



Equity story of

# FORTUM – For a cleaner world

Investor / Analyst material

April 2019

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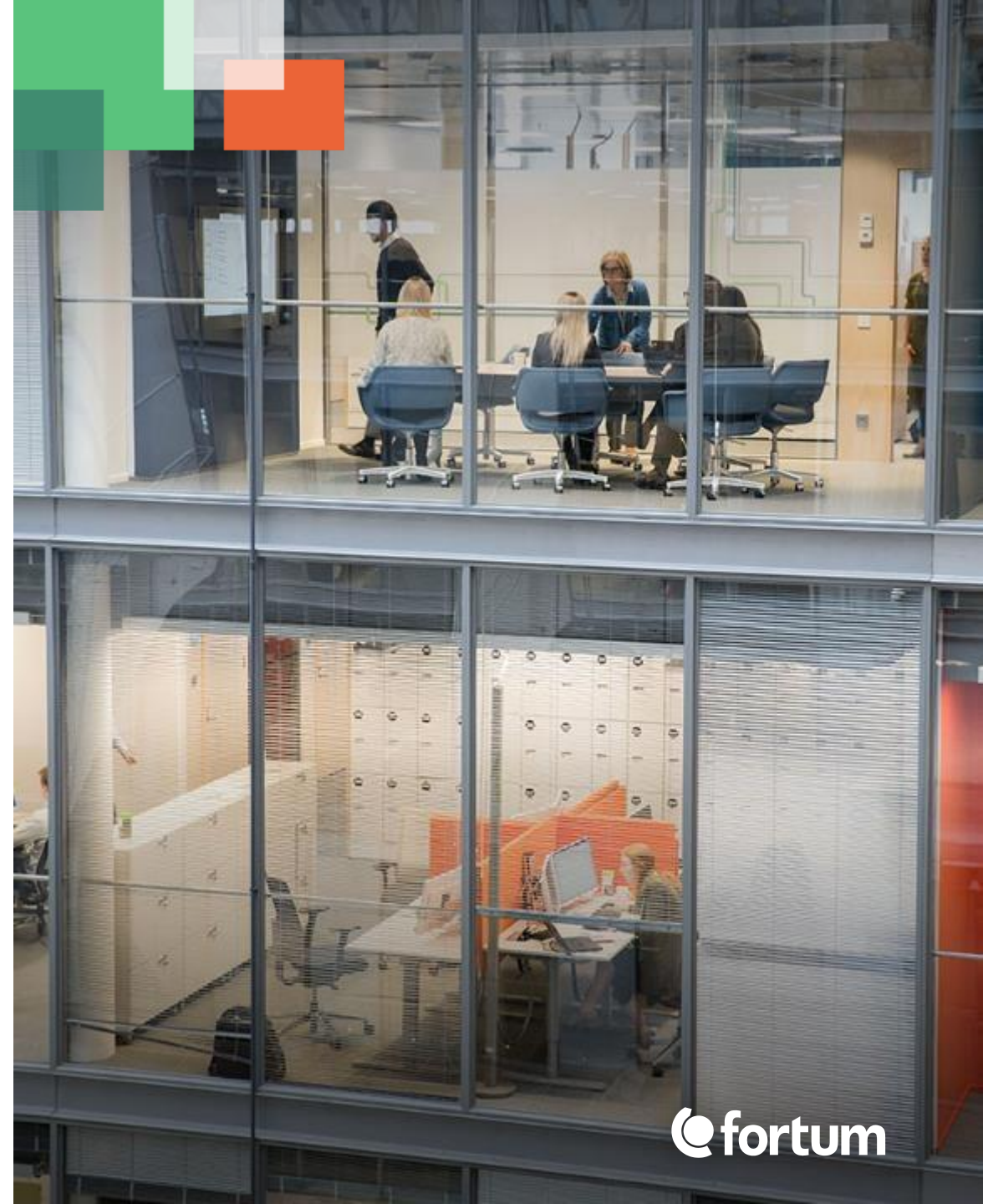
Past performance is no guide to future performance, and persons needing advice should consult an independent financial adviser.

Any references to the future represent the management's current best understanding. However the final outcome may differ from them.



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# Fortum at a glance

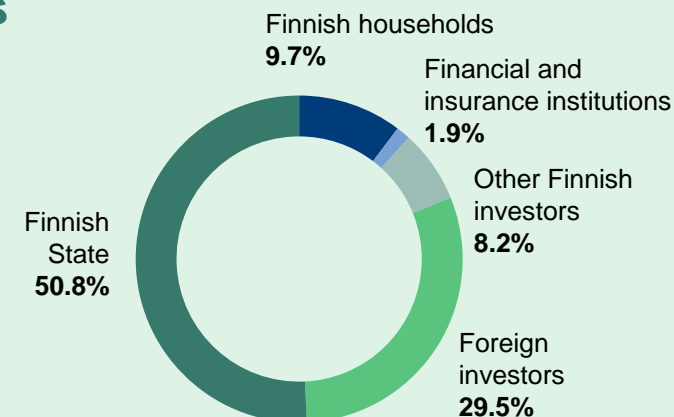
## Description of Fortum

- A leading clean-energy company across the Nordic region, the Baltic countries, Poland, and Russia
- A circular economy champion, providing solutions for sustainable cities, including waste, recycling, and biomass
- Rated BBB (negative outlook) and BBB (stable outlook) by S&P and Fitch respectively
- In 2018, Fortum closed its tender offer to shareholders in Uniper (holding of 49.99% of the outstanding shares and voting rights as of 31.12.2018)

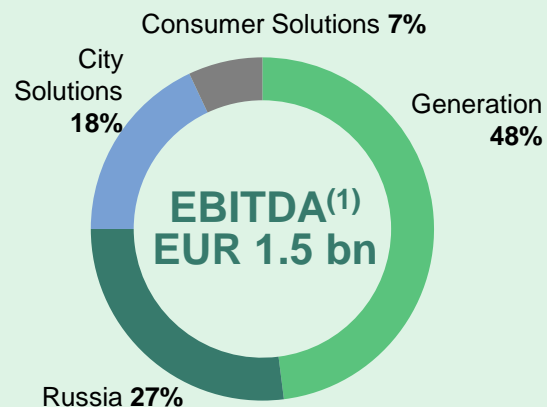
## Key shareholders

- Listed on the Helsinki Stock Exchange since 1998
- Market capitalisation of ~EUR 16bn
- Finnish State is a majority owner

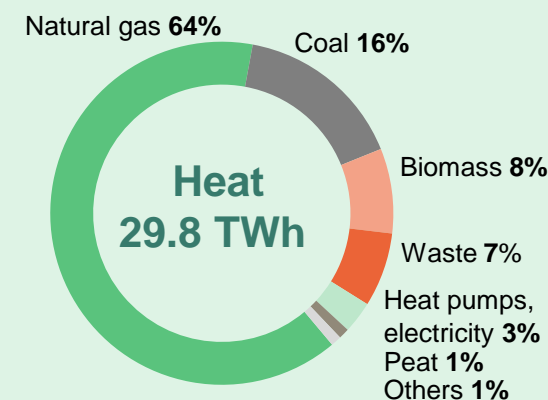
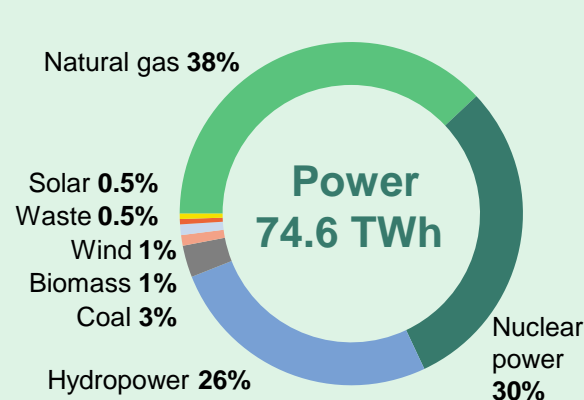
31.3.2019



## Operations by business segment



## Production by source



Note: All data as of FYE 2018 unless otherwise stated

(1) Comparable EBITDA defined as operating profit plus depreciation and amortisation less items affecting comparability

# Fortum's geographical footprint



## Nordic countries

- #3** Power generation  
**43.5 TWh**
- #5** Heat sales  
**5.9 TWh**
- #1** Electricity customers  
**2.4 million**



## Russia PAO Fortum

- #10** Power generation  
**29.5 TWh**
- #8** Heat sales  
**20.7 TWh**

## Key figures 2018

Sales	EUR 5.2 bn
Comparable EBITDA	EUR 1.5 bn
Total assets	EUR 22 bn
Personnel	8,300



## Poland

Power generation  
**0.6 TWh**

Heat sales  
**3.5 TWh**

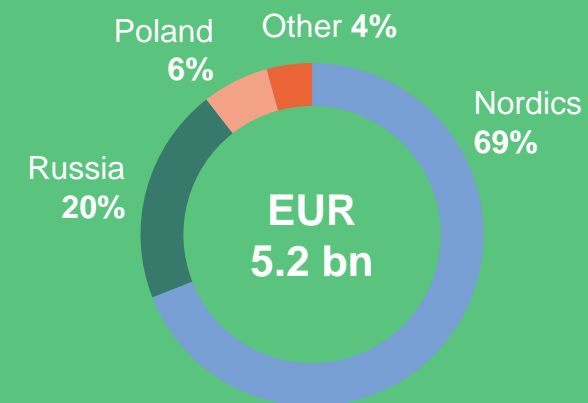


## Baltic countries

Power generation  
**0.7 TWh**

Heat sales  
**1.4 TWh**

## Sales by market area 2018



x

= Fortum market share ranking

Note: Ranking based on year 2017 pro forma figures  
Source: Fortum, company data, shares of the largest actors

# Three main drivers are shaping the future electricity markets

## Climate and Environment

- Decarbonisation to reach Paris agreement targets
- Electrification in heating, transportation and key industrial processes
- Resource efficiency

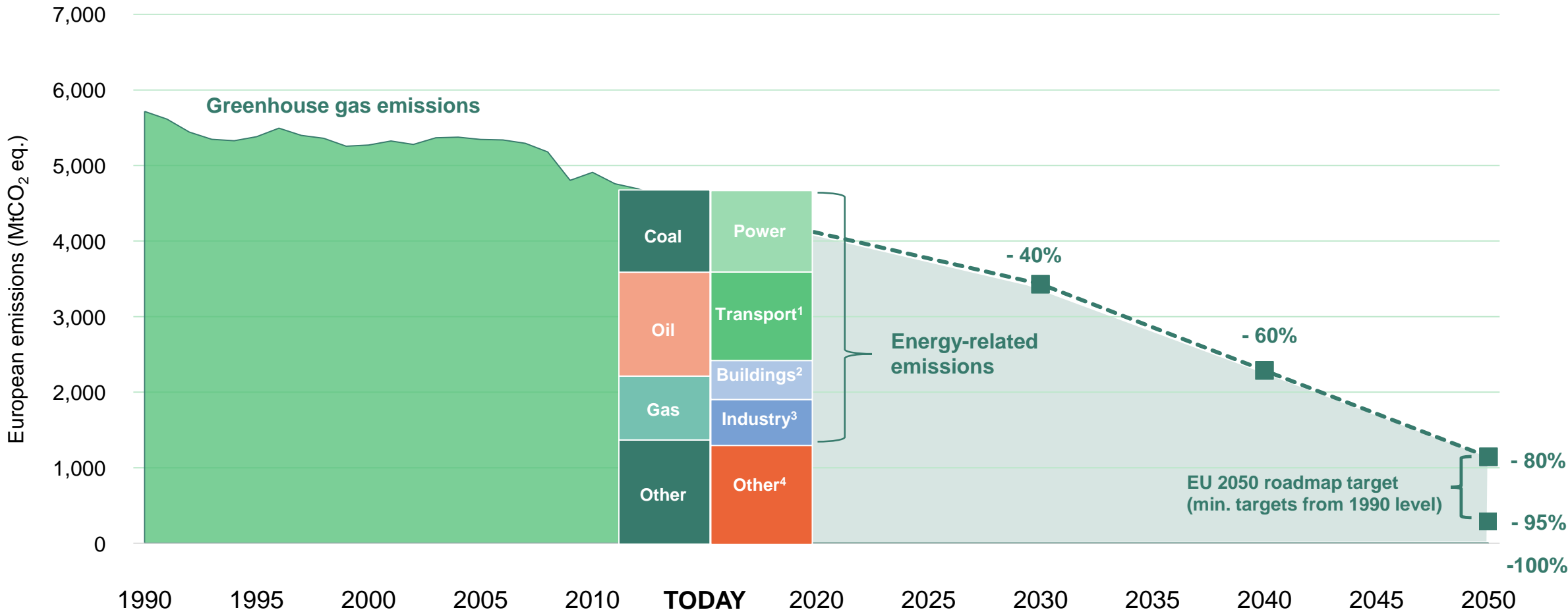
## Politics and Regulation

- National and international interests
- Market models
- Emission trading
- Geopolitical uncertainty

## Technology Development

- Solar and wind
- Digitalisation and artificial intelligence
- Short-term and seasonal storage
- E-mobility ecosystem
- Demand response

# Europe needs to eliminate CO<sub>2</sub> emissions to reach climate goals



<sup>1</sup> including international aviation and marine  
<sup>2</sup> residential and commercial heating & cooling  
<sup>3</sup> iron & steel and chemicals are among the biggest contributors  
<sup>4</sup> non-energy related emissions: industrial processes and product use, waste management, agriculture, fugitive emissions  
Source: IEA World Energy Outlook 2017, Eurostat, Eurelectric, Fortum Industrial Intelligence

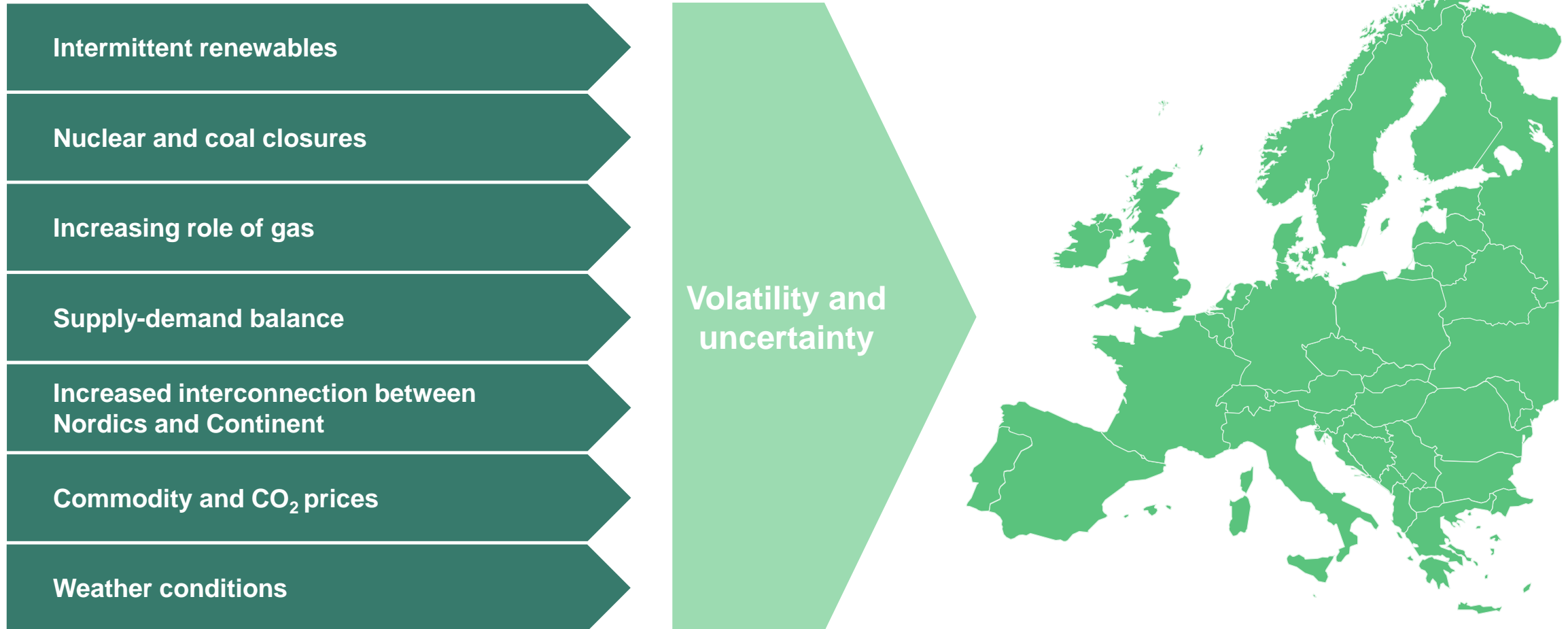
# The decades of electricity will affect several sectors – and Fortum is well positioned for decarbonisation

Global climate challenge (indicative)	Electricity demand (2018-2050)	Sector	Future solutions, examples	Fortum's current offering, examples
4°C	+	Power	CO <sub>2</sub> -free generation, hydrogen, batteries, demand response	Nuclear, hydro, solar, wind
		Transport	Electric vehicles, hydrogen/biofuels for heavy transport	E-mobility, pyrolysis
		Heating & cooling	Low-CO <sub>2</sub> DH/CHP, heat pumps, hydrogen	Biofuel, waste-to-energy DH/CHP
1.5°C	+++	Industry	Electrified processes, hydrogen, resource efficiency, CCS	B2B solutions
		Other	Recycling, biomaterials (e.g. fractioning)	Plastic recycling

DH/CHP = District heating/combined heat and power  
CCS = Carbon capture and storage



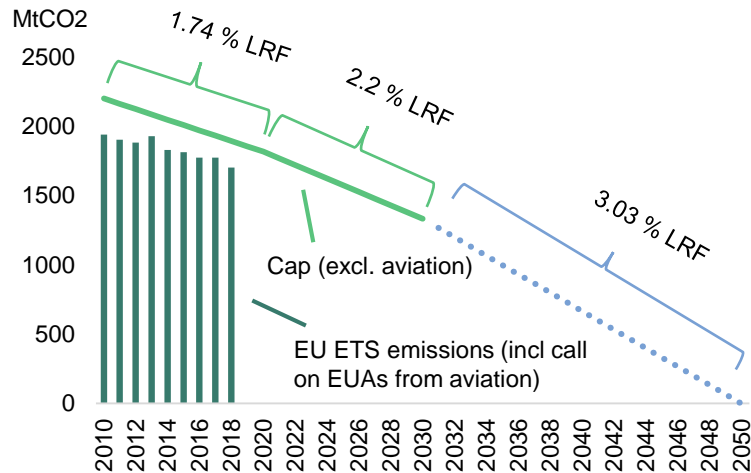
# Volatility and uncertainty in the European power market increases the value of flexible assets



