was higher than the target level of ≤2.2. Sickness absences increased slightly in all countries, but especially in Sweden, Norway and Poland. For males, the percentage of sickness-related absences was 2.3 (2017: 1.9) and for females 4.0 (2017: 2.9). The sickness absence rate is calculated based on the theoretical working hours of the

permanent employees. In addition to expansion of the Energise Your Day occupational wellbeing programme, the management of sickness-related absences was one of our focus areas in 2018.

There were five (2017: 1) cases of suspected occupational disease in Finland; three were related to noise and two were related to asbestos. All the cases of suspected occupational diseases involved males. One of the suspected noise-related cases was determined to be an occupational disease and compensated as such and one was determined to be non-occupational. One of the suspected asbestos-related cases was determined to be an occupational disease and compensated as such. Investigations are still under way for the other suspected cases.

An indication of the good management level of working capacity and workplace wellbeing at Fortum is the average retirement age, which was 62 (2017: 62) years. In 2018, the average effective retirement age in the earnings-related pension scheme in Finland was 61.3 years (Source: Finnish Centre for Pensions).

### Sickness absence rate of permanent employees in 2016–2018, %

	2018		2017		2016	
	M	F	M	F	M	F
Finland	2.3	2.6	2.2	2.6	2.4	3.5
Sweden	3.6	9.5	2.8	8.0	2.6	6.3
Norway <sup>1)</sup>	3.6	6.6	-	-	-	-
Russia	1.5	1.9	1.5	1.5	1.8	1.6
Poland	3.1	5.9	2.7	3.1	2.6	3.8
Other countries	3.0	2.2	2.5	2.3	2.2	3.5

<sup>1)</sup> The figures from 2016 and 2017 are not reported because they are not comparable with the 2018 figures due to the change in the number of personnel



2.8%

Sickness-related absences  
Target: ≤2.2

## Employee development

Our goal is to be a forerunner in the future energy system. This means that we must continuously invest in the development of leadership and personnel competence and in the support of an open and flexible corporate culture.

In 2018, more than 800 supervisors participated in the Strategy & Open Leadership events that focused on strategy communications and more in-depth open leadership. The goal of the events was to improve, e.g., self-management, collaboration and networking, and to showcase the new tools supporting them. Additionally, during the year training programs on the circular economy, utilisation of data, communication skills, and stress management were arranged for management, supervisors and experts.

In 2016, Fortum launched four Must Win Battle development programmes. In 2018, we updated these programmes to better match our current development needs, and we made Open Leadership a separate programme. The other programmes focus on, e.g., digitalisation and sales development.

The total number of all training hours in 2018 was 64,831 (2017: 62,189). We have previously reported training hours also by

### Level of education of permanent employees in 2016–2018, %

Level of education	2018	2017	2016
Doctorate	1	1	1
University	41	40	43
Lower university	9	8	7
College	18	19	24
Vocational	18	18	17
Compulsory	3	3	3
Not indicated	10	11	5

## Training hours in 2018

	Total number of training hours for employees	Average training hours per employee	Total number of training hours for females	Average training hours per female	Total number of training hours for males	Average training hours per male
Finland	41,822	19	8,798	14	33,024	22
Other countries <sup>1)</sup>	23,009	4	7,829	4	15,183	4
<b>Total</b>	<b>64,831</b>	<b>8</b>	<b>16,627</b>	<b>7</b>	<b>48,207</b>	<b>9</b>

<sup>1)</sup> Excluding personnel transferred from Hafslund companies in Norway

personnel group (blue-collar and white-collar employees). From 2018 onward, we are no longer reporting the distribution of personnel groups because the classification of jobs at Fortum is much more fine-grained, and dividing personnel into the two groups mentioned above is not justified. There is no significant difference in the number of training hours for blue-collar and white-collar workers. Training costs in 2018 totalled EUR 4.0 (2017: 3.6) million.

## Performance and development discussions support the achievement of targets and professional growth

We support employee development through the annual performance and development discussions; all employees are within the scope of the annual discussions. The main target of the performance and development discussion is to ensure that the employee has clear targets that align with the business as well as the competencies supporting the achievement of the targets and professional growth.

The achievement of the targets forms the basis for payment of incentives. All employees who have a minimum of three months of employment in Fortum are within the scope of Fortum's incentive scheme.

## Faster feedback from personnel

The most important elements of Fortum's leadership principles include giving and getting feedback. That is why we use a real-time and flexible pulse tool to find out employee opinions; the tool allows supervisors and employees to see the results as soon as the feedback is given. The opportunity to constantly track the development of issues supports a coaching management approach.

Almost monthly, we ask employees for feedback on various issues related to them. Every six months, we measure personnel engagement and satisfaction with ten questions. The response rate of the survey carried out in November 2018 was 60% (2017: 69%). According to the results, 66% (2017: 68%) of the personnel feel a commitment to the company and 83% (2017: 83%) is proud to work at Fortum. Based on the survey results, the personnel see a clear connection between their own work duties and the company's targets. Fortum is also considered an innovative company that pursues new ways to operate.

Based on the survey results, and like last year, targets of development included increasing the collaboration between the divisions and units, encouraging smart risk-taking, and decreasing the decision-making hierarchy. The aim is to impact these issues with the Open Leadership and Must Win Battle development programmes.

## Safety and security

For Fortum, excellence in safety is the foundation of our business, and safe performance is a sign of professionalism. We strive to be a safe workplace for our employees and for the contractors and service providers who work for us.

### Occupational and operational safety

We believe that all work injuries and EHS non-compliances are preventable when competence and the right attitude prevails, when potential risks are addressed and when measures are taken to safeguard against them.

### Occupational health and safety management

Fortum has Group-level EHS instructions and minimum requirements that set requirements for all the operations for which we have operative responsibility. The requirements are updated regularly, and the divisions' performance in complying with the revised requirements is assessed yearly. Fortum's goal is a high level of environmental and safety management in all business activities. Calculated in terms of sales, 97.0% (2017: 98.4 %) of Fortum's electricity and heat production operations at the end of 2018 were OHSAS 18001 or ISO 45001 certified.

For 2018, we set Group-level targets for the following key figures:

- Lost workday injury frequency (LWIF) <sup>1)</sup>, own personnel and contractors
- Number of severe occupational accidents <sup>2)</sup>
- Quality of investigation process of injuries, major EHS incidents and near misses
- GAP index, implementation of EHS minimum requirements

1) LWIF = Lost Workday Injury Frequency, injuries per million working hours

2) Fatality or an accident leading to permanent disability or an accident with severe and life-threatening injuries

Fortum's Board of Directors has approved the above indicators as Group targets also for 2019. In addition, a Contractor safety improvement index was approved as a new Group target. The index focuses on identified actions that are based on the Group's requirements for contractor management to enhance safety. These include, for example, the requirement to meet with main contractors to discuss safety and to give feedback in cases where low performance is detected in order to ensure corrective actions. It also requires that a system to use both incentives and sanctions is in place. The safety targets apply to all Fortum employees and are part of the Group's **short-term incentive scheme**.

### Safety performance

2018 was a year of outstanding performance improvements, but also a year of challenges in terms of occupational safety. In particular, the severe occupational accidents occurred were a major disappointment: 4 (2017: 1) severe occupational accidents took place in the company's operations; one in Sweden, one in Lithuania and two in Russia. The Group target in 2018 was zero severe occupational accidents.

The severe accidents in Sweden and in Lithuania tragically led to a fatality of a contractor employee. The incident investigation has been conducted for both incidents and corrective actions have been implemented. As a result, also Group requirements have been updated to better mitigate risks related to very high risk work requiring specific professional competences.

The combined lost-workday injury frequency (LWIF) for own personnel and contractors was 1.8 (2017: 2.4), which was clearly better than the set target of  $\leq 2.1$ . This result indicates that Fortum has managed to get back to the safety performance level that prevailed before the major acquisitions. In particular, Recycling and Waste Solutions significantly improved its safety results: the unit managed to reduce its lost workday injury frequency by half. The safety of our own

employees was at a record high, and the LWIF obtained was 0.2 (2017: 1.2).

The target level (3.0) for the quality of investigation process of occupational accidents, major EHS incidents, and serious near misses was achieved. The GAP index, describing the implementation of the Group's EHS minimum requirements at the power plant level, was 2.0, which did not achieve the set target level of 3.0. The most significant deviations were detected in companies that Fortum has acquired in recent years and in the sites operated by contractors. The deviations were related to work permits, high risk work, and contractor management processes.

### Occupational safety risk assessment and incident investigation

Fortum's senior management is responsible for occupational safety risk management principles, targets, and development and maintenance of risk management process, as well as for evaluating the effectiveness of risk management. Local management is responsible for the practical risk assessment and management work.

In common work places, such as construction sites, Fortum's organisation has responsibility for the overall risk management. At construction sites, site-specific risk assessments and management plans are the main contractor's responsibility. Contractors are responsible for risk management concerning their work.

The risk management process is developed based on continuous improvement principles. Input for development includes incidents and deviations at Fortum and other companies. During incident investigations it is concluded whether the risk assessments have been correct and preventive actions sufficient.

Fortum line management is responsible for the incidents investigation as well as for providing the required resources and taking care of the communication. When relevant, Fortum's crisis management and crisis communication procedures are followed. Line management

**Key safety figures in 2016–2018 (GRI 403-9)**

	Target 2019	Target 2018	2018	2017	2016
Lost workday injury frequency (LWIF) <sup>1)</sup> , own personnel and contractors	≤1.7	≤2.1	1.8	2.4	1.8
Lost workday injury frequency (LWIF) <sup>1)</sup> , own personnel			0.2	1.2	1.0
Lost workday injury frequency (LWIF) <sup>1)</sup> , contractors			4.8	4.2	3.0
Lost workday injuries, own personnel			3	17	14
Lost workday injuries, contractors			39	42	27
Severe <sup>2)</sup> occupational accidents	0	0	4	1	5
of which fatalities, own personnel			0	0	0
of which fatalities, contractors			2	0	0
Major EHS incidents <sup>3)</sup>	≤18	≤20	18	20	22

1) LWIF = Lost Workday Injury Frequency, injuries per million working hours

2) Fatality or an accident leading to permanent disability or an accident with severe and life-threatening injuries

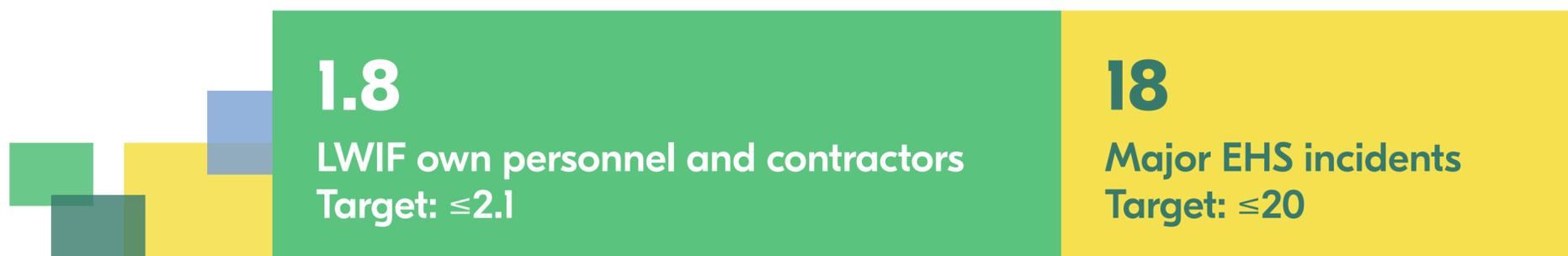
3) Major fires, leaks, explosions, dam safety incidents, environmental non-compliances and INES events level ≥1

INES = International Nuclear and Radiological Event Scale

**Occupational accidents, accident frequencies and absence days due to occupational accidents in 2018 by region (GRI 403-9)**

	Finland	Sweden	Norway	Russia	Poland	Others
<b>Own personnel</b>						
Occupational accidents causing absence	0	0	0	1	0	2
LWIF	0.0	0.0	0.0	0.2	0.0	2.1
Absence from work due to occupational accidents, days	0	0	0	50	0	14
<b>Contractors</b>						
Occupational accidents causing absence	20	4 *	5	3	3	4 *
LWIF	9.1	4.7	18.3	1.4	1.5	6.5
Absence from work due to occupational accidents, days	272	20	76	65	48	19

\* Including a fatal accident



is responsible for designating the individuals responsible for the classification of incidents, determining the investigation level and conducting the investigations. Every organisation has a group of trained incident investigators who are actively involved in investigations.

