

Welcome to your CDP Climate Change Questionnaire 2021

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Fortum's business activities cover the production and sales of electricity and heat, natural gas sales, as well as energy-sector expert services and various customer solutions. Fortum is the third largest power generator in Europe and Russia, the third largest producer of CO₂-free electricity in Europe, and a significant gas company.

In March 2020, Fortum closed transaction to become majority owner in Uniper. As the majority owner with 75% of shares in Uniper, Fortum consolidates Uniper as a subsidiary as of 31 March 2020. Although Uniper is a subsidiary to Fortum, it still is a separate company, listed in Germany, and therefore for now has its own sustainability processes, approach and standalone sustainability reporting. As of the year 2020, Fortum's reportable segments and reporting order are the following: Generation, Russia, City Solutions, Consumer Solutions, and Uniper.

Fortum's key markets are the Nordic countries, Russia, Germany, the United Kingdom, the Netherlands, Hungary, Poland, and India. With core operations in 14 countries, Fortum has employed a diverse team of almost 20,000 energy-sector professionals in 2020. Fortum's power generation is mainly based on natural gas-fired generation and carbon dioxide-free hydro and nuclear power. Fortum targets to reduce the share of coal in power generation rapidly. A minor share of Fortum's power generation is currently based on solar and wind, but Fortum targets significant growth in the area over the next five years.

Fortum's updated strategy is based on four strategic priorities: Transform own operations to carbon neutral; Strengthen and grow in CO₂-free power generation; Leverage strong position in gas to enable the energy transition; Partner with industrial and infrastructure customers. Fortum also updated its climate targets in December 2020, and Fortum is committed to carbon neutrality (Scope 1, 2 and 3 GHG emissions), in line with the goals of the Paris Agreement, by 2050 at the latest.

Fortum's purpose is to drive the change for a cleaner world. Fortum wants to enable the energy transition by providing customers and societies a reliable and affordable supply of low-carbon energy and sustainable solutions. In the future, the energy system – and Fortum's portfolio – will be based on renewable energy, increasingly clean gas (e.g. hydrogen) and nuclear power. In addition, Fortum offers industrial and infrastructure solutions, e.g., waste-to-energy, grid stability services, as well as energy sales and storage. By improving the energy efficiency of power and heat production, Fortum also reduces flue-gas emissions to the environment relative to the produced energy and decrease production costs.

Sustainability is an integral part of Fortum's strategy. The tight link between business operations and corporate responsibility underscores the importance of sustainability as a competitive advantage. In its operations, Fortum takes into consideration climate and resource matters as well as impacts on personnel and society, and Fortum emphasises in its operations climate change mitigation, biodiversity, decreasing environmental impacts and water use, energy efficiency, and circular economy. Fortum is well-positioned to capture opportunities resulting from the energy transition, aimed at mitigating climate change. To be successful, the energy transition must balance sustainability, affordability, and security of supply.

In 2020, Fortum's activities covered the generation and sales of electricity, heat and steam and natural gas, as well as related expert services and energy solutions that improve present and future life. In 2020, 73% of Fortum's power generation was CO₂-free in Europe, and 45% of Fortum's total power generation was CO₂-free globally. Fortum's aim is to increase renewable energy generation in future.

In 2020, Fortum's sales were EUR 49,015 million, and the comparable operating profit totalled EUR 1,344 million. In 2020, Fortum paid EUR 977 million in dividends to its shareholders, and Fortum's total taxes borne amounted to EUR 267 million. Fortum's share is listed on Nasdaq Helsinki and its market capitalisation was EUR 17,499 million on the last trading day of 2020. Fortum believes that the transformation of the electricity sector is making good progress, and, e.g. the EU emissions trading system will increasingly steer investments towards CO₂-free production technologies. This will accelerate the low-carbon transition in society and create new business opportunities. It requires not only renewable energy sources, but also increasingly clean gas, energy storage, and other flexible solutions to provide security of supply and to decarbonise also heating and cooling, industry, and transportation.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	January 1, 2020	December 31, 2020	No

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

- Denmark
- Estonia
- Finland
- Germany
- Hungary
- India
- Latvia
- Lithuania
- Netherlands
- Norway
- Poland

Russian Federation
 Sweden
 United Kingdom of Great Britain and Northern Ireland

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

EUR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

Electric utilities value chain

Electricity generation

Other divisions

Gas storage, transmission and distribution

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Director on board	Sustainability, including climate-related matters, is an integral part of Fortum's strategy. The highest decision-making authority on sustainability and climate-

	<p>related matters is with the members of the Board of Directors, who share joint responsibility (all directors) for these matters. Fortum's Board of Directors approves annually Fortum Group's performance targets, including sustainability and climate-related targets. Fortum has not nominated any individual Board member as responsible for climate affairs.</p> <p>In 2020, the most substantive climate-related decision made by Fortum's Board of Directors was to approve Fortum Group's performance targets, including sustainability and climate-related targets. Aligned with the goals of the Paris Agreement, Fortum targets carbon neutrality by 2050 with ambitious mid-term climate-related targets.</p> <p>Fortum's Audit and Risk Committee (ARC), members of the Fortum Executive Management (FEM), and other senior executives support the Board of Directors in the decision making in these matters, when necessary. Fortum has implemented TCFD (Task Force on Climate-related Financial Disclosures) reporting process, and the ARC reviews annually the Group Risk Policy, material risks, including climate-related risks, and uncertainties.</p> <p>By the CEO's designation the Senior Vice President (SVP), Corporate Affairs, Safety and Sustainability, has the overall responsibility for sustainability, which also includes climate-related issues in Fortum, excluding Uniper. She is a member of Fortum Executive Management (FEM), and, as a C-suite officer, she has the executive-level responsibility for Fortum's TCFD reporting. Uniper is not represented in FEM.</p>
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C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives 	<p>Fortum Executive Management (FEM) decides on the sustainability, including climate-related matters, approach and the Group-level sustainability and climate-related targets that guide annual planning. The targets are ultimately approved by Fortum's Board of Directors (BoD). In December 2020, Fortum announced a new strategy and its commitment to carbon neutrality. Aligned with the goals of the Paris Agreement, Fortum targets carbon neutrality (Scope 1, 2, and 3 greenhouse gas emissions) by 2050 with ambitious mid-term climate-related targets. The Fortum Executive Management (FEM) monitors the achievement of the sustainability and climate-related targets in its monthly meetings and</p>

	<p>Overseeing major capital expenditures, acquisitions and divestitures</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>in Quarterly Performance Reviews. The achievement of the targets is regularly reported also to Fortum's Board of Directors (BoD).</p> <p>In its Annual Clock ,the BoD has specific meetings dedicated for strategy, review of Fortum's Risk Report and risk management policies.</p> <p>Performance objectives are set as part of the business planning process and reviewed in Quarterly Performance Reviews. This also includes review of actions.</p> <p>Major capital expenditures, acquisitions and divestments are handled at the BoD according to the requirements and timetables defined in the Fortum's Investment manual.</p>
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C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
<p>Other C-Suite Officer, please specify</p> <p>SVP Corporate Affairs, Safety and Sustainability</p>	<p>Both assessing and managing climate-related risks and opportunities</p>	<p>Quarterly</p>

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

The highest decision-making authority on sustainability and climate-related matters is with the members of Board of Directors, who share joint responsibility for these matters in Fortum. Fortum's Board of Directors approves annually Fortum Group's performance targets, including sustainability and climate-related targets.

Fortum's Board of Directors appoints members of the Audit and Risk Committee (ARC) from amongst its members. 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 committee monitors Fortum Group's reporting process of, among others, the efficiency of the internal controls, internal audit and risk management systems. The ARC also reviews annually the Group Risk Policy, material risks, including climate-related risks, and uncertainties. Fortum published its first TCFD (Task force on Climate-related Financial Disclosures) report on March 2020.

Fortum's President and CEO holds the position of Managing Director under the Companies Act and is the Chairman of Fortum Executive Management (FEM). The President and CEO is in

charge of the day-to-day management of Fortum Group, in accordance with the Companies Act and the instructions and orders issued by the Board of Directors.

The FEM consists of nine members, including the President and CEO. Fortum's President and CEO is supported by the FEM. The FEM assists the President 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.

The FEM decides on the sustainability approach and Group-level sustainability targets, including climate-related targets, that guide annual planning. The annual Fortum Group-level targets are ultimately approved by Fortum's Board of Directors. The FEM meets on a monthly basis. Sustainability results against set targets are reviewed in the monthly and quarterly reporting by the FEM. The achievement of the targets are regularly reported also to Fortum's Board of Directors. Quarterly Performance Review meetings with the management are embedded in the Fortum Performance Management process.

Fortum's Corporate Affairs, Safety and Sustainability function, led by Senior Vice President (SVP), has the overall responsibility for sustainability, including also climate-related issues in Fortum, excluding Uniper. The SVP, Corporate Affairs, Safety and Sustainability, is a member of Fortum Executive Management (FEM) and, as a C-suite officer, she has, for example, the executive level responsibility for Fortum's TCFD reporting. In Fortum, excluding Uniper, there is a specific review of the key climate-related risks by a group of experts from selected functions. Key climate-related risks are reported to FEM and the ARC as part of the annual review of material risks and uncertainties for Fortum.

The SVP, Corporate Affairs, Safety and Sustainability, is responsible for the day-to-day operations and the implementation of operational decisions in her respective organisation. Risk assessment of major investments in terms of sustainability falls under responsibilities of the SVP, Corporate Affairs, Safety and Sustainability. The same applies to oversight of operational sustainability risks. The risk assessments include also assessments of climate-related risks. Fortum's Corporate Sustainability unit is the part of Corporate Affairs, Safety and Sustainability function. The Corporate Sustainability unit is responsible for coordination and development of sustainability at Fortum Group-level and for maintaining an adequate situation awareness and oversight regarding sustainability. The Corporate Sustainability unit gives sustainability approval for all significant investments, acquisitions and divestments as part of Fortum's investment evaluation and approval procedure. The Corporate Sustainability unit works in close collaboration with the business functions as well as functions, such as Legal, Risk Management, Strategy, Investor Relations, Public Affairs and Procurement. The unit participates in Public Affairs processes and supports the Investor Relations function with its expertise. Responsibility for providing a consolidated view of Fortum's production portfolio, its long-term development and its alignment with Fortum Group's strategy and climate-related targets falls under Fortum's Strategy function.

Fortum's line management is responsible for the implementation of Fortum Group's policies and instructions and for day-to-day sustainability management. Concrete actions are executed by the line management according to the annual planning.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	<p>Fortum's Board of Directors has approved inclusion of Fortum's total CO2 emissions from energy production as part of the earnings criteria for the 2020–2022 long-term incentive (LTI) plan for key employees and executives. In the 2021–2023 LTI plan, the target is linked to the reduction of Fortum's coal-fired power generation capacity in line with Fortum's coal-exit path, with a minimum level requiring exceeding the communicated ambition level.</p> <p>Sustainability targets affect every Fortum employee, and realisation of the safety targets is a part of Fortum's short-term incentive (STI) programme.</p>

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction target	<p>Incentive schemes applicable to Fortum Executive Management team include long-term incentive (LTI) scheme and short-term incentive (STI) scheme. The Board of Directors decides, based on the proposals made by the Nomination and Remuneration Committee, on performance criteria and award levels for the President and CEO and the other members of Fortum Executive Management. Similarly, the Board of Directors approves all company-wide incentive arrangements for senior management and other key personnel.</p> <p>Fortum's Board of Directors has approved inclusion of Fortum's total CO2 emissions from energy production as part of the earnings criteria for the 2020–2022 long-term incentive (LTI) plan for key employees and executives. In the 2021–2023 LTI plan, the target is linked to the reduction of Fortum's coal-fired power generation capacity in line with Fortum's coal-exit path, with a minimum level requiring exceeding the communicated ambition level.</p> <p>The criteria for annual incentives (STI) which were paid in 2021 based on 2020 results were the Group's profitability and cash flow, achievement of individual targets as well as targets based on injury frequency for Fortum employees and for contractors.</p> <p>The Board of Directors can, at its discretion, take into</p>

			consideration in the result also other sustainability performance, i.e., including the number of severe occupational accidents.
Corporate executive team	Monetary reward	Emissions reduction target	<p>Incentive schemes applicable to Fortum Executive Management team include long-term incentive (LTI) scheme and short-term incentive (STI) scheme. The Board of Directors decides, based on the proposals made by the Nomination and Remuneration Committee, on performance criteria and award levels for the President and CEO and the other members of Fortum Executive Management. Similarly, the Board of Directors approves all company-wide incentive arrangements for senior management and other key personnel.</p> <p>Fortum's Board of Directors has approved inclusion of Fortum's total CO2 emissions from energy production as part of the earnings criteria for the 2020–2022 long-term incentive (LTI) plan for key employees and executives. The 2020-2022 LTI plan will comprise approximately 140 participants, including the members of Fortum Executive Management. In the 2021–2023 LTI plan, the target is linked to the reduction of Fortum's coal-fired power generation capacity in line with Fortum's coal-exit path, with a minimum level requiring exceeding the communicated ambition level.</p> <p>The criteria for annual incentives (STI) which were paid in 2021 based on 2020 results were the Group's profitability and cash flow, achievement of individual targets as well as targets based on injury frequency for Fortum employees and for contractors.</p> <p>The Board of Directors can, at its discretion, take into consideration in the result also other sustainability performance, i.e., including the number of severe occupational accidents.</p>
Business unit manager	Monetary reward	Emissions reduction target	<p>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.</p> <p>Incentive schemes applicable to Business unit managers include long-term incentive (LTI) scheme for those participating in the LTI programme and short-term incentive (STI) scheme for all.</p> <p>Fortum's Board of Directors has approved inclusion of Fortum's total CO2 emissions from energy production as part of the earnings criteria for the 2020–2022 long-term</p>

			<p>incentive (LTI) plan for key employees and executives. The 2020-2022 LTI plan will comprise approximately 140 participants, including the members of Fortum Executive Management.</p> <p>In the 2021–2023 LTI plan, the target is linked to the reduction of Fortum’s coal-fired power generation capacity in line with Fortum’s coal-exit path, with a minimum level requiring exceeding the communicated ambition level.</p>
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C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	1	Fortum's short-term time horizon for risk assessments is one year.
Medium-term	1	6	Fortum's medium-term time horizon for risk assessments is one to six years. This corresponds to Uniper's medium-term horizon, which is a three-year forecasting horizon.
Long-term	6		Long-term is defined as the time frame for which uncertainties are much greater and more difficult to measure. This is viewed as the strategic horizon. Fortum's long-term risks (>6 years) may be assessed, when feasible.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

The management of climate-related risks is integrated into Fortum’s and Uniper’s respective risk management frameworks and follows the same governance and processes as other material risks and uncertainties. Fortum’s, excluding Uniper, main features of risk management process consist of event identification, risk assessment, risk response and risk control. Risks are assessed based on impact-likelihood analysis. Likelihood is a measure of how often an event is expected to occur in a specified period of time, and it is measured in percentage terms (i.e. 10% = Once in 10 years). Impact is a measure of the effect, if the risk event realizes. The impact is assessed on the following scales: monetary, health and safety, environment and

reputation. Each scale has a specifically defined levels from 1 to 4 for what is considered to be low, medium or high impact. For example, the substantive financial impact on the monetary scale level 4 is defined to be more than 50 million euros, whereas the scale level 3 is tens of million euros. Prioritizing and classifying risks into relevant categories is the part of Fortum's risk assessment process. The combination of likelihood and impact determines the prioritization of the risk. As Uniper currently does not apply the same approach to climate-related risks, Uniper has not been included in Fortum's impact assessment.

For monetary effects, the risk is the annual financial EBITDA impact assessed against the latest forecast given that the event occurs. For example, energy and climate policy and regulation, as well as fluctuations in temperature and precipitation, can have a direct effect on market variables and produced and consumed energy, which can result in both positive and negative monetary impacts. In the same way, the risks in other dimension, such as health and safety, and environmental impact, are assessed, i.e. extreme temperatures or flooding may lead to hazardous workplaces or increase likelihood of leakage of oil or chemicals to the environment. The four level scale for health and safety, environmental and reputational impacts is designed to ensure that these risk are given appropriate priority in relation to monetary impacts. For example, substantive environmental impact is defined as very serious damage to the environment which is permanent or long-lasting (more than one year). The substantive reputational impact would be significant national or international media coverage causing long-term (more than one year) negative impact to Fortum's brand.

Fortum has assessed substantive financial impacts regarding key climate-related transition risks and key climate-related physical risks. The identified physical risks are generally found in the operational risk category, whereas transition risks are generally part of the strategic risk category. As Uniper currently does not apply the same approach to climate-related risks, transition risks and physical risks have been assessed for Fortum, excluding Uniper.

Fortum's climate-related transition risks have been assessed to have financial impacts in hundreds of million euros, which are therefore considered substantive. Fortum's strategy is to a large extent built on taking advantage of the opportunities associated with the transition to a low-carbon economy and successfully mitigating the risks. The transition to a low-carbon economy poses a number of strategic risks related to changes in energy and climate policy and regulation, technology development and the business environment in which Fortum operates. Additionally, Fortum's reputation and brand can be negatively impacted by changes in stakeholder perception about Fortum's ability to deliver on its strategy. There is a risk of increasing activity by non-governmental organisations (NGOs) which could affect key stakeholder perception. The risk mitigating activities are defined in the reputation section of the climate-related risks. Fortum focuses on the sustainability impacts of strategy and business decisions, communicating transparently about strategy implementation to key stakeholders, ensuring a broad base of investors, and flexibility in financing including a diversified bond portfolio.

Fortum's climate-related acute and chronic physical risks have been assessed to have financial impacts in tens of million euros, which are therefore not considered to be substantive. Fortum's operations and assets exposed to external events, the frequency and magnitude of which may increase as a result of climate change. Fortum adapts its operations to the changing climate and takes it into consideration in production and maintenance planning and in evaluating growth and investment projects.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

The management of climate-related risks is integrated into Fortum's and Uniper's respective risk management frameworks and follows the same governance and processes as other material risks and uncertainties. Risks are regularly identified and assessed through a structured process. Risk owners are assigned for managing the risks and they are regularly reported and followed-up in various management teams and expert forums.

Fortum, excluding Uniper, has an annual process to identify and assess all risks, including climate-related risks in all Business divisions, Corporate Functions and legal entities within Fortum's operational control. The process supports both identification of new risks and updating existing risks.

The main features of Fortum's, excluding Uniper, risk management process consist of event identification, risk assessment, risk response and risk control. Identification is carried out according to a structured process and risks are assessed in terms of likelihood and impact according to a Group-common methodology. Impact is assessed in monetary terms as well as in terms of health and safety, environment and reputation. Fortum's, excluding Uniper, main risk management process covers strategic risks, financial risks, operational risks, sustainability risks, and climate-related risks which can exist in relevant risk categories.

Fortum's business areas and functions identify and assess their risks annually through self-assessment workshops, some of which are facilitated by Corporate Risk Management. Fortum's climate-related risks are identified and assessed, e.g., through this bottom-up process annually. This process has been mainly used to identify and assess climate-related physical risks, e.g., in the evaluation of the impact of rising mean temperatures and precipitation pattern changes. In addition to this bottom-up process,

Fortum has an annual top-down review of climate-related risks by selected Group experts from Sustainability, Strategy, Market Intelligence, Public Affairs, Investor Relations, Communications, and Brand. This process has been mainly used to identify and assess to climate-related transition risks, e.g., in the evaluation of current and emerging regulation.

The timeframe focus on Fortum's medium-term risks, i.e. up to 6 years, but also includes the long-term risks. These risk assessments are reviewed at least bi-annually and updated in case of any significant change. Fortum monitors and discloses material risks regularly in its reporting including climate-related regulatory changes, CO2 pricing, changes in energy commodity prices and weather induced changes in water reservoir levels.

Fortum's key risks and uncertainties, including key climate-related transition and physical risks, are reviewed by Fortum's Executive Management (FEM) in conjunction with the annual update of the long-term forecast. The key risks are also reviewed by Fortum's Audit and Risk Committee (ARC). In conjunction with strategy updates, key risks which can impact Fortum's ability to implement or reach strategic targets are identified and assessed. This assessment includes analysing different scenarios of possible future developments of key parameters such as energy policy and regulation, technology and business environment and market. For each climate-related risk, a risk owner is assigned who has the appropriate authority level and is responsible for implementing risk response actions. The risk definition, assessment and mitigating actions to respond to the risk are proposed by the risk owner and approved by the relevant management team.