# The MSR introduces tightness to carbon market

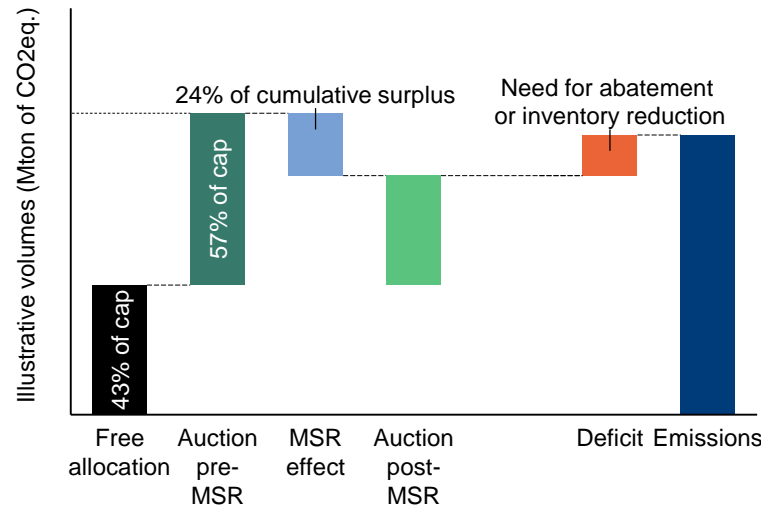
## – in 2018 coal-to-gas switching was modest due to high gas price

Linear reduction factor (LRF) tightens the market



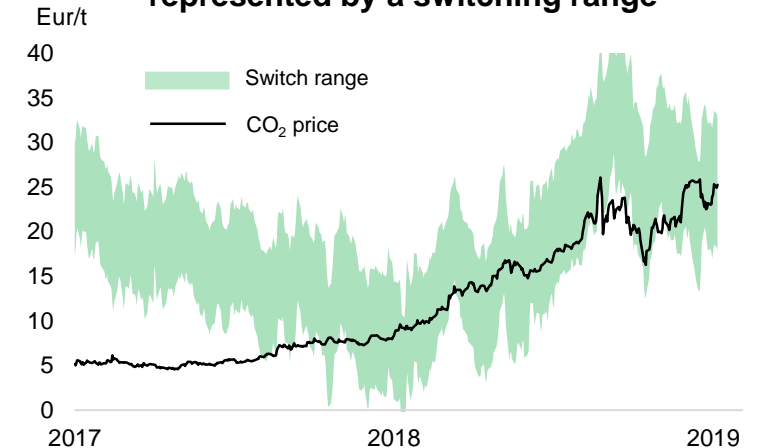
- Linear reduction factor (LRF) is the percentage of baseline supply<sup>1</sup> by which the annual supply of allowances (cap) is reduced every year. LRF is set at
  - 1.74% for 2013-2020 (equals to a reduction of 38 MtCO<sub>2</sub>/year)
  - 2.2% for 2021-2030 (equals to a reduction of 48 MtCO<sub>2</sub>/year)
- In total, emissions are set to decrease by 43% by 2030 vs. 2005
- Next LRF review is scheduled for 2024
  - 3.03% LRF from 2030 onwards would deliver net zero emissions by 2050

Market stability reserve restores scarcity by reducing future auction volumes



- When TNAC<sup>2</sup> > 833 Mt, MSR deducts 24% of the TNAC from the auction volume each year placing them into the reserve during 2019-2023
  - MSR rate is 12% during 2024-2030
- When TNAC < 400 Mt, MSR releases 100 million EUAs annually from the reserve adding them to future auctions
- 900 million back loaded allowances from 2014-2016 will be transferred into the MSR in 2019-2020
- As from 2023, allowances in MSR above the total number of allowances auctioned during the previous year will be cancelled
- Next MSR review is scheduled in 2021

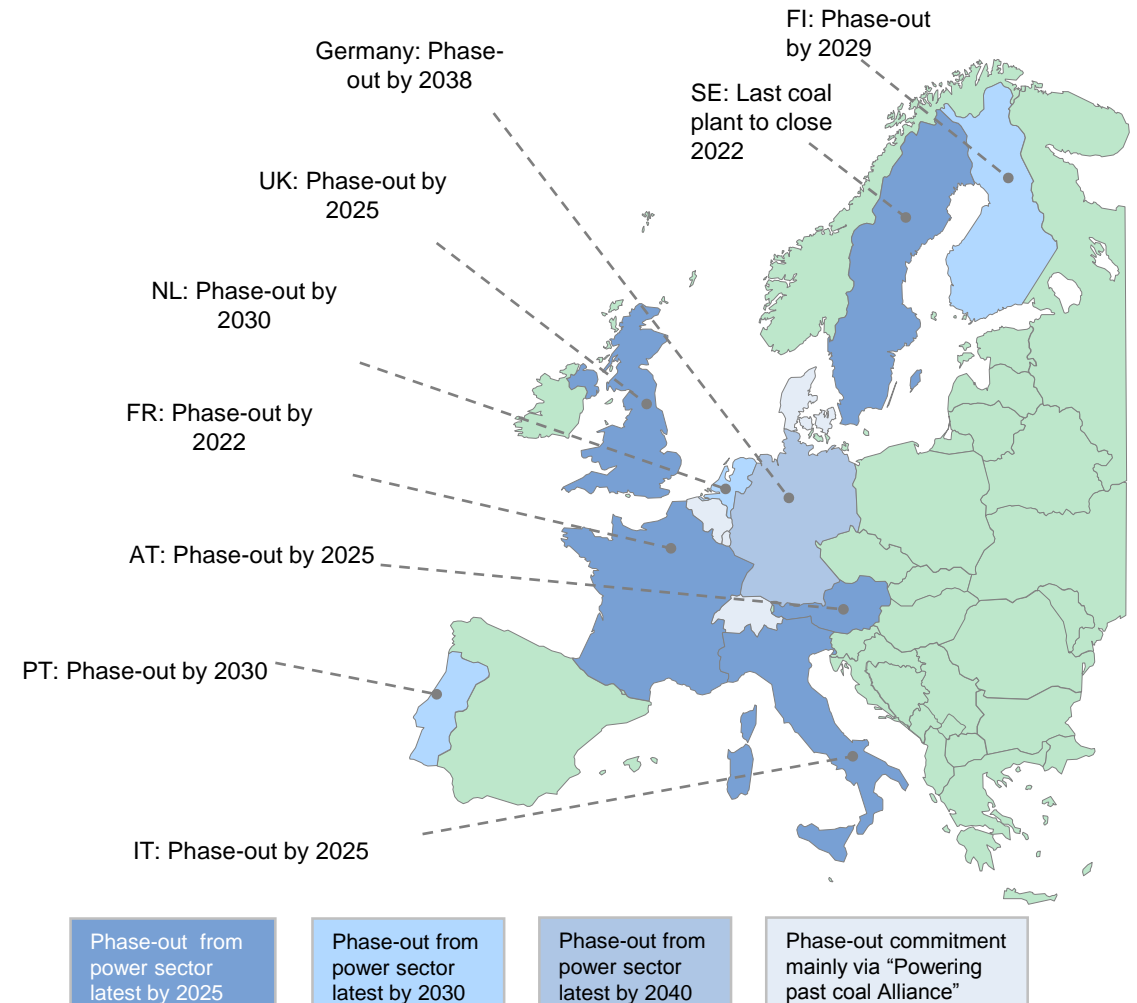
Abatement from coal to gas switching depends on coal and gas prices, together represented by a switching range



- CO<sub>2</sub> price has more than tripled since November 2016, when the final decision was reached on the future EU ETS rules, including the intake rate of the Market Stability Reserve, which became operational in January 2019
- The EUA market is in a process of finding the appropriate price at which enough fuel-switching occurs in order to balance supply and demand
- The gas/coal price relationship has become a major price anchor for the EUA
- Political risks also continue to play a role in EUA prices, with developments around Brexit in particular being closely watched

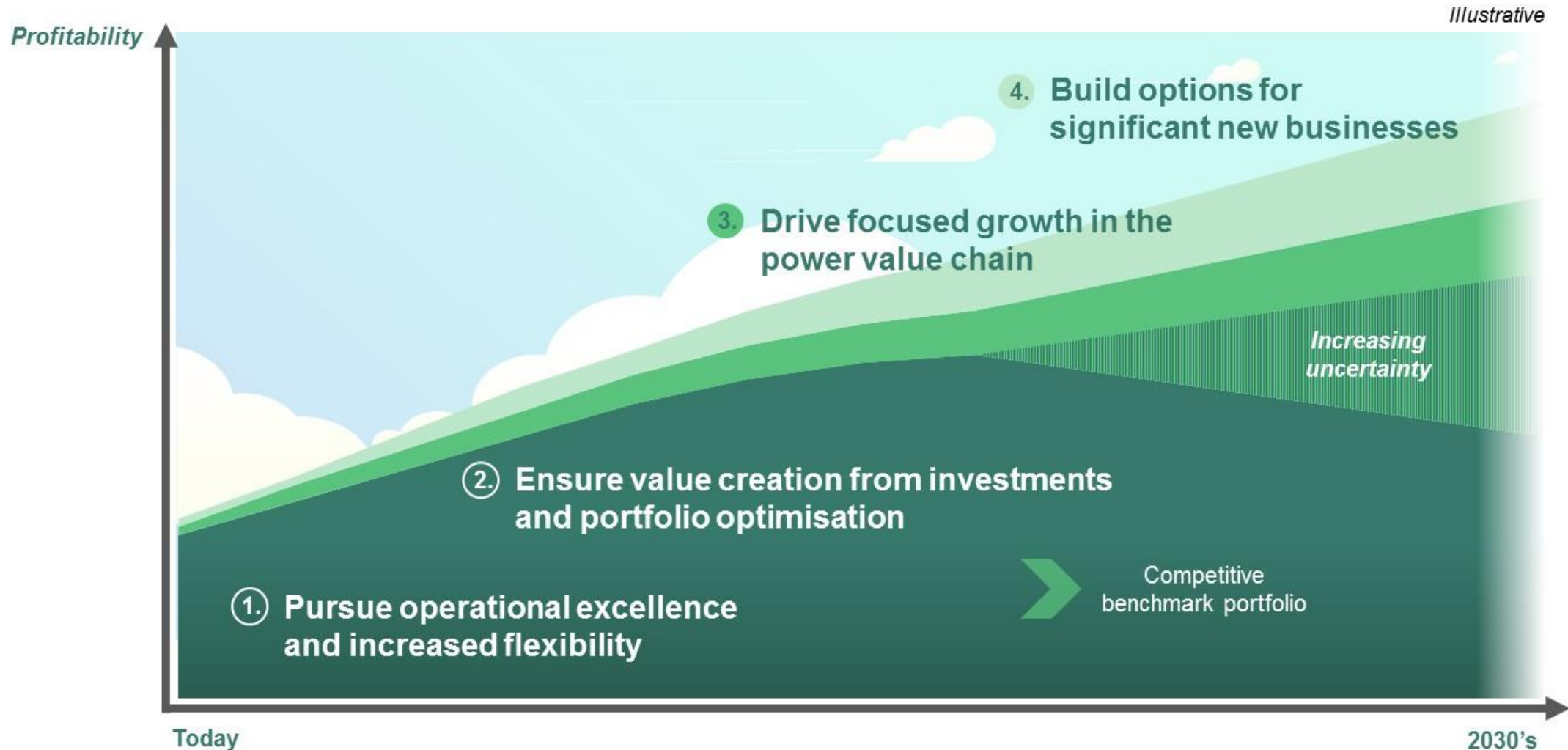
# Several Western European countries exiting coal over the next decade

- France to phase out coal from power sector at latest in 2022
- United Kingdom to exclude coal condense from capacity market by capping allowed emissions from 2025
- Netherlands' new government aims at exit by 2030, regulation not yet in place
- Germany to set a binding coal exit date by end of 2019
  - Closure of 12.5 GW by 2022 (compared to 42.5 GW in 2017), additional 13 GW by 2030, latest 2038 all remaining capacity
  - Compensation to power plant operators remains open, coal regions to receive EUR 40 billion over next 20 years
  - EUR 2 billion annual compensation to customers in lower grid fees and/or taxes proposed
  - Respective amount of CO<sub>2</sub> allowances to be cancelled in the EU Emission Trading Scheme (ETS)



# Positioning Fortum for the decade of electricity

## – *For a cleaner world*





# Fortum's strategic priorities in a changing energy market

## 1. Pursue operational excellence and increased flexibility

- Ensure benchmark performance
- Focus on cash flow and efficient use of balance sheet

## 2. Ensure value creation from investments and portfolio optimisation

- Increase shareholder value from Uniper
- Optimise portfolio to fit the changing business environment

## 3. Drive focused growth in the power value chain

- Grow in CO<sub>2</sub>-free power generation
- Develop value-adding offerings and solutions for customers

## 4. Build options for significant new businesses

- Create new sizeable profit contributor independent of power prices
- Build on industrial logic and synergies with current businesses and competences

# Delivering on financial targets through operational excellence and portfolio optimisation in the short to mid term

## Strategic priorities...

### Operational excellence

- Continue productivity improvement
- Prioritise capital expenditure

### Increased flexibility

- Maximise flexibility in current businesses and assets
- Develop new sources of flexibility

### Value creation and portfolio optimisation

- Ensure competitive asset fit for changing business environment
- Focus on core businesses
- Selective investments

## ... creating value

- Benchmark performance
- Optimise cash flow
- Strengthen balance sheet
- Create financial flexibility
- Solid investment grade rating

# Investment in Uniper supports Europe's energy transition and provides a valuable cash flow contribution

## Fortum and Uniper strongly complement each other

- Uniper is an international utility with a diversified portfolio and significant hydro power assets
- Fortum and Uniper have the strategic mix of assets and expertise to drive an affordable and secure transition towards a low-carbon Europe

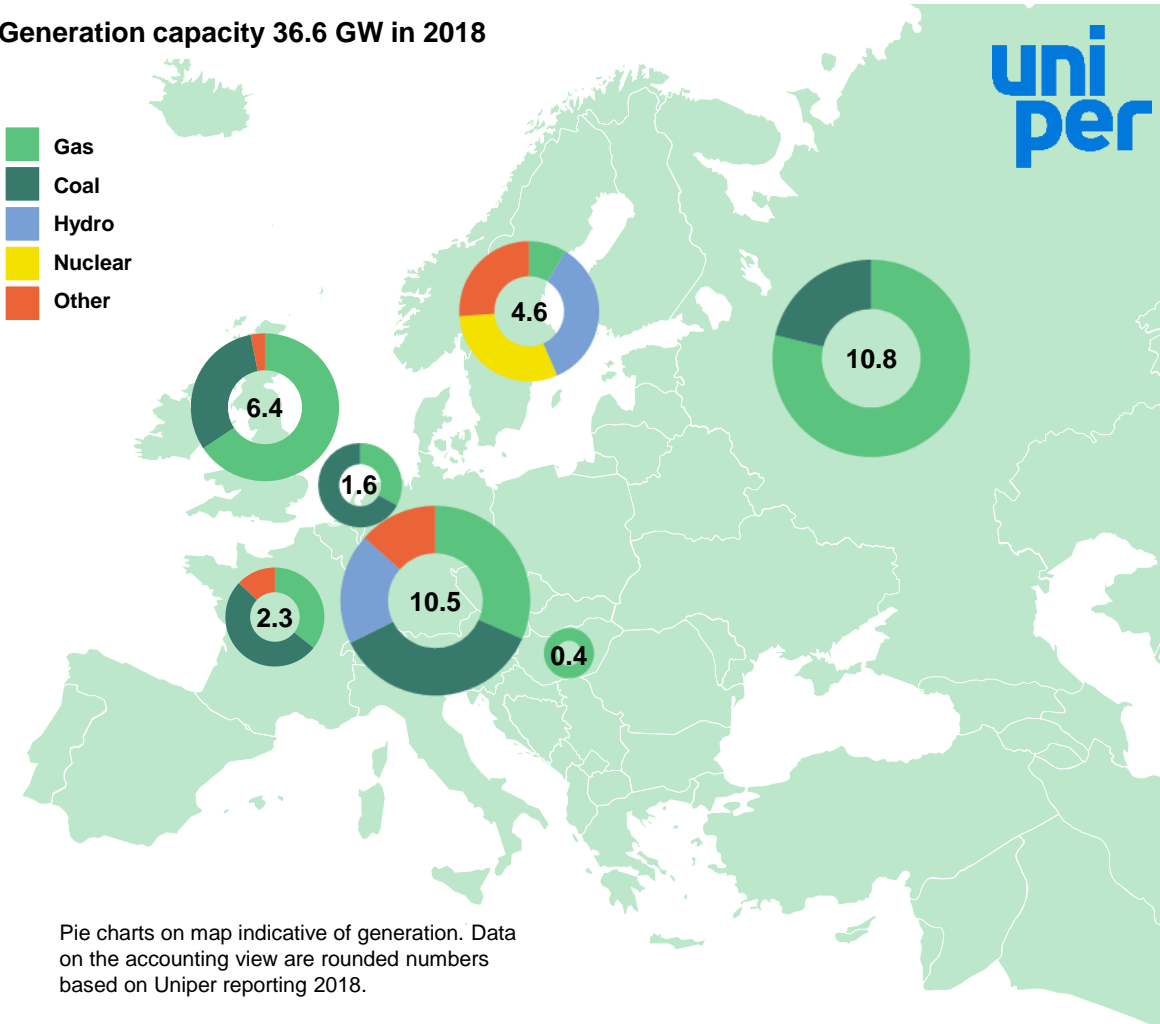
## Fortum is the largest shareholder in Uniper

- Fortum's CFO Markus Rauramo is the Vice Chairman of Uniper's Supervisory Board
- Supervisory Board mandates extend until 2022
- Fortum's shareholding at 49.99%, Russian regulatory decision limits shareholding to less than 50%

## The Uniper investment creates shareholder value

- Uniper's future dividends will contribute to Fortum's cash flow
- Shareholder value created on higher Uniper share price compared to offer price of EUR 21.31

Generation capacity 36.6 GW in 2018



Pie charts on map indicative of generation. Data on the accounting view are rounded numbers based on Uniper reporting 2018.

# Fortum is a forerunner in sustainability

We 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

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

Annual CO<sub>2</sub>-free power generation has almost tripled from 15 TWh in 1990 to 43 TWh in 2018

## Among the lowest specific emissions

96% of its power generation in the EU and 57% of its total power generation was CO<sub>2</sub>-free in 2018. Fortum's specific emissions from power generation in the EU were 28 gCO<sub>2</sub>/kWh in 2018, total 174 gCO<sub>2</sub>/kWh.