The findings of investigations are documented in Fortum’s incident-handling system FRIDA. The learnings are shared with the organisations through digital safety bulletins. The quality of conducted investigations is verified with process maturity assessments. Assessments are done by the divisions quarterly.

**Training and development projects related to occupational safety**

In 2018, we initiated an extensive training programme in order to improve our occupational safety performance. The training was conducted by one of the world’s leading consultant companies in the field of safety. The programme included safety training for all division management teams, as well as site-level projects at the Riihimäki production plant and the Inkoo demolition site. Specific training on contractor safety management was also organised for EHS experts and the purchasing function. The training included both theoretical lessons and on-site exercises. Special attention was paid to the prevention of unsafe behaviour, problem solving, the provision of positive feedback, and safety leadership team establishment.

We also implemented tools to assess contractor safety performance as part of the supplier qualification process and evaluated their safety practices in a more systematic manner during work. Selected sites were audited in order to assess how well the instructions, guidelines and agreed practices have been taken in use and where we could improve.

**Operational safety**

We track major environmental, health and safety (EHS) incidents as a Group target; these incidents cover major fires, leaks >100 litres into the environment, explosions, nuclear and dam safety incidents, and

environmental non-compliances. There were 18 (2017: 20) EHS incidents in 2018; the target was  $\leq 20$ . The majority of the incidents were fires. There were zero (2017: 1) incidents that reached INES 1 (International Nuclear and Radiological Event Scale) or higher. The incidents did not cause significant harm to people, operations or the environment.

### Dam safety

In 2018, Fortum carried out high-quality work on a daily basis to ensure dam safety and continued to develop dam safety processes and practices.

In addition, preparation and implementation of our dam safety investments proceeded according to plan. Currently, Fortum has three major dam safety projects ongoing (Långströmmen and Ljusneströmmar in Sweden and Imatra in Finland), and a new project was launched in 2018 in Västerdalälven, Sweden.

The major activities of the projects include upgrading the existing dams to fulfil current structural dam safety requirements and securing safe water management also in extreme hydrological conditions. Operative challenges faced during 2018 were high spring floods, a minor dam breach in Sweden, as well as very warm summer and forest fires in Sweden.

### Nuclear safety

The Loviisa nuclear power plant's automation modernisation, implemented over several years, was completed in 2018. In the project's final phase, the old part of the plant's scram system was replaced with new digital systems. Changes and improvements were also made to ensure the safety functions of the secondary circuit. Additionally, the polar crane in the Loviisa 2 reactor building was renewed, which will significantly reduce the risk of a heavy load drop.

### Corporate security

Through corporate security, we strive to ensure the uninterrupted continuity of business and the safety of people, information, our assets

and processes in normal and exceptional situations. Uninterrupted energy production and distribution is important both for Fortum's business operations and for an energy-dependent society, as is the safety of the products and services we offer to customers. Our Corporate Security unit is responsible at the Group level for personnel and operational security. Cyber security is also an important part of corporate security.

### Securing personnel and business

Compliance with the minimum security requirements improves our operational ability to withstand and recover from disruptions and thus reduces unplanned maintenance outages and improves productivity.

We assess risks related to people, business and information in all geographical areas where Fortum has potential operations and business travel. Risks impacting the company and business operations may be related to political situations, terrorism, crime, conflicts and business partners.

Corporate security is improved also by gaining a deeper understanding of the security situation so that we can anticipate and prevent risks before they materialise.

### Cyber security

Security with the information we handle and with our IT systems ensures that we can meet society's and our customers' expectations. Our cyber security programme is currently divided into data, digital and IT services security, and security of automation systems. The aim is to ensure the production and distribution of power and heat and the functioning of new digital services, like Internet of Things applications.

In information security, we aim to ensure the accessibility, integrity and confidentiality of critical information. We also take seriously our compliance with the regulations related to the protection of personal data. Customer data protection is discussed in the [Product responsibility](#) section.

We actively engage in collaboration with authorities and other stakeholders to understand and prevent new and growing cyber threats. We launch campaigns to increase employee awareness of information security risks. We promote ways of operating that take information security into consideration by, e.g., providing guidelines and online training to personnel.

### Contingency planning

The main disaster and emergency situations we prepare for are related to our critical operations, such as power plant and dam safety, and securing other operations.

For dam and nuclear safety, emergency preparedness obligations in Finland and Sweden are based on regulatory provisions; likewise, there are terrorism-related preparedness obligations in Russia. Otherwise, emergency preparedness obligations prescribed by authorities are of a general nature. Based on its own risk assessments, Fortum independently defines the crisis and exceptional situations it prepares for and drafts action plans for.

Fortum's crisis and emergency management instructions are prepared for Group, division and site levels. We are updating the crisis management plans to correspond with the changes implemented in the business functions and organisations. The testing and updating of the crisis management and continuity plans are the responsibility of each division and line organisation. Crises impacting Group operations more broadly are managed at the Group level. Crisis management and crisis communication instructions have been prepared for, e.g., power and heat outages and for the Loviisa nuclear power plant. Corporate Security is responsible for crisis management development, e.g., for organising rehearsals and supporting planning. Group Communications is responsible for crisis communication. In 2018, the annual emergency preparedness exercise related to a nuclear power accident was held at the Loviisa power plant.

# Economic impacts

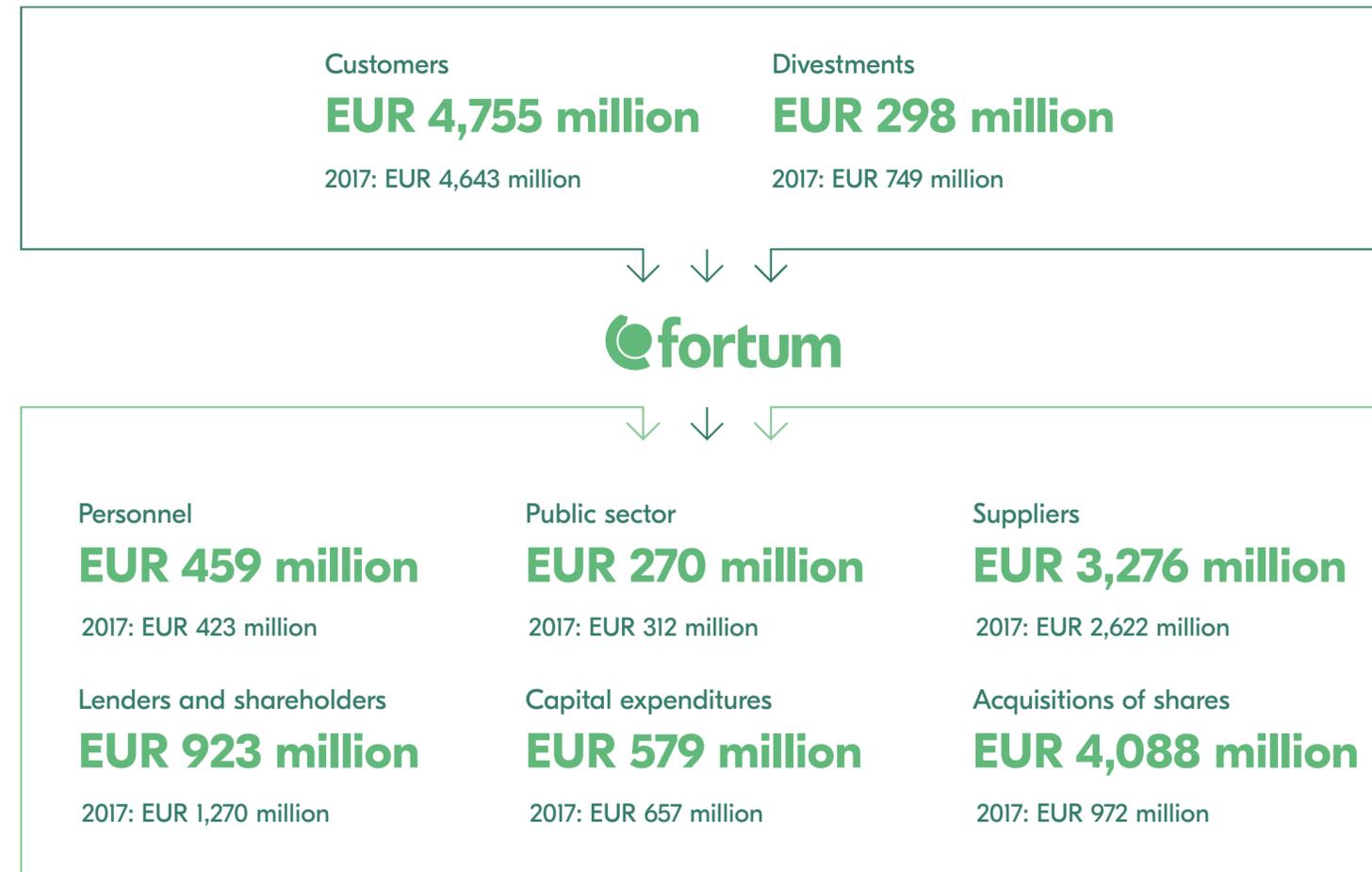
Fortum is a significant economic actor in Finland, Sweden, Russia, Poland, Norway and the Baltic countries. We continuously monitor the impact and added value generated by our operations to our stakeholders. The key stakeholders include lenders and shareholders, customers, personnel, suppliers of goods and services, and the public sector.

## Direct and indirect impacts

The most significant direct monetary flows of Fortum’s operations come from revenue from customers, procurements of goods and services from suppliers, compensation to lenders, dividends to shareholders, growth and maintenance investments, employee wages and salaries, and taxes paid.

Our operations also have indirect economic impacts. The Finnish State owns 50.8% of Fortum’s shares, and we contribute to a functioning society by, among other things, paying taxes and dividends. These secure society’s basic functions and build wellbeing. Investments and the procurement of goods and services provide employment both locally and outside our operating areas. New investment proposals are assessed against sustainability criteria. In terms of suppliers of goods and services, we also assess the global impacts, paying particular attention to suppliers of goods and services operating in risk countries. The wages and taxes paid have a positive impact on local communities. In 2018 we published our [Tax principles](#).

## Distribution of added value



**Monetary flows by stakeholder group in 2016–2018 (GRI 201-1)**

EUR million		2018	2017	2016
<b>Generation of added value</b>				
Income from customers	Income from customers on the basis of products and services sold and financial income	4,755	4,643	3,705
Divestments	Income from divestment of shares, business activities or plants	298	749 **	49
Purchases from suppliers	Payments to suppliers of raw materials, goods and services	-3,276	-2,622	-2,128
Fortum produced added value		1,777	2,770	1,627
<b>Distribution of added value</b>				
Employees compensation	Wages, salaries and remunerations and other indirect employee costs	-459	-423	-334
Lenders and shareholders compensations	Dividends paid to lenders, interest, realised foreign exchange gains and losses and other financial expenses	-923	-1,270	-1,086
Public sector	Income and production taxes paid, support for society and donations	-270	-312	-514
Distributed to stakeholders, total		-1,652	-2,004	-1,934
<b>Surplus/deficit cash</b>		<b>125</b>	<b>765</b>	<b>-307</b>
Capital expenditures		-579	-657	-599
Acquisitions of shares		-4,088 *	-972 **	-695
<b>Surplus/deficit including investments</b>		<b>-4,542</b>	<b>-864</b>	<b>-1,601</b>

\* In 2018 acquisitions of shares mainly include the acquisition of Uniper SE shares. Further information in Financial Statements Note 3 Acquisitions and disposals.

