Welcome to your CDP Climate Change Questionnaire 2022

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 2021, Fortum's reportable segments and reporting order are the following: Generation, Russia, City Solutions, Consumer Solutions, and Uniper. Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Fortum's key markets are the Nordic countries, Russia, Germany, the United Kingdom, the Netherlands, Hungary, Poland, and India. 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. With core operations in 12 countries, Fortum has employed a diverse team of almost 20,000 energy-sector professionals in 2021. Fortum's power generation is mainly based on natural gas-fired generation, and carbon dioxide-free hydro and nuclear power. Fortum targets to rapidly reduce the share of coal in power generation. 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 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. In 2021, Fortum also developed a new target for the reduction of indirect Scope 3 greenhouse gas (GHG) emissions, which play a significant role in our total greenhouse gas emissions.

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 2021, Fortum's activities covered the generation and sales of electricity, heat and steam, natural gas and other commodities, as well as related expert services and energy solutions that improve present and future life. In 2021, 64% of Fortum's power generation was CO2-free in Europe, and 40% of Fortum's total power generation was CO2-free globally. Fortum's aim is to increase renewable energy generation in future.
In 2021, Fortum's sales were EUR 112,400 million, and the comparable operating profit totalled EUR 2,536 million. In 2021, Fortum paid EUR 995 million in dividends to its shareholders, and Fortum's total taxes borne amounted to EUR 493 million. Fortum’s share is listed on Nasdaq Helsinki and its market capitalisation was EUR 23,975 million on the last trading day of 2021.
Fortum believes that the transformation of the electricity sector is making good progress, and, e.g., the EU emissions trading system (ETS) 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, 2021	December 31, 2021	No

C0.3

(C0.3) Select the countries/areas in which you operate.

Denmark
Finland
Germany
Hungary
India
Netherlands
Norway
Poland
Russian Federation
Sweden
United Arab Emirates

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

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	FI0009007132

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-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. In 2021, Fortum's Board focused, among others, on overall transformation of the business via strategic reviews, investments and divestments. Fortum's Board of Directors also focused on climate change related matters, including follow-up of the regulatory development. Fortum's Board of Directors is setting and following up the annual performance targets, including sustainability and climate-related targets, for the company and its management. In 2021, the most substantive climate-related decision made by Fortum's Board of Directors was to approve Fortum Group's new performance target for the reduction of indirect Scope 3 greenhouse gas (GHG) emissions. Scope 3 GHG emissions play a significant role in Fortum's total greenhouse gas emissions. 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. 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 Task Force on Climate-related Financial Disclosures (TCFD) reporting process, and the ARC reviews annually the Group Risk Policy, material risks, including climate-related risks, and uncertainties. By the CEO's designation the Senior Vice President, 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 FEM, and, as a C-suite officer, she has the executive-level responsibility for Fortum's TCFD reporting. Uniper is not represented in FEM. The Group also has an Executive Forum comprising executive managers of both companies focusing on climate matters on as-needed basis.

C1.1b

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

Frequency with which climate-	Governance mechanisms into	Please explain

related issues are a scheduled agenda item	which climate-related issues are integrated	
Scheduled – all meetings	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 Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	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 2021, Fortum developed a new target for the reduction of indirect Scope 3 greenhouse gas (GHG) emissions, which play a significant role in Fortum's total greenhouse gas emissions. 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 in Quarterly Performance Reviews. The achievement of the targets is regularly reported also to Fortum's Board of Directors (BoD). In its Annual Clock, the BoD has specific meetings dedicated for strategy and reviews Fortum's Risk Report and risk management policies. Performance objectives are set as part of the business planning process and reviewed in Quarterly Performance Reviews. This also includes review of actions. Major capital expenditures, acquisitions and divestments are handled at the BoD according to the requirements and timetables defined in the Fortum's Investment manual.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	One independent member of Fortum's Board of Directors has substancial competence in the area of sustainability, including climate-related matters. She has held multiple positions as a Head of Sustainability for multinational companies in various sectors.