All material risks are documented in Fortum Corporate risk register which includes a description of the risk, it's root causes and consequences, the impact and likelihood of each risk (including a description of how the assessment has been done), owner of the risk, mitigation actions and action owners. The risks are then consolidated on Division and Group-level and relevant management teams, Corporate Functions and experts give their top-down view on the risks exposures.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Energy policy and current regulation risks are assessed as a part of Fortum's company-wide risk assessment process. Climate targets, policy and regulation both at global, EU and national level in Fortum's operating countries is under continuous development. Fortum follows closely policy developments that attempt to constrain actions that contribute to the adverse effects of climate change and policy developments that seek to promote adaptation to climate change. For example, national climate legislation in Fortum's operating countries can have a significant monetary impact. Fortum prefers the EU emissions trading system (ETS) as the leading climate instrument,

		<p>but overlapping national carbon policies (e.g. national coal phase-out laws) tend to dilute the system and the carbon price despite the ETS reforms.</p> <p>Fortum's potential regulation risks related to the energy and climate policy framework also include, e.g., increasing cost burden for hydropower in Finland, driven by fish obligations, grid costs and real estate taxation, and unbalanced implementation of the EU Water Framework directive in Sweden potentially leading to lower hydropower production volumes.</p> <p>Each Fortum's Business division has established a system to follow current regulation as part of their environmental and quality management system. Fortum Public Affairs has a continuous dialogue with legislators and decision makers in order to have up-to-date information on policy developments. Public Affairs produces a quarterly internal report reviewing the key legislative developments in the EU and in Fortum's operating countries. Fortum uses several external policy information sources, e.g. Politico, Carbon Pulse and ENDS, in collecting information on regulation.</p>
Emerging regulation	Relevant, always included	<p>Energy policy and emerging regulation risks are assessed as a part of Fortum's company-wide risk assessment process. Climate targets, policy and regulation both at global, EU and national level in Fortum's operating countries is under continuous development. The Paris Agreement requires regular revision and tightening of the climate commitments by countries (nationally determined contributions).</p> <p>Anticipation of emerging regulation risks and opportunities is vital for the business development. For example, during 2020 the EU agreed on a higher emission reduction target by the year 2030, a target of reducing emissions by 55% compared to 1990. The EU Commission is currently preparing the revision of the 2030 climate target and a number of other revisions of energy and climate-related legislation is expected in 2021 in the framework of the European Green Deal. Higher climate targets are positive for Fortum's current assets and strategy as in order to decarbonize societies the demand for electricity is expected to more than double. However, ongoing discussions in the EU around the sustainable finance taxonomy create a risk, if the taxonomy is not created in a technology neutral way and decarbonized technologies like nuclear power are treated worse than other forms of carbon free power generation. This could lead to increased financing costs and worse treatment in the future legislation if the taxonomy is used as a reference.</p> <p>Potential strategic risks related to regulation and to the future energy and climate policy impact Fortum's decision making concerning, for example, the technology used at production plants and the fuel selections, such as the use of biomass fuels. Banning or tighter restrictions on incineration and burning of waste, biomass, or natural gas due to changed views on what is considered acceptable from a</p>

		<p>sustainability perspective, including also, e.g., early shut-down of coal-fired power plants in Germany without adequate compensation, is a potential emerging regulation risk.</p> <p>Fortum Public Affairs has a continuous dialogue with legislators and decision makers in order to have up-to-date information on policy developments. Public Affairs produces a quarterly internal report reviewing the key legislative developments in the EU and in Fortum's operating countries. Fortum uses several external policy information sources, e.g. Politico, Carbon Pulse and ENDS, in collecting information on regulation.</p>
Technology	Relevant, always included	<p>Technology risks are assessed as a part of Fortum's company-wide risk assessment process. Technology development and the cost of technologies are important for the competitiveness of Fortum, likewise for other energy utilities.</p> <p>For example, the cost of wind and solar power production technologies has reduced remarkably in the past few years. Fortum continuously updates estimates for the future cost of wind and solar power production with different scenarios which, in turn, impacts the estimates of the future energy mix and supports decision-making for investing in these assets. Fortum has made several investments and investment decisions that will significantly grow wind and solar power production in the years ahead. Fortum's investment decisions always include an assessment of different future scenarios for the cost development, which are used to evaluate the investment profitability.</p> <p>Fortum will decarbonise gas-fired power generation and transition to increasingly clean gases (e.g. hydrogen) over time, and Fortum is actively assessing and pursuing opportunities and alternatives to decarbonise and transit to clean gas (e.g. hydrogen), though not all technologies are known yet. Examples of potential solutions include hydrogen conversion and carbon capture, utilisation and storage, though not all technical solutions are not yet commercially available. Fortum has also taken an active role in this climate-related development work. For example, Fortum promotes the adoption of electric vehicles by developing technology solutions that enable charging of electric vehicles.</p> <p>New technologies also expose Fortum to risks related to intellectual property rights, data privacy and viability of technologies. Especially viability of new technologies is relevant within the context of climate-related risks. The investments into and the pace of development of new technologies related to, for example, renewable energy production, fuels, storage (i.e. batteries), recycling and carbon capture and storage is constantly increasing.</p> <p>Technology risks are managed primarily through developing a diversified portfolio of projects consisting of different technologies as well as investing into start-up funds in order to monitor key developments in the area of clean energy.</p>

Legal	Relevant, always included	<p>Legal risks are assessed as a part of Fortum's company-wide risk assessment process. Fortum's potential legal risks related to the present and future energy and climate policy framework include, for example, climate-related litigation claims. Even if any such climate-related litigation case was not successful, having such a claim raised would still negatively impact Fortum's brand and reputation. Another example of legal risks could be inadequate compensation for forced closure of assets due to changes in legislation, for example, early coal phase-out laws or other changes in environmental laws and permits, which would make certain plants illegal to operate.</p> <p>Each Fortum's Business division has established a system to comply current legal requirements as part of their environmental and quality management system. Fortum Public Affairs has a continuous dialogue with legislators and decision makers in order to have up-to-date information on policy developments. Public Affairs produces a quarterly internal report reviewing the key legislative developments in the EU and in Fortum's operating countries. Fortum uses several external policy information sources, e.g. Politico, Carbon Pulse and ENDS, in collecting information on regulation.</p>
Market	Relevant, always included	<p>Market risks are assessed as a part of Fortum's company-wide risk assessment process. Changes in prices and volumes of electricity pose the single largest risk and also opportunity for Fortum in monetary terms.</p> <p>In competitive markets, such as in the Nordic region, the wholesale price of electricity is determined as the balance between supply and demand. The key physical climate-related risk factors affecting electricity prices and volumes on the Nordic market include hydrological and wind conditions and temperature. The key transition-related risk factors which affect the wholesale price of electricity on the Nordic market are the CO₂ allowance prices, which is dependent on the share of renewable energy as well as future regulation.</p> <p>The physical climate-related risks are assessed through fundamental models, which vary the amount of precipitation, temperature and wind in Fortum's operating countries, and production areas in the Nordic system. This results in different scenarios for Fortum's power production as well as for the price of the wholesale price of electricity in the Nordic region. Similarly, the price of CO₂ is modelled under different scenarios of climate ambition in the EU with different mixes of renewable energy and fossil-based generation. This, in turn, gives different scenarios for the wholesale price of electricity on the Nordic market.</p>
Reputation	Relevant, always included	<p>Reputation risks are assessed as part of Fortum's company-wide risk assessment process. For Fortum, customers' and other stakeholders' satisfaction and reputation are a top priority in implementing the company's strategy and in growing the business. Fortum has set Group-wide targets for its customer satisfaction and reputation.</p>

		<p>Fortum uses the extensive One Fortum Survey annually to measure reputation and customer satisfaction and the factors that impact them. The survey covers customers and general public, decision makers, capital markets, non-governmental organisations (NGOs) and opinion influencers, and personnel.</p> <p>A broad-based dialogue is held on the means by which Europe can transition towards low-carbon energy production in the upcoming decades. For example, concerns have been raised by environmental NGOs about the use of coal in energy production. Fortum supports constructive dialogue in which solutions are sought together rather than in confrontation. In case of substantial negative media, there could be still an impact Fortum's brand and reputation.</p> <p>Fortum is committed to working for low-carbon energy production. Fortum strongly supports the EU's climate neutrality objective 2050. Fortum expects stakeholders' concern about climate change to increase the demand for low-carbon and energy-efficient energy products and solutions. Additionally, Fortum emphasises the secure energy supply for consumers and industry. Fortum's customers require a reliable energy supply at affordable price, during the transition towards a low-carbon energy system.</p>
Acute physical	Relevant, always included	<p>Acute physical risks are assessed as a part of Fortum's company-wide risk assessment process. Fortum's operations are exposed to acute physical risks caused by climate change, including changes in weather patterns that could alter energy demand and, for example, production volumes at hydropower plants. Higher precipitation and flooding may also affect dam safety at hydropower plants.</p> <p>An example of an acute risk is intense storms with heavy rains and flooding, which may lead to local damages and lost production or flash floods increasing risk of Fortum's dam breaches. Extreme heat and dry spells could also lead to forest fires causing local damages and supply constraints at Fortum's operational facilities.</p> <p>Fortum adapts its operations to the changing climate by the methods for regulation and production planning in hydropower, e.g., in Sweden and Finland. Fortum also takes climate change into consideration in the assessment of investment projects.</p>
Chronic physical	Relevant, always included	<p>Chronic physical risks are assessed as a part of Fortum's company-wide risk assessment process. Fortum's operations are exposed to chronic physical risks caused by climate change, including changes in weather patterns that could alter power and heat demand and energy production volumes.</p> <p>Fluctuating precipitation, flooding and extreme temperatures may affect, for example, production and dam safety at hydropower plants, and also availability and supply of biomass fuels in Fortum's operating countries, e.g., in the Nordic countries, and Poland. Rising mean temperature related to climate change can lead to lower power generation at Fortum's, including Uniper, asset fleet due to limitations in</p>

		<p>cooling water capacity, restrictions of cooling water extraction as return temperature is limited by the permits, and efficiency losses in water steam systems.</p> <p>Fortum adapts its operations to the changing climate and takes it into consideration in, for example, production and maintenance planning and in evaluating new growth and investment projects.</p>
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C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation

Carbon pricing mechanisms

Primary potential financial impact

Other, please specify

Changes in carbon pricing relating to lower electricity price

Company-specific description

Despite the international Paris Agreement made in 2015 and the Paris Rulebook adopted in 2018, the international climate policy framework including future greenhouse gas (GHG) emission reduction obligations and economic value of GHG emissions still remains uncertain. This poses a risk especially in 10 out of 12 countries, where Fortum has core operations in Europe.

According to the Paris Agreement, all countries are obligated to prepare national contributions (INDC, NDC), including mitigation, adaptation and financing of climate change, to be reviewed every five years. The Paris Agreement is expected to increase long-term stability and predictability regarding climate policy for investors and companies, encourage market-driven actions and reduce the risk of carbon leakage. Potentially, it can result in an accelerated low-carbon energy transition and new business opportunities. However, there will be no direct impact on the EU carbon price unless the EU decides to increase its future GHG reduction targets. This process started, when the EU Commission published the 2050 strategy proposal in November

2018. In 2019, the EU reached a political agreement on the 2050 climate neutrality objective. Currently the EU is in the process of revising the 2030 climate target and adopt the European Climate Law. In Fortum's opinion, the EU's climate ambition has to be increased and market-driven policies and measures must be trusted.

Fortum prefers emissions trading as the key climate instrument. Significant progress has been achieved in improving the design and functionality of the EU emissions trading system (ETS) over the past three years. However, the system has to be further revised in order to be able to deliver on the increased climate ambition and to ensure the long-term credibility of the ETS as the flagship climate policy instrument. Policy overlaps with ETS should be avoided, because they entail a risk for investments.

Fortum is the third largest producer of CO₂-free electricity in Europe. With low CO₂ emissions, Fortum is a relative winner, if the Paris Agreement tightens emission requirements and increases carbon and energy prices. Without it Fortum can't take full advantage of its low-carbon production portfolio in Europe. In 2020, 73% of Fortum's electricity generation in Europe was CO₂-free, and Fortum does not need to buy emission allowances for that electricity production. (Fortum has consolidated Uniper as a subsidiary as of 31 March 2020.)

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

60,000,000

Potential financial impact figure – maximum (currency)

120,000,000

Explanation of financial impact figure

Low-carbon energy production is one key element in Fortum's strategy, and it has remained the same already for decades. Fortum is for decarbonisation and the tighter ETS in Europe. In general, higher CO₂ price will benefit Fortum. Fortum Group's outright positions is annually approx. 70 TWh of CO₂-free power generation. Change in electricity prices will have an effect on profitability of the outright position.

If CO₂ price would change i.e. EUR 5 per ton, the electricity price changes approx. EUR 1-2 /MWh in the Nordic power market. In 2020, Fortum's power generation was 59.2 TWh in the Nordic area, and Fortum's electricity sales was EUR 2,494 in the Nordic countries. This will result in a change of Fortum's EBITDA due to the decrease in EU

ETS allowance market price by approx. EUR 60-120 million in an unhedged situation, corresponding to 2.5-5% of Fortum's total EBITDA (EUR 2,434 million) in 2020. CO2 allowance price is among the most decisive factors affecting the electricity price in the Nordic power market, and hence a financial risk for Fortum. In the short-term, it affects the electricity prices in Europe, where most of Fortum's CO2-emissions are subject to the EU ETS. In 2013–2020, most of the emission allowances were auctioned. The value of Fortum's free CO2 allowances in 2020 (0.8 Mt) was about EUR 26 million using a carbon price of approx. EUR 32.7/t (i.e. an average price at the year-end 2020). In markets with marginal pricing, such as the European electricity, Fortum's CO2-free power generation benefit from rising CO2 prices, as the price-setting, or marginal, asset is typically one with CO2 emissions and will have to include the CO2 cost in its bids, which correspond to the short-run marginal cost of a power plant. As one of these bids sets the electricity price, this leaves CO2-free assets earning the same cleared electricity price, but without a corresponding rise in production costs. Higher efficiency power plants, such as Fortum's CCGTs, also benefit somewhat from rising CO2 prices, as the proportional impact of CO2 price on the short-run marginal cost is higher in less efficient power plants. For example, the CO2 price component in Germany comprises approx. 60% of the short-run marginal cost, while the rest is fuel cost. In net terms, therefore, Fortum benefits from higher EU ETS prices, due to its CO2-free power generation, as well as efficient gas-fired power generation.

Cost of response to risk

425,000

Description of response and explanation of cost calculation

In 2020, Fortum's EU area-specific lobbying costs, excluding Uniper, were about EUR 425,000 euros. Climate policy related issues were one of the major areas of lobbying, and these are directly climate-related costs.

In 2020, Fortum co-operated with two other Nordic utilities and also with a few other European utilities in order to lobby for an ambitious EU long-term climate policy and an ambitious European Green Deal. This coalition developed joint positions and had a dialogue with the European institutions. Fortum participated in several initiatives promoting the role of carbon pricing and market as part of the global climate agreement. Fortum is a member of the World Bank's Carbon Pricing Leadership Coalition and the UN Caring for Climate Initiative. Fortum is involved in the climate policy discussion and development and in promoting market driven energy and climate policy both at the EU level and in countries where it is operating. Risks are also managed by using CO2 forwards and taking the costs of allowances into account in production planning in Fortum.

Fortum also invests into renewable and CO2-free energy production capacity annually. In 2020, Fortum's investments to wind power production totalled EUR 30 million in the Nordic countries. Additionally, Fortum, including Uniper, invested approx. EUR 122 million into hydropower production in Sweden, Finland, and Germany.

Uncertainty of the regulatory regime and CO2 allowance pricing are taken into account in Fortum's investment calculations. If future regulation can be anticipated only in a short-term or legislation is limited to individual countries, it is difficult to do the right decisions concerning, e.g., location of plants, fuel choices or technologies used. Inability

to take long-term regulatory prospects into consideration, when planning investments may lead to wrong investment decisions. In the EU area, most of the allowance cost is passed through to the electricity price and in heat market to the heat price to a large extent.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation

Carbon pricing mechanisms

Primary potential financial impact

Other, please specify

Increase in carbon pricing

Company-specific description

It is difficult to foresee, how the regulation concerning, e.g., timelines, emission reduction goals, form of regulation and other variables will develop in the future.

Russia's legislative and political operating environment on climate change and policy differs significantly from that of Europe. In general, regulatory risks can evolve in the future in Fortum's Russian business.

Fortum's strategy in Russia highlights, that Fortum supports domestic carbon price and emissions trading system (ETS) in Russia. Fortum takes steps to reduce GHG emissions in Russia, in particular, RES development and switching from coal to gas. Fortum also helps other companies to reduce their carbon footprint by selling CO₂-free and green electricity.

One of the likely climate risks for the electricity sector is the risk of introducing new carbon regulations and increasing financial pressure on thermal generation to stimulate CO₂ emissions reductions. Currently, there is no such a mechanisms in the Russian Federation and so far there is no general vision of possible details, therefore, the scenarios considered below are probable and rely solely on assumptions of acceptable financial pressure on the sector and limited opportunities for growth in electricity prices, as well as probable technological approaches that can be used when implementing this mechanism.

As we see the most probable approach of regulation is to determine the permissible value of specific CO₂ emissions for thermal generation. All power plants that perform with specific emissions that exceed the permissible specific value (g CO₂/kWh), might be obliged to buy emission units in the amount of excess at a price set by the regulator. Power plants that perform with fact specific emissions that are bellow permissible specific value pay nothing. In our estimates, we take into account the activities of PAO

Fortum only, excluding Uniper.

Fortum has also invested in new wind and solar power production. Fortum has 116 MW of solar power under construction in Russia. Additionally, Fortum and Rusnano investment fund with 50/50 ownership has gained the right to build and commission 1,823 MW of new CSA-supported wind power in Russia in 2019–2023. Of the wind power capacity, 600 MW is already operational, 495 MW is under construction, and 728 MW is under development. In 2020, 45% of Fortum's total power generation was CO₂-free globally. (Fortum has consolidated Uniper as a subsidiary as of 31 March 2020.)

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

9,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The regulation will likely apply in the form of benchmark making older more carbon intensive power plants that exceed it subject to carbon payment. Below are presented two possible scenarios on how carbon pricing could developed in Russia.

Scenario 1 (minimum) - The permissible emission value is determined at the level of the average value of the specific emissions of thermal generation in the Russian energy system. At present, this figure is about 568 gCO₂/kWh (approximate company's estimate). In this case, there will not likely to have an impact on Fortum's, excluding Uniper, assets in Russia, since the average specific emissions of Fortum's Russian power plants are lower than this value due to Fortum's efficient work, use of CCGT technologies and the operation of stations in a combined cycle.

Scenario 2 (maximum) - The permissible emission value is determined at the level of the average value of the specific emissions of total Russian generation mix (including nuclear power plants, hydroelectric power plants, renewable energy sources) in the Russian energy system. At present, this figure is about 357 gCO₂/kWh. In this case, regulation will likely apply in the form of benchmark making only older and more carbon intensive power plants subject to it. The impact on Fortum's, excluding Uniper, assets will be in relation mainly to two coal-fired power plants: the Chelyabinsk CHP-2 plant and the Argayash CHP plant. In this case, the excess payment for Fortum can be about

EUR 0.4 million (at a CO₂ price - 2 EUR/t) and EUR 9 million (at a CO₂ price - 50 EUR/t). To mitigate this risk, Fortum is considering projects to change the fuel consumption regime at these coal-fired power plants. In particular, starting from 2023, it is planned to abandon coal combustion at the Chelyabinsk CHP-2 plant. Uniper has not been included in this potential financial impact assessment.

On the other hand, if such an emissions trading scheme was in place in Russia, there could be positive impact on, i.e. electricity and heat prices, which has not been estimated. Furthermore, the profitability of Fortum's CO₂-free investments may also be improved in Russia. Overall Fortum sees the development of a credible emission reduction pathway in Russia as a crucial step as in order to reach the goals of the Paris Agreement, emissions need to be reduced everywhere. Fortum is advocating that the Russian federation should approach preferably a market-based emissions trading system (ETS).