\*\* In 2017 divestments and acquisitions of shares are mainly related to the restructuring of the ownership in Hafslund

In 2018, the difference between added value generated and distributed to stakeholders was EUR 125 (2017: 765) million for the development of own operations.

The distribution of the economic added value generated by our operations to the most significant operating areas is reported in the following parts of the annual reporting:

- ▶ **Sales by market area based on customer location:**  
Financial Statements, Note 6
- ▶ **Employee costs by country**
- ▶ **Tax footprint 2018**

We have included investments in our own assessment of economic impacts, as their annual volume and impact on the society is significant. In 2018 we invested EUR 278 (2017: 375) million in CO<sub>2</sub> free energy production. Capital expenditure by country and by production type is presented in the Financial Statements, Note 18.2 Capital Expenditure.

Provisions related to nuclear power are covered in the Financial statements, Note 29 Nuclear related assets and liabilities. Financial implications and other risks and opportunities due to climate change, as well as emissions trading are reported in the section ▶ **Climate change mitigation**. Our pension arrangements conform to the local regulations and practices in each operating country; the arrangements are discussed in the Financial Statements, Note 31 Pension obligations.



**Support from the public sector**

In 2018 we received financial support from the public sector in the form of investments, R&D and other significant grants totalling EUR 4,0 (2017: 1.7) million. The figure excludes free emission allowances and electricity certificates as well as electricity and heat price related subsidies.

# Security of supply

A functional society requires an uninterrupted and reliable supply of energy. Fortum is committed to working for cleaner energy production. Implementing our vision – For a cleaner world – requires a reliable supply of economically priced energy delivered to customers.

Hydropower balances the growing, but weather-dependent, fluctuating production of other renewable energy forms like solar and wind. The flexibility of hydropower is needed to secure the functionality of the energy system and the power grid and to balance fluctuations in the price of electricity.

If a sufficient supply of hydropower is not available, adjustable power production based on natural gas can be used to balance fluctuations in renewable energy production and to secure the supply of electricity. With planned preventive maintenance and condition monitoring, we ensure that our power plants operate reliably to produce the electricity and heat customers need.

## Power plant availability at a good level

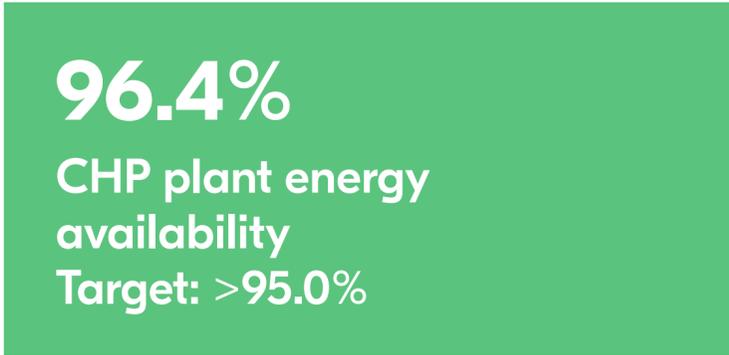
We measure the availability of our CHP and hydropower plants with an energy availability indicator. Energy availability is calculated by dividing the power plant’s actual production in the period under review by the theoretical maximum production. Planned maintenance outages are not included in the calculation. If the outage at a CHP plant is longer than planned, it is considered a production interruption, which decreases the energy availability. The energy availability of our CHP plants in 2018 was, on average, 96.4% (2017: 96.1%), outperforming the target of >95.0%.

For hydropower plants, outages due to a failure and unplanned or prolonged outages decrease the availability factor only if they lead to spillage. The energy availability of our hydropower plants was 98.5% (2017: 98.2%).

The load factor describing the availability of the Loviisa nuclear power plant is among the best in the world for pressurised water reactor power plants. The Loviisa nuclear power plant’s load factor in 2018 was 88.4% (2017: 92.7%).

## Interruptions in heat distribution

Fortum has about 3,400 km of district heating networks in Finland, Norway, Poland, the Baltic countries and Russia. The aim is to keep interruptions in district heat distribution as short as possible by carrying out planned and preventive refurbishment and maintenance activities.



## Customer responsibility and reputation

As a responsible actor in the electricity, heat and circular economy business, Fortum offers consumers environmentally friendly and cost-efficient products and services. It also ensures the reliability of its marketing and communications. Fortum mirrors its operational responsibility through customer satisfaction and reputation amongst various stakeholders.

### Product responsibility

Fortum is the third largest power generator and the largest electricity retailer in the Nordic countries. We are one of the world's largest producers of heat. We also offer district cooling, energy efficiency services, recycling and waste solutions, and the largest electric vehicle charging network in the Nordic countries.

### CO<sub>2</sub>-free and guarantee-of-origin-labelled electricity

Hydro and nuclear account for two-thirds of our electricity production, making us one of the Nordic countries' leading sellers of carbon dioxide-free and guarantee-of-origin-labelled electricity. All the electricity we sold to household customers in Finland and Sweden in 2018 was carbon dioxide-free hydro, wind, solar or nuclear power. The origin of the electricity produced from renewable energy sources was guaranteed with European guarantees of origin. Some of the electricity we sell is also guaranteed with the pan-European EKOenergy label granted by environmental organisations and, in Sweden, with the Bra Miljöval label.

### Services for customers

In recent years, Fortum has introduced many new services that reduce environmental impacts and give customers better opportunities to control their electricity consumption and costs. The sustainable solutions we offer in energy production, traffic and waste management

also support a circular economy. The number of consumers participating in energy production is growing. The solutions offered by Fortum for this area are related to home automation, smart EV charging, local energy production and storage, and flexible demand. Additionally, we offer diverse expertise services for energy systems, electricity and heat production and for the process industry.

### Marketing communications and customer data protection

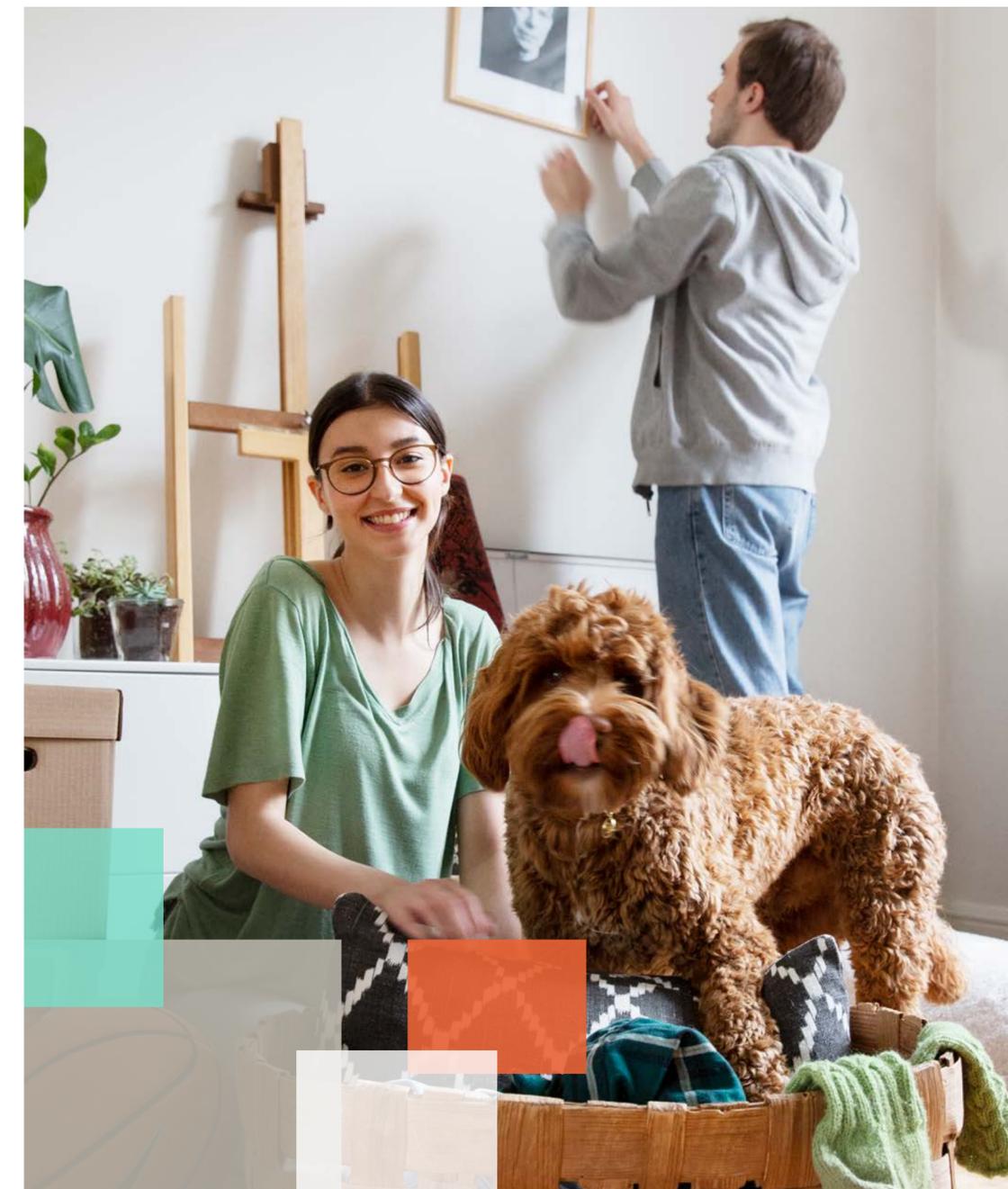
Our goal is to present products and services truthfully in all our marketing and communication materials. We follow responsible marketing communication guidelines, and we do not present misleading statements. In statements regarding environmental issues, we follow the regulations for environmental marketing.

In 2018, Fortum received from the Finnish Energy Authority a request to clarify certain terms of agreement for consumers. These changes have been implemented. In addition, Fortum received from the Energy Authority certain requests for clarification regarding consumer products. These requests for clarification have been addressed within the deadline.

The consumer authority in Sweden has instructed Fortum to implement certain changes to the marketing communications and sales practices. Fortum is cooperating with the authority and is in the process of implementing the requested changes. Fortum is no longer pursuing the appeal in the earlier matter at the Energy Market Inspectorate, due to changes in the product portfolio.

Fortum has received from the Norwegian Consumer Authority certain inquiries and instructions relating to the sales processes with consumer customers. Fortum has been in dialogue with the Consumer Authority and is in the process of implementing the requested changes.

Fortum has received from the Polish Consumer Authority instructions on how to provide adequate and reliable information on the terms and conditions of consumer products. Fortum is in the process of implementing these instructions.



Data protection laws have changed in recent years. In 2016, the EU published the Data Protection Regulation, which came into effect in May 2018. In response to these changes, in 2017 we launched a privacy programme as well as several development projects for personal data processing; these have been completed. The Fortum Privacy Programme ensures that we have the appropriate processes in place so that the rights of our customers are being fulfilled and that our business is able to utilise and process data in accordance with laws. Fortum has received inquiries from the Data Protection Supervisory Authorities in Poland and Finland about its data processing activities related to marketing activities. Fortum has provided the authorities with responses to these inquiries.

► Products and services

### Customer satisfaction and reputation

For Fortum, customer satisfaction and reputation are a top priority in implementing the company’s strategy and in growing the business. We have set Group-wide targets for customer satisfaction and for our reputation.

### Customer in the centre

The Group-wide Customer in the centre development programme was launched in 2015 with the aim of promoting a customer-centric culture in our company. The programme continued in 2018 and contains specific projects to improve the customer experience and our offering in the various business functions, e.g., by leveraging the opportunities brought by digitalisation and collaboration with innovative startups.