		She is also a member of the Audit and Risk Committee. The Audit and Risk Committee reviews annually the Group Risk Policy, material risks, including climate-related risks, and uncertainties. It also monitors material risks and uncertainties, including but not limited to climate, financial, funding, IT-security related risks as well as tax risks and principles.

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
Other C-Suite Officer, please specify SVP Corporate Affairs, Safety and Sustainability	Both assessing and managing climate-related risks and opportunities	Quarterly

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 (Task Force on Climate-related Financial Disclosures) 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 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	Fortum's Board of Directors has approved climate-related targets, which are aligned with Fortum's strategy, as a part of Fortum's long-term incentive (LTI) programme. 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. In the 2022–2024 LTI plan, the target is related to the reduction of absolute CO2 emissions in the European fossil fleet, based on a fossil fleet review addressing Fortum Group's European generation portfolio and a pathway developed to reach Fortum Group's 2030 and 2035 climate targets. Uniper continues to follow its own LTI plans. However, the carbon-related metric in the 2022–2024 LTI plan is applicable to both companies. Scaling of LTI metric is company-specific.

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	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. 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. In the 2022–2024 LTI plan, the target is related to the reduction of absolute CO2 emissions in the European fossil fleet, based on a fossil fleet review addressing Fortum Group's European generation portfolio and a pathway developed to reach Fortum Group's 2030 and 2035 climate targets. The criteria for annual incentives (STI) which were paid in 2022 based on 2021 results were the Fortum Group's

			profitability and cash flow, achievement of individual targets as well as targets based on injury frequency for Fortum employees and for contractors. The Board of Directors can, at its discretion, take into consideration in the result also other sustainability performance, e.g., including the number of severe occupational accidents.
Corporate executive team	Monetary reward	Emissions reduction target	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. 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. In the 2022–2024 LTI plan, the target is related to the reduction of absolute CO2 emissions in the European fossil fleet, based on a fossil fleet review addressing Fortum Group’s European generation portfolio and a pathway developed to reach Fortum Group’s 2030 and 2035 climate targets. The criteria for annual incentives (STI) which were paid in 2022 based on 2021 results were the Fortum Group's profitability and cash flow, achievement of individual targets as well as targets based on injury frequency for Fortum employees and for contractors. The Board of Directors can, at its discretion, take into consideration in the result also other sustainability performance, e.g., including the number of severe occupational accidents.
Business unit manager	Monetary reward	Emissions reduction target	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. 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. 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. In the 2022–2024 LTI plan, the target is related to the reduction of absolute CO2 emissions in the European fossil fleet, based on a fossil fleet review addressing Fortum Group's European generation portfolio and a pathway developed to reach Fortum Group's 2030 and 2035 climate targets.

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	3	Fortum's medium-term time horizon for risk assessments is one to three years. This also corresponds to Uniper's medium-term horizon, which is a three-year forecasting horizon.
Long-term	3		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 (>3 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 consequence, if the risk event realizes. The impact is assessed on the following scales: monetary, health and safety, environment and reputation. Each impact scale has a specifically defined consequence ranging from 1 to 4 corresponding to 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. In 2022, Fortum is changing a new consequence ranging from 1 to 5 impact scales.

On the monetary scale, the impact is primarily assessed as the annual financial EBITDA deviation to 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 scales, such as health and safety, and environmental impact, are assessed, i.e. extreme temperatures or flooding may lead to medical cases or accidents, 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. 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 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 focuses on Fortum's medium-term risks, i.e. up to 3 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.

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, 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. 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. 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.
Emerging regulation	Relevant, always included	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. Anticipation of emerging regulation risks and opportunities is vital for the business development. For example, during 2021 the EU commission came up with several legislative proposals in the fitfor55 package to update practically all EU climate legislation to implement the target of reducing emissions by 55% compared to 1990. 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, the ongoing discussions in the EU around treatment of different carbon neutral technologies in the sustainable finance taxonomy poses 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. 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. Regulation related to production of hydrogen potentially distinguish between renewable and other carbon neutral technologies which is a risk for use of Fortum's nuclear assets in hydrogen production. 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 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. 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.
Technology	Relevant, always included	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. 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. 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. 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. 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.
Legal	Relevant, always included	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. In 2021, Fortum’s subsidiary Uniper sought judgement on whether the Netherlands decision to ban the use of coal by 2030 without compensation is in violation of the Energy Charter treaty. Each Fortum's Business division has established a system to comply with 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.
Market	Relevant, always included	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. 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 factor which affect the wholesale price of electricity on the Nordic market is the CO2 allowance price, which is dependent on the share of renewable energy as well as future regulation.