Cost of response to risk

4,000,000

Description of response and explanation of cost calculation

Fortum aims to manage the risk by investing, for example, in modernisations and energy-efficiency improvements, as well as renewable and CO₂-free wind and solar power production capacity in Russia. In 2020, Fortum's total capital expenditure in Russia was EUR 43 million, including maintenance, legislation and productivity projects, i.e. modernisations and energy-efficiency improvements. Of the capital expenditure, Fortum's direct investments in CO₂-free electricity generation were EUR 4 million in Russia.

In Russia, the majority of Fortum's energy production is based on natural gas. Fortum has completed major investment programmes over the past decade and have transformed inefficient power units to more efficient power units that mainly use Combined-Cycle Gas Turbine (CCGT) technology, which represents the best available technology in natural gas combustion (efficiency 80–85%).

Fortum is a member of the following organizations in Russia: Market Council for organizing efficient system of trading at wholesale and retail electricity and capacity market, Council of Power Producers, The Russian Union of Industrialists and Entrepreneurs, Association of the European Businesses in the Russian Federation.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Rising mean temperatures

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Rising mean temperatures may result in increasing cooling water temperature for Fortum's condensing power plants in Finland, Fortum's Loviisa nuclear power plant and Meri-Pori power plant, and this could require additional pumping capacity of cooling water and construction of longer pipelines in order to take the water from further away in the sea. Increase in the back-flow condensation water temperature on the other hand, affects the availability of the plants. Based on environmental permit restrictions, increased water temperature may result in production breakdowns during the times of highest water temperatures.

Climate change and water temperature rise can also increase algae growth in water systems. Increase in water temperature affects the cleanliness of the systems, such as algae and mussels, and hence the system's reliability. For smaller energy production plants, algae doesn't pose a risk but for bigger production plants, such as Fortum's Loviisa nuclear power plant in Finland, masses of algae could be a problem, if they drifted close to the cooling water intake place due to, for example, storms or sea level rise. In such situations algae could cause business interruptions.

Rising ambient temperatures have also been resulted to lower production at Uniper's asset fleet due to the limited cooling water availability, as restricted by the environmental permit limits for high water temperature, and efficiency losses in water steam systems. Increasing trends of production losses have been realized during the last decade, e.g., at Uniper's Gönyü power plant in Hungary, and Irsching power plant in Germany. Other direct or indirect impacts due to climate change has been lower river water levels, e.g., in Germany, and, furthermore, decreasing average run-off with impact on production annually.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)**Potential financial impact figure – minimum (currency)**

5,000,000

Potential financial impact figure – maximum (currency)

10,000,000

Explanation of financial impact figure

For example, the energy loss of total production breakdown is about 1,000 MW/hour at the Loviisa nuclear power plant. In 2020, the average area price in Finland was EUR 28/MWh. The financial impacts depend the length of the production breakdown and power price. The production breakdown would result in a maximum financial loss about EUR 5 million per one week (168 h), and EUR 10 million per two weeks. Uniper has not been included in this potential financial impact assessment.

Water temperature rise can affect nuclear power plants since back-flow condensation water isn't allowed to exceed the permit limit, which is +34°C at Fortum's Loviisa nuclear power plant in Finland. Seawater temperature rise could also affect the cooling water intake in case of excessive algae growth, and thus algae cleaning can cause business interruptions.

In 2020, the total impact for Uniper's European thermal assets was almost 2.0 TWh of production losses. Production losses have been increased compared to 2018, when Uniper had losses due to high ambient temperature of approx. 0.5 TWh. Additional costs can also be generated from repairs of the damages caused by storms and other extreme phenomena, and more expensive fuel supply chain.

Cost of response to risk

0

Description of response and explanation of cost calculation

At present, there is no need to take colder cooling water far from the sea at Fortum's condensing power plants in Finland. If the amount of measurable constrains on the availability of power generation became common due to water temperature, investments in a new water intake place could be considered. The temperature of condensation water is monitored and controlled by authorities. This is a part of normal operations: in practice no additional costs (0 euros).

In Finland, the Loviisa nuclear power plant has the back-up systems for loss of seawater and the cooling system, including the safety-enhancing cooling towers, which are independent of seawater cooling. The cooling system consists of two air cooling towers per unit, one of which will be used for decay heat removal from the reactor, the other from the spent fuel pools as well as cooling-off other equipment critical from the nuclear safety point of view. The cooling system improves the plant's preparedness for extreme conditions, where seawater becomes unavailable for cooling, such as an oil catastrophe in the Gulf of Finland, or an exceptional natural phenomenon such as excessive algae growth. There is also the algae cleaning process at the Loviisa nuclear power plant. In 2020, Fortum's investments into the Loviisa nuclear power plant totalled EUR 49 million. Uniper has also identified measures to reduce the impact of restricted operations. For example, Uniper is considering a project to increase cooling water capacity at some of its power plants in order to achieve production targets in a summer period. Additionally, contingencies are regularly planned and adapted for certain periods to ensure uninterrupted fuel supply, among others. The measures for the management methods are taken by various Uniper's departments and are linked to and required for different business activities.

Comment

There are continuously ongoing new investments at Fortum's Loviisa nuclear power plant to enhance safety in the improbable extreme situation, i.e. when seawater would

not be available to cool the plant's reactors. A reason for that could be an accident of oil tanker ship or a similar incident, or an exceptional natural phenomenon such as excessive algae growth.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Increased value of fixed assets

Company-specific description

Energy transition with increasingly clean gas: Replacing coal with natural gas in Central-European energy production is one possible short-term to medium-term way to reduce CO2 emissions. Natural gas enables the transition to a low-carbon energy system by enabling the growth of renewable power in the system, as well as by acting as fuel or feedstock for the industrial sectors. Adjustable power production based on natural gas can also be used to balance fluctuations in solar and wind power production and to secure the supply of electricity.

Over time, increasingly clean gas, such as green hydrogen, will replace natural gas by decarbonising hard-to-electrify sectors and will provide flexibility and security of supply for the energy system. Transitioning to a low-carbon energy system enables the decarbonisation of other sectors through the coupling of CO2-free power generation and green hydrogen. Clean gas will accelerate energy transition when, for example, green hydrogen or carbon-neutral methane is produced using renewable electricity in a technology known as power-to-gas (P2G).

Fortum is well positioned to capture opportunities resulting from the energy transition. Fortum's, including Uniper, strong position in the gas business creates significant new

business opportunities in the long-term in providing clean gas (e.g. hydrogen) solutions and supporting industries in decarbonising their processes. This poses an opportunity to especially in five Central-European countries, where Fortum, including Uniper, has operations. Uniper's gas-fired power plants can respond quickly to fluctuations in production, which is important for power grid stability, e.g., in Germany. Additionally, Uniper's natural gas supply, gas storage facilities, gas trading activities, and capacity for re-gasifying liquefied natural gas (LNG) enable a reliable and affordable supply of energy.

In line with the new corporate strategy, Fortum aims to build on its first-mover position in hydrogen economy. Uniper is a pacesetter in low-carbon hydrogen. Its first P2G unit in Falkenhagen, in eastern Germany, entered service already in 2013. In late 2020, Fortum and Uniper announced plans to cooperate in green hydrogen production with Perstorp, a specialty chemicals company that aims to produce sustainable methanol in Sweden.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

80,000,000

Potential financial impact figure – maximum (currency)

160,000,000

Explanation of financial impact figure

In 2020, Fortum's, including Uniper, electricity sales, including commodity trading, was EUR 16,226 million in other European countries, excluding the Nordic countries. If the energy demand increased i.e. by 0.5-1%, this would mean potentially approx. EUR 80 - 160 million increase in minimum sales annually. Only the short-term financial impact is included in this assessment.

Currently short-run marginal cost for gas-fired power generation is setting power price in Central-Europe. Increased CO₂ price and increased gas price have led to increase in power prices. Margin for gas-fired power generation have remained roughly the same and a quite low level during last years. This shows that gas fired power generation (spread business) is not benefitting nor suffering higher CO₂ prices. Rest of the profitability comes from gas contracts and gas trading. Lately volatility in prices have

increased. Increased volatility in prices creates opportunities for bigger profits. In the short-term, revenues from hydrogen business are expected to be insignificant.

Cost to realize opportunity

500,000,000

Strategy to realize opportunity and explanation of cost calculation

The load factors of Uniper's gas-fired fleet in Europe are currently low, especially in Germany. These gas-fired power plants are currently under-utilised which enables significantly higher running hours. The closure of coal-fired power plants reduces supply in the European electricity market and, therefore, increases demand for flexible gas-fired power generation. Higher running hours of existing gas-fired fleet does not require additional CAPEX, which Fortum reports as the cost to realize opportunity. Naturally, higher running hours increase OPEX. Only short-term costs included in this assessment.

In order to build long-term business opportunity, Fortum intends to invest in hydrogen and clean gas development in the short-term time horizon. Fortum's indicative capital expenditure in 2021-2025 is about EUR 3 bn, and the share of the total CAPEX allocated for hydrogen and clean gas investments is up to EUR 500 million in 2021-2025. The actual investment depends on market conditions, asset rotation and balance sheet strength. As a cost to realize opportunity, Fortum reports the growth CAPEX intended for hydrogen and clean gas growth.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Electrification and increasing electricity demand: Electrification and sector integration mitigate climate change, when electricity, replacing other energy sources, is produced and supplied by low-emission and renewable energy sources. Transition to a low-emission power system also enables the decarbonisation of other sectors through the coupling of CO₂-free power generation and green hydrogen.

Fortum is the third largest CO₂-free power generator in Europe. In 2020, 73% of

Fortum's electricity generation in Europe was CO₂-free. As such, Fortum is well positioned to capture opportunities resulting from the energy transition, aimed at curbing climate change.

Fortum expects that industry decarbonization will increase electricity demand a larger amount than electrification of transportation. Increase in electricity demand can come either via direct electrification of industrial processes or in-directly, e.g., via hydrogen as fuel or feedstock.

As the climate change mitigation requires reduction of fossil fuels in all sectors, there is also a need to increase electricity consumption through electrification of transportation. By 2040, electric vehicles are estimated to present more than half of all new vehicles sold globally. In the Nordic countries, increased use of electric vehicles reduces emissions regardless of the source of electricity, because all electricity production is in the framework of the EU ETS, unlike transportation with fossil-fueled vehicles, which use petrol or diesel. Fortum also actively promotes the adoption of electric vehicles by developing solutions that enable quick and safe charging of electric vehicles. Fortum's solutions offer customers e-mobility services for digital public charging, as well as home and destination charging services. The solutions are known in the market under the Fortum Charge and Drive brand.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

12,000,000

Potential financial impact figure – maximum (currency)

25,000,000

Explanation of financial impact figure

Fortum creates circumstances in which electricity can replace other traditional fossil-based energy forms. Therefore, the demand for the low-carbon electricity produced by Fortum is expected to increase, e.g., in the Nordic countries. In 2020, Fortum's electricity sales was EUR 2,494 and 81.6 TWh in the Nordics. For example, 0.5-1% increase in Fortum's electricity sales would mean approximately EUR 12 million to EUR 25 million in the Nordics annually. Only short-term financial impact included in this assessment.

Cost to realize opportunity

1,500,000,000

Strategy to realize opportunity and explanation of cost calculation

Fortum aims to decarbonise its own operations and to strengthen and grow in CO₂-free power generation. Fortum will continue to optimise and maintain benchmark operations in hydro and nuclear power and grow a sizable portfolio of onshore wind and solar. Fortum's target is to build 1.5–2 GW of new renewable energy capacity by 2025, primarily in Europe. Depending on market conditions, the renewable energy growth will be done either via the “build-operate-transfer” model, or on Fortum's own balance sheet. Fortum has published its indicative capital expenditure for growth investments in 2021-2025. The growth CAPEX for 2021-2025 will be about EUR 3 bn. The renewables, such as wind and solar power, accounts for the largest share of the total CAPEX, which is up to EUR 1,500 million in 2021-2025. The actual investment depends on market conditions, asset rotation and balance sheet strength. As a cost to realize opportunity, Fortum reports the growth CAPEX intended for renewables growth.

At the same time, Fortum aims to provide decarbonisation and environmental solutions for industrial and infrastructure customers. In addition to clean electricity and hydrogen holistic solutions, examples of these services include design and O&M for industrial energy systems, recycled materials and waste management. For example, Fortum develops electric vehicle (EV) charging solutions to promote clean transportation in the Nordic countries, and also in India. Fortum Charge and Drive business services offer, among others, a cloud-based SaaS (Software as a Service) platform for operating EV charging infrastructure networks, customer interfaces to public Charge Point Operators (CPOs), and services for digital E-mobility Service Providers (EMPs).

Comment

In addition to external activities, Fortum is electrifying its employees' transportation. In the Nordic countries, Fortum's employee car policy has allowed for only new electric vehicles or plug-in hybrids as company cars. Electric vehicles and plug-in hybrids are also promoted in other Fortum's core operation countries, where e.g. the charging network may not be as developed as in the Nordic countries.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

Hydropower as a source of flexible renewable energy: Hydropower, which had 23% stake of Fortum's total power generation portfolio in 2020, is a very competitive power production technology, because of small carbon footprint and low variable costs. Compared to other CO₂-free power generation sources, like solar, wind and nuclear, the advantage of hydropower is that it can be adjusted based on the electricity demand, and can be actively used in ancillary markets as well. Especially hydropower that utilises seasonal reservoirs, in which water is stored behind a dam, ensures security of electricity supply. The flexibility of hydropower production also makes it an important enabler for the growth of weather-dependent renewable power generation, like wind power, especially in the Nordic countries. Changes in temperature and rainfall would affect seasonal flow patterns and inflow levels, and thus Fortum's, including Uniper, hydropower production, which was 32.5 TWh in 2020.

Early adaptation to climate change creates competitive advantage to Fortum. Climate change may reduce or increase the amount of water and change the timing of water availability for hydropower plants, depending on the location. Fortum has studied the impact of climate change on hydrology in rivers with hydropower, e.g., in Sweden and Finland. When timing of river flow is changing due to the climate change, regulation of water levels and discharges as well as production planning for hydropower production need to be changed for optimal power production. Sometimes temperature increase may shift inflows - which is water flowing into the river system - to winter, when electricity demand is high in the Nordic countries. Rather than snowing, rain during winter can be more in water form. Temperature changes due to climate change also affect electricity demand, production and in the end electricity prices.

In hydropower production planning Fortum is preparing for climate change by taking into consideration changes in precipitation and temperature and extreme weather phenomena. With flexible hydropower production, Fortum can react quickly to changing markets and operate competitively in the electricity markets. Nordic achieved power price typically depends on factors such as hedge ratios, hedge prices, spot prices, power plants' availability and utilisation of Fortum's flexible power production portfolio, i.e. hydropower plants, and currency fluctuations.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

4,000,000

Potential financial impact figure – maximum (currency)

8,000,000

Explanation of financial impact figure

The financial impact of potential change in hydropower production depends on the change in Fortum's hydropower production (32.5 in 2020 and 20.3 TWh in 2019) and market price of electricity. The average system spot price in Nord Pool was EUR 10.9 in 2020 and EUR 38.9 per MWh in 2019. Thus, the direct impact as an increase on the value of sold electricity would be approximately EUR 4 million up to EUR 8 million per 1% increase in Fortum's hydropower production annually.

The climate change may affect electricity demand, production and electricity prices. With its hydropower assets, Fortum can react quickly to changing electricity markets. Fortum has estimated the potential impacts of possible increase in precipitation and temperature on Fortum's hydropower production volumes and water regulation of rivers. On the other hand, hydrological changes may also create negative impacts on e.g. regulation possibilities. 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 may result in an approximately EUR 45 million change in Fortum's annual comparable operating profit.

Cost to realize opportunity

10,000

Strategy to realize opportunity and explanation of cost calculation

Related annual costs regarding the development of inflow forecasting in hydropower due to climate change are approx. EUR 10,000, excluding Uniper. Fortum is annually participating in studies, which examine climate change impact to Fortum's inflow forecasting. In 2020-2021, Fortum is conducting a climate change study with the aim to look into the potential future hydrology according to the latest climate scenarios and to better take climate change into consideration in the operational inflow forecast.

Especially, the methods for production planning and regulation need to be altered due to climate change. Fortum forecasts water flowing into all the river systems with Fortum's hydropower plants using inflow forecasts. Inflow forecasts are adjusted with climate change corrections to take into account changes in precipitation and temperature for more accurate production planning. Allowed water levels and discharges are given in regulation permits. Fortum is also monitoring the need to apply for changes in these regulation permits when seasonal variation of temperature, precipitation and hydrology changes due to the climate change. Changes in regulation permits could enable more effective power production fitted in the changing hydrological conditions.

Climate change impact can also be taken into account in hydropower refurbishment projects. The goal of Fortum's investment programme is to increase CO₂-free hydropower capacity and to improve hydropower plant safety and availability. Fortum's hydropower production capacity, including shares of ownership, was 8,439 MW at the end of 2020. In 2020, Fortum, excluding Uniper, invested EUR 69 million into hydropower production in Sweden and Finland, mainly maintenance, legislation and productivity investments. Uniper invested in hydropower production EUR 53 million in Germany and Sweden.

Comment

In Finland and Sweden, Fortum has also voluntarily worked with authorities and local interest groups to agree on and implement additional restrictions and other projects. Fortum finances projects that reduce the adverse environmental impacts of hydropower production and support biodiversity in built-up water systems.

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes, and we have developed a low-carbon transition plan

C3.1a

(C3.1a) Is your organization's low-carbon transition plan a scheduled resolution item at Annual General Meetings (AGMs)?

	Is your low-carbon transition plan a scheduled resolution item at AGMs?	Comment
Row 1	No, and we do not intend it to become a scheduled resolution item within the next two years	In December 2020, Fortum announced a new strategy and its commitment to carbon neutrality. Fortum has committed to the carbon neutrality (Scope 1, 2, and 3 greenhouse gas, GHG, emissions) globally, aligned with the goals of the Paris Agreement, by 2050 at the latest.

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
2DS	Fortum has five climate-related scenarios that relate to varying degrees of ambition in climate change and biodiversity loss mitigation, technological development and evolution in the political landscape and regulation. The purpose of scenarios is to plan for alternative futures, to analyse the robustness of plans vs. various different outcomes, and enable quick change in plans in case

underlying reality changes.

The scenarios Fortum has utilized in its scenario analysis relate to varying degrees of global warming temperatures between +1.5°C - +2°C and +3°C - +4°C by 2100. These scenarios are developed based on internal industry expertise (mainly driven by Corporate Market Intelligence), but closely benchmarked to various external benchmarks, such as IEA, Bloomberg NEF, and IHS Markit. The current global ambition level represents the scenario with global warming temperatures between +2.5°C and +3°C by 2100. In this scenario, Europe's decarbonisation is close to -80% by 2050. These time-frames are commonly used by organizations such as the IPCC.

In order to reach the goals of the Paris Agreement to limit global temperature rise to well below +2°C, drastic changes are needed in the climate ambition level, technological development, as well as the political landscape and regulation. Europe has a strong exemplary role in the energy transition, which if successful would also spill over to impacts in actions in other continents.

Fortum's long-term strategy planning uses the scenario with +2°C global warming as a reference scenario. This scenario is 2DS compatible. The results of Fortum's scenario analysis has a direct and strong influence on Fortum's climate-related risks and opportunities, overall strategy and business objectives. Fortum's strategy needs to be aligned with the scenario analysis, and the strategy shapes business targets. For example, the results of the scenario analysis have influenced Fortum's strategy and business objectives in defining a vision of a future-proof portfolio required for the +2°C pathway.

In the power production value chain, Fortum is focusing on growth in CO₂-free hydro, wind and solar power, while operating the existing assets needed for security of supply during the energy transition as efficiently as possible. In the gas value chain, Fortum is increasingly focusing on clean gas in terms of hydrogen deployment needed to decarbonise hard-to-electrify sectors such as heavy industry and transport. All the above-mentioned focus areas were selected in such a way that they are compatible with the +1.5°C and 2°C scenarios and gain in value from increased climate ambition. For example, CO₂-free hydropower, as well as nuclear power, in security of electricity supply increased through Fortum's Uniper acquisition.

Participation in Fortum's scenario analysis process are delegated company-widely in Fortum and all Business divisions and business units are involved, but Corporate Industrial Intelligence (long-term analysis) and Corporate Strategy have been the main process drivers.