### One Fortum Survey provides information about all stakeholder groups

We use the extensive One Fortum Survey to annually measure customer satisfaction and our reputation and the factors that impact them. The

survey is conducted yearly in spring and it covers customers, decision makers, capital markets, non-governmental organisations and opinion leaders as well as Fortum’s personnel. In Finland, Sweden and Norway, we also survey the views of the general public and media. In autumn, we also conduct a follow-up survey among our consumer customers.

We conducted the One Fortum Survey in 2018 in Finland, Sweden, Norway, Poland, the Baltic countries, Russia and India. Over 8,000 customers and nearly 4,700 other stakeholders were interviewed for the survey. The Consumer Solutions division used also the Net Promoter Score (NPS) method to measure the satisfaction of electricity sales customers.

### Customer satisfaction

Several new business functions were included within the sphere of the spring 2018 One Fortum Survey: Fortum Nuclear Services, Fortum HorsePower, Fortum Charge & Drive, and major customers in electricity sales. As a whole, the customer satisfaction for a large share of Fortum’s business functions is on a good level (>70 on a scale of 0–100) or a very good level (>75).

Of all Fortum’s customer groups, Fortum HorsePower has the most satisfied customers; its rating in 2018 was excellent (83). Satisfaction amongst our district heating customers remained virtually unchanged and was on a good level in most countries. A new target we measured in our heat business was Fortum Oslo Varme’s customer satisfaction, which was lower compared to other countries.

Satisfaction was clearly increased amongst Fortum Sweden’s electricity retail customers. By contrast, customer satisfaction decreased amongst Fortum’s customers in Norway and Poland, as did the results for the Fortum-owned consumer brands of Kotimaan Energia and NorgesEnergi.

Customers of the Fortum eNext business unit gave slightly higher ratings in 2018 compared to the previous year, and satisfaction was on a very good level. Fortum Nuclear Services also received a very good rating. Satisfaction among Recycling and Waste Solutions customers

decreased clearly compared to the previous year, but still remained on a very high level (78). Fortum Charge & Drive, offering charging solutions for electric vehicles, has the most room for improvement: its customer satisfaction was on a satisfactory level.

Our Group-level target for all business areas in 2018 was to achieve a customer satisfaction rating of good, i.e. 70–74 on a scale of 0–100, in the One Fortum Survey. The target was achieved in all business areas with the exception of retail electricity sales to major customers and in EV charging solutions for consumers and businesses. The customer satisfaction target using the NPS method (-6) was not achieved amongst electricity sales customers; the score was -18.

The customer satisfaction target set for 2019 is the same for all business areas, i.e. a rating of “good” measured with the One Fortum Survey. The NPS method is no longer used as a Group-level metric.

### Other public customer satisfaction results

The international and independent EPSI Rating annually surveys the level of satisfaction of electricity retail company customers in Finland, Sweden and Norway.

### Customer satisfaction <sup>1)</sup> in 2016–2018

	2018	2017	2016
<b>Finland</b>			
Fortum	74.1	75.6	73.3
<b>Sweden</b>			
Fortum	59.8	56.1	53.4
Göta Energi <sup>2)</sup>	64.4	64.7	62.9
SverigesEnergi <sup>2)</sup>	58.2	60.5	61.0
<b>Norway</b>			
Fortum	-	71.1	72.7
Hafslund Strøm <sup>2)</sup>	66.5	68.2	70.3
NorgesEnergi <sup>2)</sup>	68.6	71.9	71.3

1) In Finland and Norway, the survey is conducted by EPSI Rating. In Sweden the survey is conducted by Svenskt Kvalitetsindex, which is part of the international EPSI Rating Group.

2) Brands acquired through the Hafslund acquisition

### Reputation

In 2018, our reputation strengthened the most amongst decision makers, boosting the reputation index to an excellent level (81 on a scale of 0–100). There was also positive development amongst personnel, and we reached our all-time record high rating (79).

Ratings from investors (74) and media (67) remained on par with the previous year. Reputation decreased the most amongst opinion leaders (76), and the rating decreased significantly, particularly in terms of Finland. As in previous years, the reputation index is the lowest amongst the general public (58).

Our most significant strengths in terms of reputation are our operational expertise and reliability as an employer. We have most room for improvement in social responsibility and customer centricity instead.

The Group-level target for our reputation in 2018 was a rating of 73.0 in the One Fortum Survey, measured as the average rating given by all stakeholders included in the One Fortum Survey, apart from customers. Ratings given by customers are not included in the reputation index calculation because we treat customer satisfaction as a separate entity. In 2018, we achieved an average rating of 72.5 amongst these stakeholder groups. Our target set for 2019 (73.0) includes the same stakeholder groups as in 2018.

### Brand

We continuously monitor also brand development, i.e. the image of our brand. The survey includes the measurement of, e.g., brand awareness, preference and brand attributes. The survey is conducted amongst the general public.



63–83

Customer satisfaction  
Target: 70–74

72.5

Reputation  
Target: 73.0

Case | Valuable products from biomass



Biomass contains lots of valuable raw materials. The target of Fortum's Bio2X programme is to explore the resource-efficient utilisation of the raw materials. The programme is developing the upgrading of wood and bioeconomy residues into high-value products. At fractionating technology-based biorefineries, these lignin cellulose-containing raw materials can be separated into three clean components: cellulose, hemicellulose and lignin. These intermediate products can be further refined into, e.g., textiles, cosmetics and industrial products, like glues.

New biorefinery products save natural resources and can reduce dependency on non-renewable or otherwise unsustainable raw materials. For example, sustainably produced textile fibres from lignin cellulose use less water than cotton. Additionally, the fibre doesn't load water systems with micro-plastics, like polyester or other artificial fibres do. Unlike using biomass in energy production, biorefinery products store the carbon dioxide that has been absorbed in the biomass for years.

Bio2X is tasked with finding and ensuring sustainable ways to use biomass. Among other things, we are researching the possibility of using recycled materials and agricultural residues, like wheat straw and rice straw, as biorefinery raw materials. Especially in developing countries, straw is generally combusted in the fields, significantly increasing the air pollution; in the worst cases, the small particle content that is harmful to humans is 30 times higher than recommended levels. When straw is used as a raw material at biorefineries, its combustion can be avoided and additional earning opportunities for farmers can be created. Fortum's goal through the straw supply chain is to create positive impacts for local communities without compromising the nutrient and carbon balance of fields.

# Supply chain management

Fortum is a significant purchaser of goods and services. We actively strive to reduce the environmental impacts caused by our supply chain and to improve economic and social wellbeing. We also manage risks related to our supply chain. The aim is that open and efficient collaboration creates value for both parties.

## Electricity purchases and investments play a significant role

Fortum's purchasing volume in 2018 was EUR 3.7 (2017: 3.2) billion. Electricity purchased from the Nordic wholesale electricity market for retail sales, investments, and fuel purchases accounted for the majority of Fortum's purchases.

Of our purchases, EUR 579 (2017: 657) million targeted various investments. The biggest investments, EUR 218 million, were made in Finland. A large share of the investments is contracted out in full with materials, installation and other service as well as contractor work included in the total purchase.

Fortum's fuel purchases in 2018 totalled EUR 561 (2017: 564) million. We purchase fuels from international and local suppliers. Our fossil fuel purchases totalled about EUR 496 (2017: 498) million, biomass fuels about EUR 61 (2017: 48) million, and nuclear fuel about EUR 32 (2017: 35) million.

The rest of our purchases, EUR 2.6 (2017: 2.0) billion, consist of other goods and services. The figure includes electricity purchased from the Nordic wholesale electricity market for retail sales. The other goods and services purchases were related to, for example, operation and maintenance as well as to other functions, such as IT solutions, marketing and travel.

## Over half of purchases from Europe

Over half, i.e. 59%, of the purchasing volume was purchased from suppliers operating in Europe, mostly in Finland, Sweden and Poland. This does not include electricity purchases from the Nordic wholesale market. 39% (2017: 47%) of Fortum's purchases were from risk countries. The majority of these purchases were from Russia.

Violations related to work conditions and human rights are more likely in risk countries than in non-risk countries. Fortum's risk-country classification is based on the ILO's Decent Work Agenda, the UN Human Development Index and Transparency International's Corruption Perceptions Index.

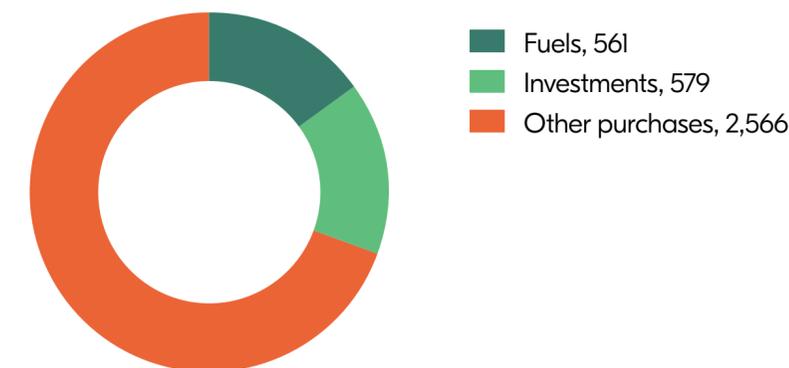
In 2018, we had about 14,000 (2017: 16,000) suppliers of goods and services. About 1,400 of the suppliers were in risk countries. Excluding the Russia Division's local suppliers, there were about 300 suppliers in risk countries.

## Sustainable fuel purchasing

The most significant environmental impacts of our supply chain are related mainly to fuels, particularly to coal and biomasses. There are significant environmental aspects associated with open-pit coal mining, including natural resource efficiency, emissions to air, water and soil, and impacts on biodiversity. Significant occupational health and safety risks can be related to working in underground mines. The sustainability aspects of biomass sourcing are related primarily to biodiversity, but risks particularly outside the EU can also include, for instance, illegal logging or human rights violations.

In fuel purchasing, special attention is paid to the origin of the fuel and to responsible production. In 2018, we had about 110 suppliers in our fuel supply chain, 6% of them operated in risk countries.

## Purchases, EUR million



## Purchases <sup>1)</sup> excluding investments, 2016–2018

EUR million	2018	2017	2016
Nordic countries	2,184	1,548	1,106
Russia	588	586	505
Poland	286	375	279
Other countries	69	56	53
<b>Total</b>	<b>3,127</b>	<b>2,565</b>	<b>1,943</b>

1) Includes purchases of fuel, power and other materials and services

### Natural gas

The natural gas used in Russia, the Baltic countries and Finland originated from several different suppliers in Russia. The natural gas used in Poland originated mainly from Poland and the natural gas used in Norway originated from Norway.

### Coal

The coal used in Finland originated from Russia. The coal used in Poland originated mainly from Poland. The power plants in Russia used coal originating from Russia and Kazakhstan. Fortum is a member of the [Bettercoal initiative](#), and uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain. There is more about Bettercoal assessments in the section [Supplier audits support assessments](#).

### Biomass

The biomass we used consisted mainly of forest residue chips, chips from roundwood and industrial wood residues that originated from Finland, Russia, the Baltic countries, Norway and Poland. More than 60% of the wood-based biofuel used by Fortum in 2018 originated from certified sources. The share was nearly 80% in Finland.

Our goal is that 80% of the wood-based biomass fuel we use is verified by a third party by the end of 2020. In 2018, we built elements of a Chain of Custody management system for wood-based fuel by documenting the system, by further developing our fuel procurement data system, and by launching a systematic assessment of risks related to supply chains and procurement countries.

The bio-oil plant integrated with Fortum's Joensuu power plant has a sustainability system approved by the Finnish Energy Authority. The system is used to prove compliance with nationally legislated sustainability criteria.

### Waste-derived fuel

We use waste-derived fuel at our power plants in Finland, Sweden, Norway, Denmark, Lithuania and Poland. The fuel used is mainly municipal and industrial waste collected locally.

### Uranium

The fuel assemblies used at the Loviisa power plant in Finland are completely of Russian origin. The fuel supplier acquires the uranium used in the fuel assemblies from Russian mines in accordance with Fortum's agreement. In 2018, the uranium originated from the Krasnokamensk, Khiagda and Dalur mines.