		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.
Reputation	Relevant, always included	Reputation risks are assessed as part of Fortum's company-wide risk assessment process. For Fortum, the Group's reputation and customers' and other stakeholders' satisfaction are top priorities in implementing the company's strategy and in growing the business. Fortum has set Group targets for customer satisfaction and reputation. 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. A broad-based dialogue will be needed 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. Substantial negative media can potentially have an impact on Fortum's brand and reputation. 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.
Acute physical	Relevant, always included	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. 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.

		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.
Chronic physical	Relevant, always included	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. 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 cooling water capacity, restrictions of cooling water extraction as return temperature is limited by the permits, and efficiency losses in water steam systems. 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.

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

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 2021, 64% 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.) Fortum has around 70 TWh of CO2-free electricity production annually in the Nordics that benefit from increasing carbon prices in the EU ETS.

The EU is currently in the process of updating its climate policy and potentially this 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 and in 2021 the EU commission made a proposal to tighten practically all of EU's climate related legislation. Currently the EU institutions are discussing the regulation needed for tightening of the 2030 climate target. 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 mostly avoided, because they entail a risk of watering down the functioning of the ETS steering impact. Overlapping policies will decrease the price of EU emission allowances that will result on lower power prices. This will have negative impact on Fortum's operations in the EU.

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)

70,000,000

Potential financial impact figure – maximum (currency)

140,000,000

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 2021, Fortum's power generation was 68.8 TWh in the Nordic area, and Fortum's electricity sales was EUR 5,319 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 70-140 million in an unhedged situation, corresponding to 2-4% of Fortum's total EBITDA (EUR 3,817 million) in 2021.
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 2021 (0.4 Mt) was about EUR 21,6 million using a carbon price of approx. EUR 54/t (i.e. an average price at the year-end 2021).
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

650,000

Description of response and explanation of cost calculation

As the EU proceeds in the legislation around fitfor55, Fortum is closely monitoring and advocating for a strong carbon pricing policy. Fortum's climate policy advocacy is strongly based on climate science, and support for the Paris Agreement is the core principle underpinning Fortum's climate advocacy. Fortum has expressed its support for the EU 2050 climate-neutrality goal and the revised 2030 target of at least 55% emission reduction, and Fortum continues to lobby for legislation and policy instruments that will facilitate a cost-efficient transition towards a climate-neutral Europe by 2050.
Since the early 2000s, Fortum has been a firm supporter of ambitious EU climate policy with the EU emissions trading system (ETS) as the main instrument to implement and drive the climate policy objectives in the sectors covered by the tool, i.e. energy and

industries. Fortum believes that market-based, technology-neutral, and flexible carbon pricing is the most efficient and cost-effective way to drive decarbonisation in Europe.
In 2021, 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 a 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.
In 2021, Fortum's EU area-specific lobbying costs, excluding Uniper, were about EUR 600,000 – 699,000. Climate policy related issues were one of the major areas of lobbying, and these are directly climate-related costs. These include the costs of Fortum's representation office in Brussels and EU related costs of the public affairs team.
Fortum also invests into renewable and CO2-free energy production capacity annually. In 2021, Fortum's investments in CO2-free energy production were EUR 335 million, of which volume investments to wind power production totalled EUR 29 million in the Nordic countries. Additionally, Fortum invested about EUR 170 million into hydropower production in Sweden, Finland, and Germany.