In 2020, findings from the scenario analysis were used as one key inputs supporting Fortum's FEM and Board of Directors to approve new climate-related targets. In December 2020, Fortum announced a new strategy and its commitment to the carbon-neutral (Scope 1, 2 and 3 GHG emissions) target globally, in line with the goals of the Paris Agreement, by 2050 at the latest. In addition, Fortum has the ambitious mid-term climate-related targets in European generation: reduction of CO₂ emissions (Scope 1 and 2) by at least 50% by 2030, and carbon neutral (Scope 1 and 2) by 2035 at the latest.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>Climate-related risks and opportunities have been one of the most important factors influencing Fortum's long-term strategy. They have shaped Fortum's direction for the past decade. One of the most significant strategic decisions related to products and service portfolio for Fortum has been the acquisition of Uniper.</p> <p>In 2020, Fortum announced a new strategy and its commitment to carbon neutrality. In line with its strategy, as described in C2.4a Opportunities, Fortum aims to build on its first-mover position in hydrogen economy. Uniper is a pacesetter in low-carbon hydrogen, and its first 'power-to-gas' unit in Falkenhagen, Germany, entered service already in 2013. In late 2020, Fortum and Uniper announced plans to cooperate in green hydrogen production with Perstorp, a chemicals company that aims to produce sustainable methanol in Sweden.</p> <p>By 2030, Fortum will phase-out or exit about 8 GW of coal-fired power generation in order to achieve the mid-term climate-related targets. Additionally, Fortum's target is to build 1.5–2 GW of new renewable energy capacity by 2025, primarily in Europe. Depending on market conditions, the renewable energy growth will be done either via the 'build-operate-transfer' model or on Fortum's own balance sheet.</p> <p>Electricity sales for consumers: Fortum provides its consumer customers a range of various low-carbon energy products and services to help them improve their energy efficiency and reduce carbon footprint, e.g., CO₂-free electricity products and carbon-neutral heat products, and EV charging solutions.</p> <p>Circular economy: Fortum owns and operates plastic, metal and other waste recycling and recovery facilities. For example, Fortum's recycled plastic end-product, Fortum Circo, can completely or partially replace virgin materials in producing plastic. Fortum Circo fits from household appliances to industrial and commercial films and blow-molded articles, e.g., a new hands-free handle, Vipu, for safe opening of doors was developed to fight the Covid-19</p>

		<p>pandemic in 2020.</p> <p>Services to power plant operators: Fortum has extended the offering of services for power plant operators by applying its technical expertise and long experience to optimise performance and reduce emissions of energy producers on a global scale.</p> <p>The significance and magnitude of impact of identified opportunities in relation to products and services is high.</p>
Supply chain and/or value chain	Yes	<p>Fortum's most significant climate-related risks in the company's supply chain are related to fuel procurement, particularly coal and biomass. Fortum's key tools in supply chain management are country and counter-party risk assessments, supplier qualification and supplier audits, including climate-related issues.</p> <p>To mitigate risks related to coal supply chain, Fortum has been a member of the Bettercoal initiative since 2012. Bettercoal Code's Principle 11 "Greenhouse Gas Emissions" states that coal suppliers shall have systems in place to measure, avoid and minimise greenhouse gas emissions. Fortum uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain. Bettercoal assessments are conducted by a third party. In 2020, the share of Fortum's coal purchases from suppliers whose mines have undergone a Bettercoal site assessment was 53%, calculated in tonnes. In 2020, all coal imported by Fortum to Europe came from Bettercoal Suppliers. At year-end 2020, the share of coal purchased by Fortum's subsidiary Uniper via direct contract from Bettercoal suppliers was 68%.</p> <p>To mitigate risks related to biomass supply chain, Fortum has improved the Chain of Custody management system for wood-based fuel by strengthening the systematic assessment of risks related to the biomass supply chain and procurement countries. Fortum annually collects data on the share of certified wood-based biomass fuel used in its power plants. In 2020, about 50% of the wood-based biofuel used by Fortum, excluding Uniper, originated from certified or controlled sources. For Uniper, share of certified biomass was 100% in year 2020. Certification standard FSC's global framework for forest management gives special attention to protecting the function of forests as net removers of carbon dioxide from the atmosphere and role as carbon storages.</p> <p>The significance and magnitude of impact of identified risks in relation to the supply chain is relatively low.</p>

Investment in R&D	Yes	<p>Fortum's Research and Development (R&D) and Innovation activities focus on the development of the energy system towards a future low-carbon society and renewable-based economy. Climate-related risks and opportunities have substantially influenced Fortum's R&D investment strategy over the past years. The focus areas are selected with identified climate-related opportunities (e.g. low-carbon and renewable energy systems will replace fossil-based energy systems) and minimizing company-wide climate-related risks (e.g. varying renewable energy power generation will create more volatility in the electricity market).</p> <p>In 2020, Fortum spent EUR 56 million on research and development. The majority of the R&D results expected to be in use within the next five years. Each new research and development (R&D) project is assessed against the criteria of carbon dioxide emissions reduction and resource and energy efficiency.</p> <p>The significance and magnitude of impact of identified opportunities in relation to investments in R&D is high.</p> <p>Fortum has also committed to invest into external (e.g. Valo Ventures growth fund, which invests in early- and growth-stage technology companies) and internal (e.g. Growth Board) start-ups who are developing technologies, digital solutions or business models in the scope of clean energy and resource efficiency.</p>
Operations	Yes	<p>Fortum aims to adapt its operations to the changing climate and takes climate change into consideration in assessment of growth projects, production planning and scheduled maintenance activities.</p> <p>Fortum will optimise and maintain operations in hydropower and nuclear power and grow a sizable portfolio of onshore wind and solar. For example, Fortum has constructed new wind power plants in Norway and Finland in 2020, and Fortum has also wind and solar power under construction in Russia. Fortum aims to build 1.5–2 GW of new renewable electricity capacity, such as solar and wind power plants, by 2025, primarily in Europe.</p> <p>Climate-related risks and opportunities have also influenced Fortum's strategy related to its operations, among others, in hydropower production and energy-efficiency improvements. The flexibility of hydropower production enables Fortum to competitively operate in the electricity market during energy consumption peaks, and fluctuating electricity prices.</p> <p>As described in C2.4a Opportunities, Fortum has the</p>

		<p>potential competitive advantage of its hydropower production portfolio. In hydropower production, the methods for regulation and production planning need to be altered due to climate change by taking into consideration changes in precipitation and inflow, including longer wet or dry periods, as well as extreme weather phenomena. Fortum adjusts inflow forecast with climate change corrections for more accurate production planning. Fortum also monitors the need for adjustments to regulation permits of its hydropower plants with changes in seasonal variation. Additionally, energy-efficiency improvements and savings have been one of Fortum's strategic focus area in operations over past decades. By the end of 2020, the cumulative energy-efficiency improvement achieved was in about 1,840 GWh/a compared to 2012.</p> <p>The energy efficiency of Fortum's power plants has been improved 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.</p> <p>The significance and magnitude of impact of identified risks in relation to operations is from low to medium.</p>
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C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Assets	<p>Revenues:</p> <p>CO2 allowance price is among the most decisive factors affecting the electricity price and hence Fortum's revenues. The main factor influencing the prices of CO2 allowances and other environmental values is the supply and demand balance, as described in C2.3a Risks. If CO2 price would change i.e. EUR 1, the electricity price changes approx. EUR 0.5-0.6/MWh in the Nordic power market. Furthermore, excluding the potential effects from changes in the power generation mix, a 1 EUR/MWh change in Fortum's Nordic power sales achieved price will result in an approx. EUR 45 million change in Fortum's annual comparable operating profit.</p> <p>Fortum's business is exposed to more volatile prices, availability of commodities used in energy production, and sales of power and heat products. The main exposure is toward electricity prices and volumes,</p>

	<p>prices of CO2 emissions and prices and availability of fuels. Fortum hedges its exposure to the prices and volumes through the use of CO2 futures and environmental certificates, as well as commodity market and fuel risks.</p> <p>Additionally, environmental values such as Guarantees of Origin (GoO) and other electricity certificates give to Fortum additional revenue by electricity sales to customers, e.g., in the Nordic countries.</p> <p>Fortum's wind and solar investments in Russia and India have fixed priced PPAs (Purchase Price Agreement) based on auctions, which guarantees a stable, i.e. less risk, and higher revenues for 15–25 years (depending on country and asset) compared to selling power on the market at current price levels.</p> <p>Direct and indirect costs:</p> <p>In addition to transition risks, Fortum's operations are exposed to the physical risks caused by climate change, including changes and extreme variability in weather patterns, which may increase operating cost, as described in C2.3a Risks.</p> <p>Fortum adapts its operations to the changing climate and takes it into consideration in production and maintenance planning and investment projects, e.g., in the long-term dam safety investment program, so that extreme flooding situations can be managed.</p> <p>Fortum's circular economy business has also grown in the Nordic countries during past five years. For the time being, waste as a fuel has not been included in the CO2 quota system in all European countries. However, authorities may introduce, e.g., a fiscal fee on CO2 generated in waste incineration in all European countries in the future.</p> <p>Capital expenditures and allocation:</p> <p>Fortum's power generation is mainly based on natural gas-fired generation, and CO2-free hydro and nuclear power generation. Fortum targets to reduce the share of coal in power generation rapidly. A minor share of Fortum's power generation is currently based on solar and wind, but Fortum targets significant growth in the area over the next five years. Fortum's energy production will focus on renewable energy, CO2-free nuclear power generation and increasingly clean gas-fired generation.</p> <p>Fortum invests into renewable and CO2-free energy production capacity annually. Fortum's Risks described in C2.3a and Opportunities described in C2.4a are related to capital expenditures and allocation.</p> <p>In 2020, Fortum's investments were EUR 372 million (about 33% of Fortum's total capital expenditures) in CO2-free energy production, mainly hydro, nuclear and wind power. Fortum's investments in renewable energy totalled EUR 312 million.</p> <p>In 2020, Fortum invested EUR 34 million into wind power production in the Nordic countries, and Russia. Fortum, excluding Uniper, also invested EUR 69 million into hydropower production, mainly maintenance, legislation and productivity investments. Uniper invested</p>
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	<p>EUR 53 million in hydropower production.</p> <p>In 2020, Fortum's investments included solar investments in India EUR 98 million. Fortum is targeting investments of EUR 200-400 million in solar power in India.</p> <p>Additionally, Fortum and Rusnano investment fund (50/50 joint venture) won the right to build 1,823 MW of wind capacity in a CSA (Capacity Supply Agreement) auction in 2018. The wind farms were to be commissioned during the years 2019–2023. In the first quarter in 2021, 600 MW was already operational, 495 MW was under construction, and 728 MW was under development. A separate investment decision will be made for each project.</p> <p>Acquisitions, divestments and assets:</p> <p>Fortum acquires and invests in renewable and CO2-free energy production assets, as described in C2.3a Risks and C2.4a Opportunities.</p> <p>In line with its strategy, Fortum targets a multi-gigawatt wind and solar portfolio, which is subject to the capital recycling business model. In 2020, Fortum commissioned the 99-MW Sørfjord wind power farm in Norway and constructed the 90-MW Kalax wind power farm in Finland. Fortum has also constructed the new 250-MW Rajasthan solar power plant in India. Additionally, Fortum has under construction 116 MW of new solar power capacity in Russia.</p> <p>Fortum has a business model of capital recycling in its wind and solar power portfolio. In line with the model, Fortum sells the majority share in its Nordic wind power and Indian solar power portfolio and releases capital for new wind and solar power investments. The 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 and CO2-free capacity.</p> <p>Fortum and the City of Espoo have together committed to make the district heating network in Espoo area, Finland, carbon-neutral in the 2020s. Fortum has set an intermediate goal to discontinue the use of coal in Espoo in 2025. In 2020, Fortum replaced some of the coal use in heat production by commissioning the new 58-MW Kivenlahti biomass-fueled heat plant in Espoo. The Otaniemi geothermal plant and the new heat pump unit at the Suomenoja plant are estimated to be commissioned in 2021. With these actions, Espoo's district heating production is estimated to achieve 50% carbon neutrality in 2022. Additionally, Fortum's 1,000-MW Inkoo coal-fueled power plant in Finland was demolished in 2017-2020.</p> <p>Fortum, including Uniper, will phase-out or exit its coal-fired power generation in Germany, with the exception of the Datteln 4 power plant, by 2025, in the United Kingdom by 2025, and in the Netherlands by 2029. In Germany, the 875-MW Heyden 4 power plant was taken out of</p>
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		<p>commercial power generation at the end of 2020. In June 2021, the German Federal Network Agency decided, that the power plant is needed to serve as a reserve capacity until end of September 2022 in order to ensure the safe and secure operation of the power supply system. In April 2021, the 757-MW Wilhemshaven power plant was set to cease operations by the end of 2021. Additionally, the construction project of two new CCGTs is ongoing to replace the existing Scholven coal-fired plant.</p>
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C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

Fortum believes that the transformation of the electricity sector is making good progress, and, e.g., the EU emissions trading system will increasingly steer investments towards CO₂-free production technologies. This will accelerate the low-carbon transition in society and create new business opportunities, but it alone will not be sufficient for the EU to meet the goals of the Paris Agreement. The European Council has agreed on the goal to achieve climate neutrality by 2050. This requires a reduction of greenhouse gas emissions in all sectors. In addition to the electricity sector, emissions must be reduced in, e.g., heating and cooling, transport and industry, and, at the same time, carbon capture and negative emissions must be increased. Fortum has expressed its support to the EU 2050 climate-neutrality goal, and Fortum continues to lobby for legislation and policy instruments that will facilitate an affordable supply of low-carbon energy and cost-efficient transition towards a climate neutral Europe by 2050. Fortum also supports the revision of the EU 2030 climate target to at least 55%.

Fortum is accelerating the change towards a low-carbon energy system, improving resource efficiency and providing smart solutions for customers. In the power production value chain, Fortum is focusing on growth in CO₂-free hydro, wind and solar power, while efficiently operating the existing assets needed for security of supply during the energy transition as efficiently as possible.

Fortum is pursuing solutions to decrease the carbon footprint of its customers. Fortum develops and offers new solutions, such as, e.g., batteries and demand response, which will be necessary in the future low-carbon energy system. Fortum is also focusing on the circular economy and resource efficiency through waste recycling, material recovery as well as bio-originated materials, such as bio-textiles.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Year target was set

2020

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based) +3 (upstream & downstream)

Base year

2019

Covered emissions in base year (metric tons CO₂e)

104,251,800

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

100

Target year

2050

Targeted reduction from base year (%)

100

Covered emissions in target year (metric tons CO₂e) [auto-calculated]

0

Covered emissions in reporting year (metric tons CO₂e)

77,691,900

% of target achieved [auto-calculated]

25.476682417

Target status in reporting year

New

Is this a science-based target?

Yes, we consider this a science-based target, but it has not been approved by the Science-Based Targets initiative

Target ambition

Well-below 2°C aligned

Please explain (including target coverage)

In December 2020, Fortum announced a new strategy and its commitment to carbon neutrality. Fortum aims to drive the clean energy transition and focuses on reducing CO₂ emissions from its own operations. Fortum has committed to the carbon neutral target globally (Scope 1, 2 and 3 GHG emissions), in line with the goals of the Paris Agreement, by 2050 at the latest. Fortum Group includes Uniper's total Scope 1, 2 and 3 greenhouse gas emissions in its base year 2019.

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. For Q2-Q4/2020 measured data for direct CO₂ emissions and energy production volumes has been consolidated into Fortum's figures. For other sustainability data a curve out methodology has been used, and 75% of Uniper's annual figures in 2020 have been included.

Target reference number

Abs 2

Year target was set

2020

Target coverage

Country/region

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2019

Covered emissions in base year (metric tons CO₂e)

27,695,300

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

40

Target year

2030

Targeted reduction from base year (%)

50

Covered emissions in target year (metric tons CO₂e) [auto-calculated]

13,847,650

Covered emissions in reporting year (metric tons CO₂e)

19,165,900

% of target achieved [auto-calculated]

61.5945665871

Target status in reporting year

New

Is this a science-based target?

No, but we are reporting another target that is science-based

Target ambition**Please explain (including target coverage)**

In December 2020, Fortum announced a new strategy and its commitment to carbon neutrality. Fortum has the ambitious mid-term target to reduce CO₂ emissions (Scope 1 and 2) in European generation by at least 50%, compared to base-year 2019, by 2030, and the carbon neutral (Scope 1 and 2) target in European generation by 2035 at the latest. Fortum Group includes Uniper's total Scope 1 and 2 greenhouse gas emissions in Europe in its base year 2019.

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. For Q2-Q4/2020 measured data for direct CO₂ emissions and energy production volumes has been consolidated into Fortum's figures. For other sustainability data a curve out methodology has been used, and 75% of Uniper's annual figures in 2020 have been included.

Target reference number

Abs 3

Year target was set

2020

Target coverage

Country/region

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2019

Covered emissions in base year (metric tons CO₂e)

27,695,300

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

40

Target year

2035

Targeted reduction from base year (%)

100

Covered emissions in target year (metric tons CO2e) [auto-calculated]

0

Covered emissions in reporting year (metric tons CO2e)

19,165,900

% of target achieved [auto-calculated]

30.7972832936

Target status in reporting year

New

Is this a science-based target?

No, but we are reporting another target that is science-based

Target ambition**Please explain (including target coverage)**

In December 2020, Fortum announced a new strategy and its commitment to carbon neutrality. Fortum has the ambitious mid-term target to reduce CO2 emissions (Scope 1 and 2) in European generation by at least 50%, compared to base-year 2019, by 2030, and the carbon neutral (Scope 1 and 2) target in European generation by 2035 at the latest. Fortum Group includes Uniper's total Scope 1 and 2 greenhouse gas emissions in Europe in its base year 2019.

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. For Q2-Q4/2020 measured data for direct CO2 emissions and energy production volumes has been consolidated into Fortum's figures. For other sustainability data a curve out methodology has been used, and 75% of Uniper's annual figures in 2020 have been included.

C4.2**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Net-zero target(s)

C4.2c**(C4.2c) Provide details of your net-zero target(s).****Target reference number**

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Abs1

Target year for achieving net zero

2050

Is this a science-based target?

Yes, but we have not committed to seek validation of this target by the Science Based Targets initiative in the next 2 years

Please explain (including target coverage)

In December 2020, Fortum announced a new strategy and its commitment to carbon neutrality. Fortum aims to drive the clean energy transition and focuses on reducing CO₂ emissions from its own operations. Fortum has committed to the carbon neutral target globally (Scope 1, 2 and 3 GHG emissions), in line with the goals of the Paris Agreement, by 2050 at the latest.

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. For Q2-Q4/2020 measured data for direct CO₂ emissions and energy production volumes has been consolidated into Fortum's figures. For other sustainability data a curve out methodology has been used, and 75% of Uniper's annual figures in 2020 have been included.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO₂e savings.

	Number of initiatives	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	0	0
To be implemented*	4	305,000
Implementation commenced*	2	130,000
Implemented*	4	365,000
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Low-carbon energy generation
Solar PV

Estimated annual CO₂e savings (metric tonnes CO₂e)

206,000

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

20,000,000

Investment required (unit currency – as specified in C0.4)

98,000,000

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

In 2020, the 250-MW Jaisalmer solar power plant in Rajasthan State, India, was under construction. In 2020, Fortum invested EUR 98 million to CO₂-free power generation at the new Jaisalmer solar power plant in India.

Fortum has a capital recycling business model in solar power plants in India, which means that Fortum retains a 20–44% minority ownership of solar plants and also continues its responsibility for the construction and operation of the plants. In June 2021, Fortum announced that the 250-MW Pavagada solar power plant and the 250-MW Jaisalmer solar power plant will be divested in India. The total consideration from the divestment on a debt and cash-free basis, including the effect of deconsolidating of the net debt, is expected to be approximately EUR 280 million, most of which will be recorded during 2021. The divestment is expected to have a positive impact of approx. EUR 20 million on Fortum City Solutions segment's results. The divestment will be completed and the capital gain recorded in three tranches; during the second half of 2021 and the first half of 2022.

Initiative category & Initiative type

Low-carbon energy generation

Wind

Estimated annual CO₂e savings (metric tonnes CO₂e)

16,000

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

15,000,000

Investment required (unit currency – as specified in C0.4)

30,000,000

Payback period

1-3 years

Estimated lifetime of the initiative

21-30 years

Comment

In 2020, Fortum invested EUR 30 million into CO₂-free wind power production in the Nordics. Fortum's largest wind power investment was EUR 27 million to the 99-MW Sørkjord wind park in Norway. Fortum also constructed the 90-MW Kalax wind power plant in Finland.