## Growing in solar and wind

Targeting a multi-gigawatt portfolio in solar and wind

## Fortum listed in several sustainability indexes and ratings:





# Fortum drives CO<sub>2</sub>-emission free solutions ‘For a cleaner world’ – cases

## Increased use of excess heat in district heating

- Excess heat from data centres utilised for heating homes in Espoo, Finland and Oslo, Norway
- Other excess heat sources currently in use include wastewater treatment plants, commercial and industrial buildings etc.

## Fuel conversions from coal to bio and waste

- With a new multi-fuel plant in Zabrze, Fortum is a first mover in Poland utilise waste derived fuel in heat production
- Fortum is replacing part of its Finnish fossil-based heat production by building a biofuel-fired heating facility in Espoo



**Increasing investments into low-CO<sub>2</sub> and non-combustion heating sources**

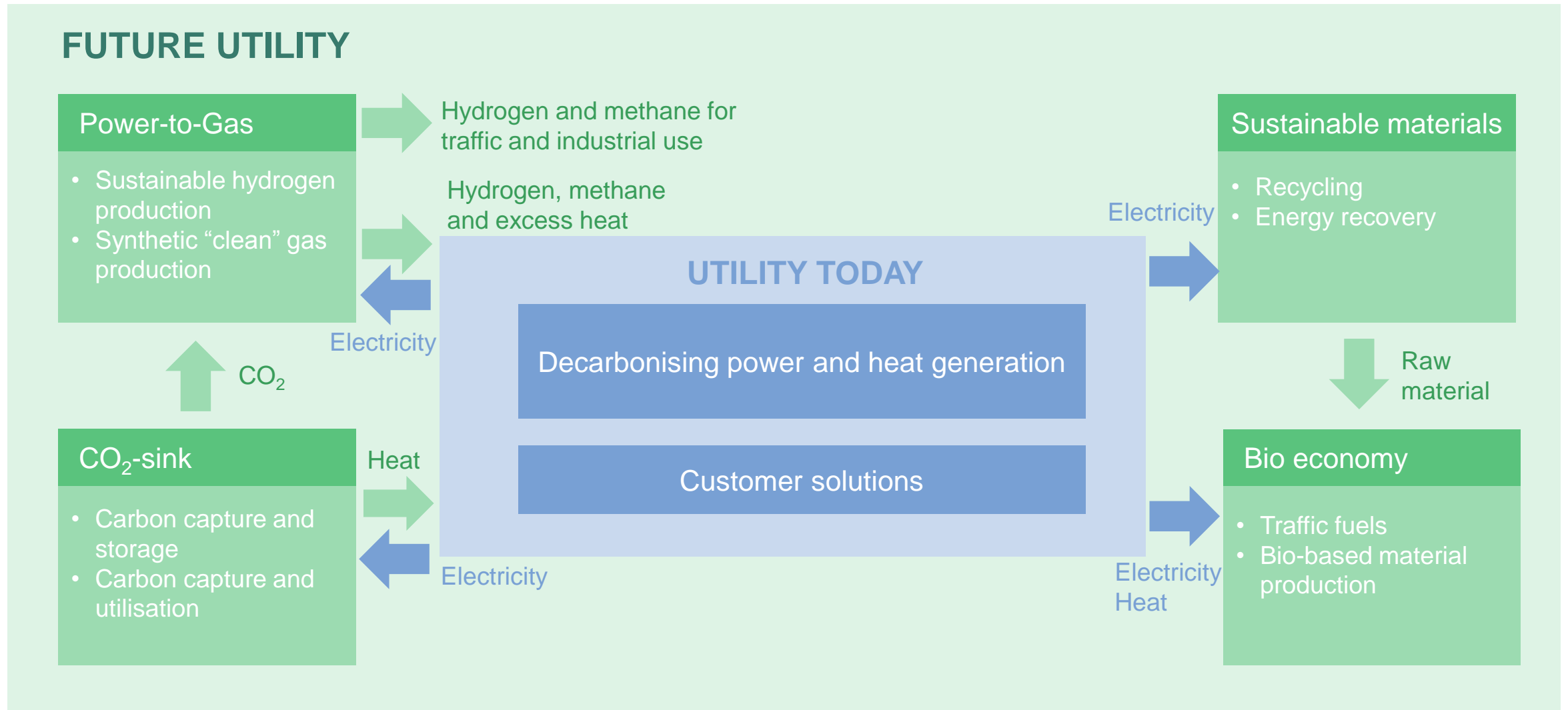
## Better recycling improves resource efficiency and minimises the CO<sub>2</sub> impact

- Fortum is the first company in the Nordics to produce high-quality plastic granulates to replace virgin raw material
- The plastic refinery in Riihimäki, Finland has recently been expanded and new investments in other countries are under evaluation



**Growth in value-added recycling**

# Building the utility of the future



# Fortum's long-term financial targets and dividend policy

Return on capital employed  
(ROCE) of at least

**10%**

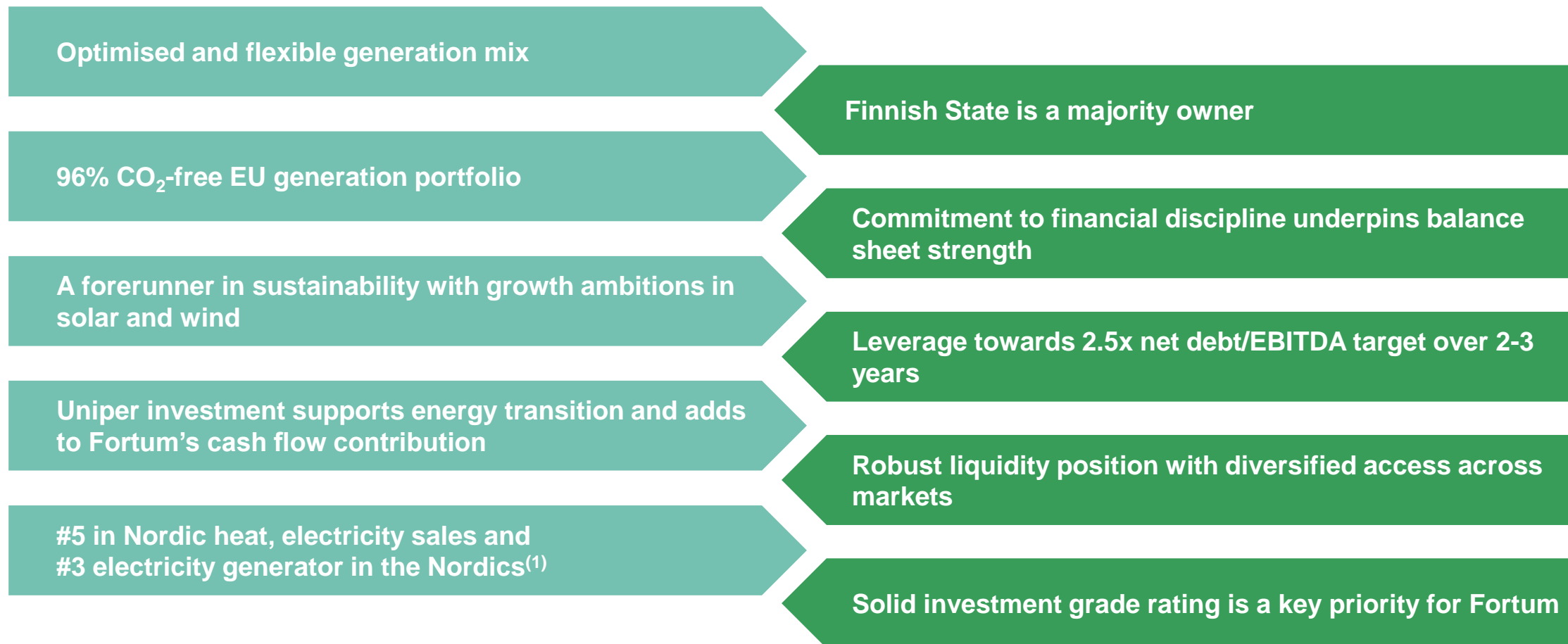
Comparable  
Net debt/EBITDA ratio  
at around

**2.5x**

Having a **solid investment  
grade rating** is a key  
priority for Fortum

Fortum's dividend policy is  
to pay a **stable,  
sustainable, and over  
time increasing** dividend  
of 50-80% of earnings per share,  
excluding one-time items

# Key investment highlights



1) Market share ranking, based on year 2017 pro forma figures. Source: Company data, shares of the largest actors





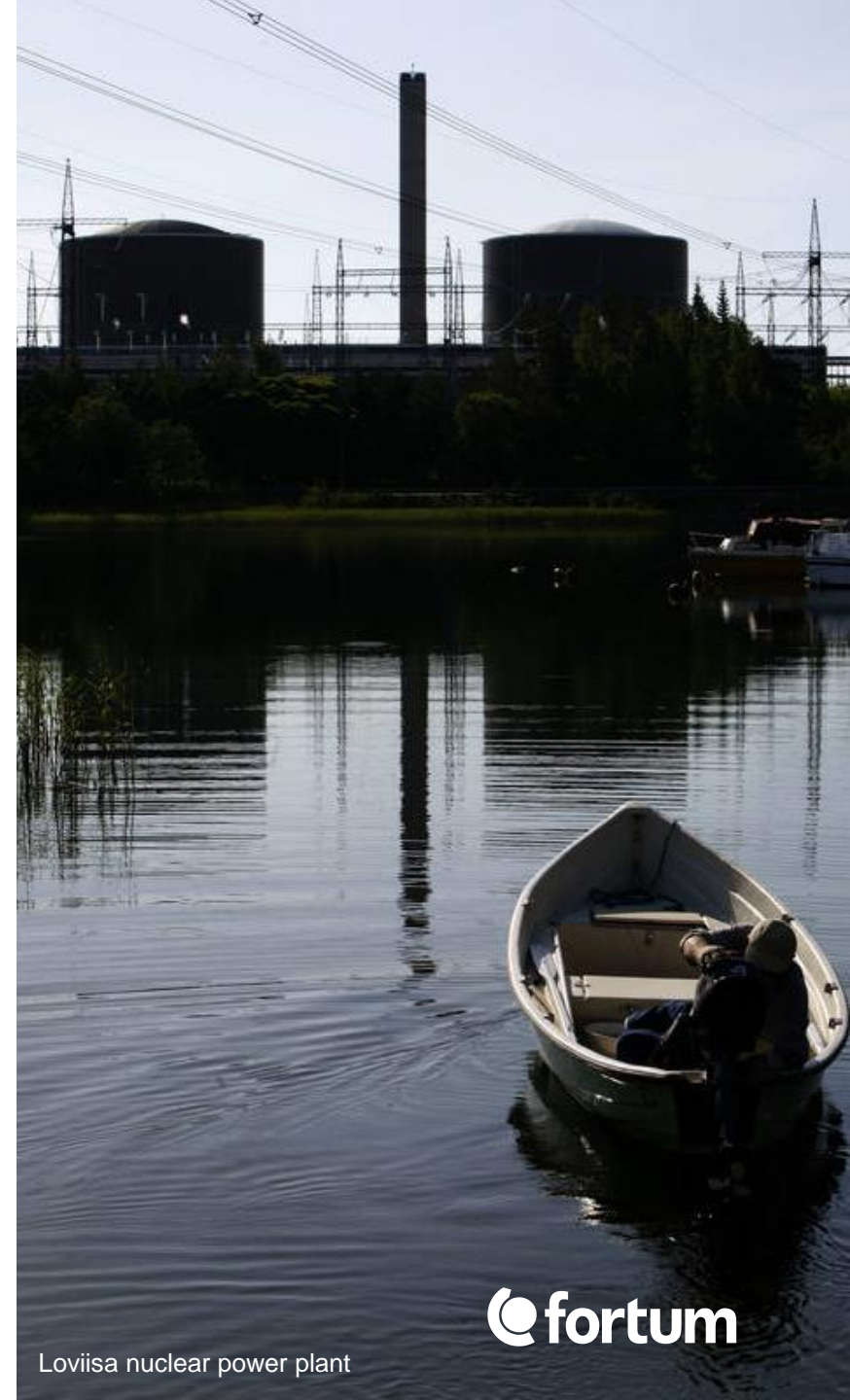
# Interim Report January-March 2019

Fortum Corporation  
26 April 2019



# Q1 2019 – Result impacted by higher power prices and lower hydro volumes

- Nordic power price up +22% Y/Y
  - Fortum's achieved power price +14% Y/Y
- Reservoir levels below long-term average
  - Fortum's hydro generation -25% Y/Y
- Volatile commodity and CO<sub>2</sub> prices
- Comparable operating profit at EUR 408 million, +1%
- EPS at EUR 0.38 (0.43)
  - Items affecting comparability EUR -0.04 (0.07)
- Strong cash flow from operating activities totalled EUR 751 (273) million – change in settlement for futures
- Strategy implementation – operational excellence in focus
- Discussions restarted with Uniper





# Q1 2019 highlights

Fortum wins right to build 250 MW solar power plant in Rajasthan, India

Launch of world's first market place 'Puro' for CO<sub>2</sub> removals

Kalax wind project approved within Finnish national scheme

Bonds issued EUR 2.5 billion

New technology to boost EV battery recycling

OL3 received its operating license

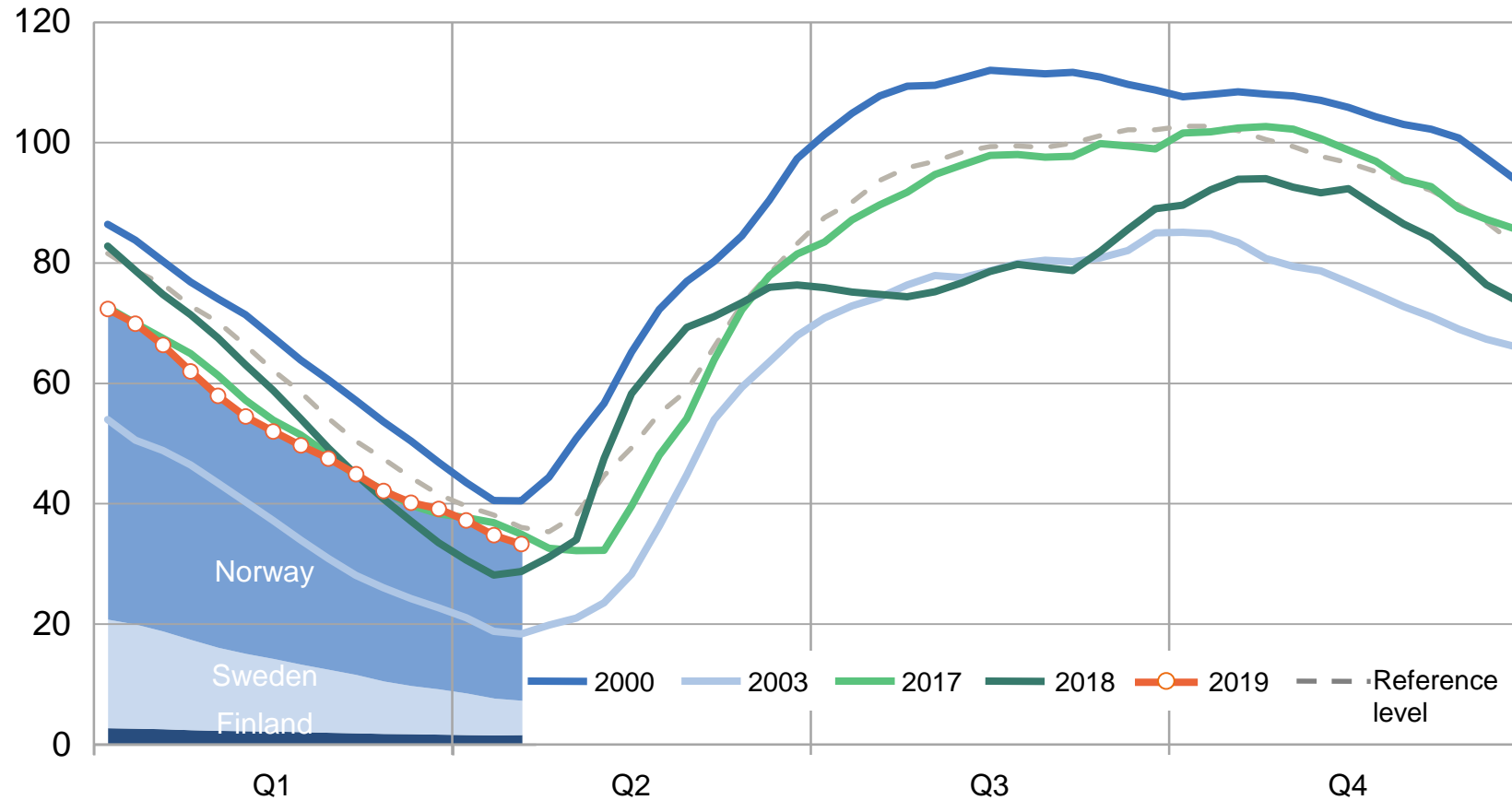
Russian Fortum-Vostok JV as guaranteeing electricity supplier to 1.5m retail customers