All three uranium mines have ISO 14001 environmental certification. The Khiagda mine has also an OHSAS 18001 certified occupational health and safety management system. ARMZ Uranium Holding Co., a uranium producer, and TVEL, which is responsible for refining and manufacturing uranium, have certified environmental and occupational safety systems in place in all their plants, as do the plants manufacturing zirconium material, uranium oxide pellets and fuel assemblies.

We regularly assess the quality, environmental, and occupational health and safety management systems of our nuclear fuel suppliers and the manufacturing of nuclear fuel assemblies. In summer 2018, Fortum's representatives assessed the operations of Fortum's Russian fuel supplier's uranium mine. The mine was in good technical condition, and its quality and environmental management systems were certified.

### ► Fuel consumption

### Origin of fuels used at Fortum in 2018 <sup>1)</sup>

Fuel	Country of origin
Biomass	Finland, Poland, Russia, Norway, Baltic countries
Coal	Russia, Kazakhstan, Poland
Natural gas	Russia, Poland, Norway
Uranium	Russia
Oil	Russia, Norway
Peat	Finland, Estonia

1) Biggest countries of origin by purchase volume in 2018

### Sustainable supply chain

We expect our business partners to act responsibly and to comply with the Fortum Code of Conduct and the Supplier Code of Conduct. Fortum's key tools in supply chain management are country and counterparty risk assessments, supplier qualification and supplier audits.

### Codes of conduct cover basic requirements

The Fortum Code of Conduct forms the foundation for ethical business conduct and defines how we treat others, engage in business, and safeguard our corporate assets. In 2018, the Code of Conduct e-learning training was updated and more than 90% of Group employees worldwide completed the training.

The Supplier Code of Conduct includes the sustainability requirements for suppliers of services and goods. The Supplier Code of Conduct is based on the principles of the United Nations Global Compact initiative and is divided into four sections: anti-corruption, human rights, labour standards, and the environment. The country and counterparty risk assessment follows the same structure.

The Supplier Code of Conduct is used in all our countries of operation and is included in all purchase agreements with a contract value of EUR 50,000 or more. Training related to the Supplier Code of Conduct

was arranged in 2018 for the Recycling and Waste Solutions personnel in Denmark and for Fortum Oslo Varme personnel in Norway.

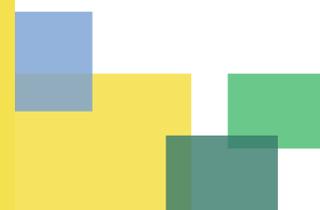
### Supplier qualification

We assess the level of operations of our business partners through supplier qualification and supplier audits. A supplier qualification is made when the purchase volume is EUR 50,000 or more. In the qualification process, suppliers respond to a survey that we use to help determine, among other things, the supplier's possible operations in risk countries, certified management systems, and the occupational safety level of the contractors. We pay special attention also to anti-corruption practices.

If potential risks in the supplier's operations are identified through the questionnaire, a more extensive self-assessment questionnaire may be sent or a supplier audit is conducted. The extensive self-assessment questionnaire is always sent to fuel suppliers and the suppliers of Fortum India.

The Russia Division uses its own supplier qualification process that is based on Russian procurement law. In the Russian operations, we set supplier requirements for business principles, ethics, environmental management, and occupational health and safety practices.

**By 2020, we are committed to purchasing 70% of coal from suppliers whose mines have undergone a Bettercoal assessment.**



### Supplier audits support assessments

In supplier audits, we assess the supplier's compliance with the requirements in Fortum's Supplier Code of Conduct. Audits are always done on-site, and they include production inspections, employee interviews, and reviews of documents. If non-compliances are found, the supplier makes a plan for corrective actions and we monitor the implementation of them.

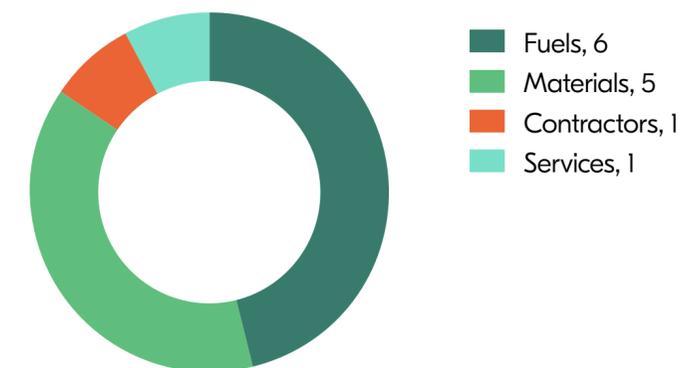
Fortum uses an international service provider for conducting audits, especially in risk countries. In Fortum's own operating countries, the audits are performed mainly by own personnel.

In 2018, we conducted a total of 13 (2017: 11) supplier audits in Finland, Lithuania, Poland, Netherlands, Russia, Vietnam and India.

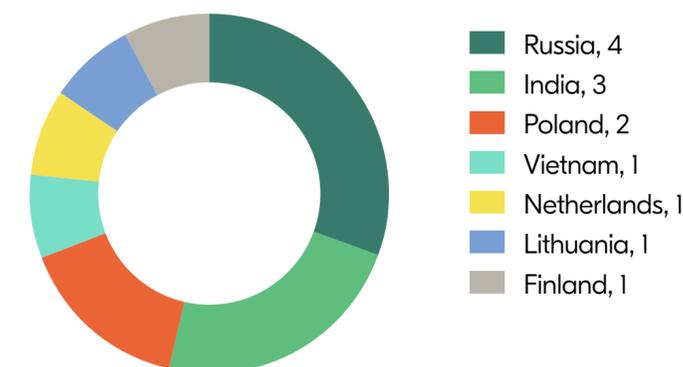
The majority of the non-compliances identified in the audits were related to occupational safety, overtime hours and remuneration. A non-compliance related to employee collective bargaining rights was discovered with a Vietnamese supplier and an Indian supplier. We didn't find any non-compliances with the requirements related to discrimination and forced or child labour, but we did give a Vietnamese and an Indian supplier a recommendation to strengthen their practices to prevent possible discrimination and forced or child labour.

Fortum uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain. The Bettercoal Assessment Programme includes the suppliers' Letter of Commitment, self-assessment, and site-assessment. Site-assessments are always performed by an external auditor approved by Bettercoal. In 2018, two of Fortum's Russian coal suppliers' mines were assessed against the Bettercoal Code, and a Kazakhstani coal supplier performed a self-assessment. Additionally, two of Fortum's coal suppliers have been audited in previous years.

### Supplier audits by supplier type



### Supplier audits by country



# Human rights

Fortum supports and respects internationally recognised human rights, which are included in the key human rights agreements. Our own operations have a direct or indirect impact on the realisation of the human rights of our own personnel, those working in the supply chain, and members of local communities.

## Management of human rights issues and personnel training

Our goal is to operate in accordance with the UN Guiding Principles on Business and Human Rights, and to apply these principles in our own operations as well as in country and partner risk assessments and supplier audits.

Fortum's approach to the management of human rights issues is described in more detail in Appendix 4: [Sustainability management by topic, Human rights](#).

Fortum's Corporate Sustainability unit is responsible for coordinating and developing sustainability, including human rights issues, at the Group level.

The e-learning for Fortum's Code of Conduct includes training in human rights-related issues. The e-learning is part of the induction programme for new employees. In 2018, the Code of Conduct e-learning training was updated and more than 90% of Group employees worldwide completed the training.

The Supplier Code of Conduct includes human rights requirements for suppliers and they are reviewed as part of the Supplier Code of Conduct training. Training was arranged in 2018 for the Recycling and Waste Solutions personnel in Denmark and for Fortum Oslo Varme personnel in Norway.

## Assessment of human rights impacts

A sustainability assessment is carried out for our investment projects and it takes into consideration the environmental, occupational health and safety, and social impacts of the project. The sustainability assessment includes a human rights evaluation, especially in new operating areas. A human rights assessment is also part of the assessment of country and counterparty risks when planning a project.

The process has two parts: a light and a deep assessment. A light assessment is done for all new countries in which one of our business units is planning the sales of products or services, and it is based on publically available sources. In 2018, seven of these assessments were made. Additionally, one of the deep assessments started in 2017 was continued.

Fortum's supplier audits cover the most important human rights aspects related to purchases. The supplier audits conducted in 2018 and their results are described in more detail in the section [Sustainable supply chain](#).

## Identified impacts on human rights, corrective measures and grievances

All forms of child and forced labour are strictly prohibited and in violation of Fortum's Code of Conduct. We have not identified risks related to the use of child or forced labour in our own operations. Support of employees' right to freedom of association and collective bargaining are discussed in the section [Employee-employer relations](#).

In June 2018, Fortum's subsidiaries operating in Great Britain published a statement required by the Modern Slavery Act on [Fortum's website](#). We support the principles defined in the Act and condemn practices that are in violation of the Act. We ensure compliance with our principles and Code of Conduct through internal monitoring and reporting practices and supplier assessments.

Internal reporting channels used for reporting any suspected misconduct relating to labour conditions or human rights violations are defined in Fortum's Code of Conduct. In addition to internal reporting channels, Fortum has an external "Raise a concern" channel, which is available to all stakeholders.

During the year there was one grievance filed regarding discrimination, which is reported in the section [Diversity and equal opportunity](#). There were no other grievances related to human rights or labour rights filed through formal grievance channels, nor were there any grievances carried over from the previous year.

# Corporate citizenship

Social responsibility is a cornerstone of Fortum’s operations. Our operations impact the local communities where our plants are located, and we engage in many kinds of collaboration with local stakeholders. We support activities promoting the common good in society, including the work of organisations and communities in our operating countries. Fortum also engages in significant collaboration with different research and development projects with universities.

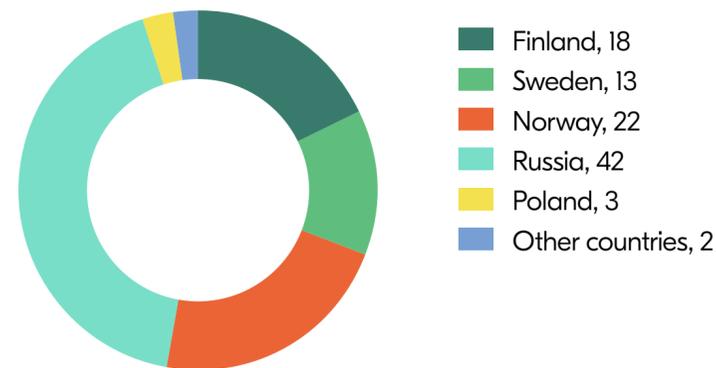
## Local impacts and collaboration with local communities

We are an important employer and significant tax payer in our operating areas. In addition, our investments improve the local infrastructure. Of our energy production forms, hydropower has the most significant **impacts on local communities** and local forms of land use.

Hydropower construction and use may alter the fluctuation range and rhythm in the discharge and water level in waterways as well as the fish fauna. These changes impact fishing, recreational use, and boating. We mitigate and compensate the adversities caused by hydropower production through numerous measures, such as stocking fish and building boat launch ramps.

We communicate openly, honestly and proactively, and we engage in a dialogue with the stakeholder groups located in the vicinity of our power plants. We carry out collaboration projects with local communities. We conduct environmental impact assessments (EIA) for our projects in accordance with legislative requirements. The hearing of stakeholders is part of the EIA process. In addition, relevant stakeholders are heard in all permit procedures.