Fortum has a capital recycling business model in wind power plants in the Nordic countries, which means that Fortum retains a 20–44% minority ownership of wind plants and also continues its responsibility for the construction and operation of the plants. At the end of 2019, Fortum announced that the divestment of the 80% stake of its wind power fleet in the Nordics on a debt and cash free basis is expected to be approx. EUR 250 million, of which EUR 170 million is related to the first quarter of 2020. The sale had a positive effect on Fortum Generation segment's first-quarter 2020 comparable operating profit.

Initiative category & Initiative type

Energy efficiency in production processes

Machine/equipment replacement

Estimated annual CO₂e savings (metric tonnes CO₂e)

2,000

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

2,000,000

Investment required (unit currency – as specified in C0.4)

10,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

>30 years

Comment

In 2020, Fortum invested EUR 69 million into hydropower production in Sweden and Finland, mainly maintenance, legislation and productivity investments. The investment programme includes, e.g., Fortum's hydropower plants Mörsil and Krångede in Sweden, and Utanen in Finland. The total investments in energy-efficiency improvements at hydropower plants are approx. EUR 10 million annually.

In 2020, Fortum completed the refurbishments of hydropower plants in Sweden and Finland, resulting in an annual power generation increase of 29 GWh with the capacity increase of 10 MW.

Initiative category & Initiative type

Low-carbon energy generation

Solid biofuels

Estimated annual CO₂e savings (metric tonnes CO₂e)

141,000

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

2,000,000

Investment required (unit currency – as specified in C0.4)

40,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

21-30 years

Comment

In Finland, Fortum invested in biofuels EUR 9 million in 2020 and EUR 20 million in 2019. Fortum's investment in the Kivenlahti heat plant in Espoo, Finland, was in total approx. EUR 40 million.

In summer 2020, Fortum replaced one of the two coal-fired units at Suomenoja power plant by commissioning the 49-MW Kivenlahti bio-fuelled heat plant in Espoo, Finland. Fortum's plan is to phase-out the use of coal in district heating in Espoo by the end of 2025.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	<p>Fortum seeks economically profitable alternatives that provide the opportunity to increase capacity and improve energy efficiency, as well as reduce CO₂ emissions. New investment proposals are assessed against sustainability criteria as part of Fortum's investment assessment and approval process.</p> <p>By the end of 2020, Fortum's, excluding Uniper, cumulative energy-efficiency improvement achieved was about 1,840 GWh/a compared to 2012. In 2020, the combined energy savings of the energy-efficiency improvement projects was 134 GWh/a.</p> <p>Significant projects improving energy efficiency were completed in 2020, among others, hydropower plant refurbishments with the new renewable electricity capacity of 10 MW in Finland and Sweden, excluding Uniper. This enables to produce an additional 29 GWh electricity annually.</p>
Internal price on carbon	<p>Since 2005 Fortum has had a compliance obligation in the EU emissions trading system (ETS) setting a price for carbon emissions. Internal price of carbon is among the key factors impacting the Nordic electricity price and fully integrated into Fortum's investment decisions.</p> <p>In 2020, of the direct carbon dioxide emissions, 17.5 million tonnes were within the EU emissions trading system (ETS). 96% of CO₂ emissions from Fortum's total energy production in Europe were within the sphere of the EU ETS.</p> <p>Low-carbon and CO₂-free energy production is one key element in Fortum's strategy, and Fortum is for decarbonization and tighter CO₂ scheme in Europe. In general, higher CO₂ price will benefit Fortum. Change in power prices will have an effect on profitability of Fortum Group's annual outright position, which is approx. 70 TWh/a of CO₂-free power generation. Rest of the power generation is mainly spread business, which means that CO₂ price is more or less pass-through item, and higher CO₂ price will increase power price. In normal situation outright generation will benefit from higher power prices and spread generation do not benefit, but not suffer either.</p> <p>Progress in performance of internal carbon price is followed-up monthly</p>

	and reported to the Fortum Executive Management and Fortum Board of Directors on regular basis.
Dedicated budget for low-carbon product R&D	<p>Fortum's each new research and development (R&D) project is assessed against the criteria of carbon dioxide emissions reduction and resource efficiency. In 2020, Fortum spent EUR 56 million on research and development (R&D). The majority of the R&D results are expected to be in use within the next five years.</p> <p>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 and low-carbon energy production, products and services. Fortum is researching and developing its solar energy competences and solutions for customers.</p> <p>In addition, Fortum is developing new customer solutions in electricity and heat to improve user experiences and demand response services. Fortum's development of smart solutions has been included, among others, the excess energy storage capacity in data centers with their UPS-systems, connecting customers' water heaters, home batteries and other assets through smart meters or directly, and developing digital e-mobility solutions for operations of electric vehicle (EV) charging. Fortum provides, e.g., the virtual power plant service for balancing electricity demand in a power grid. The growth of renewable energy increases the need for regulating power to balance the energy system and the need for new storage solutions in the energy system. In a service based on demand flexibility, customers participate with Fortum to maintain the power balance. Household water heaters or house batteries can be used to reduce the need to start up fossil-fuel-based reserve power plants and support the use of renewable energy by balancing peak consumption in the electricity network.</p>
Internal incentives/recognition programs	<p>Fortum's corporate culture encourages innovations and internal incentives. Fortum advances innovations related to low-carbon energy, clean hydrogen, digitalisation, circular economy, biomaterials, and electricity storage solutions. Fortum also invests in start-ups and creates partnerships to gain synergy and scale.</p> <p>Fortum's Business Technology, Innovation and Venturing team organize annually the Boot Camp, which is an innovation campaign open for all Fortum employees. The most promising ideas will get resources to be developed and experimented in real life. In 2020, for example, an idea of flexible wind was winning the Boot Camp. The idea is to utilize wind power to fulfil the increasing need of flexibility in the market and, therefore, to offer grid services to the Transmission System Operators (TSOs).</p> <p>Develop Sales and Commercialisation Excellence is one of Fortum's, excluding Uniper, four Must-Win Battle (MWB) programs for 2019–2021. More than 80 people across Fortum have participated in the project aiming at, e.g., establishing customer management practices, developing sales processes, and increasing customer centricity. By MWB</p>

	development programs, Fortum prioritizes competences and topics that are needed for successful implementation of Fortum's strategy.
Employee engagement	<p>Along with CO2 emission reduction measures implemented at production facilities, Fortum has taken various actions to reduce the carbon dioxide emissions, for example, the carbon footprint, generated by the company's personnel and facilities. Actions include CO2 reductions in travelling and education on climate issues.</p> <p>In the Nordic countries, Fortum's employee car policy has allowed for only new electric vehicles or plug-in hybrids as company cars. Electric vehicles and plug-in hybrids are also promoted in other Fortum's core operation countries, where e.g. the charging network may not be as developed as in the Nordic countries. These measures are important in increasing the environmental awareness and motivation of employees.</p>

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Group of products

Description of product/Group of products

Fortum's electricity and heat products replace in certain cases the customer's alternative and more carbon intensive energy production and consequently reduce GHG emissions. Especially this concerns Fortum's eco-labelled products, which are CO2-free.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

RES Directive (EU) 2018/2001 of the European Parliament and of the Council

% revenue from low carbon product(s) in the reporting year

60

Comment

European Guarantees of Origin (GoO) of eco-labels on national nature conservation associations. Nuclear power is also categorized as CO2-free electricity production. In

2020, Fortum's electricity sales to private and commercial customers was about 28 TWh in the Nordic countries, and also in Poland. About 50% of the electricity sales was guaranteed by CO₂-free energy sources, mainly hydropower and other renewable energy sources. Of this volume, the share of CO₂-free nuclear power was about 17%. In 2020, Fortum's power sales was EUR 3,847 million (including netting of Nord Pool transactions), of which about 30% (EUR 1,057 million) was electricity sales to customers and about 70% (EUR 2,790) was power sales of electricity production, excluding Uniper. In 2020, the majority of Fortum's, excluding Uniper, electricity production was CO₂-free in Europe, and electricity production in Russia was mainly fossil-fueled. This results over 60% revenue from from CO₂-free power products. The figure excludes Uniper. The extent of climate change mitigation can be assessed by assuming that CO₂-free electricity sold by Fortum to private and commercial customers would have had the specific CO₂ emission of the Nordic Residual Mix electricity. In 2020, the avoided CO₂ emissions by Fortum's electricity sales were approx. 2.6 million metric tonnes. The avoided emissions represent Fortum's customers' (third party) Scope 2 emissions. Fortum's sales of CO₂-free electricity resulted in zero (0) greenhouse gas (GHG) emissions.

C-EU4.6

(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.

Methane (CH₄) emissions from Fortum's business, including Uniper, can be categorized as follows: methane release from combustion of fossil fuels at Fortum Group's power plants and supply chain of fossil fuel use, as well as methane release from losses of natural gas from Uniper's gas storage sites and natural gas and LNG supply chain. Uniper has gas storage sites in Germany, the United Kingdom and Austria, and capacity for re-gasifying liquefied natural gas (LNG). Gas storage facilities can store energy between seasonal variations, and storages can also respond to consumption demand peaks. Uniper also operates a large commodities gas trading business. These play an important role in ensuring a secure and flexible gas supply. Fortum has consolidated Uniper as a subsidiary as of 31 March 2020.

Fortum's Scope 1 methane emissions have been calculated on the basis of plant-specific fuel data. In 2020, Fortum's Scope 1 greenhouse gas (GHG) emissions were 49.0 million CO₂-eq tonnes, and this accounted for about 63% of Fortum's total greenhouse gas (GHG) emissions. The majority of Fortum's Scope 1 direct CO₂ emissions, 48.7 million tonnes, are generated from the use of fossil fuels in energy production at Fortum's power plants. The share of Scope 1 direct CO₂ emissions was 99%, and the share of methane (CH₄) emissions was only 0.2% of Fortum's Scope 1 GHG emissions. Therefore, the volume of methane emissions are assessed to be non-material, neither significant, in Fortum's Scope 1 GHG emissions.

Fortum's Scope 3 emissions from supply chain of fossil fuels include methane emissions from fuel production (e.g. mining, refining and processing), fuel transportation and storing. Emission factors from international and national sources have been applied for each part of the supply chain.

Methane emissions are generated from leaks and process-related releases due to pipeline maintenance, repair or exchange measures. Predictive and preventive maintenance management reduce proactively leaks of methane and other greenhouse gas emissions into air. Fortum, including Uniper, carries out preventive maintenance activities and planned

refurbishments regularly at all power plants, as well as gas storage sites, in 14 countries, where Fortum has core operations. Leaks of methane are repaired as soon as they are notified, and leaked volumes are mainly estimated on the basis of the amounts of gas added to the system. Since September 2020, Uniper is a member of the Oil and Gas Methane Partnership 2.0, which aims at reducing methane emissions by 45% at industry level before 2025. Represented by Uniper's Gas Storage business, a specific target has been set up in relation to methane emissions. Uniper is also running several projects and measures to reduce methane releases. Uniper has several ongoing projects and studies to develop methane leak detection and repair, and venting minimisation at Uniper's Gas Storage business, among others:

- Buffer piping: use of subsurface piping sections to buffer methane for further use in CHP (not a fixed measure - ongoing studies, no decision for subsurface buffer tanks yet); Concept study in progress
 - Mobile GDRM to route high to low pressure gas usage (Epe) implemented in 2020/2021
 - Set up of a mobile recompression system for planned maintenance measures (one mobile compressor for region north, one for region south, one for Holford); Concept study in progress
 - Exchange of gas starting systems on the last two engines in BW (compressed air/electrical/hydraulic) replaced by 2023
 - Exchange of pony turbos of ME01 & 02 (gas driven à air driven - Concept study done, replaced by 2023
 - Ongoing studies on flash gas tanks to reduce flash gas emissions
 - Ongoing studies on leakage detection systems (detection by drones, cars, cameras etc.)
 - Bierwang: Amending the discharging groups in 2022, and change of drying units on well pads in 2022
 - Reduce emission from gas analyzers in ESE and Epe by 2024, and in Holford by 2026
- Uniper's LNG shipments including relevant climate relevant information are requested and gathered by the LNG suppliers. In 2020, the identification of supply chain accounting approach was developed further, and dedicated databases have been set up to assess the GHG emissions of Uniper's natural gas and LNG supply chain. (More information can be found in Uniper's CDP Climate Change 2021 response, in C.EU4.6.)

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO₂e)

67,496,200

Comment

Fortum Group includes Uniper's total Scope 1 greenhouse gas emissions in its base year 2019.

Scope 2 (location-based)

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO₂e)

1,164,100

Comment

Fortum Group includes Uniper's total Scope 2 greenhouse gas emissions, location-based, in its base year 2019.

Scope 2 (market-based)

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO₂e)

1,561,700

Comment

Fortum Group includes Uniper's total Scope 2 greenhouse gas emissions, market-based, in its base year 2019.

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO₂e?

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

49,043,800

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum's Scope 1 greenhouse gas emissions accounted for about 63% of total greenhouse gas emissions.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum's Scope 2 greenhouse gas emissions accounted for 1% of total greenhouse gas emissions.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO₂e?

Reporting year

Scope 2, location-based

632,000

Scope 2, market-based (if applicable)

811,700

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of

Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

688,300

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

(i) The volumes and categories of purchased goods and services are based on Fortum's procurement databases. Fortum, excluding Uniper, has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard, and emission data from EXIOBASE2 has been used in the calculation of emissions.

Uniper's purchased goods and services were classified according to DEFRA Product Categories and multiplied by the corresponding emission factor (2017). The GWP values are from IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. The data on spending of purchases is relatively accurate (score: good). The biggest source of uncertainty in the reported emissions is the emission factors (score: fair) for spending on different groups of goods and services.

(iii) As a part of the assessment, Fortum has estimated its GHG emissions from purchased goods and services based on spend data from internal purchasing data management systems. Fortum's purchased goods and services (other than capital goods and energy and fuel related activities) consist mostly of maintenance and construction and other business activities.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

381,100

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) The volumes and categories of capital goods are based on Fortum's procurement databases. Fortum, excluding Uniper, has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard, and emission data from EXIOBASE2 has been used in the calculation of emissions. Uniper's capital goods were classified according to DEFRA Product Categories and multiplied by the corresponding emission factor (2017). The GWP values are from IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. The data on spending of purchases is relatively accurate (score: good). The biggest source of uncertainty in the reported emissions is the emission factors (score: fair) for spending on different groups of capital goods.

(iii) As a part of the assessment, Fortum has estimated its GHG emissions from capital goods based on spend data from internal purchasing data management systems. Fortum's capital goods consist mostly of heavy components in energy production process, like boilers, turbines, generators.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

15,408,900

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) Fuel data (primary data) is from Fortum's databases. Emissions factors (secondary data) are based on literature and publicly available information (Ecoinvent 3.6, Finnish VTT LIPASTO, DEFRA, IPCC, AIB 2019). The GWP values IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Fuel data from the company's own statistics is reliable and accurate (score: good). The biggest uncertainty is related to emission factors (score: fair) applied. They are general estimates from different sources and not specifically estimated for the fuel lots for Fortum.

(iii) Emissions from fuel value chains include emissions from fuel production (e.g. mining, refining and processing), fuel transportation and storages. Emission factors from international and national sources have been applied for each part of the value chain. Emissions of the European Residual Mix electricity retail were included for the first time in 2020. CO₂ emission calculation for European Residual Mix electricity is based on AIB emission factors.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

50

Please explain

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

767,300

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) Primary data for upstream transportation is from Fortum's databases. Emissions

factors (secondary data) are based on publicly available information (i.e. DEFRA). The GWP values IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Fuel data from the company's own statistics is reliable and accurate (score: good). The biggest uncertainty is related to emission factors (score: fair) applied.

(iii) Emissions from upstream transportation and distribution includes mainly Uniper's shipping of coal and gas. Uniper controls vessels and makes decisions on routes. Emissions from upstream transportation of fuels used in energy production are included in Scope 3 category 3 (Fuel-and-energy-related activities). Upstream emissions of purchased electricity and heat are accounted for in Scope 2 emissions.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

50

Please explain

Waste generated in operations

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

7,900

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) Waste data has been collected from Fortum's own environmental data management systems and covers the company's operations, excluding Uniper. For now, Uniper has not included Scope 3 category 5 (Waste generated in operations) in its GHG emissions. Emission coefficient for waste from a Finnish "Ilmastolaskuri" (Climate Calculator) has been used. The GWP values are from IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Waste data is from the company's own statistics (score: very good). The quality of data is passable, as there are uncertainties in the emission factors (score: fair).

(iii) The Climate Calculator estimates the direct greenhouse gas emissions from the waste processing and transport related to the site's bio-originated waste, paper, cardboard, carton, energy fraction and unsorted waste. The Calculator was developed

by HSY Helsinki Region Environmental Services Authority, Finland and the greenhouse gas emission coefficients for each type of waste were provided by the Finnish Environment Institute.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Business travel

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

3,400

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) The data consists of mainly air travel, which is the most important source of business travel emissions for Fortum, as it has core operations in 14 countries. The data also includes use of leasing vehicles as a mean of transportation. Train and ship travelling is used only to minor extent. The GWP values are from IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Travel volume data (score: good) is based on the statistics from Fortum's and Uniper's Travel Agencies, and the data is reliable, but not fully representative, as it does not cover the company's all operating countries. Emission factors from Finnish VTT LIPASTO, IPCC, and DEFRA are quite reliable (score: fair).

(iii) Air travel reports were provided by Fortum's and Uniper's Travel Agencies. CO₂ emission calculation for traffic exhaust emissions and fuel consumption is based on the Finnish VTT LIPASTO database, and CH₄ and N₂O emissions are calculated using IPCC 2006 emission factors. Uniper is using the corresponding DEFRA emission factors in CO₂ emission calculation.

(iv) Covid-19 pandemic has decreased the amount of business travel. Employees have been working at home during most of the year 2020. Fortum's, excluding Uniper, GHG emissions of employee air travel were 1,500 CO₂-eq tonnes and decreased by about 75% from 2019 due to the Covid-19 pandemic.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain**Employee commuting**

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

3,300

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) The emissions have been estimated based on publicly available data and in-house calculations. Company benefit cars are included in Scope 1 emissions. The GWP values are from IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Primary data for employee commuting is not available (score: poor). The employee commuting distance is an average estimate and not based on a real statistical data regarding Fortum's personnel. The means of transport/vehicles has been assumed, not based on any statistics. Employee specific data is not available. Emission data for vehicles is quite reliable (score: fair).

(iii) The emissions have been estimated based on publicly available data and in-house calculations. Fortum, excluding Uniper, estimated that 25% of employees using own car in 2020, a distance from home to work is in average 20 km, and emission factors based on the Finnish VTT LIPASTO database. Uniper estimated that a distance from home to work 17 km, and an commuting emission factor is from ADAC. Company benefit cars are included in Scope 1 emissions.

(iv) Covid-19 pandemic has decreased the use of private cars and public transport. Especially white collar employees have been working remotely at home during most of the year 2020.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain**Upstream leased assets**

Evaluation status

Relevant, calculated

Metric tonnes CO2e

153,100

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

(i) Primary data for upstream leased assets is from Fortum's databases. Emissions factors (secondary data) are based on publicly available information (i.e. DEFRA). The GWP values IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Leased asset data from the company's own statistics is reliable and accurate (score: good). The biggest uncertainty is related to emission factors (score: fair) applied.

(iii) Emissions from leased assets include mainly Uniper's fuel transportation with vessels. Vessels are Uniper's leased assets, and Uniper makes decisions on routes. Emissions from upstream transportation of fuels used in energy production are included in Scope 3 category 3 (Fuel-and-energy-related activities). Upstream emissions of purchased electricity and heat are accounted for in Scope 2 emissions.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

50

Please explain**Downstream transportation and distribution****Evaluation status**

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Based on Fortum's Scope 3 materiality assessment and a rough calculation the emissions from downstream transportation is classified as not relevant. Therefore, the Scope 3 "Downstream transportation and distribution" category does not apply to Fortum's operations.