Commercial operation of 50 MW wind at Ulyanovsk in Russia started



# Nordic hydro reservoir levels improved during Q1

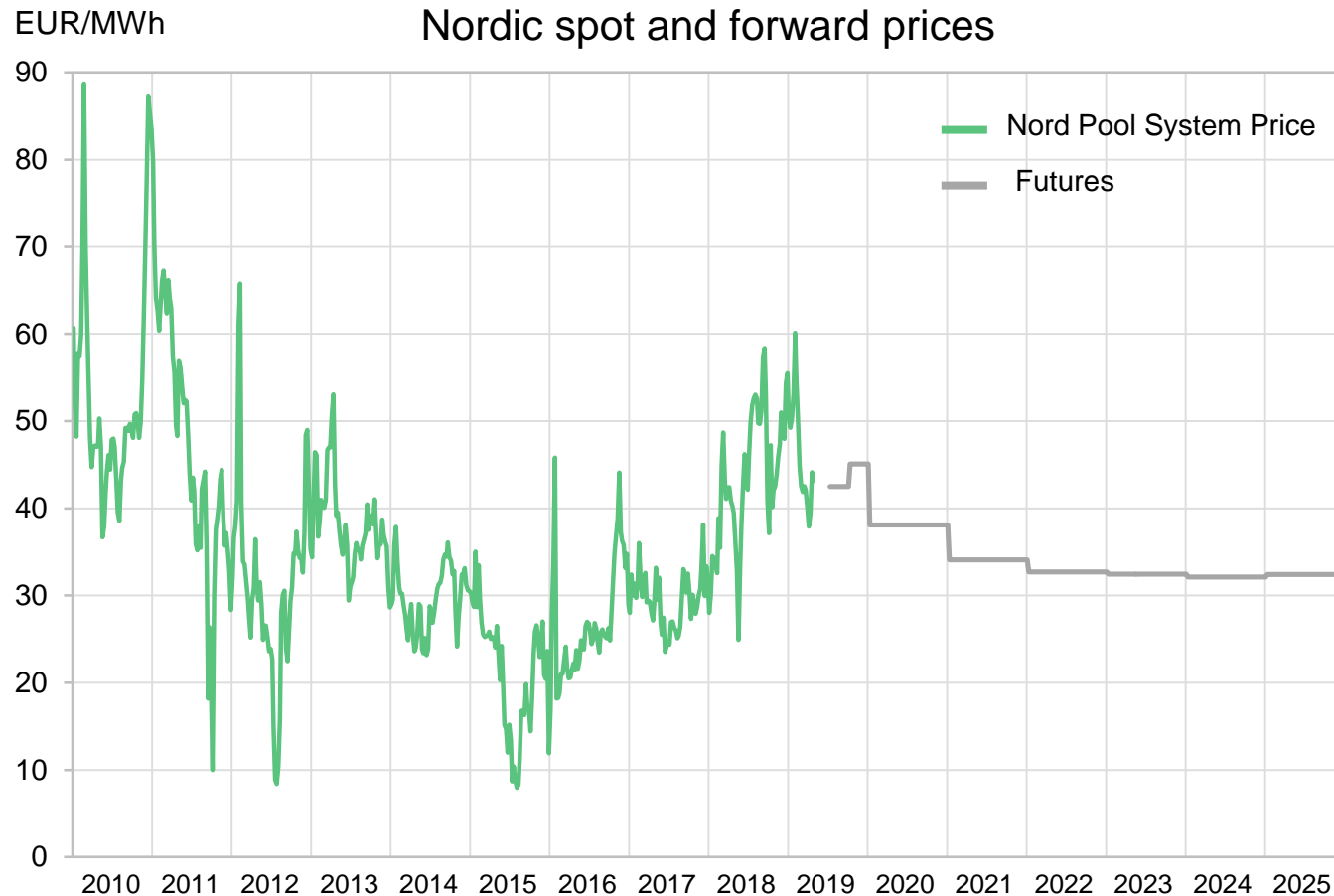
Reservoir content (TWh)



- Q1 started out cold and dry but turned wetter and mild from February
- Mild and windy weather resulted in clearly lower than normal hydropower generation during Q1, especially in Norway
- Hydro reservoirs moved closer to normal during the quarter



# Nordic Q1 2019 power price clearly higher compared to Q1 2018



- During Q1, the average Nord Pool system spot price was 46.9 EUR/MWh (38.6)
- The average area price was:
  - 47.5 EUR/MWh (42.0) in Finland
  - 46.5 EUR/MWh (39.0) in Sweden (SE3, Stockholm)
- The higher spot market is clearly attributed to the increased marginal cost for coal-fired generation, mainly driven by clearly higher CO<sub>2</sub> price compared to Q1 2018
- Mild, wet and windy weather in combination with a decreasing trend for coal and gas prices lowered the spot price towards the end of the quarter

# Q1 2019 – Higher achieved power price and lower hydro volumes

Comparable operating profit

EUR  
million



# Key financials

MEUR	Q1 2019	Q1 2018	2018	LTM
Sales	1,690	1,585	5,242	5,347
Comparable EBITDA	545	538	1,523	1,530
Comparable operating profit	408	405	987	990
Operating profit	358	482	1,138	1,014
Share of profits of associates and joint ventures	111	47	38	102
Profit before income taxes	424	493	1,040	971
Earnings per share, EUR	0.38	0.43	0.95	0.90
Net cash from operating activities	751	273	804	1,282

- Sales and comparable operating profit driven by higher power prices
- Share of profits from associates increased mainly due to Uniper, EUR 49 million
- EPS excluding items affecting comparability of EUR 0.42 (0.36)
- Strong cash flow due to change in settlements for futures and working capital

# Income statement

MEUR	Q1 2019	Q1 2018	2018	LTM
Sales	1,690	1,585	5,242	5,347
Other income	21	24	130	127
Materials and services	-917	-825	-2,795	-2,887
Employee benefits	-122	-113	-459	-468
Depreciations and amortisation	-137	-133	-536	-540
Other expenses	-127	-133	-594	-588
<b>Comparable operating profit</b>	<b>408</b>	<b>405</b>	<b>987</b>	<b>990</b>
Items affecting comparability	-50	77	151	24
<b>Operating profit</b>	<b>358</b>	<b>482</b>	<b>1,138</b>	<b>1,014</b>
Share of profits/loss of associates and joint ventures	111	47	38	102
Finance costs - net	-46	-36	-136	-146
<b>Profit before income tax</b>	<b>424</b>	<b>493</b>	<b>1,040</b>	<b>971</b>
Income tax expense	-65	-94	-181	-152
<b>Profit for the period</b>	<b>359</b>	<b>400</b>	<b>858</b>	<b>817</b>

- Sales and comparable operating profit improved mainly due to higher power prices
- Share of profits from associates increased mainly due to share of profits from Uniper, EUR 49 million
- Finance costs slightly higher due to repayment of bridge loan of EUR 1.75 billion

# Cash flow statement

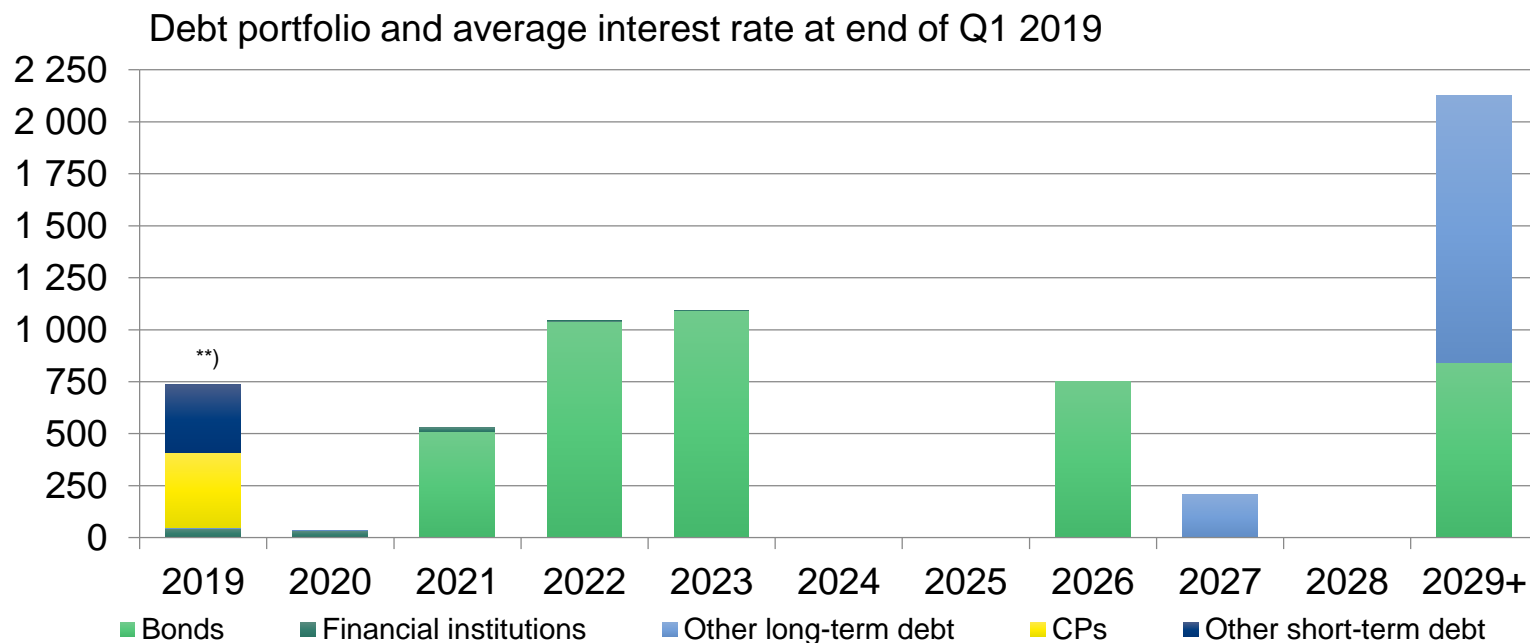
MEUR	Q1 2019	Q1 2018	2018	LTM
<b>Comparable EBITDA</b>	<b>545</b>	<b>538</b>	<b>1,523</b>	<b>1,530</b>
Realised FX gains/losses	-5	42	231	184
Paid net financial costs, income taxes and other	-59	-107	-280	-232
Change settlements for futures	292	-91	-524	-141
Change in working capital	-22	-109	-146	-59
<b>Net cash from operating activities</b>	<b>751</b>	<b>273</b>	<b>804</b>	<b>1,282</b>
Capital expenditures	-150	-133	-579	-596
Acquisitions of shares	-12	-18	-4,088	-4,082
Divestments of shares	8	0	259	267
Change in cash collaterals and restricted cash	310	-63	-36	337
Other investing activities	11	1	46	56
<b>Cash flow from investing activities</b>	<b>167</b>	<b>-213</b>	<b>-4,398</b>	<b>-4,018</b>
<b>Cash flow before financing activities</b>	<b>918</b>	<b>60</b>	<b>-3,594</b>	<b>-2,736</b>
Paid dividends			-977	-977

- Strong net cash from operating activities mainly due to EUR 292 million from change in settlement for futures on Nasdaq Commodities
- Net cash from investing activities positively impacted by EUR 310 million due to new non-cash collateral agreement to release pledged cash from the Nordic power exchange
- Dividend of EUR 977 million paid on 4 April, not impacting Q1 2019

# Ongoing actions to deleverage aims to optimise cash flow and maintain financial flexibility

	LTM	2018	TARGET
Comparable EBITDA, MEUR	1,530	1,523	
Interest-bearing net debt, MEUR	4,995	5,509	
Comparable net debt/EBITDA ratio <sup>*)</sup>	3.3x	3.6x	Around 2.5x
Return on capital employed (ROCE), %	6.5	6.7	At least 10%

- Liquid funds of EUR 1.7 billion
- Committed credit lines of EUR 1.8 billion
- EUR 2.5 billion of bonds issued in three tranches



- Total loans and borrowings of EUR 6,591 million
  - Average interest 2.2% (2018: 2.4%)
  - Portfolio mainly in EUR and SEK with average interest cost 1.4% (2018: 1.7%)
  - EUR 750 million (2018: 686) swapped to RUB, average interest cost including cost for hedging 8.5% (2018: 8.3%)
  - Other short-term debt impacted by the new non-cash collateral arrangement for the Nordic power exchange



# Outlook

## Demand growth

Electricity demand in the Nordics is expected to grow by ~0.5% on average

## Hedging<sup>\*)</sup>

For the remainder of 2019: ~75% hedged at EUR 32 per MWh

For 2020: ~55% hedged at EUR 31 per MWh (Q4: 45% at EUR 29)

## 2019 Estimated annual capital expenditure, including maintenance and excluding acquisitions

EUR 600-650 million

## Targeted cost synergies of Hafslund transaction

EUR 15-20 million gradually materialising 2019-2020:

City Solutions:  
EUR 5-10 million

Consumer Solutions:  
~EUR 10 million

## Taxation

Effective tax rate for 2019 for the Group 19-21%

In Sweden nuclear capacity tax abolished from 2018 and hydro assets' real estate tax rate to decrease over a four-year period (2017-2020)

<sup>\*)</sup> from the beginning of 2019 the reported hedge prices also include the effect of proxy hedging. This change had a minor effect on the prices. There was no change to the calculation method of the hedge ratio.