Comment

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.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation

Other, please specify

Mandates on future energy production

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

Fortum is actively involved in the development of the hydrogen economy and aims to build a gigawatt scale electrolyzer portfolio by 2030. The EU's commitment to pursuing the hydrogen economy can be seen from publishing of the hydrogen strategy in 2020 which was followed by the revision of the hydrogen and decarbonized gas market package in 2021. However, several ambiguities still need to be addressed, e.g. the clarification of technology neutrality in hydrogen production and the methodology to calculate the greenhouse gas emission reduction of low-carbon gases. Further, clarification is needed regarding the discussed controversial 'additionality principle' related to the Renewable Energy Directive (meaning that the corresponding capacity for renewable generation must be added specifically for each newly installed hydrogen production plant (electrolysis)).
The proposed regulation poses a risk for Fortum's existing carbon neutral assets as these would be in a worse position in contributing to the hydrogen production. Fortum has approximately 16 GW of renewable and or carbon-free power production capacity. In 2021, Fortum produced 68 TWh of CO2-free electricity in the Nordics.
Europe is currently using 10 million tonnes of hydrogen annually, exclusively for industrial purposes, mostly in chemicals such as methanol and ammonia, and in the refinery sector. In the future, the demand could be up to 50 million tonnes of hydrogen in the most ambitious hydrogen scenarios, which would require around 2,700 TWh of electricity – on top of the EU's current power demand of approximately 3,000 TWh annually. The regulation will be a key driver in defining how large the volumes of future hydrogen demand will be and which production methods can be used for the hydrogen production.
If the additionality principle is strictly implemented Fortum's existing carbon free assets in the Nordics will not be able to benefit from the increased demand for electrify used in hydrogen production.

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)

70,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Fortum has around 70 TWh of CO2-free electricity production annually in the Nordics. Under the current strict proposals the electrolyzers and their electricity use would be largely isolated from the rest of the electricity markets and not having a direct impact on the power price achieved by the installations that cannot contribute to the hydrogen production. In case the electricity demand increases in the Nordics by 1 TWh, this will have an impact of approximately 1€/MWh on the Nordic system price. If the EU hydrogen regulation would treat the existing Nordic electricity mix unfavorably the and the increased electricity demand from the hydrogen production would locate outside Nordic power market and not lead to higher average power prices this would lead to lost opportunities for Fortum. 1 €/MWh increase in the Nordic power prices has an impact of roughly EUR 70 million in EBITDA for Fortum.
The EU Renewable Energy Directive (RED II) proposes to limit the definition of Renewable Fuels of Non-Biological Origin (RFNBOs), i.e. hydrogen produced from electrolysers powered by renewable electricity, to hydrogen using “additional” renewable electricity. For the electricity to be considered fully RFNBO aligned the electricity needs to be from renewable electricity installations that are “additional” i.e. installed for the purpose of hydrogen production. Furthermore the electricity production and the hydrogen production need to correlate temporally and geographically i.e. the electrolyzer and the contracted renewable capacity operate during same hours and they are located in the same bidding zone. The strict criteria is currently proposed only for the transport sector, however, envisioned to be expanded to all sectors using hydrogen in the ongoing revision of the Renewable Energy Directive. These requirements would exclude the existing CO2-free capacity from RFNBO eligibility.

Cost of response to risk

650,000

Description of response and explanation of cost calculation

Fortum is mitigating the risk of exclusion of its existing assets from hydrogen production by being actively involved in the EU policy discussions. In 2021 commissioned a study together with other energy and industrial companies on the impacts of EU's proposed hydrogen regulations. Fortum has actively been involved in discussion with EU and national decision makers on the criteria for hydrogen production and advocated for a criteria that allow a fast ramp up of the hydrogen economy and the contribution of Fortum's existing carbon free assets. Fortum has expressed its support for the EU 2050 climate-neutrality goal and the revised 2030 target of at least 55% emission reduction, and Fortum continues to lobby for legislation and policy instruments that will facilitate a cost-efficient transition towards a climate-neutral Europe by 2050.
Since the early 2000s, Fortum has been a firm supporter of ambitious EU climate policy with the EU emissions trading system (ETS) as the main instrument to implement and drive the climate policy objectives in the sectors covered by the tool, i.e. energy and industries. Fortum believes that market-based, technology-neutral, and flexible carbon pricing is the most efficient and cost-effective way to drive decarbonisation in Europe.
In 2021, Fortum's EU area-specific lobbying costs, excluding Uniper, were about EUR 600,000 – 699,000 as reported in the EU transparency register. Fortum is mitigating the impacts of this by investing hundreds of million of euros in hydrogen production compatible with the proposed requirements in the coming years. Fortum is involved in