Emissions from upstream transportation of fuels used in energy production are included

in Scope 3 category 3 (Fuel-and-energy-related activities). Upstream transportation and distribution, and upstream leased assets (i.e. vessels) are included in Scope 3 category 3 and 4, correspondingly. Upstream emissions of purchased electricity and heat are accounted for in Scope 2 emissions.

Processing of sold products

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

100

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

(i) The volume data of sold products (gypsum) has been collected from Fortum's own environmental data management systems, excluding Uniper. For now, Uniper has not included Scope 3 category 10 (Processing of sold products) in its GHG emissions. The GWP values are from IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. The emission factor (score: good) is an average of 10 data sources. The amount of sold products (gypsum) is relatively accurate (score: very good).

(iii) Average emissions for producing a gypsum plate have been estimated based on the average of 10 literature sources.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

10,422,900

Emissions calculation methodology

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of

Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

(i) Primary data for use of sold products is from Fortum's databases. Emissions factors (secondary data) are based on publicly available information (Ecoinvent 3.6, DEFRA). The GWP values IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon.

(ii) Fortum has assessed data quality based on criteria in Scope 3 standard on page 77 taking into account representativeness to the activity in terms of technology, time, geography, completeness and reliability. Based on this Fortum has scored the quality of primary and secondary data as very good/good/fair/poor. Sold volumes from the company's own statistics are reliable and accurate (score: good). The biggest uncertainty is related to emission factors (score: fair) applied.

(iii) Fortum, including Uniper, purchases fuels and resells them to end-users. The fuels include natural gas and coal. Fuels sold to end-users were filtered from overall sales and were multiplied by the corresponding emission factor (DEFRA, Ecoinvent 3.6).

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Based on Fortum's Scope 3 assessment, Fortum does not manufacture products that would require end-of-life treatment.

Therefore, the Scope 3 "End of life treatment of sold products" category does not apply to Fortum's operations.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value

Chain Accounting and Reporting Standard. Based on Fortum's Scope 3 materiality assessment, Fortum does not have downstream leased assets that would be reported on Fortum Group level. Therefore, the Scope 3 "Downstream leased assets" category does not apply to Fortum's operations.

Upstream leased assets (i.e. vessels) are included in Scope 3 category 4 (Upstream leased assets).

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Based on Fortum's Scope 3 materiality assessment, Fortum has no franchising business. Therefore, the Scope 3 "Franchises" category does not apply to Fortum's operations.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum is a shareholder in a Finnish hydropower company Kemijoki Oy and in a Finnish nuclear power company TVO. Production of hydropower (Kemijoki) and nuclear power (TVO) is CO₂-free (no Scope 1 emissions), and the companies do not disclose their Scope 2 and 3 CO₂ emissions publicly.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Based on Fortum's Scope 3 materiality assessment, the Scope 3 "Investments" category does not apply to Fortum's operations.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production

volumes are consolidated as of 31 March 2020.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Based on the Scope 3 materiality assessment, Fortum does not have other upstream emissions that would be reported on Fortum Group level. Fortum's all Scope 3 upstream emissions have been assessed and disclosed.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO₂ emissions and energy production volumes are consolidated as of 31 March 2020.

Fortum has assessed its Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Based on the Scope 3 materiality assessment, Fortum does not have other upstream emissions that would be reported on Fortum Group level. Fortum's all Scope 3 downstream emissions have been assessed and disclosed.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

Yes

C6.7a

(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO₂.

	CO ₂ emissions from biogenic carbon (metric tons CO ₂)	Comment
Row 1	2,341,700	As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO ₂ emissions and energy production volumes are consolidated as of 31 March 2020. In 2020, Fortum's total direct biogenic carbon dioxide emissions were about 2.3 million tons. The biogenic carbon dioxide emissions are generated in bio-fueled energy production.

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO₂e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.001

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

49,855,500

Metric denominator

unit total revenue

Metric denominator: Unit total

49,015,000,000

Scope 2 figure used

Market-based

% change from previous year

71

Direction of change

Decreased

Reason for change

In 2020, Fortum's Scope 1 and 2 GHG emissions increased by about 61% and revenue increased by about 800% compared to 2019, resulting in total decrease of 71% in Fortum's GHG emissions per revenue. Increase of Fortum's Scope 1 and 2 GHG emissions as well as Fortum's total revenue resulted from the consolidation of Uniper as of Q2/2020.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO ₂ e)	GWP Reference
CO ₂	48,762,700	IPCC Fifth Assessment Report (AR5 – 100 year)
N ₂ O	197,500	IPCC Fifth Assessment Report (AR5 – 100 year)
CH ₄	81,600	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	1,200	IPCC Fifth Assessment Report (AR5 – 100 year)
SF ₆	500	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify Refrigerants	300	IPCC Fifth Assessment Report (AR5 – 100 year)

C-EU7.1b

(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.

	Gross Scope 1 CO ₂ emissions (metric tons CO ₂)	Gross Scope 1 methane emissions (metric tons CH ₄)	Gross Scope 1 SF ₆ emissions (metric tons SF ₆)	Total gross Scope 1 emissions (metric tons CO ₂ e)	Comment
Fugitives	0	10,600	500	12,600	As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO ₂ emissions and energy production volumes are consolidated as of 31 March 2020. Fortum's Scope 1

					emissions of fugitives includes CH4, SF6, HFCs, and refrigerants in CO2-eq.
Combustion (Electric utilities)	48,758,100	71,000	0	49,026,700	As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020. Fortum's Scope 1 emissions include direct greenhouse gas (GHG) emissions generated in combustion. Direct GHG emissions include CO2, methane (CH4) and N2O emissions in CO2-eq.
Combustion (Gas utilities)	0	0	0	0	Not relevant/not applicable for Fortum's operations
Combustion (Other)	4,500	0	0	4,500	As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020. Fortum's Scope 1 emissions include also greenhouse gas (GHG) emissions generated in use of company-owned vehicles,

					according to the Greenhouse gas (GHG) protocol.
Emissions not elsewhere classified	0	0	0	0	Not relevant/not applicable for Fortum's operations

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Russian Federation	30,597,800
Germany	9,059,400
United Kingdom of Great Britain and Northern Ireland	3,301,900
Netherlands	3,118,200
Finland	842,800
Poland	756,900
Hungary	572,000
Norway	212,300
Denmark	164,700
Lithuania	150,000
Sweden	133,800
Estonia	54,800
United Arab Emirates	41,800
Latvia	23,600
India	0
Other, please specify Emissions from energy production in Czech Republic, divested in April 2020	13,800

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Russia	15,227,400
City Solutions	2,245,900
Generation	74,000
Uniper	31,496,500

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Electric utility activities	49,026,700	<p>As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Sustainability indicators have been mainly consolidated as 75% of Uniper's total figures in 2020, except direct CO2 emissions and energy production volumes are consolidated as of 31 March 2020.</p> <p>The majority of Fortum's Scope 1 greenhouse gas (GHG) emissions are generated from the use of fossil fuels in electricity generation, and heat and steam production. The GHG emissions of fuel combustion at buildings for heat production of own use were about 46,700 tCO2e. Only a small amount of Scope 1 emissions is generated from the use of company vehicles and leaks related to the natural gas distribution. In 2020, the share of Scope 1 direct GHG emissions accounted for about 63% of Fortum's total GHG emissions. The share of carbon dioxide from Fortum's Scope 1 GHG emissions was 99%.</p>

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	235,600	Decreased	1.2	<p>Increased use of biomass identified at four Fortum's CHP plants and HOBs in Finland, the Baltic countries and Poland, and increased use of bio-originated waste fuels identified at Fortum's waste-to-energy plant in Sweden and Zabrze CHP plant in Poland in 2020. These changes decreased Fortum's Scope 1 + 2 GHG emissions about 235,600 t CO2e.</p> <p>Emission value calculated as = (actual Scope 1+2 emissions (2020) - (production (2019) * specific emissions (2019) + Scope 2 (2019))) / total Scope 1+2 emissions (2019).</p> <p>Emission value: $(-8,200-5,550-5,950-2,100-4,400-28,900-17,400-163,100)/19,354,600 = (-235,600)/19,354,600 = -1.2\%$</p>
Other emissions reduction activities	242,600	Decreased	1.3	<p>Less coal-fired power and heat production at Fortum's Suomenoja CHP plant and Meri-Pori power plant in Finland, as well as the gas-fired Jelgava CHP plant in Latvia, decreased Fortum's direct CO2 emissions in 2020. These activities decreased Fortum's Scope 1 + 2 GHG emissions about 242,600 t CO2e.</p> <p>In 2020, Fortum replaced one of the two coal-fired units at the Suomenoja power plant by commissioning the bio-fueled Kivenlahti heat plant in Espoo, Finland. Additionally, Fortum's coal-fired Meri-Pori power plant was included in the peak-load capacity reserve for 440 MW of production capacity in Finland. The gas-fired Latvia CHP plant has not been in operation in 2020.</p> <p>Emission value calculated as = (actual Scope 1+2 emissions (2020) - (production (2019) * specific emissions (2019) + Scope 2 (2019))) / total Scope 1+2 emissions (2019).</p> <p>Emission value: $(-141,000-92,450-$</p>

				9,150)/19,354,600=(-242,600)/19,354,600 =-1.3%
Divestment	129,400	Decreased	0.7	Divestments of Joensuu and Järvenpää CHP plants and HOBs, in Finland, decreased Fortum's Scope 1 + 2 GHG emissions about 129,400 t CO ₂ e from 2019. Emission value: (-113,300-9,100-4,350-2,650)/19,354,600 =(-129,400)/19,354,600=-0.7%
Acquisitions	32,265,800	Increased	166.7	Fortum's acquisition of Uniper increased Fortum's Scope 1+2 GHG emissions by 32,265,800 t CO ₂ e from 2019. Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In the whole year 2020, Uniper's Scope 1 direct CO ₂ emissions decreased approx. 7% compared to 2019. Emission value: (Uniper's Scope 1 + 2 GHG emissions as of Q2/2020)/ total Scope 1+2 emissions (2019) = (31,496,500+769,300)/19,354,600 = 166.7%
Mergers	0	No change	0	No mergers in 2020
Change in output	1,095,600	Decreased	5.7	Fortum's GHG emissions decreased, because of the decreased power and heat production mainly at Fortum's power plants in Russia, due to Covid-19 pandemic. Emission value calculated as = (production (2020) * specific emissions (2019)) - actual emissions (2019)) / total Scope 1+2 emissions (2019). Emission value: (-1,095,600)/19,354,600 =-5.7%
Change in methodology	0	No change	0	No change in methodology in 2020.
Change in boundary	0	No change	0	No change in boundary in 2020.
Change in physical operating conditions	0	No change	0	No change in Fortum's physical operating conditions in 2020.
Unidentified	0	No change	0	No unidentified reasons for change in Fortum's emissions in 2020.

Other	234,400	Increased	1.2	<p>Other causes for changes in Fortum's GHG emissions were caused by changes in the electricity and heat production ratio at Fortum's power plants in Russia, and changes in waste fuel mix at Fortum's waste-to-energy plants in the Nordic countries and Lithuania.</p> <p>Emission value calculated as = (actual Scope 1+2 emissions (2020) - (production (2019) * specific emissions (2019)+ Scope 2 (2019))) / total Scope 1+2 emissions (2019).</p> <p>Emission value: (234,400)/19,354,600=1.2%</p>
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C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 30% but less than or equal to 35%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	No

Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	6,446,400	245,892,300	252,338,700
Consumption of purchased or acquired electricity		757,800	1,540,500	2,298,300
Consumption of purchased or acquired heat		0	18,900	18,900
Consumption of self-generated non-fuel renewable energy		37,321,000		37,321,000
Total energy consumption		44,525,200	247,451,700	291,976,900

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	Yes
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

157,885,800

MWh fuel consumed for self-generation of electricity

49,295,600

MWh fuel consumed for self-generation of heat

226,200

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

108,364,000

Emission factor

199

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Natural gas

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2020, Fortum's use of natural gas was about 63% of total fuel consumption globally. Fortum, including Uniper, used natural gas in energy production, among others, in Russia, the United Kingdom, Germany, the Netherlands, and Hungary. In Fortum's energy production, Russia accounted for about 83% of Fortum's use of natural gas.

Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. In 2020, about 36% of Fortum's total Scope 1 CO₂ emissions are subject to the EU ETS, and these emissions have an uncertainty 0-2%. Major part of the remaining of Scope 1 emissions, which are generated in Russian operations, are calculated with appropriate international emission factors and local volume measurements for natural gas having an uncertainty 2-5%. Thus the estimated accredited uncertainty is in total less than 5%.

Fuels (excluding feedstocks)

Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

33,253,900

MWh fuel consumed for self-generation of electricity

4,477,000

MWh fuel consumed for self-generation of heat

190,000

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

28,586,900

Emission factor

335

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Hard coal

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2020, Fortum's use of coal was about 13% of total fuel consumption globally. Fortum, including Uniper, used hard coal in energy production in Germany, Russia, the Netherlands, Poland, Finland, and the United Kingdom. Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and

analysed on the basis of plant-specific data. The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. In 2020, about 36% of Fortum's total Scope 1 CO₂ emissions are subject to the EU ETS, and these emissions have an uncertainty 0-2%. Major part of the remaining of Scope 1 emissions, which are generated in Russian operations, are calculated with appropriate international emission factors and local volume measurements for coal having an uncertainty 2-5%. Thus the estimated accredited uncertainty is in total less than 5%.

Fuels (excluding feedstocks)

Lignite Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

13,124,900

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

13,124,900

Emission factor

389

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Brown coal, lignite

Comment

Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2020, Fortum's use of lignite was about 5% of total fuel consumption globally. Fortum, including Uniper,

used lignite in energy production in Russia and Germany.

Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. In 2020, about 36% of Fortum's total Scope 1 CO₂ emissions are subject to the EU ETS, and these emissions have an uncertainty 0-2%. Major part of the remaining of Scope 1 emissions, which are generated in Russian operations, are calculated with appropriate international emission factors and local volume measurements for coal having an uncertainty 2-5%. Thus the estimated accredited uncertainty is in total less than 5%.

Fuels (excluding feedstocks)

General Municipal Waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

3,513,500

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

320,500

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

3,193,000

Emission factor

144

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: General municipal waste, 50% share of bio-originated fuel

Comment

In 2020, Fortum used waste-derived fuels at the waste-to-energy plants in Finland, Sweden, Norway, Denmark, Lithuania, as well as in Poland. Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. CO₂ emissions generated at Fortum's waste-to-energy plants are based on continuous monitoring system, not emission factors.

The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. The CO₂ emissions, which are subject to the EU ETS, have an uncertainty 0-2%.

Fuels (excluding feedstocks)

Other, please specify

Hazardous waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

855,800

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

855,800

Emission factor

421

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Hazardous waste

Comment

In 2020, Fortum used hazardous waste-derived fuels at the waste-to-energy plants in Finland, Sweden, and Denmark. Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. CO₂ emissions generated at Fortum's waste-to-energy plants are based on continuous monitoring system, not emission factors.

Fuels (excluding feedstocks)

Wood

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4,413,600

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

618,900

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

3,794,700

Emission factor

0

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Forest fuel wood, Recovered wood, Wood pellets and briquettes: 403 kg CO₂ per MWh for bio-originated CO₂ emissions

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2020, Fortum, including Uniper, used biomass, i.e. wood pellets, and other biofuels in, among others, the Baltic countries, Finland, the Netherlands, Poland, and Norway.

Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. Wood fuels are carbon-neutral, and they are not emitting fossil CO₂ emissions in combustion.

The CO₂ emissions of plants within the sphere of the EU emissions trading system

(ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. The CO₂ emissions, which are subject to the EU ETS, have an uncertainty 0-2%.

Fuels (excluding feedstocks)

Agricultural Waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

365,400

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

10,900

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

354,500

Emission factor

0

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Agricultural fuels: 360 kg CO₂ per MWh for bio-originated CO₂ emissions

Comment

In 2020, Fortum used a small amount of agricultural fuels, e.g. agrobiomass, in energy production in, among others, Poland, Norway, Finland, and Latvia.

Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. Agricultural fuels are carbon-neutral, and they are not emitting fossil CO₂ emissions in combustion.

The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority

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 CO₂ emissions. The CO₂ emissions, which are subject to the EU ETS, have an uncertainty 0-2%.

Fuels (excluding feedstocks)

Peat

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

120,300

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

102,100

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

18,200

Emission factor

387

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Peat (milled)

Comment

In 2020, Fortum used a small amount of peat in energy production in Estonia. Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. The CO₂ emissions, which are subject to the EU ETS, have an uncertainty 0-2%.

Fuels (excluding feedstocks)

Fuel Oil Number 1

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

260,500

MWh fuel consumed for self-generation of electricity

73,600

MWh fuel consumed for self-generation of heat

142,000

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

44,900

Emission factor

263

Unit

kg CO₂ per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020: Fuel oil (light)

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2020, fuel oil was mainly used in start-ups at Fortum's power plants, for heat production at Fortum's heat only boilers (HOBs), and also in waste-to-energy plants as subsidiary fuel, when necessary.

Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. The CO₂ emissions of plants within the sphere of the EU emissions trading system (ETS) are audited annually on a per plant basis by an external certification authority 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 CO₂ emissions. In 2020, about 36% of Fortum's total Scope 1

CO₂ emissions are subject to the EU ETS, and these emissions have an uncertainty 0-2%.

Major part of the remaining of Scope 1 emissions, which are generated in Russian operations, are calculated with appropriate international emission factors and local volume measurements for coal having an uncertainty 2-5%. Thus the estimated accredited uncertainty is in total less than 5%.

Fuels (excluding feedstocks)

Other, please specify

Uranium

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

38,545,000

MWh fuel consumed for self-generation of electricity

38,545,000

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

0

Unit

kg CO₂e per MWh

Emissions factor source

Statistics Finland, Fuel classification 2020

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Fortum, including Uniper, has consolidated nuclear power production in Finland and Sweden.

Use of uranium is not emitting CO₂ or GHG emissions. Nuclear power generation is CO₂-free electricity.

C-EU8.2d

(C-EU8.2d) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.

Coal – hard

Nameplate capacity (MW)

7,955

Gross electricity generation (GWh)

10,085

Net electricity generation (GWh)

10,054

Absolute scope 1 emissions (metric tons CO₂e)

9,486,100

Scope 1 emissions intensity (metric tons CO₂e per GWh)

940

Comment

In 2020, Fortum, including Uniper, used hard coal in Germany, Russia, the Netherlands, Poland, Finland, and the United Kingdom.

Lignite

Nameplate capacity (MW)

3,163

Gross electricity generation (GWh)

3,964

Net electricity generation (GWh)

3,952

Absolute scope 1 emissions (metric tons CO₂e)

4,236,000

Scope 1 emissions intensity (metric tons CO₂e per GWh)

1,070

Comment

In 2020, Fortum, including Uniper, used lignite in Russia and Germany.

Oil

Nameplate capacity (MW)

2,782

Gross electricity generation (GWh)

15

Net electricity generation (GWh)

15

Absolute scope 1 emissions (metric tons CO₂e)

5,000

Scope 1 emissions intensity (metric tons CO₂e per GWh)

340

Comment

In 2020, only a small amount of fuel oil was used in Fortum's electricity generation. Fortum used fuel oil mainly in start-ups at Fortum's power plants, for heat production at Fortum's heat only boilers (HOBs), and also in waste-to-energy plants as subsidiary fuel, when necessary.

Gas

Nameplate capacity (MW)

22,271

Gross electricity generation (GWh)

63,805

Net electricity generation (GWh)

63,614

Absolute scope 1 emissions (metric tons CO₂e)

27,937,000

Scope 1 emissions intensity (metric tons CO₂e per GWh)

440

Comment

The most significant fuel used in Fortum's energy production is natural gas. In 2020, Fortum, including Uniper, used natural gas in electricity generation in, among others, Russia, the United Kingdom, Germany, the Netherlands, and Hungary. Fortum's power plant units are mainly based on gas turbine technology, which represents the best available technology in natural gas combustion.

Biomass

Nameplate capacity (MW)

313

Gross electricity generation (GWh)

1,686

Net electricity generation (GWh)

1,681

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

In 2020, Fortum, including Uniper, used biomass and other biofuels in electricity generation in Finland, the Netherlands, the Baltic countries, and Poland. Biomass fuels are carbon-neutral, and they are not emitting fossil CO₂ emissions in combustion.