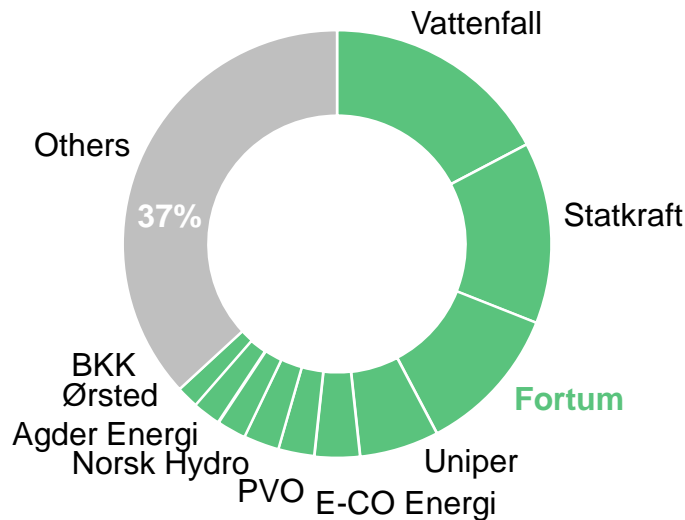
# Appendices

# Still a highly fragmented Nordic power market

## Fortum has the largest electricity customer base in the Nordics

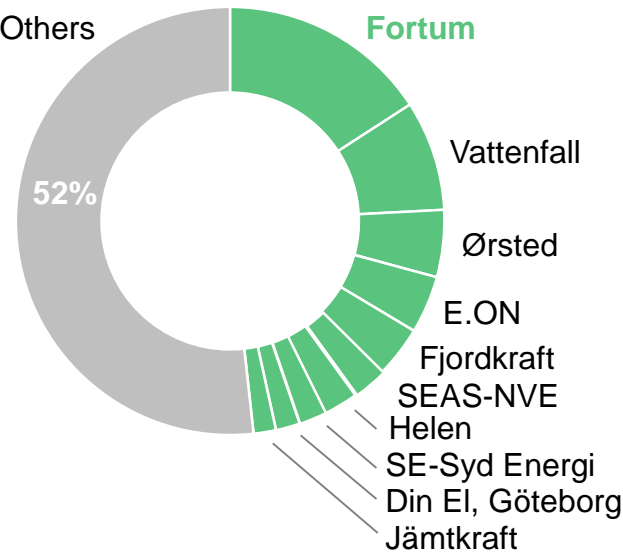
### Power generation in 2017

402 TWh  
>350 companies



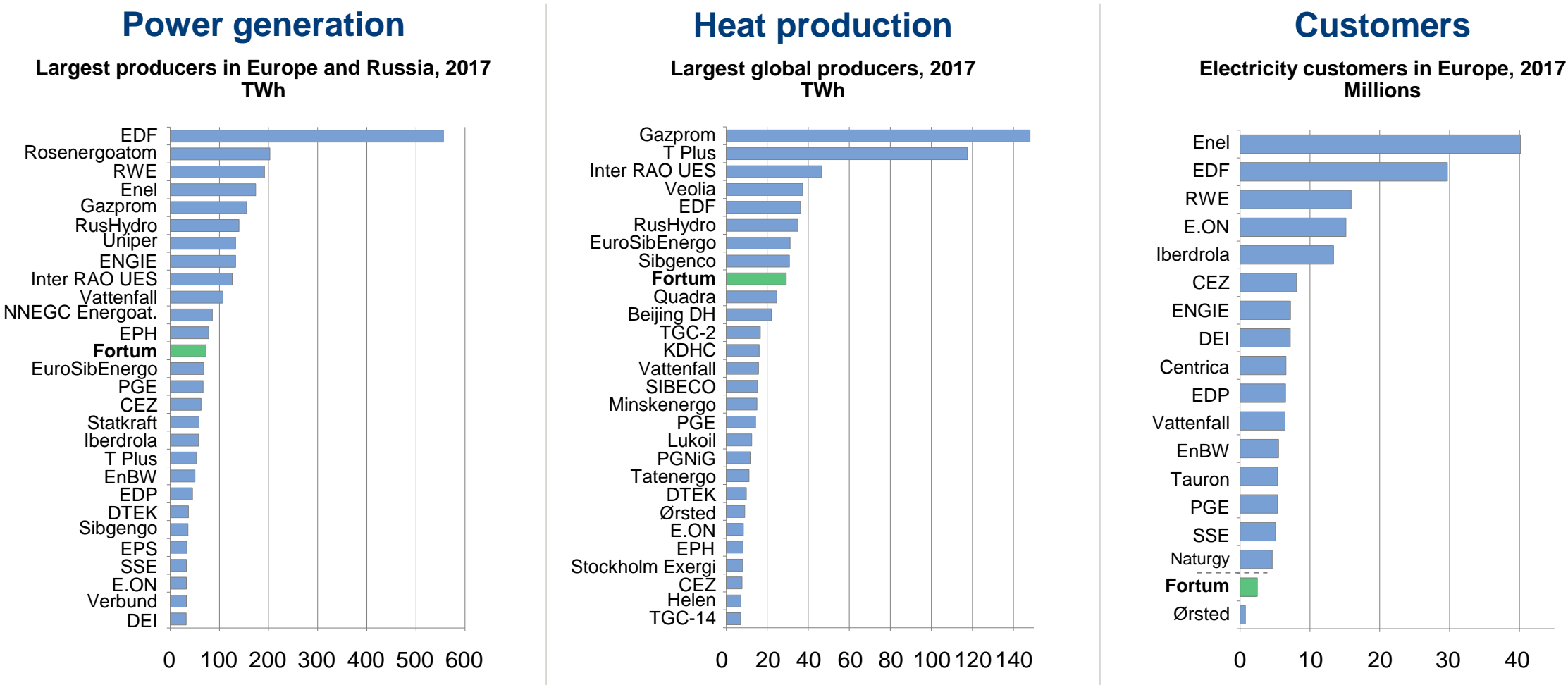
### Electricity retail

15 million customers  
~350 companies

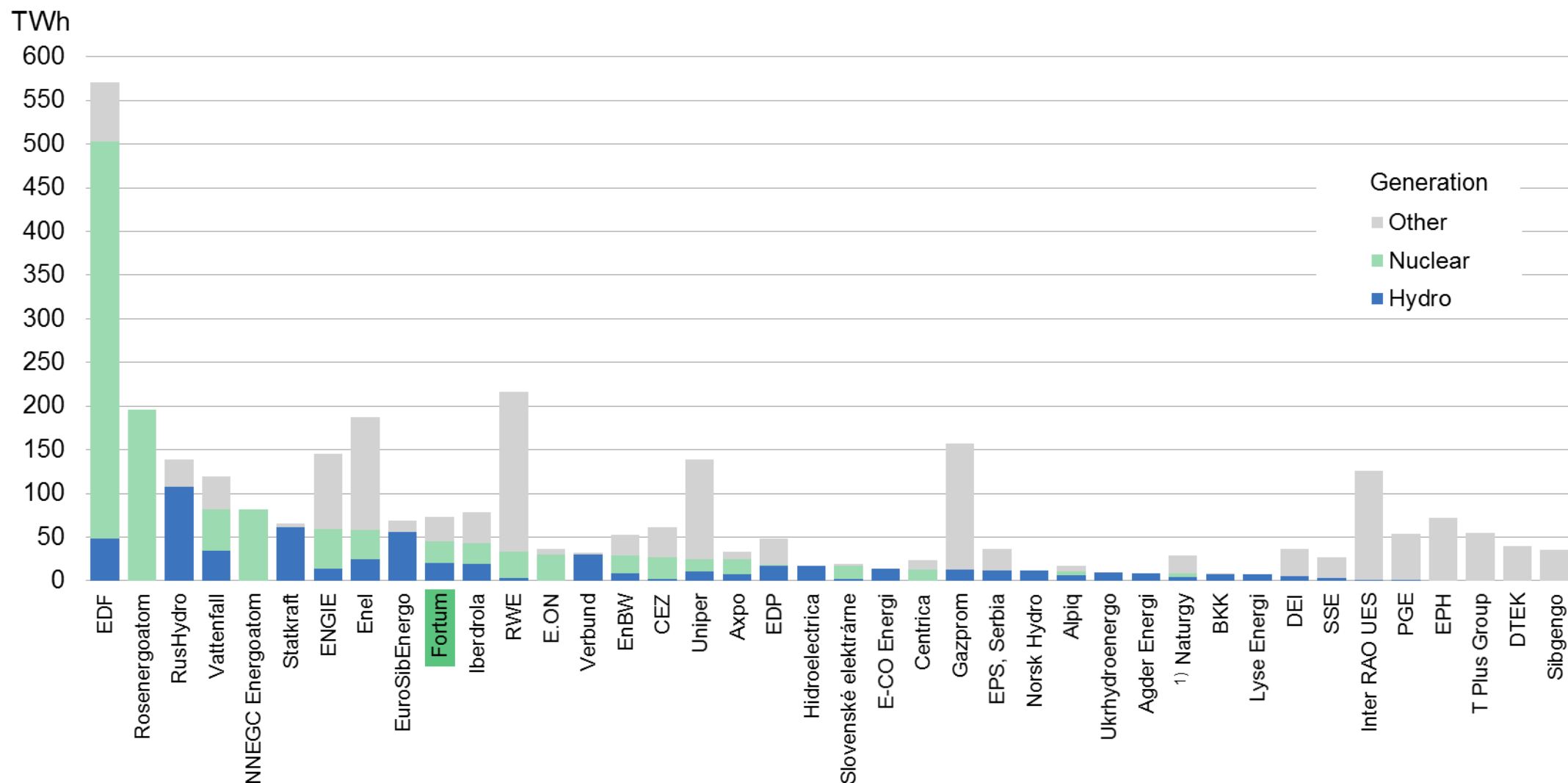


# Fortum mid-sized European power generation player

## – major producer in global heat



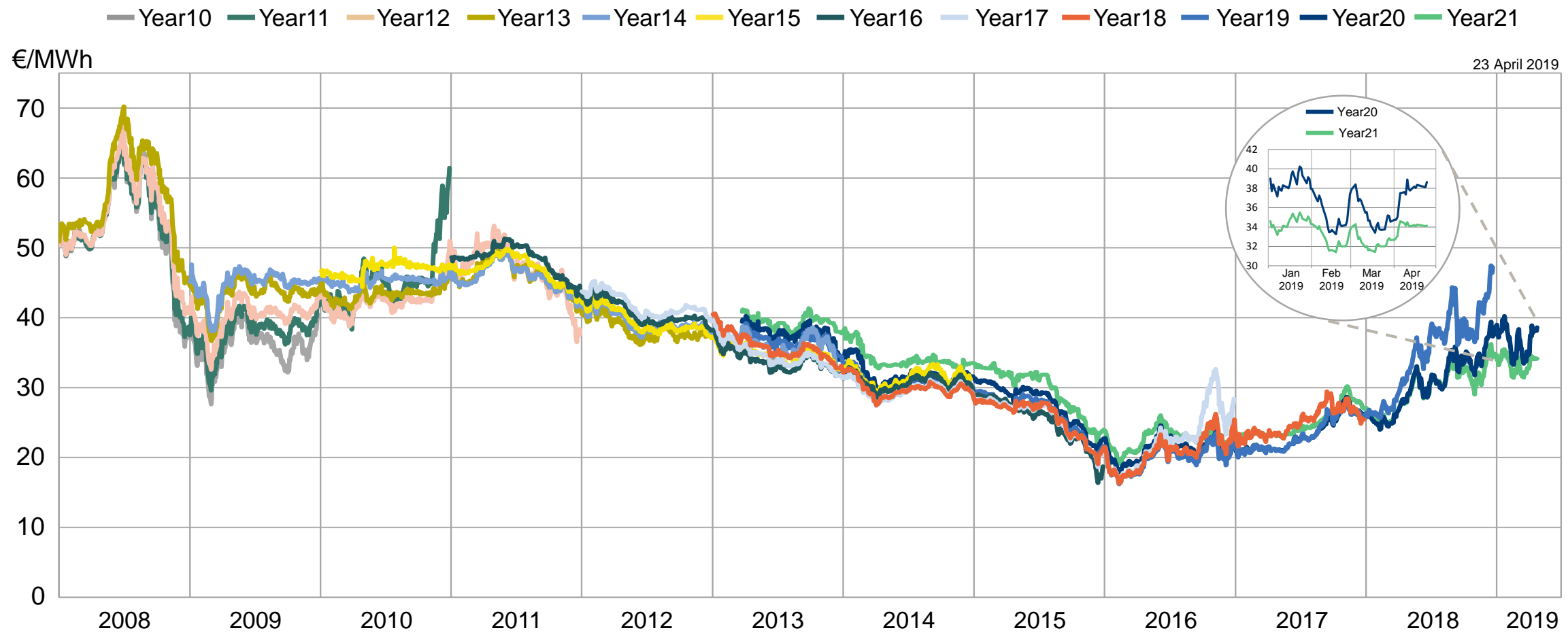
# Biggest nuclear and hydro generators in Europe and Russia



1) Formerly Natural Gas Fenosa

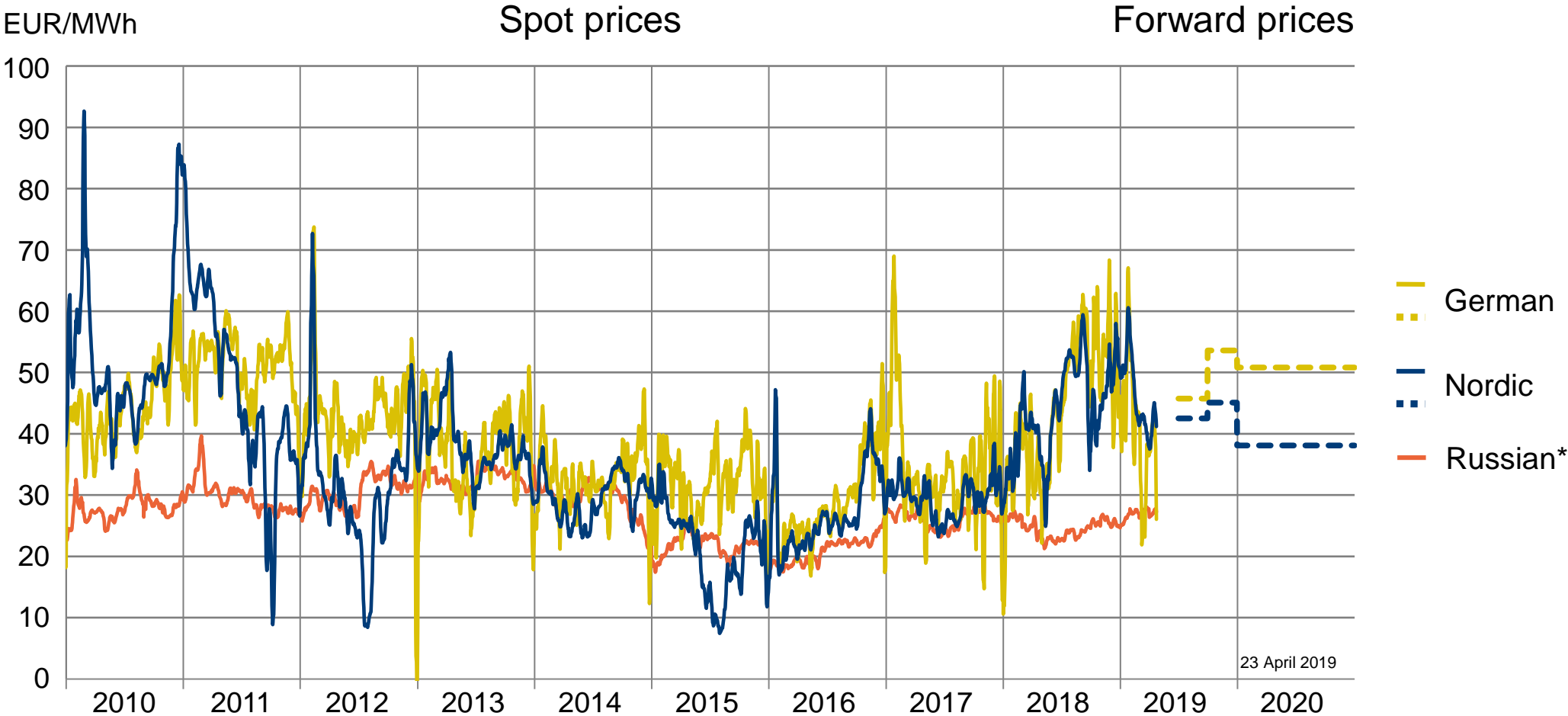
Source: Company information, Fortum analyses, 2016 figures pro forma

# Nordic year forwards



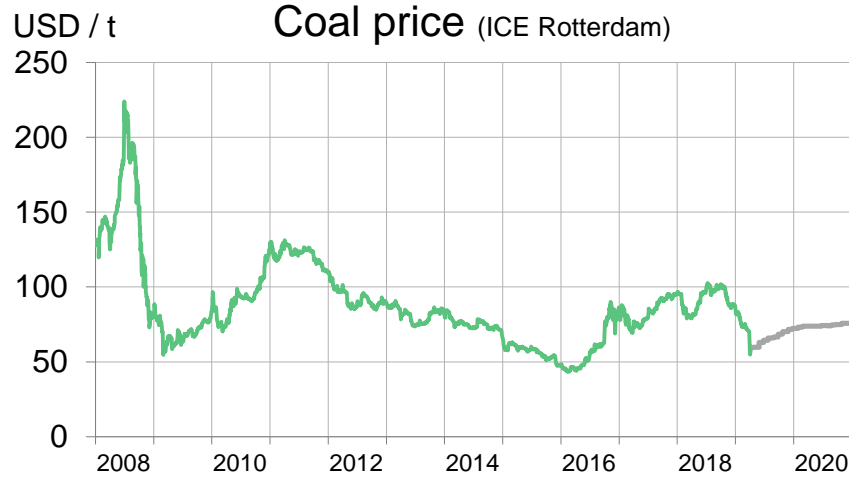


# Wholesale power prices



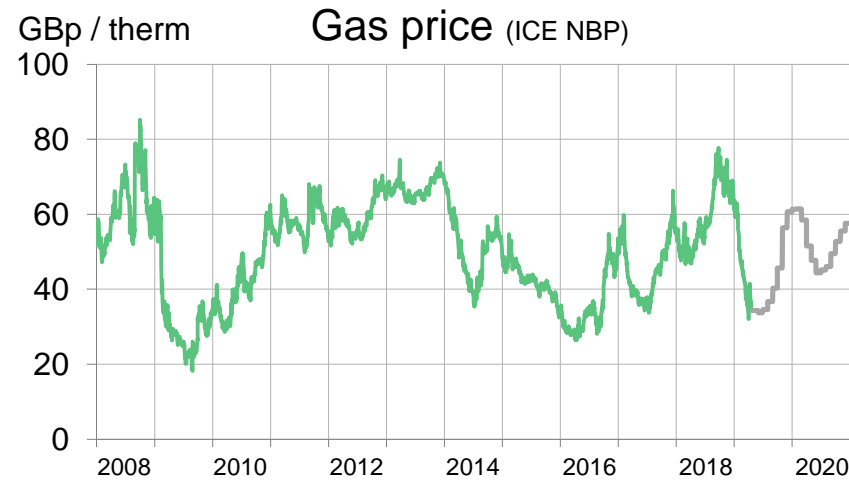
\* Including weighted average capacity price

# Fuel prices in Q1 on a downward trend as LNG flows into Europe



**The global coal market** during Q1 turned bearish due to changed Chinese import policy and international coal prices declined while China's domestic prices remained buoyant

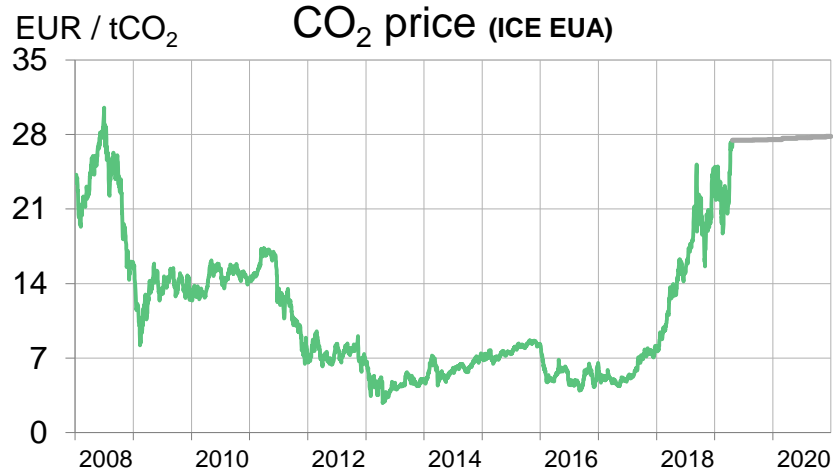
- The lack of support from China exposed European coal to rapidly weakening European gas prices, with major European coal-for-power markets clearly declining in Q1 Y/Y
- Further, higher coal taxes and nuclear power output in South Korea and Japan also contributed to the negative development
- In April, coal prices in Europe bottomed out followed by a limited rebound as coal flows began diverting from Europe to other markets



**In the European gas market** LNG import volumes into Europe doubled resulting in significant decline of gas prices in Q1

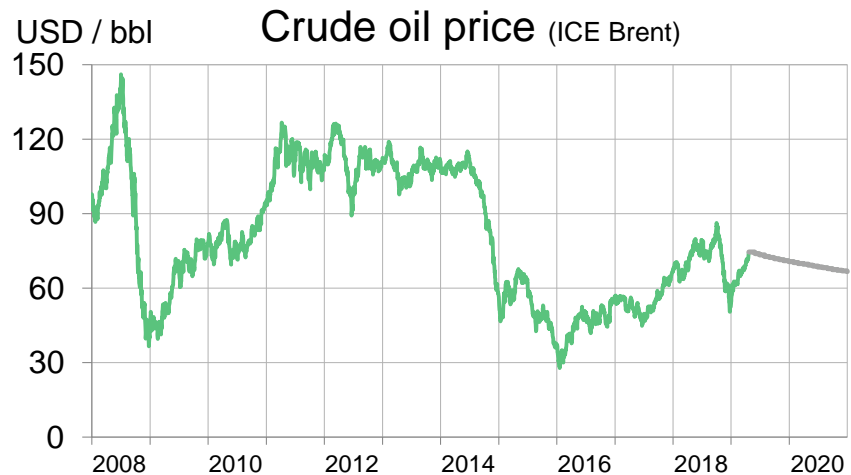
- The EU import surge resulted from stalled demand growth in the East Asian LNG markets
- As a result of strong LNG inflows, European gas storages ended Q1 with high stocks and European gas became very competitive against coal in power generation, a situation further supported by the resilient CO<sub>2</sub> price
- In April, the gas market has seen a limited rebound, but fundamentals continue to be weak

# Volatile CO<sub>2</sub> prices in Q1 mainly due to Brexit uncertainty – rebound in April



**The carbon market traded** lower during Q1 on modest EUA demand and falling gas prices

- The EUA market was impacted by policy uncertainties in Q1, mainly the threat of a sudden UK exit from the EU carbon market
- The market was very volatile, with coal-to-gas switch fundamentals providing one relevant price anchor
- In April, the CO<sub>2</sub> price hit an 11 year-high at EUR 27.46 due to long extension to UK's exit from the EU



**Crude oil** markets saw a strong recovery in Q1 compared to the rest of the generally weak fuel prices

- Oil prices strengthened in Q1 as OPEC (mainly Saudi Arabia) over-delivered on the 2018 supply cut agreement
- The US imposed sanctions on Iran during 2018, and more recently on Venezuela in Q1, led to a big involuntary drop of crude output, tightening the global oil market
- In April, oil continued to increase supported by Chinese macroeconomic data indicating continued demand strength

Source: ICE, Thomson Reuters

Market prices 23 April 2019; 2019-2020 future quotations

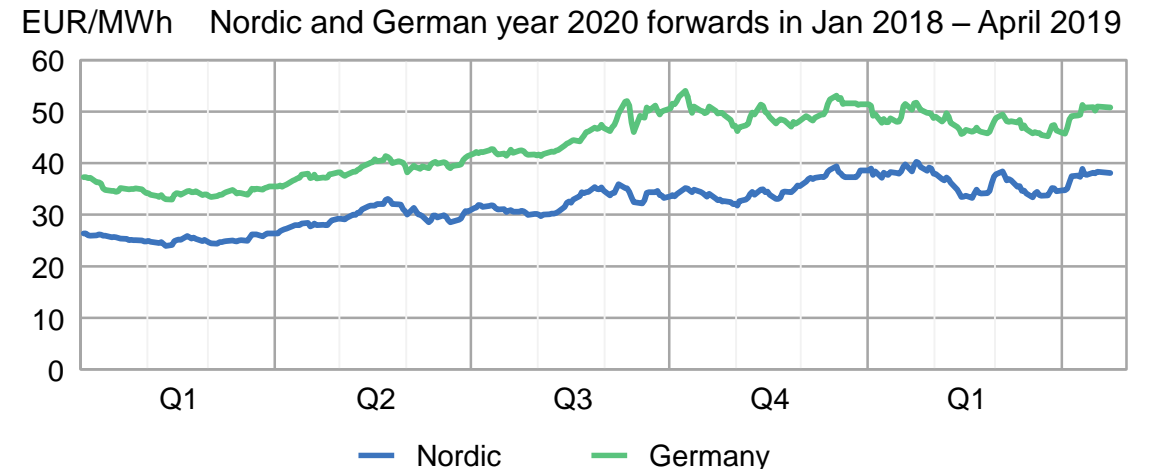
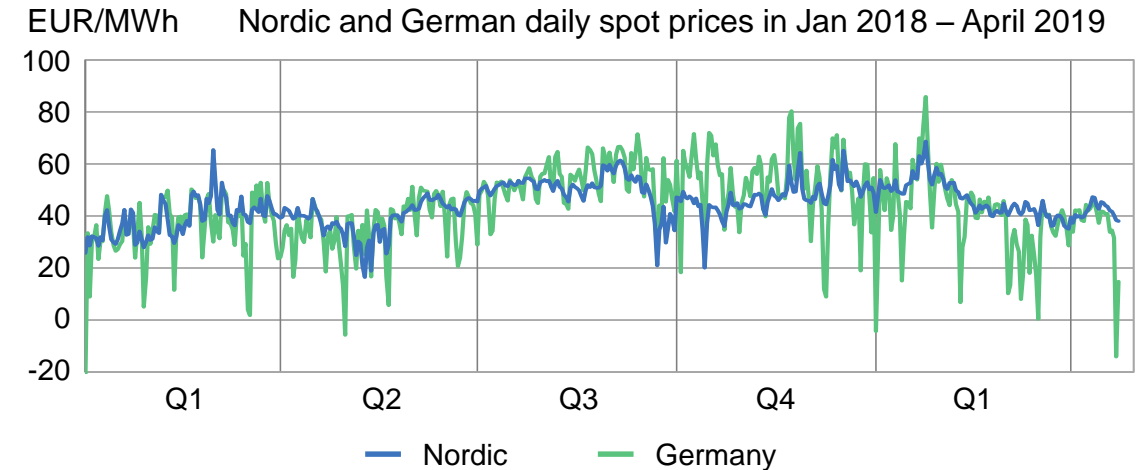
# German – Nordic price spread