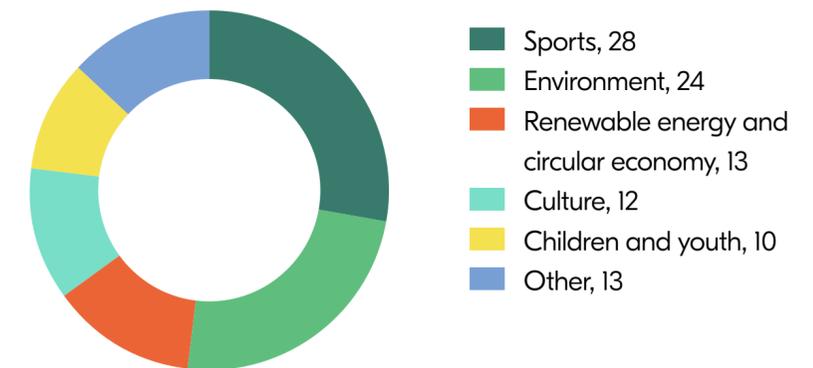
Fortum’s support to society by country, %



Examples of our activities with local communities in 2018:

- We arranged open-house events at power plants in different countries of operation; thousands of locals attended the events.
- We continued publishing the Naapurina ydinvoimala (Nuclear power plant as a neighbour) magazine in Loviisa, Finland, and maintained an active dialogue with local residents and representatives of the city of Loviisa.
- In Riihimäki, Finland, an active dialogue with local residents is supported by a cooperation council that convenes twice a year. In Wrocław, Poland, Fortum and a local community collaboration council created “Clean energy for Wrocław”, a programme that primarily aims to develop the district heating network in the city centre to improve air quality.
- **Projects** aiming to mitigate the adverse environmental impacts of hydropower were under way in Finland and Sweden in collaboration with municipalities, research facilities, fishermen and universities. Development of the environmental conditions and recreational use of

Fortum’s support to society by target, %



- the River Oulujoki continued together with local partners based on the multi-year framework agreement. In Vuoksi River, we sponsored the video monitoring of the Imatra city creek arranged by the Finnish Environmental Institute. A fish research programme for constructed waterways will continue, as we and other energy sector companies and authorities agreed on the launch of a new multi-year research programme with the Natural Resources Institute Finland. In the lower course of the River Gullspångsälven in Sweden, we have an ongoing joint project with regional authorities, the municipality, and Karlstad University to strengthen the life-cycle of the endangered Gullspång landlocked salmon.
- We held the sixth River Clean-Up for sports clubs in Sweden. More than 1,850 children and adults raised money for sports activities by collecting 30 tonnes of trash along the banks of four rivers (Dalälven, Klarälven, Ljusnan and Gullspångälven) where Fortum has hydropower plants.

- In Estonia, Fortum became a member of the Corporate Social Responsibility forum, which promotes corporate responsibility issues. Among other things, Fortum participated in the national occupational safety campaign.
- In Poland, we arranged and supported circular economy training for local communities. In Russia, we continued the About Energy programme, which was in use in 60 schools, reaching about 6,000 students in 2018 in Tyumen, Chelyabinsk, Nyagan and the Ulyanovsk region. The programme aims to teach children about using resources efficiently and to encourage them to take environmental issues into consideration in their thinking.
- We continued supporting local communities with several projects in the vicinity of the Kapeli and Amrit solar power plants in India. Among other things, Fortum has improved the water and electricity supply in the villages and has supported local schools by building a new classroom and furnishing the kitchen for providing lunch for the children. In the villages near the Bhadla power plant, a community development programme was continued. Within its framework, local adults have been taught to read, programmes to support the digital skills of teachers and students have been implemented, advice related to health and hygiene has been provided, and the livelihood of women in particular has been supported by teaching them tailoring and how to sew clothes on a sewing machine. The Self Help Group for local women started the previous year has also continued its activities.

### Support for society

According to Fortum's Policy for Sponsoring and Donations, our sponsoring focuses on the wellbeing of children and youth, renewable energy projects, R&D and innovations supporting Fortum's strategy, recycling, recovery and reuse. In 2018, Fortum's support for activities promoting the common good totalled about EUR 3.8 (2017: 4.9) million. Additionally, we support research, education and development in the natural, technical and economical sciences in the energy sector through

Fortum Foundation. The grants awarded by Fortum Foundation in 2018 totalled about EUR 680,000 (2017: 696,000). Fortum Foundation is not part of Fortum Group.

The goal of the collaboration with universities and colleges is to develop Fortum's business, promote energy-sector research and development, and foster Fortum's recruiting and training opportunities. In 2018, we participated in, e.g., two EU Horizon 2020-funded research projects in the Baltics. The Estonian RELaTED project is developing an Ultra-Low Temperature (ULT) district heating network solution. The concept utilises low temperature heat sources, and it enables more efficient utilisation of waste heat and the reduction of CO<sub>2</sub> emissions. In Latvia, Fortum is taking an active part in the THERMOS (Thermal Energy Resource Modelling and Optimisation System) project that will provide advanced energy system data and models to make heat network planning faster, more efficient, and more cost effective.

### Sponsorship projects

Fortum has a collaboration agreement until the end of 2019 with **Yrityskylä**. The Yrityskylä learning environment for sixth-graders is a school-aged children's society, a miniature city where students work in a profession and earn money for their work. In addition, the students act as consumers and citizens as part of Finnish society. In Fortum's miniature company, students perform activities in various tasks related to renewable energy.

In 2018, we started a collaboration with the **Crisis Management Initiative** (CMI). The CMI is an independent Finnish organisation that works to prevent and resolve violent conflicts through informal dialogue and mediation. During Ahtisaari Days held in November, the organisation's representatives visited Espoo schools with the goal of teaching the students skills related to conflict-resolution, peace mediation and reconciliation.



## Appendix I: Reporting principles

We report on sustainability in this Sustainability Report. Non-financial reporting, in line with the Accounting Act, is included in the Operating and Financial Review in the Financials. Additionally, we describe sustainability-related governance practices in the Corporate Governance Statement, and strategy and the CEO's view in the CEO's Business Review. Our reporting entity also includes the Tax Footprint.

We apply specific disclosures of the GRI Sustainability Reporting Standards we have identified as material.

We gain information about our stakeholders' views through the One Fortum Survey, the stakeholder sustainability survey and other stakeholder collaboration. Our selection of material topics is based on Fortum's own and our stakeholders' views regarding the materiality of Fortum's impacts.

We report sustainability information annually in Finnish and English. In our annual reporting we describe Fortum's operations in 2018 as well as some information from January–February 2019. The previous reporting was published in March 2018, and our next reporting will be published in February/March 2020. In addition to the annual reporting, we report on our sustainability activities in Fortum's interim reports.

### Reporting scope and boundaries

Reporting related to operations and management covers all functions under Fortum's control, including subsidiaries in all countries of operation. The figures for power and heat generation and investments include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners at cost. Possible deviations to these principles are reported in conjunction with information applying different boundaries. A list of Fortum's subsidiaries

is included in the ▶ **Financial Statements** Note 40 Subsidiaries by segment on 31 December 2018.

Information from previous years is mainly presented as pro forma information, i.e. on the basis of the organisation and the functions of each year; the impacts of ownership changes in production facilities, for example, have not been updated afterwards in the previous figures.

Stockholm Exergi is treated in the Financial Statements as a joint venture and Uniper as an associated company. Both companies are consolidated with the equity method.

Stockholm Exergi and Uniper are not included in Fortum's sustainability targets and indicators nor in the descriptions of management practices. Stockholm Exergi's and Uniper's sustainability information are available in the companies' sustainability reports that can be found on the companies' own web pages.

Exceptions to the accounting practice are presented in conjunction with each figure.

### Capacity changes

In 2018, Fortum commissioned 123 MW of new wind power capacity in Russia, Norway and Sweden. The new capacity is included in the reporting starting from its commissioning. Fortum started the trial run of the new Zabrze CHP plant (75 MW electricity and 145 MW heat) in Poland in late 2018. The new Zabrze plant is included in the reporting starting from its start-up. Fortum divested its majority stake in India's 185-MW solar power farms in autumn 2018. Capacity divested during the year is removed from the reporting upon finalisation of the sale.

### Measurement and calculation principles

Data for economic performance indicators is collected from the audited Financial Statements and from financial accounting and consolidation systems.

The environmental information of the report covers the plants for which Fortum is the legal holder of the environmental permit. In such

cases, the plant information is reported in its entirety. An exception is the calculation of specific CO<sub>2</sub> emissions and fuel use from the Meri-Pori power plant, where the calculation covers only Fortum's share of the figures as specified in the operation agreement between Fortum and Teollisuuden Voima Oy.

Fortum utilises a Group-wide database with instructions for collecting site-level environmental data. Sites are responsible for data input, emissions calculations and the accuracy of the information provided. The Corporate Sustainability unit compiles the data at the Group level and is responsible for the disclosed sustainability information.

Fortum's CO<sub>2</sub> emissions subject to the EU's emissions trading scheme are annually verified at the site level by external verifiers. Direct and indirect greenhouse gas emissions have been reported in accordance with the Greenhouse Gas (GHG) Protocol on the basis of the Greenhouse Gas Analysis performed by an external consultant.

Fortum's human resources (HR) management system is used in all Fortum's operating countries and is the main system for employee-related personal and job data. In Russia, the employee data system covers mainly superiors. In addition, Russian operations have their own, local data system.

Other social responsibility data, such as occupational health-related data, originates from various data systems.

Designated individuals collect the information and deliver it to the Corporate Sustainability unit primarily in the format recommended by the GRI Standards.

### ▶ Financials 2018

**Assurance**

Deloitte Oy has provided limited assurance for the 1 January 2018 to 31 December 2018 reporting period for GHG emissions calculations (Scope 1, 2 and 3) based on the Greenhouse Gas (GHG) Protocol according to the requirements published by CDP (Verification of Climate Data).

**Global Compact and Caring for Climate reporting**

Fortum has been a participant of the United Nations Global Compact initiative since 2010. In our 2018 Sustainability Report, we describe the realisation of the Ten Principles of the Global Compact initiative in our operations in the sections: ▶ **Climate and resources**, ▶ **Personnel and society**, and ▶ **Business ethics and compliance**. We use the GRI Sustainability Reporting Standards disclosures to measure compliance with the principles of human rights, labour standards, the environment and anti-corruption.

Fortum joined the UN Caring for Climate initiative in 2013. Fortum meets the reporting requirements of the Caring for Climate initiative by annually participating in the assessment in the CDP Climate Change questionnaire and by publishing its response on the CDP website.




UN GLOBAL COMPACT

COMMUNICATION ON PROGRESS

This is our **Communication on Progress** in implementing the principles of the **United Nations Global Compact** and supporting broader UN goals.

We welcome feedback on its contents.

## Appendix 2: Reported GRI disclosures

This Sustainability 2018 Report references the following Disclosures from the GRI Topic-specific Standards presented in the table.

All other standards except Water and Effluents (GRI 303) and Occupational Health and Safety (GRI 403) follow version 2016. The new standards, GRI 303 and GRI 403, follow version 2018.