the discussion around the criteria's for hydrogen production and has commissioned studies with industrial companies on the proposed requirements. Fortum is a member of industry associations such as Hydrogen Europe which are in continuous dialogue with the EU policymakers on the definitions and criteria for hydrogen.

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

Changing temperature (air, freshwater, marine water)

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 Fortum's subsidiary 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)

12,000,000

Potential financial impact figure – maximum (currency)

24,000,000

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 2021, the average area price in Finland was EUR 72.3 /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 12 million per one week (168 h), and EUR 24 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 Fortum's subsidiary 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 2021, Fortum's investments into the Loviisa nuclear power plant totalled EUR 31 million. Fortum's subsidiary 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's subsidiary 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. Fortum's subsidiary 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)

130,000,000

Potential financial impact figure – maximum (currency)

260,000,000

Explanation of financial impact figure

In 2021, Fortum's electricity sales, including commodity trading, was EUR 26,005 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 130 million to EUR 260 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

In its first strategic priority, Fortum aims to decarbonise its own operations and power plants and to reduce emissions from these sources, while leveraging its strong position in gas to enable the energy transition. By 2030, Fortum will phase out or exit about 8 GW of coal-fired power generation compared to 2020. The closure of coal-fired power plants reduces energy supply in the European electricity market and, therefore, increases demand for less CO2-emitting power generation, e.g., gas-fired power generation and renewables.

Adjustable gas-fired power generation is needed to enable growth in the intermittent renewables, e.g., wind and solar power. Flexible gas-fired power generation can be used to balance fluctuations in solar and wind power production and to secure the supply of electricity. Fortum's subsidiary Uniper’s gas-fired power plants can respond quickly to fluctuations in power generation, which is important for power grid stability. The load factors of Fortum's subsidiary Uniper’s gas-fired fleet in Europe are currently low, especially in Germany. These gas-fired power plants are under-utilised which enables significantly higher running hours. In addition, Fortum's subsidiary Uniper’s coal-fired 345-MW Scholven C plant unit will be replaced by new gas-fired power generation, which are under construction during 2021-2022.

For Fortum's natural gas-fired power generation, alternatives to decarbonise and transition to increasingly clean gas (e.g. hydrogen) are being assessed and pursued continuously. Fortum is working on ways to replace or transform the use and supply of natural gas. In order to build long-term business opportunities, Fortum intends to invest in hydrogen and other 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 other 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 other clean gas growth. 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.

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 2021, 64% 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. Therefore, it is in Fortum’s strategy to partner with industrial customers to support them in their decarbonisation journey.

As the climate change mitigation requires reduction of fossil fuels in all sectors, there is also a need to decarbonise transportation. Electrification is seen as the most probable way to decarbonise passenger car transportation, including electric vehicles (EVs). By 2040, electric vehicles are estimated to present more than half of all new vehicles sold globally. Fortum actively promotes the adoption of electric vehicles by developing digital solutions that enable quick and convenient charging of electric vehicles.

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)

26,500,000

Potential financial impact figure – maximum (currency)

53,000,000

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 2021, Fortum's electricity sales was EUR 5,319 and 90.2 TWh in the Nordics. For example, 0.5-1% increase in Fortum's electricity sales would mean approximately EUR 26.5 million to EUR 53 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

In its first strategic priority, Fortum focuses 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 hydropower 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. Fortum’s investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation). At the end of 2021, Fortum and Uniper announced the investment decision for the construction of the 380-MW wind farm in Närpes and in Kristinestad, Finland. The wind turbines are expected to be fully commissioned in 2024.