## SPOT PRICE

- During Q1 2019, the average spread was -6.0 EUR/MWh with the Nordic system average price at 46.9 EUR/MWh and German price at 40.9 EUR/MWh
- Weak demand and very high wind power output in Germany lowered the German spot price, especially during the first half of March
- During 2012-2018, the average realised German-Nordic spot spread was 4.6 EUR/MWh, fluctuating on an annual level in the range of -1-15 EUR/MWh
- The realised German-Nordic spread is impacted by realised supply and demand fundamentals in Continental Europe and the Nordics

## FORWARD PRICE

- During Q1 2019, the spread for 2020 delivery traded in the range 9.9-12.9 EUR/MWh, average at 11.6 EUR/MWh
- Expected supply/demand balance in the Nordics and in Continental Europe has an effect on the spread: investments in new interconnector capacity, growth of demand and new renewable capacity as well as amount of exiting nuclear and coal capacity all play a role

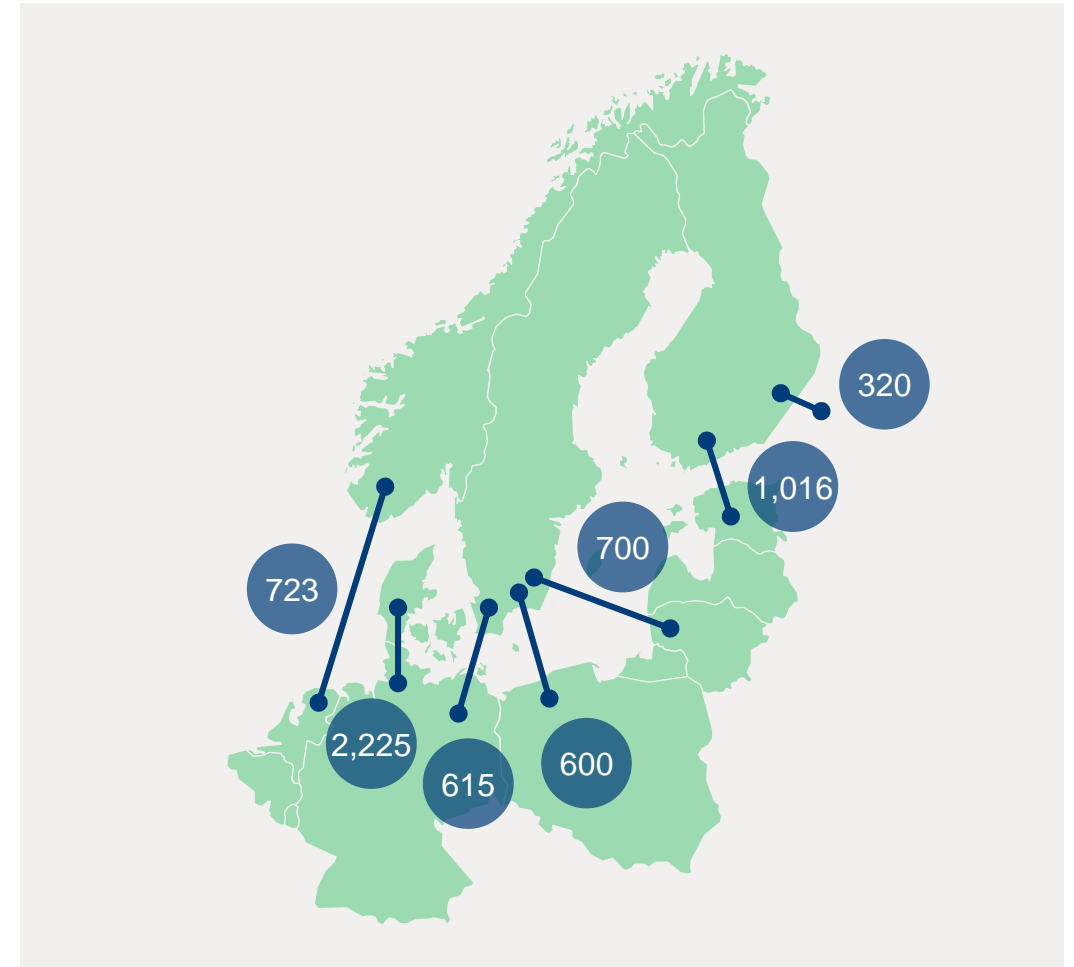


Including 23 April 2019  
Source: Nord Pool, Bloomberg

# Current transmission capacity from the Nordic area is >6,000 MW

COUNTRIES	TRANSMISSION CAPACITY MW	
	From Nordics	To Nordics
Denmark - Germany	2,225	2,100
Sweden - Germany	615	615
Sweden - Poland	600	600
Sweden - Lithuania	700	700
Norway - Netherlands	723	723
Finland - Estonia	1,016	1,016
Finland - Russia	320	1,300
<b>Total</b>	<b>6,199</b>	<b>7,054</b>

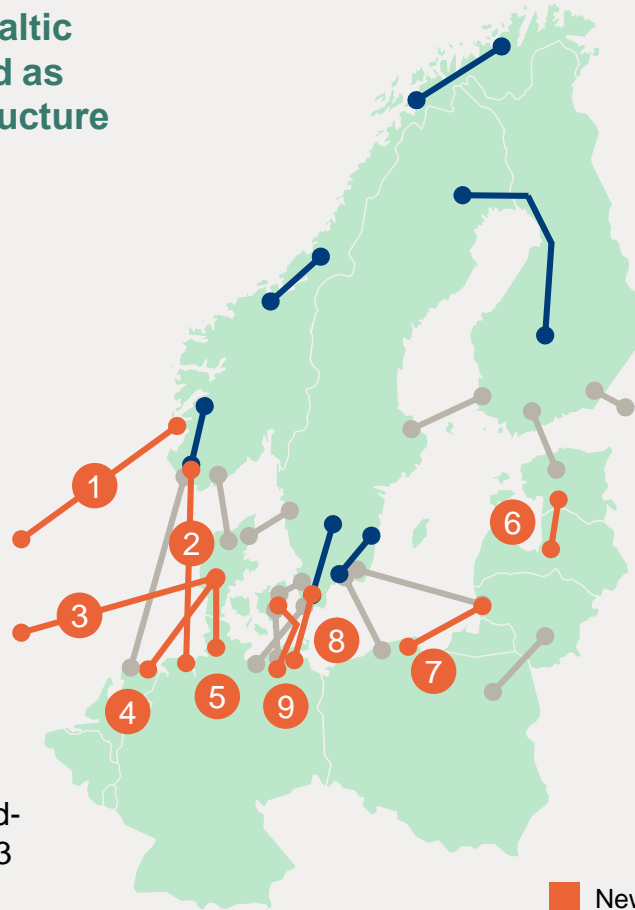
- Theoretical maximum in transmission capacity ~40 TWh per annum, but restrictions especially between DK & DE
- Net export from the Nordic area to Continental Europe and Baltics during the year 2018 was 10 TWh
- Net export during the relatively wet year 2017 was 15 TWh
- Approximately 25 TWh of net export is now reachable



# Nordics, Baltics, the Continental and the UK markets are integrating – interconnection capacity to double by end-2023

The Northern Seas Offshore Grid and the Baltic Energy Market Integration Plan are included as priority electricity corridors in EU's Infrastructure Guidelines, approved in April 2013

- 1 Two 1,400 MW NO-UK links as EU Projects of Common Interest: NSL to England due to be ready in 2021, NorthConnect to Scotland under debate in Norway and not yet permitted
- 2 1,400 MW NordLink as first direct NO-DE link is due to start commercial operation in March 2021
- 3 1,400 MW DK-UK Viking Link has got its final permits and is to be built by end-2023
- 4 700 MW COBRACable from DK to NL is due to be ready during Q3/2019
- 5 Jutland – DE capacity will grow by 860 MW by end-2020, with further 1,000 MW increase by end-2023



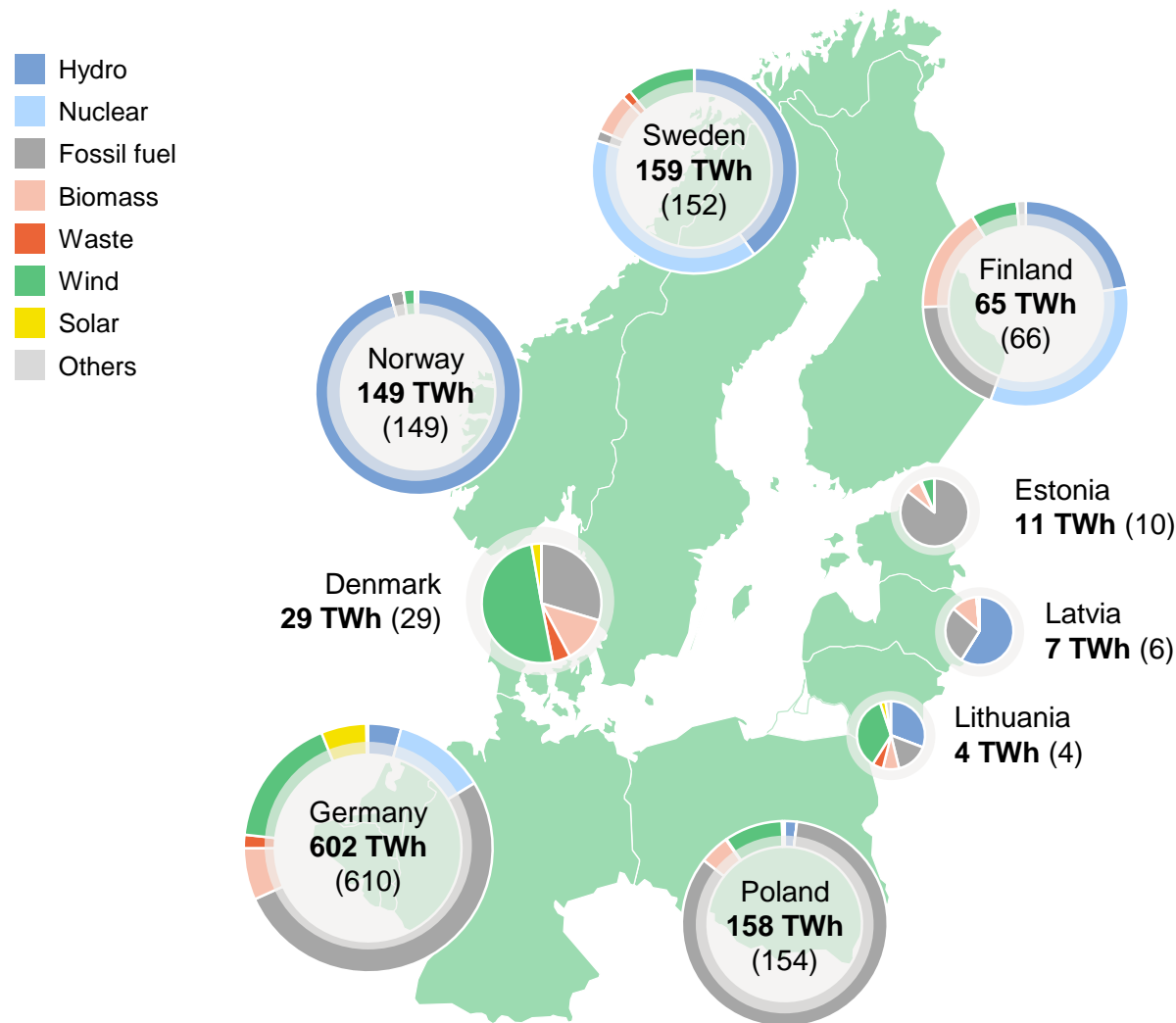
New interconnections will double the Nordic export capacity to over 12,000 MW by end-2023

- New internal Nordic grid investments provide for increased available capacity for export to the Continent and Baltics
- 6 EU's Connecting Europe Facility co-financing 3<sup>rd</sup> EE-LV transmission line, due to be ready in 2020
- 7 Baltic synchronisation roadmap in June 2018 prioritised a DC sea cable as the required additional PL-LT interconnection by 2025
- 8 Svenska Kraftnät and 50Hertz signed 1/2017 a cooperation agreement on building the 700 MW Hansa PowerBridge DC link between Sweden and Germany by 2025/26
- 9 New 400 MW Zealand – DE connection via Kriegers Flak offshore wind area ready in Q3/2019

■ New interconnectors ■ New Nordic lines ■ Existing interconnectors



# Power Generation in the Baltic Rim in 2017 (2016)

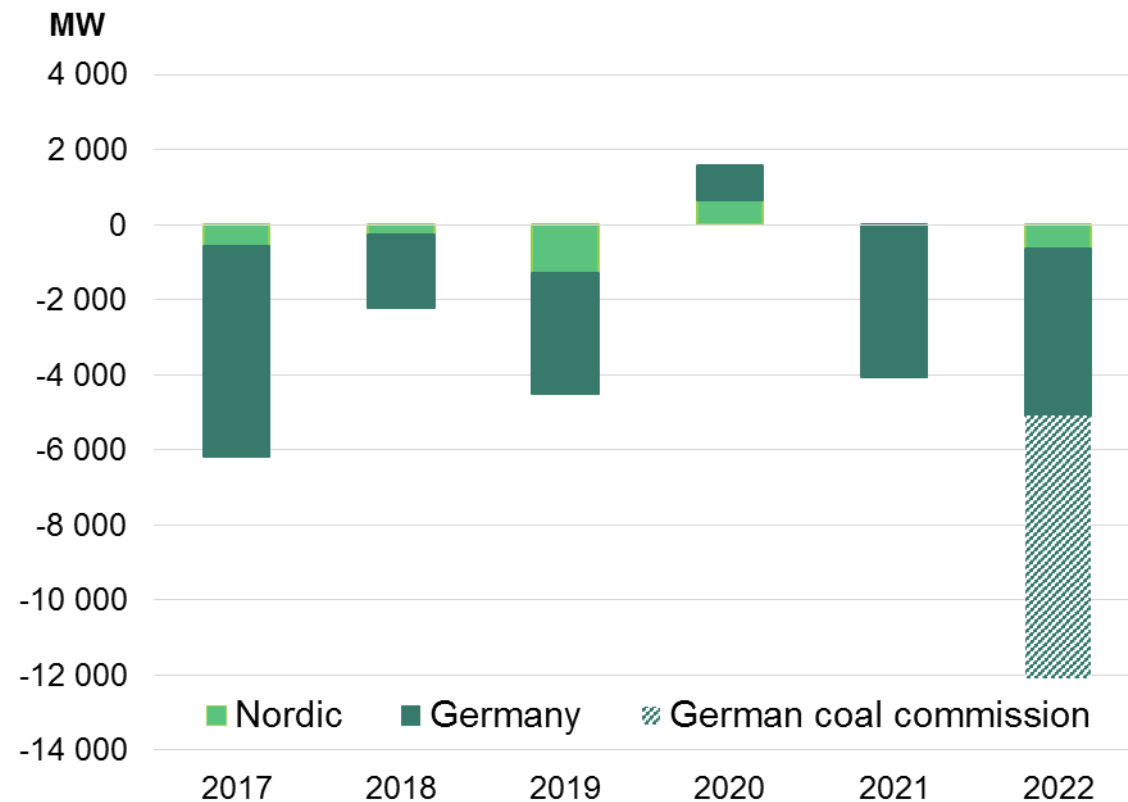


	NORDICS		BALTICS	
2017	TWh	%	TWh	%
Hydro	*221	55	6	25
Nuclear	85	21	-	-
Fossil fuel	26	7	12	55
Biomass	24	6	2	9
Waste	4	1	0	1
Wind	40	10	2	10
Solar	1	0	0	0
Others	1	0	0	0
Total generation	402	100	22	100
Net export		9 TWh	Net import	
			6 TWh	

\*) Normal annual Nordic hydro generation 200 TWh, variation +/- 40 TWh.