Waste (non-biomass)

Nameplate capacity (MW)

104

Gross electricity generation (GWh)

704

Net electricity generation (GWh)

551

Absolute scope 1 emissions (metric tons CO₂e)

297,400

Scope 1 emissions intensity (metric tons CO₂e per GWh)

540

Comment

In 2020, Fortum used waste-derived fuels at waste-to-energy plants in Finland, Sweden, Norway, Denmark, Lithuania as well as in Poland. Waste-derived fuels consist of both fossil/non-biomass (about 50 %) and bio-originated waste (about 50%).

Nuclear

Nameplate capacity (MW)

4,848

Gross electricity generation (GWh)

29,300

Net electricity generation (GWh)

28,591

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Fortum, including Uniper, has consolidated nuclear power production in Finland and Sweden. In 2020, Fortum's nuclear capacity was 1,487 MW in Finland and 3,361 MW in Sweden, and in total 4,848 MW.

Fossil-fuel plants fitted with CCS

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Fortum has ongoing carbon capture and storage (CCS) pilot project at the Klemetsrud waste-to-energy plant in Oslo, in Norway. Fortum's plan is to capture 400,000 tonnes, i.e. 90%, of the waste-to-energy plant's total CO₂ emissions (both fossil and bio-originated CO₂ emissions).

Geothermal

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Fortum has ongoing the geothermal plant project in Espoo, Finland. The new geothermal plant is expected to be commissioned in 2021.

Hydropower

Nameplate capacity (MW)

8,439

Gross electricity generation (GWh)

36,090

Net electricity generation (GWh)

32,484

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Fortum, including Uniper, has consolidated hydropower production in Finland, Sweden, and Germany. In 2020, Fortum's hydropower capacity was 1,553 MW in Finland, 4,895 MW in Sweden, 1,991 MW in Germany, and in total 8,439 MW.

Wind

Nameplate capacity (MW)

136

Gross electricity generation (GWh)

560

Net electricity generation (GWh)

493

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Fortum has wind power production mainly in the Nordic countries and Russia. In 2020, Fortum's wind power capacity was, among others, 99 MW in Norway, and 35 MW in Russia.

Solar

Nameplate capacity (MW)

285

Gross electricity generation (GWh)

670

Net electricity generation (GWh)

612

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Fortum has solar power production in Russia and India. In 2020, Fortum's solar power capacity was 35 MW in Russia and 250 MW in India.

Marine

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Other renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Other non-renewable

Nameplate capacity (MW)

1

Gross electricity generation (GWh)

5

Net electricity generation (GWh)

5

Absolute scope 1 emissions (metric tons CO2e)

3,000

Scope 1 emissions intensity (metric tons CO2e per GWh)

555

Comment

In 2020, Fortum used a small volume of peat in electricity generation in Estonia.

Total**Nameplate capacity (MW)**

50,297

Gross electricity generation (GWh)

146,884

Net electricity generation (GWh)

142,053

Absolute scope 1 emissions (metric tons CO2e)

41,964,500

Scope 1 emissions intensity (metric tons CO2e per GWh)

295

Comment

In 2020, Russia's share of Fortum's electricity generation was about 40%, and Russia's share of Fortum's total fuel consumption was about 57%. Of Fortum's direct carbon dioxide emissions from energy production, 63% originated from Russian operations, 18% from Germany, 7% from the United Kingdom, 6% from the Netherlands, and 1-2% from Finland.

C-EU8.4

(C-EU8.4) Does your electric utility organization have a transmission and distribution business?

No

C9. Additional metrics**C9.1**

(C9.1) Provide any additional climate-related metrics relevant to your business.

C-EU9.5a

(C-EU9.5a) Break down, by source, your total planned CAPEX in your current CAPEX plan for power generation.

Primary power generation source	CAPEX planned for power generation from this source	Percentage of total CAPEX planned for power generation	End year of CAPEX plan	Comment
Wind	1,000,000,000	33	2025	Fortum has published its indicative capital expenditure, CAPEX, plan for growth investments in 2021-2025. The growth CAPEX for 2021-2025 will be about EUR 3 bn. The renewables, such as wind and solar power, accounts for about 50-55% of total CAPEX, i.e. up to EUR 1,500 million in 2021-2025. The CAPEX split for wind power and solar power in approx. euros is only indicative. Capital expenditure will depend on market conditions, asset rotation, and balance sheet strength.
Solar	500,000,000	17	2025	Fortum has published its indicative capital expenditure, CAPEX, plan for growth investments in 2021-2025. The growth CAPEX for 2021-2025 will be about EUR 3 bn. The renewables, such as wind and solar power, accounts for about 50-55% of total CAPEX, i.e. up to EUR 1,500 million in 2021-2025. The CAPEX split for wind power and solar power in approx. euros is only indicative. Capital expenditure will depend on market conditions, asset rotation, and balance sheet strength.
Other, please specify Clean gas, e.g. hydrogen	500,000,000	17	2025	Fortum has published its indicative capital expenditure, CAPEX, plan for growth investments in 2021-2025. The growth CAPEX for 2021-2025 will be about EUR 3 bn. The share of the CAPEX for hydrogen and clean gas

				investments is up to EUR 500 million in 2021-2025. Capital expenditure will depend on market conditions, asset rotation, and balance sheet strength.
Nuclear	120,000,000	17	2021	The estimated annual capital expenditure (CAPEX) for Fortum, including Uniper, for 2021 is approx. EUR 1,400 million, including maintenance and excluding acquisitions. The share of maintenance is estimated to be EUR 700 million. The maintenance CAPEX for nuclear power is only indicative and based on the actual 2020 figures. This includes approximately EUR 120 million of nuclear power investments. The nuclear power activities are included in the Generation and Uniper segments. The maintenance capital expenditure in the Generation segment can be roughly divided in hydro and nuclear power.
Hydropower	140,000,000	20	2021	The estimated annual capital expenditure (CAPEX) for Fortum, including Uniper, for 2021 is approx. EUR 1,400 million, including maintenance and excluding acquisitions. The share of maintenance is estimated to be EUR 700 million. The maintenance CAPEX for hydropower is only indicative and based on the actual 2020 figures. This includes approximately EUR 140 million of hydropower investments. The hydropower activities are included in the Generation and Uniper segments. The maintenance capital expenditure in the Generation segment can be roughly divided in hydro and nuclear power.

C-EU9.5b

(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
Other, please specify Circular economy and TSO services	Fortum has published its indicative capital expenditure, CAPEX, plan for growth investments in 2021-2025. The growth CAPEX for 2021-2025 will be about EUR 3 bn. The waste-to-energy, recycling, as well as industrial and TSO (Transmission System Operator) services, accounts for about 25% of total CAPEX. Capital expenditure will depend on market conditions, asset rotation, and balance sheet strength.	750,000,000	25	2025
Other, please specify Venturing, innovation and digitalisation	Fortum has published its indicative capital expenditure, CAPEX, plan for growth investments in 2021-2025. The growth CAPEX for 2021-2025 will be about EUR 3 bn. The venturing, innovation and digitalisation accounts for about 5% of total CAPEX. Capital expenditure will depend on market conditions, asset rotation, and balance sheet strength.	150,000,000	5	2025

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	In 2020, Fortum spent EUR 56 (2019: 67) million on research and development (R&D), or 0.1% (2019: 1.2%) of sales. The majority of the R&D results are expected to be in use within the next five years.

C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other, please specify CO2-free energy, energy storages, demand response, utilisation of bio-originated materials	Small scale commercial deployment	81-100%	56	<p>In 2020, Fortum's R&D expenditure was EUR 56 million, or 0.1% of sales.</p> <p>Fortum's R&D activities aim at building a platform for future growth in, for example, wind and solar power, batteries and other energy storages, and demand response, which are necessary for low-carbon energy system in the future. Fortum's development activities of smart solutions have included, among others, the excess energy storage capacity in data centers, connecting customers' water heaters, home batteries, and developing digital solutions for operations of electric vehicle (EV) charging.</p> <p>For developing circular economy and improving resource efficiency, Fortum is also focusing on material recovery, as well as bio-originated materials, such as bio-textiles. Fortum develops continuously activities that increase the proportion of waste materials kept in circulation.</p> <p>For example, Fortum has developed an innovation that enables over 80% of EV (electric vehicle) lithium-ion battery materials to be recycled with a low-CO2 hydro-metallurgical recycling process. This improves Fortum's position and importance in the recycling of high-value materials in Europe.</p>

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Fortum CDP Addendum 2020.pdf

Page/ section reference

Fortum's Greenhouse Gas Emissions verification in 2020; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Verification or assurance cycle in place

Annual process


Status in the current reporting year


Complete

Type of verification or assurance

High assurance

Attach the statement

 EmissionReport_Suomenoja_Osa 2.pdf

 EmissionReport_Suomenoja_Osa 1.pdf

Page/ section reference

Verification Statement in 2020 (Suomenoja CHP plant); Part 1, pages: 1-5 and Part 2, pages:1-5

Relevant standard

European Union Emissions Trading System (EU ETS)

Proportion of reported emissions verified (%)

36

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Fortum CDP Addendum 2020.pdf

Page/ section reference

Fortum's Greenhouse Gas Emissions verification in 2020; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process


Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Fortum CDP Addendum 2020.pdf

Page/ section reference

Fortum's Greenhouse Gas Emissions verification in 2020; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3 (upstream & downstream)

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Fortum CDP Addendum 2020.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2020; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

 Fortum CDP Addendum 2020.pdf

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C7. Emissions breakdown	Year on year change in emissions (Scope 1)	International Standard on Assurance Engagements ISAE3410, Limited assurance	The verification referred to in C7. includes a comparison of annual emissions of 2020 and the previous year 2019.
C7. Emissions breakdown	Year on year change in emissions (Scope 2)	International Standard on Assurance Engagements ISAE3410, Limited assurance	The verification referred to in C7. includes a comparison of annual emissions of 2020 and the previous year 2019.
C7. Emissions breakdown	Year on year change in emissions (Scope 3)	International Standard on Assurance Engagements ISAE3410, Limited assurance	The verification referred to in C7. includes a comparison of annual emissions of 2020 and the previous year 2019.
C7. Emissions breakdown	Year on year emissions intensity figure	International Standard on Assurance Engagements ISAE3410, Limited assurance	The verification referred to in C7. includes a comparison of annual emissions of 2020 and the previous year 2019.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS

36

% of Scope 2 emissions covered by the ETS

96

Period start date

January 1, 2020

Period end date

December 31, 2020

Allowances allocated

886,670

Allowances purchased

16,596,180

Verified Scope 1 emissions in metric tons CO₂e

17,482,850

Verified Scope 2 emissions in metric tons CO₂e

773,200

Details of ownership

Facilities we own and operate

Comment

In 2020, of the Scope 1 direct CO₂ emissions, 17.5 million tonnes were within the EU emissions trading system (ETS). About 96% of CO₂ emissions from Fortum's energy

production in Europe were within the sphere of the EU ETS. Fortum was granted free emission allowances corresponding to 0.9 million tonnes. In terms of emission allowances, Fortum had a deficit and purchased the shortfall of emission allowances from the markets.

In total, 36% of Fortum's Scope 1 emissions were covered by the EU ETS.

In 2020, Fortum had power and heat plants in 12 member countries within the EU emissions trading system (ETS). Fortum owns power and heat plants and also operates them, or Fortum has outsourced the operation and maintenance activities of its power and heat plants to the partner.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Fortum's general strategy is to develop business in such a way that it is aligned with anticipated longer-term regulation. Fortum has expressed its support to the EU 2050 climate-neutrality goal, and Fortum also supports the revision of the EU 2030 climate target to at least 55%. Fortum's strategy for complying with the EU emissions trading system (ETS) comprises of two main elements: emission reduction measures including efficiency upgrades in Fortum's own installations (in-house abatement) and investment in low-carbon production and operation in the emissions trading scheme (purchase and selling of allowances). The individual compliance and trading strategies are defined by the relevant business divisions. In 2020, the refurbishments of Fortum's, excluding Uniper, own hydropower plants in Sweden and Finland produced 10 MW of new renewable electricity production capacity, which increased their annual electricity production by about 30 GWh. In 2020, Fortum also commissioned the rest of the wind turbines at the 99-MW Sørfjord wind power park in Norway and constructed the 90-MW Kalax wind power plant in Finland.

According to the Finnish Government Programme in 2019, Finland will be carbon neutral by 2035. This requires faster emissions reductions in all sectors and strengthening carbon sinks. In Finland, Fortum and the City of Espoo have committed to carbon-neutral district heating by 2029. The accelerated project for carbon-neutrality in 2020's is called Espoo Clean Heat. In summer 2020, Fortum replaced one of the two coal-fired units at the Suomenoja power plant by commissioning the Kivenlahti bio-fuelled heat plant in Espoo, Finland. Fortum has set a goal to discontinue the use of coal in Espoo in 2025.

The German Government has announced plans to achieve carbon neutrality in Germany by 2045. Fortum, including Uniper, will phase-out or exit its coal-fired power generation in Germany, with the exception of the coal-fired Datteln 4 power plant, by 2025, as well as in the United Kingdom by 2025, and in the Netherlands by 2029. In Germany, the 875-MW Heyden 4 coal-fired power plant was taken out of commercial power generation at the end of 2020. In June 2021, the German Federal Network Agency decided, that the power plant is still needed to serve as a reserve capacity until end of September 2022 in order to ensure the safe and secure operation of the power supply system. In April 2021, the 757-MW Wilhemshaven coal-fired power plant was set to cease operations by the end of 2021. Additionally, the construction project of two new CCGTs (Combined Cycle Gas Turbines) is ongoing to replace the existing Scholven coal-fired power plant 2022 onwards.

Replacing coal with natural gas in Central European energy production is one possible short- to medium-term way to reduce CO₂ emissions in Europe. Natural gas enables the transition to a

low-carbon energy system by enabling the growth of renewable power in the system, as well as by acting as fuel or feedstock for the industrial sectors. Fortum's strong position in the gas business also creates new business opportunities in providing clean gas solutions (e.g. hydrogen) and supporting industries in decarbonising their processes. Transitioning to a low-carbon energy system also enables the decarbonisation of other sectors through the coupling of CO₂-free power generation and green hydrogen. Over time, increasingly green gas will replace natural gas by decarbonising hard-to-electrify sectors and will provide flexibility and security of supply for the energy system.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase

Credit origination

Project type

Hydro

Project identification

Fortum has used the Certified Emission Reduction (CER) units received from the World Bank's Prototype Carbon Fund (PCF) to compensate for GHG emissions generated by employee air travel. In 2020, Fortum received a total of 25,326 CER units from this fund, and it has received a total of 2,881,000 CER units during the PCF's operating period. Fortum's GHG emissions from employee air travel have been compensated for since 2007, excluding Uniper. In 2020, Fortum's, excluding Uniper, GHG emissions of employee air travel were 1,500 CO₂-eq tonnes and decreased by about 75% from 2019 due to the Covid-19 pandemic.

Project number: UG755 West Nile Electrification Project, which has been implemented in the framework of the Prototype Carbon Fund (PCF) of the World Bank. The web site of the CDM: <https://cdm.unfccc.int/Projects/DB/SGS-UKL1163762379.92/>

Verified to which standard

CDM (Clean Development Mechanism)

Number of credits (metric tonnes CO₂e)

1,500

Number of credits (metric tonnes CO₂e): Risk adjusted volume

1,500

Credits cancelled

Yes

Purpose, e.g. compliance

Voluntary Offsetting

C11.3**(C11.3) Does your organization use an internal price on carbon?**

Yes

C11.3a**(C11.3a) Provide details of how your organization uses an internal price on carbon.****Objective for implementing an internal carbon price**

Stress test investments

GHG Scope

Scope 1

Application

Internal price on carbon pertains to Scope 1 emissions in the EU countries, and it is used in assessing the sensitivity of investments in Fortum's capital expenditure decisions. Fortum's investment proposals are subject to internal investment evaluation and approval process, where use of the internal price is checked. In addition to other commodity prices, the price of carbon is among the factors affecting the profitability of the investments. Carbon pricing is one of the parameters used for the analysis of Fortum's potential investments, and Fortum's investments, e.g., to wind power production were EUR 30 million in the Nordic countries in 2020.

However, the internal price on carbon based on the EU allowance price varies, not only with time, but also between different price scenarios used. Fortum does not disclose the actual internal price of carbon.

Actual price(s) used (Currency /metric ton)

32.7

Variance of price(s) used

Carbon pricing is one of the economic parameters used in Fortum. The figure disclosed for Fortum's internal price on carbon is an example based on the actual EU ETS price at the end of 2020: 32.7 EUR/ton CO₂.

The allowance price in the EU ETS (emissions trading system) has varied significantly (from almost 0 up to over 30 euros) during the years 2005-2020. At the end of 2020, price was around EUR 33 and this was more than three times higher than in the beginning of 2018. Consequently, the internal price on carbon based on the EU allowance price has also varied. The carbon price varies not only with time, but also between different scenarios.

Type of internal carbon price

Shadow price

Impact & implication

Carbon pricing is one of the parameters used for the analysis of Fortum's potential investments, with multiple price scenarios used to evaluate the impact on investment profitability. The inclusion of price scenarios with carbon prices above the current market prices allows better analysis of the benefits of Fortum's low-carbon investments, and also illustrates Fortum's potential risks of high-carbon alternatives.

The impacts of carbon pricing scenarios on Fortum's new investment project proposals are reviewed in light of the specific context of the location country and of its regulatory framework, which is affecting decision making. Fortum has decided to no longer pursue new developments in coal, believing that the European carbon price will significantly increase in the future in line with the tightening emission reduction targets and a carbon price will steadily be established also in the world's other regions and that coal-fired power plants will be adversely affected in the future.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

Climate change is integrated into supplier evaluation processes

Other, please specify

Fortum assesses its suppliers sustainability performance through supplier qualification process and audits. Qualification is valid for three years. Fortum sets requirements on climate change in Supplier Code of Conduct attached in contracts.

% of suppliers by number

16

% total procurement spend (direct and indirect)

77

% of supplier-related Scope 3 emissions as reported in C6.5

85

Rationale for the coverage of your engagement

Fortum assesses its business partners' sustainability performance through supplier qualification process and supplier audits. The supplier qualification is made when the contract value is 100 keur or more. In the qualification process, Fortum determines and assesses, e.g. the supplier's environmental management systems. At the end of 2020, 77% of Fortum's purchasing volume, excluding Russia Division and subsidiary Uniper, came from qualified suppliers. 93% of Fortum's fuel spend, excl. Uniper, came from qualified suppliers. Fortum's Russia Division uses its own supplier qualification process that is based on Russian procurement law.

In 2020, Fortum updated its Supplier Code of Conduct to strengthen emphasis on e.g. environmental responsibility. Suppliers are now required to consider the climate impact of their operations and to reduce greenhouse gas emissions where reasonable. Code acceptance is part of the supplier qualification process and the Code is appendix in Fortum's contracts with value 100 kEUR or more. Major breach of the Code may lead to co-operation termination.

Fortum and subsidiary Uniper are members in Bettercoal Initiative, whose Code's Principle 11 "Greenhouse Gas Emissions" states that coal suppliers shall have systems in place to measure, avoid and minimise greenhouse gas emissions.

Fortum uses biomass at several power plants, and Uniper at the Maasvlakte power plant in the Netherlands. Biomass is certified, at Fortum 50% and Uniper 100%. By using certified biomass, Fortum and Uniper ensure that forests from which biomass is sourced are managed sustainably. Certification standard FSC's global framework for forest management gives special attention to protecting the function of forests as net removers of CO₂ from the atmosphere and role as carbon storages.

In 2020, the majority of Fortum's, excluding Uniper, Scope 3 GHG emissions were caused by the fuel and energy related activities, such as the transportation of fuels and waste, about 89%. Fortum's, excl. Uniper, Scope 3 emissions were caused by the purchases of goods and services and the investments, 6% and 5% respectively, which are related to Fortum's suppliers. Other activities (e.g. employee business travel and waste management) accounted for less than 1% of Scope 3 GHG emissions.

Impact of engagement, including measures of success

Fortum measures the success of the engagement based on e.g. supplier qualification process results. At the end of 2020, 77% of Fortum's purchasing volume, excluding Russia Division and subsidiary Uniper, came from qualified suppliers. 93% of Fortum's fuel spend, excl. Uniper, came from qualified suppliers. Fortum's subsidiary Uniper collects ESG including climate responsibility information from 56% of its suppliers by number. Climate change and carbon information is collected for 8% by number of Uniper's gas and LNG suppliers corresponding to 52% of Uniper's total purchased gas volumes. When potential risks are identified during Fortum's qualification process, the supplier is asked to provide more information or a supplier audit is performed.