DISCLOSURE	DESCRIPTION	SECTION
<b>GRI 103: MANAGEMENT APPROACH</b>		
103-1	Explanation of the material topics	<ul style="list-style-type: none"> <li>▶ Sustainability approach / Key sustainability topics</li> <li>▶ Appendix 4, Sustainability management by topic</li> </ul> Additionally reported by topic
103-2	The management approach and its components	<ul style="list-style-type: none"> <li>▶ Sustainability approach / Governance and management</li> <li>▶ Sustainability approach / Policies and commitments</li> <li>▶ Appendix 4, Sustainability management by topic</li> <li>▶ Sustainability approach / Business ethics and compliance</li> <li>▶ Climate and resources / Environmental non-compliances</li> <li>▶ Personnel and society / Human rights</li> </ul>
103-3	Evaluation of the management approach	<ul style="list-style-type: none"> <li>▶ Appendix 4, Sustainability management by topic</li> </ul> Additionally reported by topic

DISCLOSURE	DESCRIPTION	SECTION
<b>ECONOMIC RESPONSIBILITY</b>		
GRI 201: Economic Performance		
201-1	Direct economic value generated and distributed	▶ Personnel and society / Economic impacts
201-2	Financial implications and other risks and opportunities due to climate change	<ul style="list-style-type: none"> <li>▶ Climate and resources / Climate change mitigation</li> <li>▶ Financials / Operating and financial review / Risk management</li> </ul>
201-3	Defined benefit plan obligations and other retirement plans	▶ Financials / Notes to the consolidated financial statements / 31 Pension obligations
201-4	Financial assistance received from government	▶ Personnel and society / Economic impacts
GRI 205: Anti-corruption		
205-1	Operations assessed for risks related to corruption	▶ Sustainability approach / Business ethics and compliance
205-2	Communication and training about anti-corruption policies and procedures	▶ Sustainability approach / Business ethics and compliance
205-3	Confirmed incidents of corruption and actions taken	▶ Sustainability approach / Business ethics and compliance
GRI 206: Anti-competitive Behavior		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	▶ Sustainability approach / Business ethics and compliance
Nuclear plant decommissioning		
103	Management Approach	▶ Financials / Notes to the consolidated financial statements / 29 Nuclear related assets and liabilities
System efficiency		
EU11	Average generation efficiency of thermal plants	▶ Climate and resources / Improving energy efficiency / Energy intensity

DISCLOSURE	DESCRIPTION	SECTION
<b>ENVIRONMENTAL RESPONSIBILITY</b>		
GRI 301: Materials		
301-1	Materials used by weight or volume	▶ Climate and resources / Improving energy efficiency / Fuel consumption
301-2	Recycled input materials used	▶ Climate and resources / Improving energy efficiency / Fuel consumption ▶ Climate and resources / Circular economy
GRI 302: Energy		
302-1	Energy consumption within the organisation	▶ Climate and resources / Improving energy efficiency / Fuel consumption ▶ Climate and resources / Sustainable energy production ▶ Climate and resources / Improving energy efficiency / Energy intensity
302-3	Energy intensity	▶ Climate and resources / Improving energy efficiency / Energy intensity
302-4	Reduction of energy consumption	▶ Climate and resources / Improving energy efficiency
GRI 303: Water and Effluents		
303-1	Interactions with water as a shared resource	▶ Climate and resources / Water use ▶ Personnel and society / Corporate citizenship
303-3	Water withdrawal	▶ Climate and resources / Water use
303-4	Water discharge	▶ Climate and resources / Water use ▶ Climate and resources / Environmental non-compliances
303-5	Water consumption	▶ Climate and resources / Water use
GRI 304: Biodiversity		
304-3	Habitats protected or restored	▶ Climate and resources / Biodiversity
GRI 305: Emissions		
305-1	Direct (Scope 1) GHG emissions	▶ Climate and resources / Climate change mitigation / Greenhouse gas emissions
305-2	Energy indirect (Scope 2) GHG emissions	▶ Climate and resources / Climate change mitigation / Greenhouse gas emissions
305-3	Other indirect (Scope 3) GHG emissions	▶ Climate and resources / Climate change mitigation / Greenhouse gas emissions
305-4	GHG emissions intensity	▶ Climate and resources / Climate change mitigation / Greenhouse gas emissions
305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	▶ Climate and resources / Emissions into air

DISCLOSURE	DESCRIPTION	SECTION
GRI 306: Effluents and Waste		
306-2	Waste by type and disposal method	▶ Climate and resources / Circular economy / Waste and by-products
306-3	Significant spills	▶ Climate and resources / Environmental non-compliances
GRI 307: Environmental Compliance		
307-1	Non-compliance with environmental laws and regulations	▶ Climate and resources / Environmental non-compliances
GRI 308: Supplier Environmental Assessment		
308-2	Negative environmental impacts in the supply chain and actions taken	▶ Personnel and society / Supply chain management / Sustainable supply chain
<b>SOCIAL RESPONSIBILITY</b>		
102-8	Information on employees and other workers	▶ Personnel and society / Personnel
102-41	Collective bargaining agreements	▶ Personnel and society / Personnel / Employee-employer relations
GRI 401: Employment		
401-1	New employee hires and employee turnover	▶ Personnel and society / Personnel
GRI 403: Occupational Health and Safety		
403-1	Occupational health and safety management system	▶ Personnel and society / Safety and security / Occupational and operational safety
403-2	Hazard identification, risk assessment, and incident investigation	▶ Personnel and society / Safety and security / Occupational and operational safety
403-3	Occupational health services	▶ Personnel and society / Personnel / Employee wellbeing
403-5	Worker training on occupational health and safety	▶ Personnel and society / Safety and security / Occupational and operational safety
403-6	Promotion of worker health	▶ Personnel and society / Personnel / Employee wellbeing
403-9	Work-related injuries	▶ Personnel and society / Safety and security / Occupational and operational safety
403-10	Work-related ill health	▶ Personnel and society / Personnel / Employee wellbeing

DISCLOSURE	DESCRIPTION	SECTION
<b>GRI 404: Training and Education</b>		
404-1	Average hours of training per year per employee	▶ Personnel and society / Personnel / Employee development
404-2	Programs for upgrading employee skills and transition assistance programs	▶ Personnel and society / Personnel / Employee development
404-3	Percentage of employees receiving regular performance and career development reviews	▶ Personnel and society / Personnel / Employee development
<b>GRI 405: Diversity and Equal Opportunity</b>		
405-1	Diversity of governance bodies and employees	▶ Personnel and society / Personnel / Diversity and equal opportunity ▶ Governance / Corporate governance statement / Governing bodies of Fortum / Board of directors
405-2	Ratio of basic salary and remuneration of women to men	▶ Personnel and society / Personnel / Diversity and equal opportunity
<b>GRI 406: Non-discrimination</b>		
406-1	Incidents of discrimination and corrective actions taken	▶ Personnel and society / Personnel / Diversity and equal opportunity
<b>GRI 407: Freedom of Association and Collective Bargaining</b>		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	▶ Personnel and society / Personnel / Employee-employer relations ▶ Personnel and society / Supply chain management / Sustainable supply chain
<b>GRI 408: Child Labor</b>		
408-1	Operations and suppliers at significant risk for incidents of child labor	▶ Personnel and society / Human rights
<b>GRI 409: Forced or Compulsory Labor</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	▶ Personnel and society / Human rights

DISCLOSURE	DESCRIPTION	SECTION
<b>GRI 412: Human Rights Assessment</b>		
412-1	Operations that have been subject to human rights reviews or impact assessments	▶ Personnel and society / Human rights
412-2	Employee training on human rights policies or procedures	▶ Personnel and society / Human rights
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	▶ Personnel and society / Human rights
<b>GRI 413: Local Communities</b>		
413-2	Operations with significant actual and potential negative impacts on local communities	▶ Personnel and society / Corporate citizenship
<b>GRI 414: Supplier Social Assessment</b>		
414-2	Negative social impacts in the supply chain and actions taken	▶ Personnel and society / Supply chain management / Sustainable supply chain
<b>GRI 415: Public Policy</b>		
415-1	Political contributions	▶ Sustainability approach / Business ethics and compliance
<b>GRI 417: Marketing and Labeling</b>		
417-3	Incidents of non-compliance concerning marketing communications	▶ Personnel and society / Customer responsibility and reputation / Product responsibility
<b>GRI 419: Socioeconomic Compliance</b>		
419-1	Non-compliance with laws and regulations in the social and economic area	▶ Sustainability approach / Business ethics and compliance ▶ Personnel and society / Personnel / Diversity and equal opportunity ▶ Personnel and society / Human rights ▶ Personnel and society / Customer responsibility and reputation / Product responsibility
<b>Disaster/Emergency planning and response</b>		
103	Management Approach	▶ Personnel and society / Safety and security / Corporate security
<b>Access</b>		
EU30	Average plant availability factor	▶ Personnel and society / Security of supply

## Appendix 3: Independent limited assurance report on Fortum's Greenhouse Gas Emissions 2018

### To the Management of Fortum Corporation

We have been engaged by Fortum Corporation (hereafter: Fortum) to provide a limited assurance on Fortum's Greenhouse Gas Emissions calculations (Scope 1, 2 and 3) based on Greenhouse Gas (GHG) Protocol according to the requirements published by CDP (Verification of Climate Data) for the reporting period of January 1, 2018 to December 31, 2018 (hereafter: GHG Emissions Disclosures). The information subject to the assurance engagement is presented in the section "Climate change mitigation" of Fortum's Sustainability Reporting 2018 (hereafter: GHG Reporting).

### Management's responsibility

Management is responsible for the preparation of the GHG Reporting in accordance with the reporting criteria as set out in Fortum's Reporting principles and the Greenhouse Gas Protocol (hereafter: GHG Protocol). This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of the GHG Reporting that are free from material misstatement, whether due to fraud or error, selecting and applying appropriate criteria and making estimates that are reasonable in the circumstances.

### Assurance provider's responsibility

Our responsibility is to express a limited assurance conclusion on the reported GHG Emissions Disclosures within Fortum's GHG Reporting based on our engagement. Our assurance report is made in accordance with the terms of our engagement with Fortum. We do not accept or assume responsibility to anyone other than Fortum for our work, for this assurance report, or for the conclusions we have reached.

We conducted our assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3410 to provide a limited assurance on GHG Emissions Disclosures. This Standard requires that we comply with ethical requirements and plan and perform the assurance engagement to obtain a limited assurance

whether any matters come to our attention that cause us to believe that the GHG Emissions Disclosures have not been presented, in all material respects, in accordance with the reporting criteria.

We did not perform any assurance procedures on the prospective information, such as targets, expectations and ambitions. Consequently, we draw no conclusion on the prospective information.

A limited assurance engagement with respect to the GHG Emissions Disclosures involves performing procedures to obtain evidence about the reported GHG Emissions. The procedures performed depend on the practitioner's judgment, but their nature is different from, and their extent is less than, a reasonable assurance engagement. It does not include detailed testing of source data or the operating effectiveness of processes and internal controls and consequently they do not enable us to obtain the assurance necessary to become aware of all significant matters that might be identified in a reasonable assurance engagement.

Our procedures on this engagement included:

- A review of management systems, reporting and data compilation processes
- Selected interviews of persons conducting Scope 1, 2 and 3 analysis and data owners
- Review of assumptions and emission factors used in calculations
- Analytical testing of consolidated data
- Testing of source data on spot check basis

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

### Our independence, quality control and competences

We complied with Deloitte's independence policies which address and, in certain cases, exceed the requirements of the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants in their role as independent assurance providers and in

particular preclude us from taking financial, commercial, governance and ownership positions which might affect, or be perceived to affect, our independence and impartiality and from any involvement in the preparation of the report. We have maintained our independence and objectivity throughout the year and there were no events or prohibited services provided which could impair our independence and objectivity.

Deloitte Oy applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. This engagement was conducted by a multidisciplinary team including assurance and GHG Reporting expertise with professional qualifications. Our team is experienced in providing reporting assurance.

### Conclusion

On the basis of the procedures we have performed, nothing has come to our attention that causes us to believe that the information subject to the assurance engagement is not prepared, in all material respects, in accordance with the GHG Protocol or that the GHG Emissions Disclosures are not reliable, in all material respects, with regard to the reporting criteria.

Our assurance statement should be read in conjunction with the inherent limitations of accuracy and completeness of the GHG Reporting.

Helsinki 28 February 2019

Deloitte Oy

Reeta Virolainen  
Authorized Public Accountant

Lasse Ingström  
Authorized Public Accountant

## Appendix 4: Sustainability management by topic

Sustainability management in the areas of economic responsibility, environmental responsibility and social responsibility is described in the accompanying tables. Additionally, more detailed information about the management of different topics and impacts as well as about the measures, processes and projects is presented by topic in this report. Fortum's "Raise a concern" channel has been described in the section [Business ethics and compliance](#). The purpose of the sustainability management approach is to ensure our operational compliance and to avoid, mitigate and offset the adverse impacts from our operations and to increase the positive impacts.