# Northern European conventional capacity decreasing

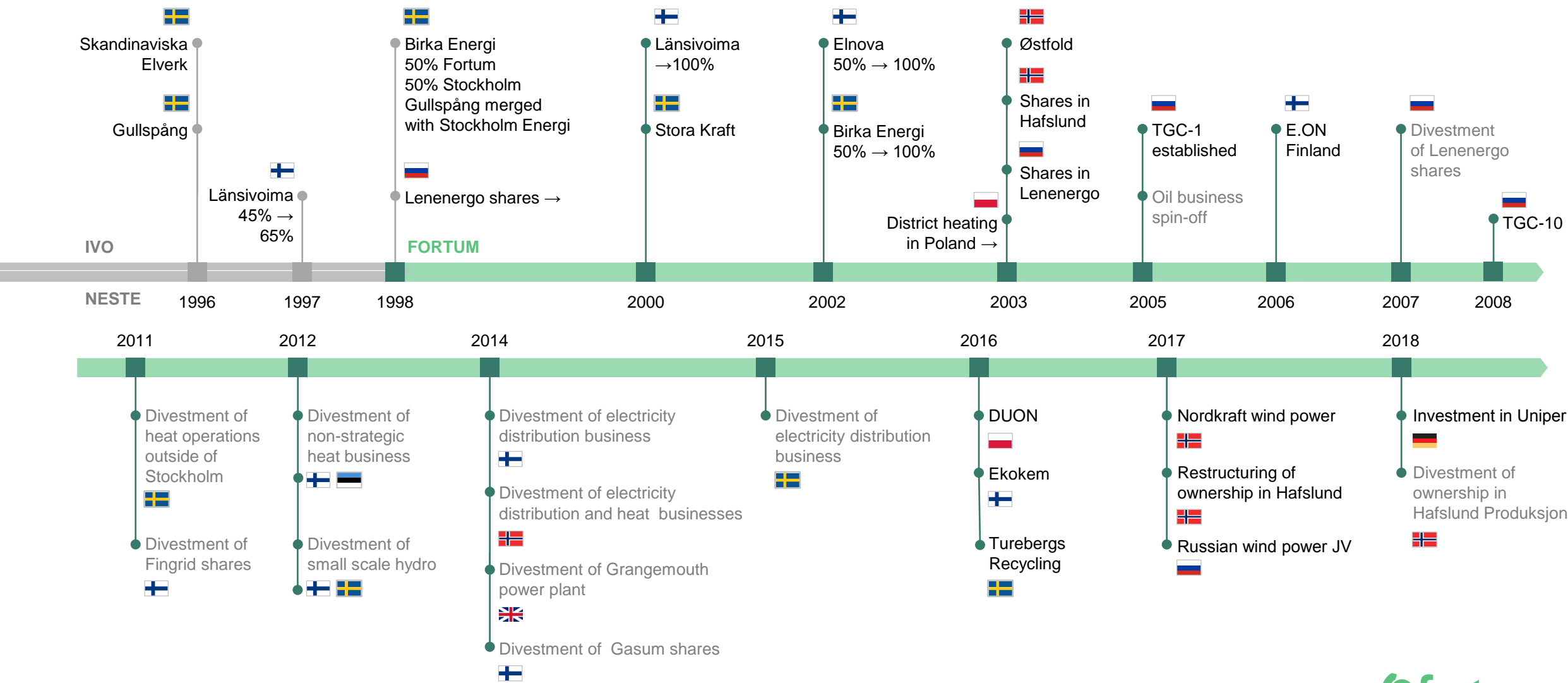
## Estimated annual net changes in nuclear and thermal capacity



Estimated capacity changes based on publically announced information from various stakeholders

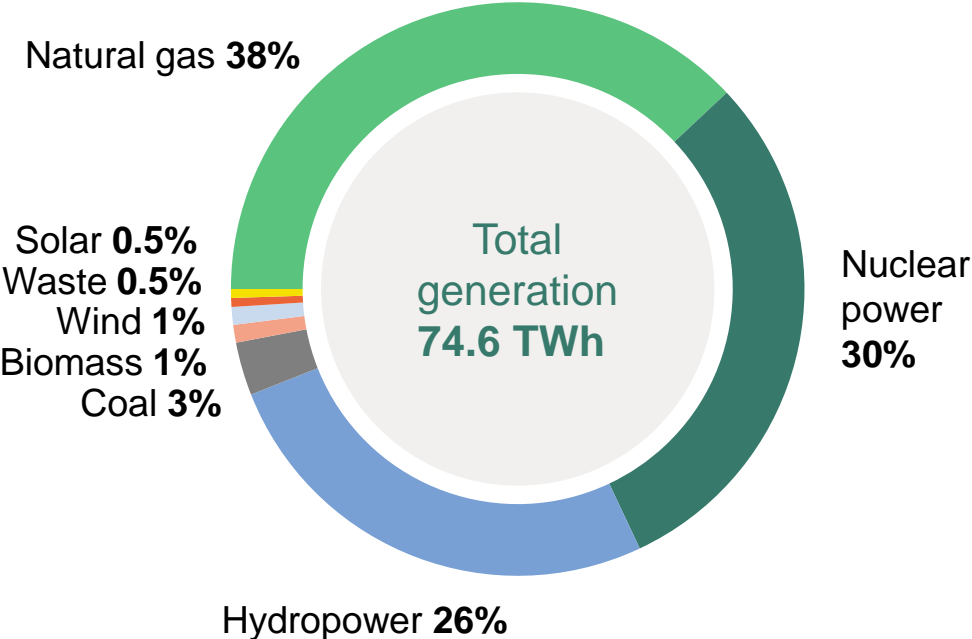
DATE	CAPACITY	AREA	UNIT/ TRANSMISSION	COMMENT
1.10.2018	- 1100 MW	DE	Lignite reserve	Niederaußem E & F and Jämschwalde F moved to lignite reserve
31.12.2018	- 473 MW	DE	Coal	Lünen 6&7, decommissioning
31.3.2019	- 937 MW	DE	Coal	Gersteinwerk, Kiel-Ostufer, decommissioning
during 2019	- 619 MW	EE	Oil shale	Closure of four older units in Estonia
1.9.2019	+ 700 MW	DK1-NL	Transmission	Cobra cable: trial operation expected to begin in Q3-19
1.10.2019	- 800 MW	DE	Lignite reserve	Jämschwalde E, Neurath C
1.10.2019	+ 0-400 MW	DK2-DE	Kriegers Flak	Offshore connection between DK2 and DE used for both grid connection of offshore wind farms and interconnection.
31.12.2019	- 1470 MW	DE	Phillipsburg 2	Nuclear unit, decommissioning
31.12.2019	- 850 MW	SE3	Ringhals 2	Decommissioning
1.1.2020	+ 1600 MW	FI	Olkiluoto 3	Start of regular electricity production expected in January 2020.
31.3.2020	- 100 MW	DK	Amagerværket 3	250 MW coal replaced by 150 MW biomass
during 2020	+ 1100 MW	DE	Datteln 4	Uniper's coal condensing unit; targeted commissioning mid-2020.
31.12.2020	- 856 MW	SE3	Ringhals 1	Decommissioning
31.12.2021	- 4060 MW	DE	Nuclear	Decommissioning Brokdorf, Grohnde, Gundremmingen C
31.12.2022	- 4040 MW	DE	Nuclear	Decommissioning Isar 2, Emsland, Neckarwestheim 2
By end of 2022	- 7000 MW	DE	Coal commission	German Coal Commission proposes 7 GW additional reduction of lignite/hard coal

# Fortum's evolution and historical strategic route

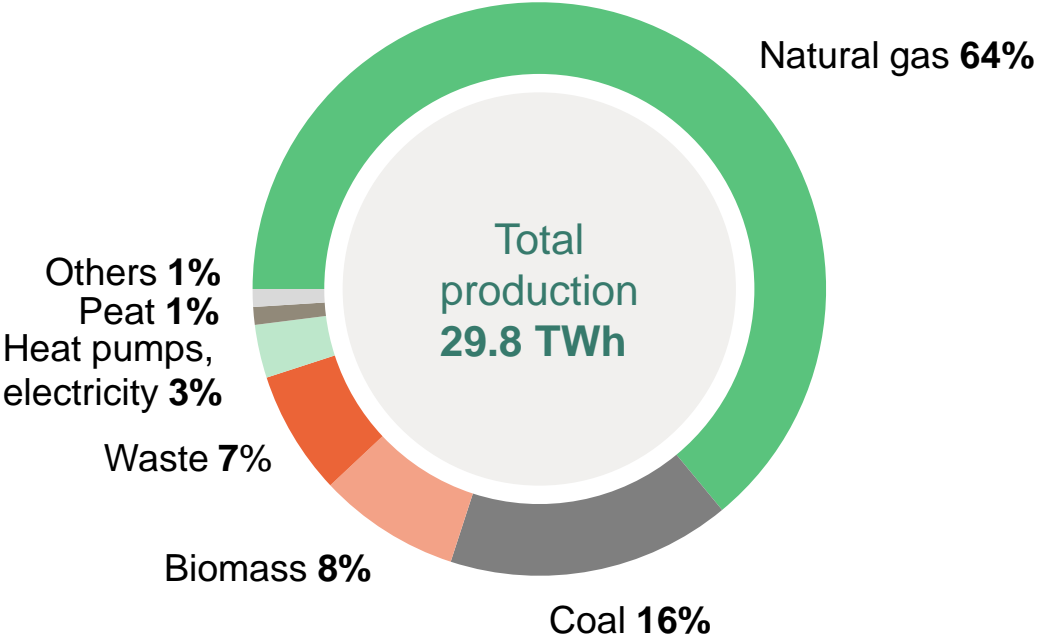


# Fortum's power and heat production by source

Fortum's power generation in 2018



Fortum's heat production in 2018

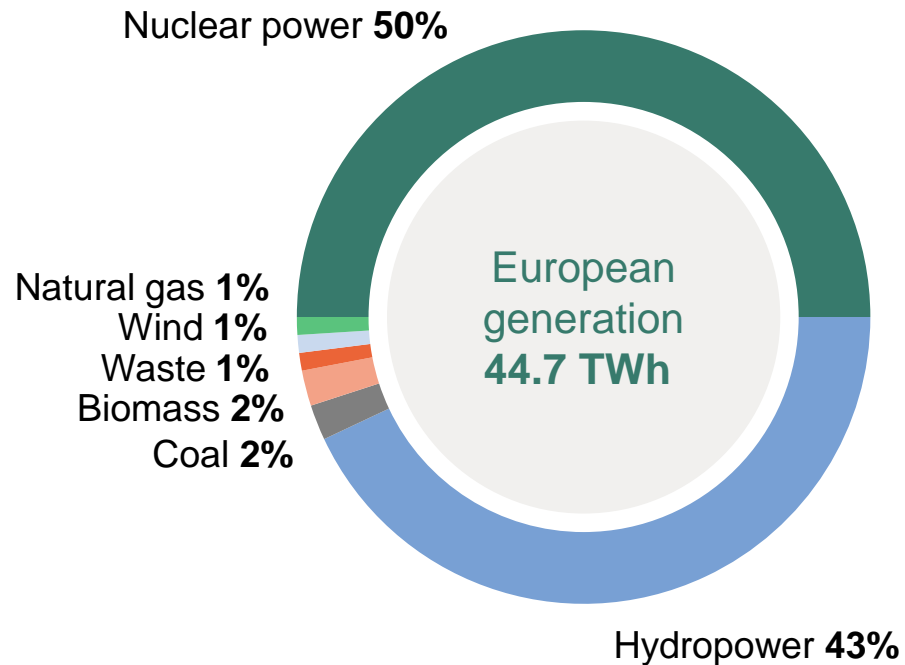


Note: Fortum's power generation capacity 13,724 MW and heat production capacity 15,009 MW

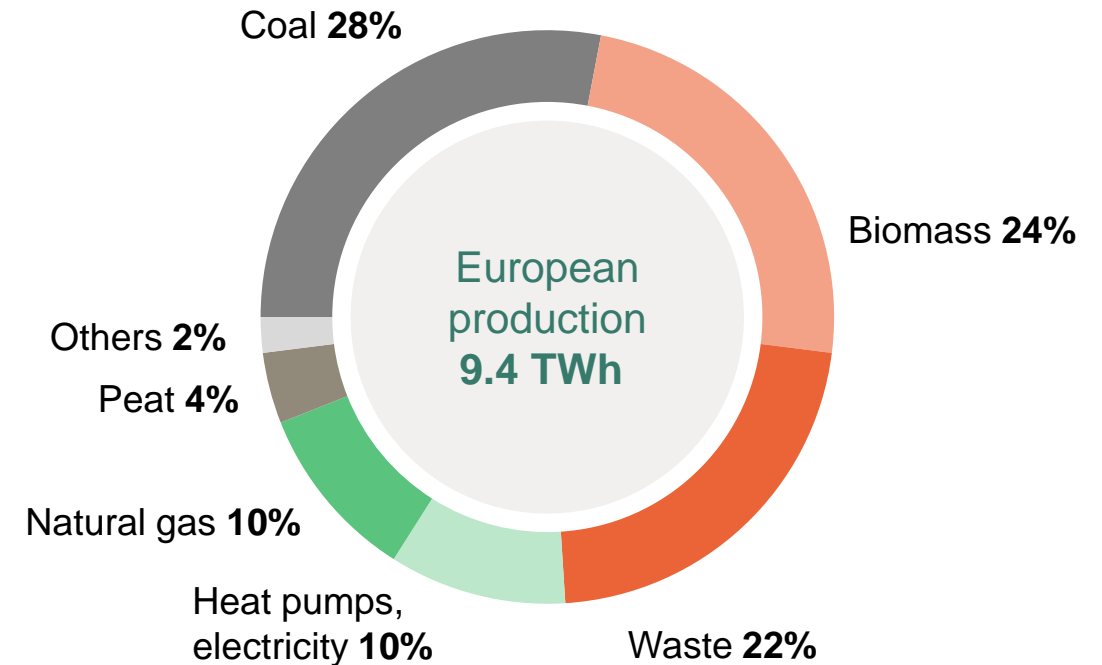
# Fortum's European power and heat production by source



## Fortum's European power generation in 2018



## Fortum's heat European production in 2018



Note: Fortum's European power generation capacity 8,811 MW and heat production capacity 4,780 MW



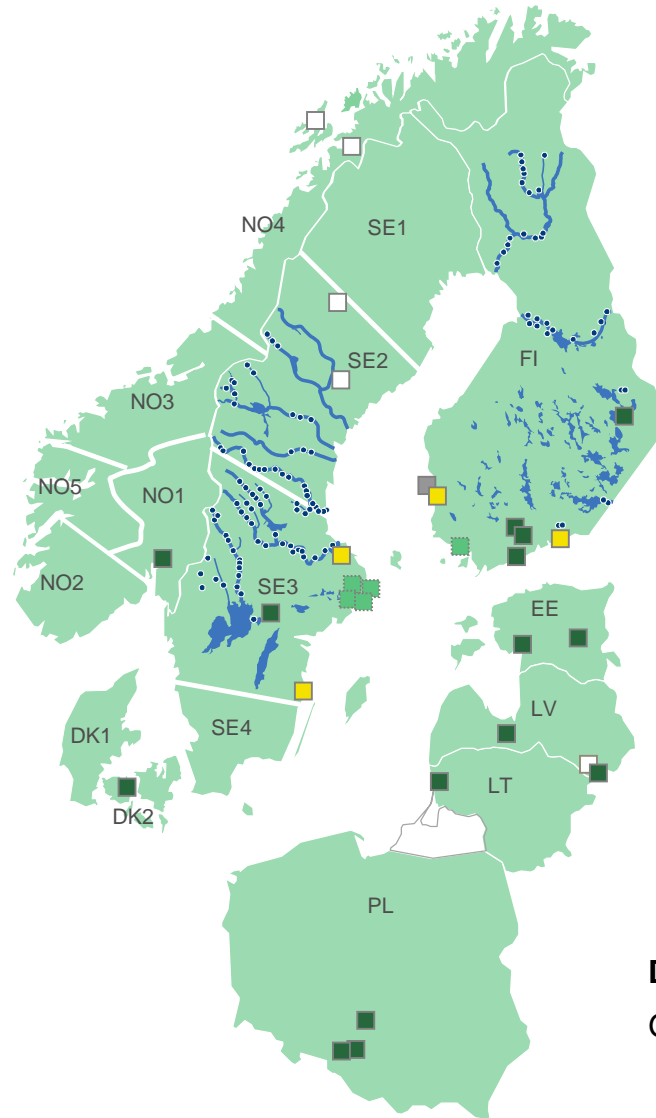
# Fortum's Nordic, Baltic and Polish generation capacity

## GENERATION CAPACITY MW

■ Hydro	4,672
■ Nuclear	2,819
■ CHP	785
■ Other thermal	376
□ Wind	159

Nordic, Baltic and Polish generation capacity **8,811**

Figures 31 December 2018



■ Associated companies' plants  
(not included in the MWs) Stockholm  
Exergi (Former Fortum Värme),  
Stockholm; TSE, Naantali

## NORWAY MW

Price areas	
NO4, Wind	82
NO1, CHP	20
Generation capacity	102

## SWEDEN MW

Price areas	
SE2, Hydro	1,550
SE2, Wind	75
SE3, Hydro	1,574
SE3, Nuclear	1,334
SE3, CHP	9
Generation capacity	4,542

## DENMARK, DK2 MW

Generation capacity, CHP	16
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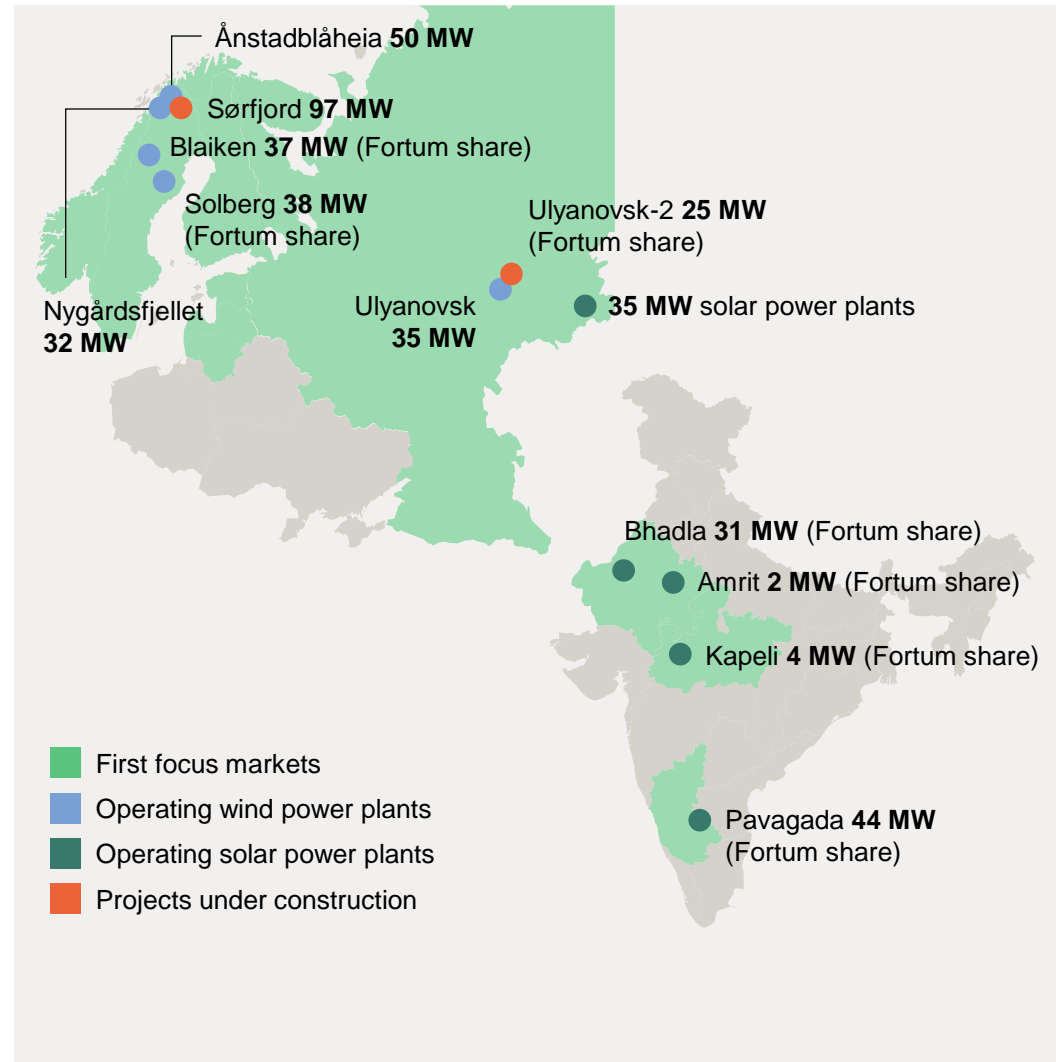
## FINLAND MW