Depending on supplier's responses, Fortum may continue the qualification process, impose corrective actions, or decide not to qualify the supplier. As of May 2021, nearly 469 suppliers have been qualified based on the more extensive process when additional

information has been required from supplier. In 2020, six suppliers were audited out of the year's audit plan of 20 suppliers; Due to the Covid-19 pandemic and travel restrictions, the possibilities to conduct on-site supplier audits have been limited since March 2020.

In 2020, the share of Fortum's coal purchases from suppliers whose mines have undergone a Bettercoal site assessment was 53%, calculated in tonnes. All coal imported by Fortum to Europe comes from Bettercoal Suppliers. At year-end 2020, the share of coal purchased by Fortum's subsidiary Uniper via direct contract from Bettercoal suppliers was 68%.

As an example of engagement actions in fuel supply chain, in November 2020 Fortum's subsidiary Uniper became a member of the Oil and Gas Methane Partnership (OGMP) 2.0, a voluntary initiative to help oil and gas companies report and reduce methane emissions, foster transparency, and share best practices. Its aim is for the industry as a whole to reduce its methane emissions by 45% by 2025, and a 60-75 per cent reduction by 2030. Promoted by the European Commission and various NGOs, OGMP 2.0 fosters industry-wide collaboration, including with strategic upstream suppliers.

Comment

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Engagement with NGOs in the energy value chain

Non-governmental organizations (NGOs) are one important stakeholder group for Fortum and they have high expectations regarding , e.g., Fortum's responsibility for operations and risk management, promoting renewable energy production and discontinuing the use of coal, as well as transparent and reliable reporting. The dialogue about Fortum's Uniper investment and Uniper's coal power production continued actively with NGOs in 2020. Fortum and Uniper had an active dialogue with NGOs on coal phase-out, human rights issues along the coal supply chain, and the environmental impacts of gas exploration and transport. The NGOs were particularly opposed to Uniper's new Datteln 4 coal-fired power plant in Germany. The power plant was commissioned in May 2020, and Uniper's request for compensation for Netherlands' plan to phaseout coal powered electricity generation by 2030. Fortum's experts have also responded to presented questions, through blogs postings and by giving numerous media interviews.

Fortum actively engaged with stakeholders in various social media platforms in open dialogue, answering questions related to ESG topics and proactively producing fact sheets an information packages. To promote a constructive and fact-based conversation about climate change, Fortum collaborated with the Finnish journalist to produce a TV talk show discussing climate change from various angles. The journalist had full journalistic freedom over the script and invited guests, among others, representatives from NGOs, academia, and business. The series aired on Finnish primetime TV in November–December 2020. Fortum's key messages included that the transition to clean energy must be implemented systematically, without compromising the security of supply and with consideration to regional aspects. Reliable energy supply for consumers and industry at affordable price is also an important factor.

Engagement with partners in the circular economy value chain

Fortum offers sustainable circular economy services and expert solutions and provides resource-efficient recycling and waste solutions regarding, among others, plastic, oil, metals, and also lithium-ion batteries. Fortum takes hazardous waste out of circulation in a sustainable manner and cleans the hazardous substances from materials that end up in recycling. Fortum utilises materials of waste stream as efficiently as possible and reduces the formation of greenhouse gases (GHG) generated from biodegradable waste at landfills. Fortum also processes slag, sludge, and other masses for reuse in environmental construction and earthwork projects.

Fortum has the plastic refinery in Riihimäki, Finland. At the Riihimäki plastic refinery, Fortum produces mechanically recycled plastic from packaging waste recycled by consumers and industry, saving energy and natural resources. Many types of plastics can technically be recycled several times. When mechanical recycling is used, the carbon footprint for recycled plastics expressed as Global Warming Potential (GWP) can be up to 10 times smaller and save 1.0–1.5 kg of CO₂/kg of resin compared to using virgin plastic materials, thus supporting the EU's low-carbon path.

Waste that is unsuitable for recycling or reuse as a material is incinerated in Fortum's waste-to-energy (WtE) plants. At the same time, Fortum produces electricity and heat. Fortum has five WtE plants in Finland, Sweden, Denmark, Norway, and Lithuania; the three first of which are high-temperature incineration plants. High-temperature incineration is the best available solution for the destruction of hazardous substances safely.

Fortum's Zabrze CHP plant also combusts Refuse-Derived Fuel (RDF), and the share of waste is about 40% of the fuel use. Incineration of waste reduces the use of virgin fossil fuels, e.g., coal and fuel oil in electricity and heat production and, furthermore, reduce specific carbon dioxide emissions, because of energy-efficient power and heat production. Fortum has estimated that the Zabrze CHP plant will reduce CO₂ emissions by about 200,000 tonnes in relation to the produced energy.

In 2020, Fortum received a total of 2.6 million tonnes of waste from consumers and industry, 55% of which was recovered in its waste-to-energy plants. Of the received waste, about 2.0 million tonnes was non-hazardous, conventional municipal or industrial waste and about 640,000 tonnes was hazardous waste.

Additionally, Fortum offers in Finland a survey-based plan to its partners, which are interested in improving the whole waste management chain for a cleaner and more sustainable world. Based on a waste survey, Fortum is able to design the entire waste management system, including also training, advising and reporting after implementation.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

- Direct engagement with policy makers
- Trade associations
- Funding research organizations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Cap and trade	Support with minor exceptions	<p>In 2020, Fortum actively promoted a market-based energy and climate policy framework regarding the future EU long-term target setting, the emissions trading scheme and the functioning of the internal energy market. Fortum strongly advocated for the adoption of the EU 2050 climate neutrality objective and increasing the 2030 climate target to at least 55% reduction in the context of the European climate law. Fortum highlighted the need to strengthen the ETS by modifying the MSR, increasing the linear reduction factor (LRF) and improving the coherence between the EU ETS and complementary policies. The extension of the EU ETS was also highlighted, especially regarding heating and cooling sector. Fortum had extensive dialogue with several governmental organisations and politicians in the EU, the European Commission and the Parliament in particular, and member states. During the year Fortum participated in several international business initiatives promoting the role of business in climate change mitigation: Caring For Climate Initiative under the UN Global Compact and Carbon Pricing Leadership Coalition by the World Bank. Fortum has also been active in the Union of the Electricity Industry – eurelectric, which represents the common interests of the whole European electricity industry, and has participated in discussions with national authorities and other stakeholders.</p>	<p>Fortum is strongly committed to climate change mitigation and supports cap and trade-based emissions trading as the main climate policy instrument in Europe, because it is market based, technology neutral, cost efficient and flexible. Fortum considers the following measures necessary to strengthen the incentives generated by the EU ETS:</p> <ul style="list-style-type: none"> - Short term 2030 target of at least 55% of emission reductions. Align the Linear Reduction Factor (LRF) with the new EU 2030 climate target from 2023. Secure a strong Market Stability Reserve (MSR) that can tackle unforeseen imbalances and policy overlaps also beyond 2023. This includes a permanent “intake rate” of 24% and a narrowing of the activation threshold band (400-833 Mt) to reflect gradually declining hedging needs. Introduce carbon pricing in other sectors like maritime, heating of buildings and transport, possibly through separate transitional ETS with a plan for future integration under the current EU ETS cap. - Long-term (after 2030): Emissions reduction target as a headline target and the EU ETS as the key instrument to steer the EU climate policy. Other targets that have overlapping effects on the EU ETS – targets like those on renewable energy sources, energy efficiency and taxation – must be supportive of the EU ETS, if needed at all. This applies to the targets themselves as well as to the measures by which they are implemented in order to avoid a situation in which they water

			<p>down the incentives of each other. CO2 reduction targets based on the EU 2050 Strategy should be set for 2030-2050. In addition, extension of the ETS to new sectors should be carefully analysed.</p>
Carbon tax	Oppose	<p>Fortum has opposed carbon taxes in general and so called windfall tax in particular. Fortum has engaged in close collaboration with the European Commission in particular. Fortum has also been active in the Union of the Electricity Industry – Eurelectric, which represents the common interests of the whole European electricity industry, and has participated in discussions with national authorities and other stakeholders.</p>	<p>Fortum supports establishing a price on carbon via the EU emission trading system. To make sure the EU ETS delivers a meaningful price, there should be limited overlapping policies with it and having a parallel carbon tax, might hamper the functioning of the EU ETS. When designing energy and climate policy targets and measures to reach them, the EU must rely on the core source of its competitiveness i.e. well-functioning internal energy markets. EU cannot afford policy measures that do not exploit the internal market or which are non-market based and/or predominantly national. If the functioning of the emission trading is not addressed, the risk for national measures like CO2-taxes increases. This development must be reversed. In 2020 Fortum welcomed the EU's ambition to reduce emissions 55% by 2030. For the energy sector, where investments are capital intensive and with long lead times, it is crucial that the future energy and climate policy framework is predictable. In Fortum's view, a well-functioning and efficient internal energy market is essential for reaching the decarbonisation target in the most cost-efficient way, and lowering the overall social costs of decarbonisation. - The focus should be placed on carbon emission reduction. The future climate policy framework should be based on a</p>

			single binding headline target for CO2. - The EU should target at carbon neutrality by 2050.
Energy efficiency	Support with minor exceptions	In the revision of the EU energy efficiency legislation, Fortum has engaged in close collaboration with the European Commission, Parliament and Council. Fortum has also been active in the Union of the Electricity Industry – eurelectric, which represents the common interests of the whole European electricity industry, and has participated in discussions with national authorities and other stakeholders.	In the context of the new higher 2030 climate target for the EU, all of the energy related targets, emission reductions, renewables and energy efficiency targets are under review. In Fortum's view the energy efficiency directive's aim remains valid and the target adjustment should be considered to the extent it is needed for delivering the new 2030 climate target and in order to accelerate the primary energy savings in the heating and cooling sectors. Energy efficiency target should be updated to the extent necessary to reach the higher emission reduction target, while ensuring the impact of overlapping policies to the ETS is mitigated. Fortum supports the energy efficiency first -principle and emphasizes the importance of enhancing energy system integration and flexibility as part of the review. The Energy Efficiency Directive is an important way to help implement the national energy and climate plans prepared by the Member States where district heating and cooling (DHC) is acknowledged as an important technology in achieving a more energy-efficient and low carbon society.
Clean energy generation	Support with major exceptions	Fortum has engaged in close collaboration with the European Commission in particular. Fortum has also been active in the Union of the Electricity Industry – eurelectric, which represents the common interests of the whole European electricity industry, and has participated in discussions with	Fortum welcomed the ambition to raise the EU 2030 climate target. In Fortum's view clear emission reduction target coupled with emission trading system reform that sets the limit for cumulative emissions is the best way to reach the new target. Direct and indirect electrification is the most crucial element in decarbonization. In

		national authorities and other stakeholders.	Fortum's view clean energy deployment should be encouraged mainly by carbon pricing and it to the extent other instruments are put in place it is crucial that their impact on the ETS system is mitigated by adjusting the number of allowances auctioned. In boosting clean energy deployment the focus should not only be on renewables generation, but also other measures such as nuclear, CCUS and waste heat play a crucial role.
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C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Eurelectric

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Eurelectric is strongly committed to reducing carbon emissions and meeting the EU's climate targets for 2020-2050 and its 2050 climate vision. Delivering these targets and vision depends on an appropriate policy framework that enables cost-effective investments in low-carbon technologies. Eurelectric has consistently adopted a proactive approach in developing market-oriented policies and measures that will help to mitigate climate change.

In 2020, Eurelectric supported the EU climate neutrality objective for 2050 and welcomed the Commission's proposal for the European Green Deal.

How have you influenced, or are you attempting to influence their position?

Fortum is through the national associations represented in the Working Group Climate Change and Decarbonisation and several other groups at Eurelectric and has been actively contributing to the development of positions at Eurelectric. Fortum's

representative is currently vice chair of the Working Group Climate Change and Decarbonisation and has a continuous dialogue with the association.

Trade association

IETA (International Emissions Trading Association)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The International Emissions Trading Association (IETA) is a non-profit business organisation to establish a functional international framework for trading in greenhouse gas emission reductions. IETA members seek to develop an emissions trading regime that results in real and verifiable greenhouse gas emission reductions, while balancing economic efficiency with environmental integrity and social equity. IETA supports the ETS as the cornerstone of the EU's climate policy. According to IETA, ETS has achieved emissions reductions at a low cost, given its flexibility and links to the Kyoto mechanisms. IETA believes that structural reforms to the EU ETS thus need to be discussed as part of the wider future policy framework post-2020. The EU ETS cap - and its annual linear reduction factor - should be the main tool to reach the EU 2030 target.

How have you influenced, or are you attempting to influence their position?

Fortum is represented in several climate related working groups at IETA and has been actively contributing to the development of positions at IETA. Fortum has a continuous dialogue with the association.

Trade association

Finnish Energy

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Finnish Energy (FE) is the voice of over 270 member companies that produce, procure, distribute and sell electricity, gas, district heat and district cooling and related services. Finnish Energy supports the EU -55% by 2030 target, and the EU climate neutrality target by 2050. FE sees a market-based EU ETS as the key instrument to a carbon neutral future. FE welcomes the effort of strengthening the ETS, because alternative development would likely result in a fragmented climate policy, disintegrated internal energy market and high cost of transformation towards a low-carbon society. The changes to the ETS should be coordinated with regard to a broader energy and climate policy framework post-2020.

How have you influenced, or are you attempting to influence their position?

Fortum is represented in the Climate Change Committee, in the Board and Energy Production Committee at FE and has been actively contributing to the development of positions at FE. Fortum has a continuous dialogue with the association almost on a daily basis.

Trade association

Swedenergy

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Swedenergy is the united voice of Swedish energy industry. Swedenergy is representing companies involved in the production, distribution and trading of electricity and heating & cooling in Sweden – with a total of 400 member companies. Swedenergy believes that the EU ETS should become the main driver for cutting GHG emissions in line with the EU's commonly agreed long-term climate objectives. EU ETS assures that emissions are reduced in a cost-efficient manner within the sectors covered by the system in the EU.

The 2030 target for emission reduction together with a revised annual reduction factor in EU ETS, would help to increase the credibility of the EU Climate Change Policy and to provide the business society with visibility on the ambition levels aimed for beyond 2020 and thereby create incentives for long term investments in low carbon technology. Short term measures may however also be necessary to increase the credibility of EU ETS and to avoid introduction other, less cost-efficient measures, to rule out the role of EU ETS.

How have you influenced, or are you attempting to influence their position?

Fortum is represented in the Working Group Climate (with focus on EU ETS and other climate issues), in the energy and climate policy committee as well as in the supplier centric model committee at Swedenergy and has been actively contributing to the development of positions at Swedenergy. Fortum has a continuous dialogue with the association almost on a daily basis.

Trade association

Euroheat and Power

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Euroheat and Power (EHP) is the international network for district energy, promoting sustainable heating and cooling in Europe and beyond. Representing members from over 30 countries it is a non-for-profit association uniting the district energy sector and headquartered in Brussels, Belgium.

EHP membership includes national district heating and cooling associations, district

heating and cooling utilities, equipment manufacturers, academic institutions, research bodies and consultancies active in the sector. EHP strongly supports the EU long term climate ambitions. In particular, EHP advocates for more action and investments to decarbonise the heating sector in Europe, promoting district heating and cooling as one of the vehicles to integrate more renewable and low carbon heat to the energy mix. The district energy sector takes continuous steps in improving environment and climate action. The use of district energy leads to significant emissions reduction and ensures the transition to renewable energy and low-carbon technologies for heating and cooling. A number of current EU policies ensure the reduction of environmental impact and trigger modernization of existing district heating and cooling networks.

How have you influenced, or are you attempting to influence their position?

Fortum is represented in the Energy Policy Committee and in the Board of Directors and has been actively contributing to the development of association's positions. Fortum has a continuous dialogue with the association almost on a daily basis. The EU emissions trading system (ETS) covers district heating installations, whereas individual boilers do not fall under the scope of the current rules. Fortum believes that a revised ETS must help foster the development of efficient district heating networks and, more generally, the evolution of the heating sector in line with the EU's overall climate and energy ambitions. For example, a mechanism designed to expose individual (non-ETS) boilers to a carbon price signal should be established.

Trade association

COGEN Europe

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

COGEN Europe aligns with the importance of mitigating climate change. COGEN Europe's primary focus is on promoting the further utilization of high-efficiency co-generation for both industrial heat and district heating production. Key justification is the primary energy efficiency benefit, providing competitive heat base load capacity for industries and DH systems and security of supply in the electricity markets, of co-generation compared to separate production of required heat with heat-only boilers and separate production of electricity in a condensing power plant.

How have you influenced, or are you attempting to influence their position?

Fortum has delivered its views and positions mostly related to Energy Efficiency Directive, Renewable Energy Directive and to the role of co-generation in climate mitigation to COGEN Europe.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

Yes

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

This process is mainly governed and coordinated by Public Affairs function and the Public Affairs Steering Group in the company. The main task of Fortum's Public Affairs is to be aware of current and upcoming energy-related policy and legislation in the EU and in all countries where Fortum operates. This information is brought into the company's strategic and business decisions. Fortum's positions are prepared in close collaboration with business divisions, corporate relations, communication and sustainability experts. Positions to influence policy are approved by relevant business divisions and/or corporate functions. The positions take into consideration Fortum's strategy, Fortum's approach to climate change and Fortum's preferences in climate policy and policy instruments. The activities influencing policy are based on the established positions. The activities and key messages are coordinated and aligned throughout our operating countries. Fortum offers expert advice to decision makers and non-governmental organizations in energy-related issues. Fortum also takes part in consultations and provides authorities with constructive suggestions forming the basis of legislative proposals. Fortum engages in an active dialogue with authorities and decision-makers about key climate issues in the energy sector. In 2020 Fortum also started a process to align asses the alignment of its lobbying activities with the Paris agreement. This assessment will include a global review of Fortum's industry associations and their alignment with the Paris Agreement.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).


Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

 Fortum_financials2020.pdf

Page/Section reference

Fortum's Financials 2020 report: The part of Fortum's TCFD (Task Force on Climate-related Financial Disclosures) report in 2020 is included in the Financials 2020, pages: 21–24 and 34-35; Fortum's Non-Financial Information report is included in the

Financials 2020, pages: 10 and 21–26 .

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

 Fortum_Sustainability2020.pdf

Page/Section reference

Fortum's Sustainability 2020 report: Climate and Resources, pages: 22-52; Fortum's TCFD (Task Force on Climate-related Financial Disclosures) report for 2020 is included in the section Climate, pages: 29–38

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

 Fortum_CEOs_business_review2020.pdf

Page/Section reference

Fortum CEO's Business Review 2020, pages: 2-19, of total pages: 1-19

Content elements

Strategy
Emissions figures
Emission targets
Other metrics

Comment


Publication

In mainstream reports

Status

Complete

Attach the document

 Uniper-sustainability-report-2020-EN.pdf

Page/Section reference

Uniper Sustainability Report 2020, pages: 2-38, 55-65, 82-83, 87-102 of total pages: 1-102

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

 Decarbonisation_of_the_nordics_copenhagen_economics_fortum_2020.pdf

Page/Section reference

Decarbonising the Nordics, September 2020 report, pages: 1-34 of total pages: 1- 34

Content elements

Strategy
Risks & opportunities
Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

 fortum_plastics_review_2019.pdf

Page/Section reference

Fortum Plastics Review, September 2019, Plastics recycling in circular economy, pages: 12-15 and 18-20 of total pages:1-20

Content elements

Strategy
Risks & opportunities
Other metrics

Comment


Publication

In voluntary communications

Status

Complete

Attach the document

 Sustainability_at_fortum_2020.pdf

Page/Section reference

Sustainability at Fortum 2020 -presentation, pages: 2-8, 10-16, 27-32, of total pages: 1-41

Content elements

Emissions figures
Emission targets
Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

 Loviisa_Our_environment_2020_en.pdf

Page/Section reference

Loviisa Nuclear Power Plant Environmental report 2020, pages: 2, 5, 8-9, 12 of total pages: 1-12

Content elements

Emissions figures
Other metrics

Comment

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
--	-----------	----------------------------

Row 1	The President and CEO	Chief Executive Officer (CEO)
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Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission
I am submitting my response	Investors	Public

Please confirm below

I have read and accept the applicable Terms