### Management of economic responsibility

	Description
Targets and approach	<p>For Fortum economic responsibility means competitiveness, performance excellence and market-driven production that creates long-term value for our stakeholders and enables sustainable growth. Satisfied customers are key to our success and active consumers will have a crucial role in the future energy system. Fortum has indirect responsibility for its supply chain. We conduct business with companies that act responsibly.</p> <p>Each new research and development project is assessed against the criteria of carbon dioxide emissions reduction and resource efficiency. Likewise, new investment proposals are assessed against sustainability criteria as part of Fortum's investment assessment and approval process. In our investments we seek economically profitable alternatives that provide the opportunity to increase capacity and reduce emissions.</p> <p>We measure financial performance with the return on capital employed (long-term target: at least 10%) and capital structure (long-term target: comparable net debt/EBITDA around 2.5x). The realisation of financial targets in 2018 is reported in the Financial performance and position section of the <a href="#">Financials</a>.</p>
Policies and commitments	<p>The financial management system is based on Group-level policies and their specifying instructions, and on good governance, effective risk management, sufficient controls and the internal audit principles supporting them. Other key elements steering financial management are presented in the section <a href="#">Policies and commitments</a> and in <a href="#">Appendix 5</a>.</p>
Responsibilities	<p>The CFO and the Group's Financial unit, division management, and ultimately the CEO and the Board of Directors are responsible for issues related to finances and financial statements and for broader financial responsibility issues.</p> <p>Our sustainability responsibilities are presented in the section <a href="#">Governance and management</a>.</p>
Monitoring and follow-up	<p>The Board decides on the company's financial targets as a part of the annual business planning process. Realisation of the targets is monitored on a monthly basis both at the division level and by Fortum Executive Management. Fortum's management monitors the realisation of financial targets quarterly as part of the business performance assessment, and key indicators are regularly reported to Fortum's Board of Directors. Financial key indicators related to investments are monitored in divisions' investment forums and by Fortum Executive Management.</p> <p>We report regularly on the financial impacts on our most important stakeholder groups. Fortum also uses the GRI Sustainability Reporting Standards indicators to measure economic responsibility.</p>

### Management of environmental responsibility

	Description
Targets and approach	<p>Fortum's aim is to provide its customers environmentally benign and reliable products and services. We strive to continuously reduce the impacts our operations have on the environment by using the best available practices and technologies. In our operations, we emphasise circular economy, better resource and energy efficiency and climate change mitigation. Our company's know-how in carbon dioxide-free hydro and nuclear power production and in energy-efficient combined heat and power production, investments in renewable energy, such as wind and solar power, as well as circular economy and resource efficiency play a key role in environmental responsibility.</p> <p>We measure the realisation of the environmental responsibility with the following indicators, for which we have set <a href="#">Group-level targets</a>:</p> <ul style="list-style-type: none"> <li>• Specific CO<sub>2</sub> emissions</li> <li>• Energy efficiency</li> <li>• Major EHS incidents</li> <li>• Quality of investigation process of occupational accidents, major EHS incidents and near misses</li> <li>• GAP index, implementation of EHS minimum requirements</li> </ul> <p>Additionally, we have a target for the number of supplier audits.</p>
Policies and commitments	<p>Environmental management is based on Fortum's Sustainability Policy. Other key elements steering environmental management are presented in the section <a href="#">Policies and commitments</a> and in <a href="#">Appendix 5</a>.</p> <p>We assess environmental risks as part of the Group's risk assessment process. The risk assessment process is reported in the section Operating and financial review/Risk management of the <a href="#">Financials</a>. Climate-related risks are described in the section <a href="#">Climate change mitigation</a>.</p>
Responsibilities	<p>Our sustainability responsibilities are presented in the section <a href="#">Governance and management</a>.</p>
Monitoring and follow-up	<p>The Group's key indicators are reported regularly to Fortum's Board of Directors and are published in Fortum's interim reports. Major EHS incidents are reported monthly, specific carbon dioxide emissions and the quality of investigation process of major EHS incidents are reported quarterly, and energy-efficiency improvements as well as the GAP index are reported annually to Fortum Executive Management.</p> <p>The divisions and sites follow and develop their operations with audits required by environmental management systems. Internal and external auditors regularly audit our ISO 14001 standard-compliant management system.</p> <p>The CO<sub>2</sub> emissions of plants within the sphere of the EU's emissions trading scheme are audited annually on a per plant basis by an external verifier accredited by the emissions trading authority. The verification addresses the reliability, credibility and accuracy of the monitoring system and the reported data and information relating to emissions. The plants must annually submit to the authorities a verified emissions report of the previous calendar year's carbon dioxide emissions.</p> <p>Our supply chain monitoring system covers also environmental responsibility and is presented in the section <a href="#">Personnel and society: Sustainable supply chain</a>.</p> <p>We map our stakeholders' views annually with the One Fortum Survey and with separate sustainability survey.</p>

## Management of social responsibility: Employees

	Description
Targets and approach	<p>We aspire to be a responsible employer who invests in the development and wellbeing of our employees. We aim to be a safe workplace for our employees and for the contractors and service providers working for us.</p> <p>We measure the realisation of social responsibility with the following indicators, for which we have set <b>► Group-level targets</b>:</p> <ul style="list-style-type: none"> <li>• Lost workday injury frequency (LWIF), own personnel and contractors</li> <li>• Number of severe occupational accidents</li> <li>• Quality of investigation process of occupational accidents, major EHS incidents and near misses</li> <li>• GAP index, implementation of EHS minimum requirements</li> <li>• Contractor safety improvement index (2019)</li> <li>• Percentage of sickness-related absences</li> </ul>
Policies and commitments	<p>Safety management is based on Fortum's Sustainability Policy. Other key principles steering labour practices and safety management are presented in the section <b>► Policies and commitments</b> and in <b>► Appendix 5</b>.</p> <p>Occupational safety risk assessment process is presented in the section <b>► Safety and security</b>. Everyday safety management is guided with about 20 Group-level Environment, Health and Safety (EHS) instructions.</p>
Responsibilities	<p>Our sustainability responsibilities are presented in the section <b>► Governance and management</b>.</p>
Monitoring and follow-up	<p>Fortum employee and contractor injury frequencies and the number of serious occupational accidents are reported monthly to Fortum Executive Management. The Group's key safety indicators are reported regularly to Fortum's Board of Directors and are published in Fortum's interim reports. The divisions and sites follow and develop their operations with audits required by safety and quality management systems. Internal and external auditors regularly audit our OHSAS 18001 or ISO 45001 standard-compliant management system.</p> <p>Work wellbeing, indicated as a percentage of sickness-related absences, is reported to the Fortum Executive Management every quarter. In addition, work wellbeing is monitored through other Group-level indicators, such as the ratio between actual retirement age and the statutory start of the retirement pension. Feedback about the personnel's wellbeing and job satisfaction is received also from wellbeing surveys as part of the Energise Your Day programme and from employee survey.</p> <p>We map our stakeholders' views annually with the One Fortum Survey and with separate sustainability survey.</p>

## Management of social responsibility: Human rights

	Description
Targets and approach	<p>Fortum supports and respects internationally recognised human rights, which are included in the key human rights agreements. Our goal is to operate in accordance with the UN Guiding Principles on Business and Human Rights.</p> <p>Our social responsibility includes taking care of our own employees and the surrounding communities. We advance responsible operations in our supply chain and more broadly in society.</p> <p>We have set a target for the number of supplier audits. Targets related to our own personnel are presented in the section <b>► Personnel and Society: Personnel</b>.</p>
Policies and commitments	<p>Key elements steering our human rights management are presented in the section <b>► Policies and commitments</b> and in <b>► Appendix 5</b>.</p>
Responsibilities	<p>Our sustainability responsibilities are presented in the section <b>► Governance and management</b>.</p>
Monitoring and follow-up	<p>The key tools for monitoring the impacts of human rights are country and partner risk assessments, supplier qualification, and supplier audits. A sustainability assessment is carried out for our investment projects and takes into consideration also human rights. The assessments are presented to Fortum Executive Management and to the Board of Directors when needed.</p> <p>Fortum has set a target for the number of audits, and the audits that are conducted are reported in our interim reports. For coal, we use the Bettercoal Code and tools in assessing the sustainability of the supply chain.</p> <p>Monitoring systems related to our own personnel are presented in the section Personnel and society: Personnel.</p> <p>We map our stakeholders' views annually with the One Fortum Survey and with separate sustainability survey.</p>

## Appendix 5: Fortum's main internal policies and instructions guiding sustainability

### Management of social responsibility: Business ethics (incl. anti-corruption and anti-bribery)

	Description
Targets and approach	We believe that an excellent financial result and ethical business are intertwined. We follow good business practices and ethical principles defined in our Code of Conduct in all our operations. We work within the framework of competition laws and Group competition instructions. We avoid all situations where our own personal interests may conflict with the interests of the Fortum Group. Notably, we never accept or give a bribe or other improper payment for any reason. Our customer relations are based on honesty and trust. We treat our suppliers and subcontractors fairly and equally. We select them based on their merit and we expect them to consistently comply with our requirements and with Fortum's Supplier Code of Conduct.
Policies and commitments	Key elements steering social and compliance management are presented in the section <a href="#">Policies and commitments</a> and in Appendix 5.
Responsibilities	Our sustainability responsibilities are presented in the section <a href="#">Governance and management</a> .
Monitoring and follow-up	Suspected misconduct and measures related to ethical business practices and compliance with regulations are regularly reported to the Fortum Executive Management and to the Board's Audit and Risk Committee. Fortum has a <a href="#">grievance channel</a> available to all stakeholder groups for the reporting of misconduct. Monitoring systems related to the supply chain are presented in the section <a href="#">Personnel and society: Sustainable supply chain</a> .

### Management of social responsibility: Product responsibility

	Description
Targets and approach	Uninterrupted supply of energy is necessary for a functioning society. We ensure the reliable operation of our power plants with preventive maintenance and continuous monitoring. Our goal is to present products and services truthfully in all our marketing and communication materials. We follow responsible marketing communication guidelines and the regulations for environmental marketing. We assume responsibility for customer data protection and comply with the valid regulations related to the handling of customer data. We have set Group-level targets for the energy availability of CHP plants and for customer satisfaction and reputation indices.
Policies and commitments	Key elements steering product responsibility management are presented in the section <a href="#">Policies and commitments</a> and in Appendix 5.
Responsibilities	Our sustainability responsibilities are presented in the section <a href="#">Governance and management</a> .
Monitoring and follow-up	The Group's key indicators are reported regularly to Fortum's Board of Directors and are published in Fortum's interim reports. Figures related to the availability of power plants are reported monthly to Fortum Executive Management. Customer satisfaction is monitored annually with the One Fortum Survey. The results of the survey are presented to Fortum's management and they are used to develop the business.

	Economic responsibility	Environmental responsibility	Social responsibility		
			Social and employee matters	Human rights	Anti-corruption and bribery
Values	x	x	x	x	x
Code of Conduct	x	x	x	x	x
Supplier Code of Conduct	x	x	x	x	x
Disclosure Policy	x		x		
Group Risk Policy	x	x	x	x	x
Sustainability Policy (including environmental, and health and safety policies)	x	x	x	x	x
Minimum Requirements for EHS Management		x	x	x	
Biodiversity Manual		x			
Group Manual for Sustainability Assessment		x	x	x	x
Human Resources Policy			x	x	
Leadership Principles			x	x	
Accounting Manual	x	x	x		
Investment Manual	x	x	x		x
Tax Principles	x		x		
Group Instructions for Anti-Bribery	x		x		x
Group Instructions for Safeguarding Assets	x		x		x
Group Instructions for Conflicts of Interest	x		x		x
Anti-Money-Laundering Manual	x		x		x
Compliance Guidelines for Competition Law	x		x		x
Security Guidelines		x	x	x	
Policy for Sponsoring and Donations	x		x	x	x
Group Instructions for Compliance Management	x	x	x	x	x

## Contact information

[Sustainability contact information on our website](#)