Hydro	1,548
Nuclear	1,485
CHP	451
Other thermal	376
Generation capacity	3,860

## BALTICS AND POLAND MW





Generation capacity, CHP	
in Estonia	49
in Latvia	34
in Lithuania	20
in Poland	186
in Latvia, Wind	2

# Fortum is growing towards gigawatt scale target in solar and wind power production



PORTFOLIO	TECHNOLOGY	STATUS	CAPACITY MW	FORTUM SHARE, MW	SUPPLY STARTS/ STARTED
<b>FINLAND</b>			<b>90</b>	<b>90</b>	
Kalax	Wind	Under development	90	90	
<b>NORWAY</b>			<b>179</b>	<b>179</b>	
Nygårdsfjellet	Wind	Operational	32	32	2006 and 2011
Ånstadblåheia	Wind	Operational	50	50	Q4 2018
Sørfjord	Wind	Under construction	97	97	Q4 2019
<b>SWEDEN</b>			<b>323</b>	<b>75</b>	
Blaiken	Wind	Operational	248	37 (15%)	2017*
Solberg	Wind	Operational	76	38 (50%)	2018
<b>RUSSIA</b>			<b>2,003</b>	<b>1,092</b>	
Bugulchansk	Solar	Operational	15	15	2016-2017
Pleshanovsk	Solar	Operational	10	10	2017
Grachevsk	Solar	Operational	10	10	2017
	Solar	Under development	110	110	2021-2022
Ulyanovsk	Wind	Operational	35	35	2018
Ulyanovsk 2	Wind	Operational	50	25 (50%)	1.1.2019
Rusnano JV	Wind	Under construction	200	100 (50%)	H1 2020
Rusnano JV	Wind	Under development	1,573	787 (50%)	2018-2023
<b>INDIA</b>			<b>685</b>	<b>581</b>	
Amrit	Solar	Operational	5	2 (44%)	2012
Kapeli	Solar	Operational	10	4 (44%)	2014
Bhadla	Solar	Operational	70	31 (44%)	2017
Pavagada	Solar	Operational	100	44 (44%)	2017
Pavagada 2	Solar	Under construction	250	250	Q3 2019
Rajasthan	Solar	Under construction	250	250	Q4 2020
<b>TOTAL</b>			<b>3,281</b>	<b>2,017</b>	
		Under development	2,023	986	
		Under construction	597	697	
		Operational	661	334	

# Fortum's nuclear fleet

				
	<b>LOVIISA</b>	<b>OLKILUOTO</b>	<b>OSKARSHAMN</b>	<b>FORSMARK</b>
Commercial operation started	Unit 1: 1977 Unit 2: 1981	Unit 1: 1978 Unit 2: 1980 Unit 3: (Under construction)	Unit 1: 1972* Unit 2: 1974* Unit 3: 1985	Unit 1: 1980 Unit 2: 1981 Unit 3: 1985
Generation Capacity	Unit 1: 507 MW Unit 2: 507 MW <b>Total: 1,014 MW</b>	Unit 1: 890 MW Unit 2: 890 MW (Unit 3: 1,600 MW) <b>Total: 1,780 MW (3,380 MW)</b>	Unit 1: 473 MW* Unit 2: 638 MW* Unit 3: 1,400 MW <b>Total: 1,400 MW</b>	Unit 1: 984 MW Unit 2: 1,116 MW Unit 3: 1,159 MW <b>Total: 3,259 MW</b>
Fortum's share	100% 1,014 MW	27% 473 MW	43% 602 MW	22% 724 MW
Yearly production Fortum's share of production	8 TWh 8 TWh	14 TWh 4 TWh	11 TWh 5 TWh	25 TWh 6 TWh
Share of Fortum's Nordic production	19%	9%	11%	13%
Majority owner Fortum's share	Fortum	Pohjolan Voima 26.6%	Uniper 43.4%	Vattenfall 22.2%
Operated by	Fortum	Teollisuuden Voima (TVO)	OKG Aktiebolag	Forsmarks Kraftgrupp

\*Out of operation; on decommissioning phase

## RESPONSIBILITIES

**Loviisa:** Fortum is the owner, licensee and operator with all the responsibilities specified in the Nuclear Energy Act, Nuclear Liability Act, and other relevant nuclear legislation

**Other units:** Fortum is solely an owner with none of the responsibilities assigned to the licensee in the nuclear legislation. Other responsibilities are specified in the Companies Act and the Articles of Association and are mostly financial.

# Fortum's nuclear power in the Nordics

LOAD FACTOR (%)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Oskarshamn 1*	80	51	63	85	68	77	72	1	12	74	60	81	82	0
Oskarshamn 2*	90	78	76	86	75	90	77	81	33	0	0	0	0	0
Oskarshamn 3	85	95	88	70	17	31	68	69	77	75	79	83	77	87
Forsmark 1	85	76	81	88	88	93	79	88	87	94	79	95	88	94
Forsmark 2	94	72	85	79	64	38	94	82	89	89	91	75	82	87
Forsmark 3	95	92	88	69	86	81	85	93	88	83	58	82	86	81
Loviisa 1	95	93	94	86	96	93	94	84	92	92	93	88	93	91
Loviisa 2	95	88	96	93	95	89	94	91	93	89	92	93	93	85
Olkiluoto 1	98	94	97	94	97	92	95	90	97	94	96	91	93	87
Olkiluoto 2	94	97	94	97	95	95	91	96	93	97	89	94	81	94

Source: Fortum

\*) Out of operation; on decommissioning phase

Finnish units world class in availability

Overview of production and consumption:

[www.fortum.com/investors](http://www.fortum.com/investors) - energy related links



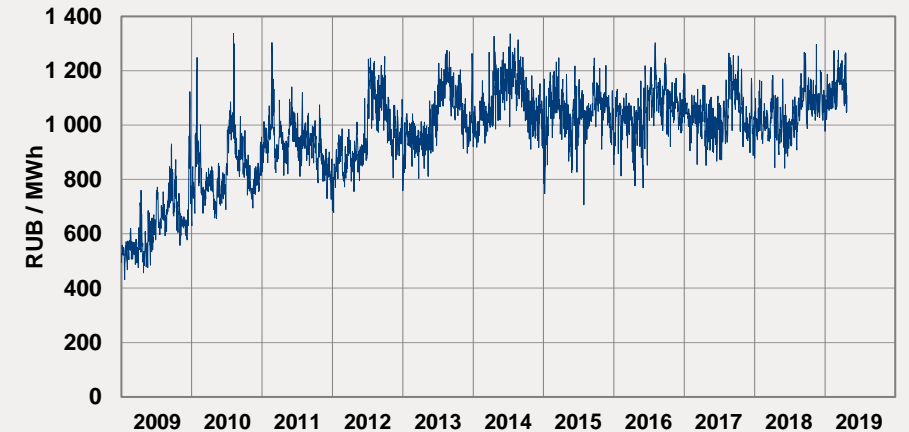
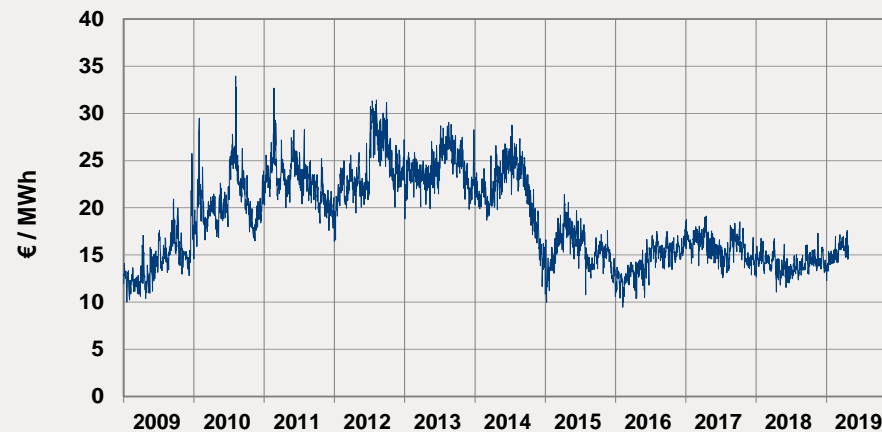
# Day ahead wholesale market prices in Russia

## Key electricity, capacity and gas prices in the PAO Fortum area

	I/19	I/18	2018	LTM
Electricity spot price (market price), Urals hub, RUB/MWh	1,128	1,011	1,043	1,072
Average regulated gas price, Urals region, RUB 1000 m <sup>3</sup>	3,883	3,755	3,801	3,833
Average capacity price for CCS, tRUB/MW/month	162	158	148	149
Average capacity price for CSA, tRUB/MW/month	1,196	1,147	1,075	1,087
Average capacity price, tRUB/MW/month	678	661	609	614
Achieved power price for Fortum in Russia, RUB/MWh	2,002	1,872	1,888	1,924
Achieved power price for Fortum in Russia, EUR/MWh	26.4	26.8	25.6	25.5

### Day ahead power market prices for Urals

Source: ATS  
In addition to the power price generators receive a capacity payment.





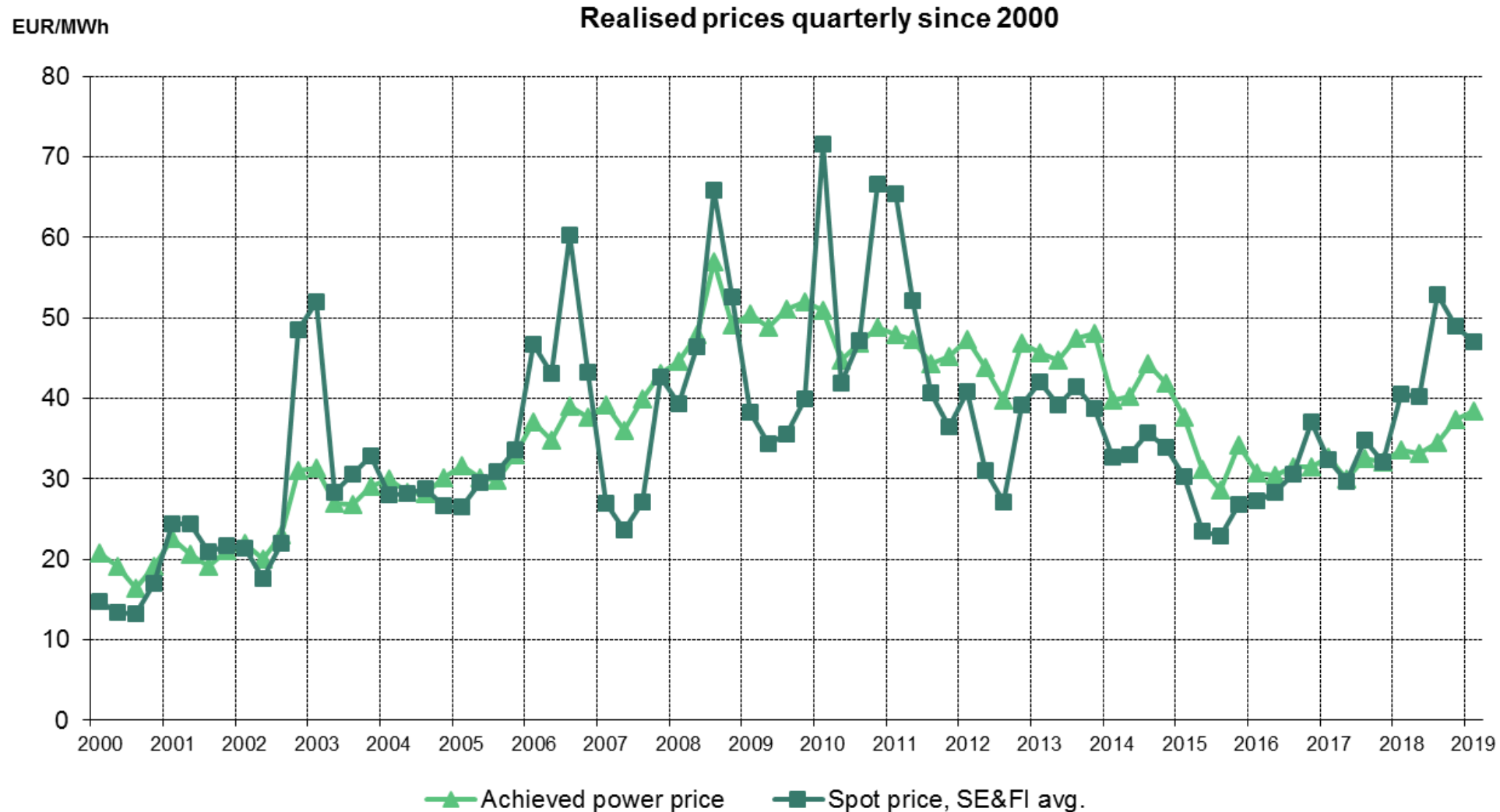
# Thermal power generation capacity in Russia on 31 Dec 2018

YEAR	SUPPLY STARTS	POWER PLANT	FUEL TYPE	CCS CAPACITY	CSA CAPACITY	PRODUCTION TYPE	TOTAL CAPACITY
< 2011		Tyumen CHP-2	Gas	755		CHP/Condensing	755
		Chelyabinsk CHP-2	Gas, coal	320		CHP/Condensing	320
		Argayash CHP	Gas, coal	256		CHP/Condensing	256
		Chelyabinsk CHP-1	Gas, coal	134		CHP/Condensing	134
2011	Feb/2011	Tyumen CHP-1	Gas	472	210	CHP/Condensing	682
	Jun/2011	Chelyabinsk CHP-3	Gas	360	233	CHP/Condensing	593
2013	Apr/2013	Nyagan 1 GRES	Gas		453	Condensing	453
	Dec/2013	Nyagan 2 GRES	Gas		453	Condensing	453
2015	Jan/2015	Nyagan 3 GRES	Gas		455	Condensing	455
	Dec/2015	Chelyabinsk GRES	Gas		247	CHP/Condensing	247
2016	Mar/2016	Chelyabinsk GRES	Gas		248	CHP/Condensing	248
2017	Dec/2017	Chelyabinsk GRES	Gas	248		CHP/CCGT	248
				<b>2,093 MW</b>	<b>2,086 MW</b>		<b>4,179 MW</b>

Tobolsk power plant was sold in Q1/2016

# Hedging improves stability and predictability

## – principles based on risk mitigation



# Capital returns: 2018 EUR 1.10 per share ~ EUR 1 billion

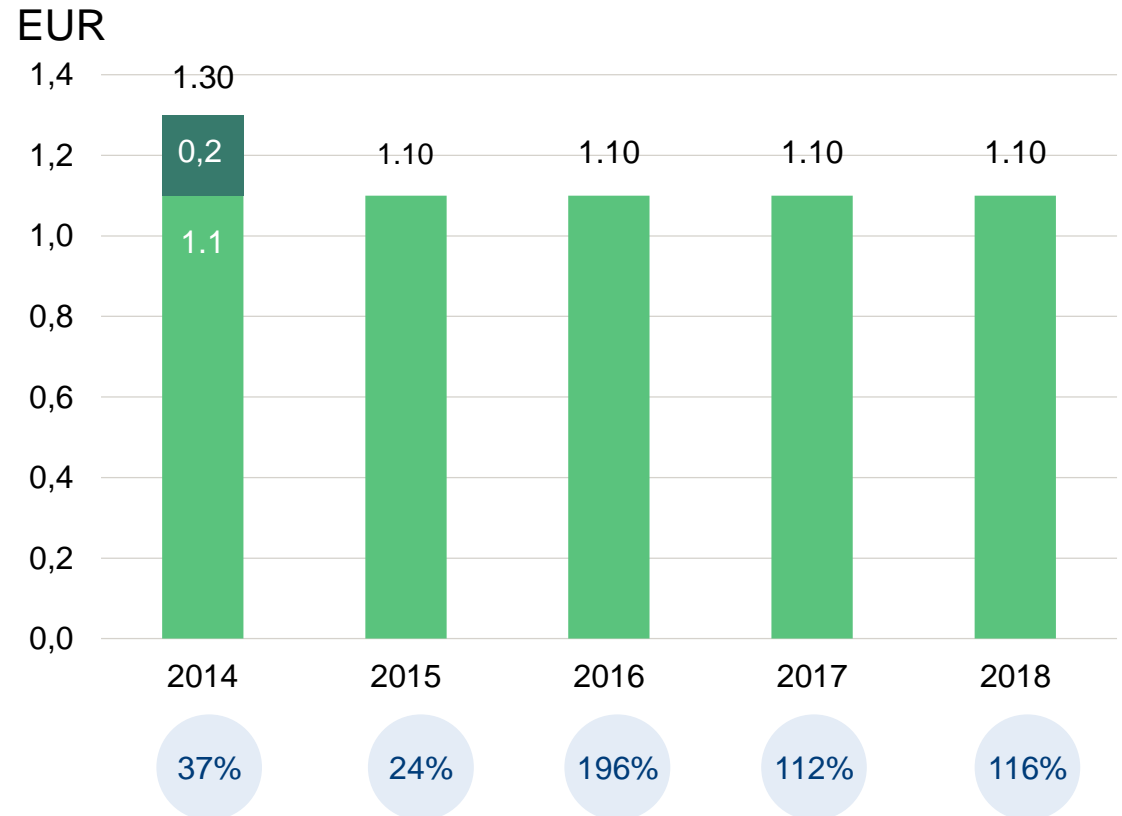
Fortum's target is to pay a stable, sustainable, and over time increasing dividend of 50-80% of earnings per share excluding one-off items

## Fortum's dividend policy is based on the following preconditions:

- 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.

Since 1998 Fortum has paid dividends totaling EUR 15.6 billion

## Five year history of dividend per share





**Next events:**

Q2/2019 results on 19 July 2019

Q3/2019 results on 24 October 2019

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