One of the strategic actions is also the active dialogue with selected, energy intensive industry companies. The purpose of the dialogue is to discuss and develop a partnership in which Fortum’s role is to supply the clean energy solution that supports industry company’s decarbonisation strategy. At the same time, Fortum aims to provide decarbonisation and environmental solutions for industrial and infrastructure customers. In order to build new business opportunities, 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.
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 digital electric vehicle (EV) charging solutions to promote clean transportation in the Nordic countries, and also in India.

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 19% stake of Fortum's total power generation portfolio in 2021, 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 hydropower production, which was 36.3 TWh in 2021.
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)

23,000,000

Explanation of financial impact figure

The financial impact of potential change in hydropower production depends on the change in Fortum's hydropower production (36.3 TWh in 2021 and 32.5 TWh in 2020) and market price of electricity. The average system spot price in Nord Pool was EUR 62.3 /MWh in 2021, and EUR 10.9 /MWh in 2020. Thus, the direct impact as an increase on the value of sold electricity would be approximately EUR 4 million up to EUR 23 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

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.
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 conducted 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.
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 8,406 MW at the end of 2021. In 2021, Fortum, excluding Uniper, invested EUR 104 million into hydropower production in Sweden and Finland, mainly maintenance, legislation and productivity investments. Fortum's subsidiary Uniper invested in hydropower production EUR 66 million in Sweden, as well as in Germany.

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) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

Yes, we have a transition plan which aligns with a 1.5°C world

Publicly available transition plan

Yes

Mechanism by which feedback is collected from shareholders on your transition plan

We have a different feedback mechanism in place

Description of feedback mechanism

Fortum has committed 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.

Fortum, excluding Uniper, has an informal Advisory Council consisting of representatives of Fortum's key stakeholder groups as invited by the Board of Directors. The Advisory Council aims to increase the dialogue and the exchange of views between the company and its stakeholders. In collaboration with third parties, Fortum, excluding Uniper, annually conducts surveys regarding stakeholders' (incl. capital markets) expectations and opinions. These surveys help Fortum assess and respond to the important stakeholder groups' expectations and measure the success of its stakeholder collaboration. The surveys also provide information about sustainability trends and risks. The results are used in business planning and in identifying priorities for sustainability. Fortum, excluding Uniper, also uses the extensive One Fortum Survey to annually measure the company reputation as well as customer satisfaction and its development at different business units.

At the AGM (Annual General Meeting), Fortum shareholders voiced their climate agenda with many questions on Fortum's strategy implementation, decarbonisation, phase-out plan for the coal-fired power plants and biodiversity targets. Investors have varying views on climate-related topics, and Fortum is actively engaged in the dialogue with a broad range of different investors and investor coalitions. These dialogues are valuable for Fortum and the company utilises their input to constantly develop business operations and its strategic decarbonisation agenda to reflect also the requirements of the capital markets. Investor dialogue is constructive, and Fortum appreciates investor support in driving the energy transition. In addition to setting Group-wide climate targets, Fortum is working on increasing transparency on related areas, such as lobbying activities.

Fortum's TCFD (Task Force on Climate-related Financial Disclosures) report, including climate-related strategy and transition plan, is a part of Fortum Sustainability 2021 report in the section Climate, pages: 27–41 and in Fortum Financials 2021 report, pages: 25–28 and 39–40.

Frequency of feedback collection

Annually

Attach any relevant documents which detail your transition plan (optional)

Fortum_Sustainability_2021.pdf

C3.2

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

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios IEA 2DS	Company-wide		Fortum has three climate-related scenarios that relate to the main drivers of its operating environment: varying degrees of ambition in climate change and biodiversity loss mitigation, technological development, macroeconomic backdrop, 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. These scenarios are developed based on internal industry expertise in Fortum and Uniper, but closely benchmarked to various external benchmarks, such as IEA and Bloomberg NEF. 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 below +2°C global warming as a reference scenario. This scenario is 2DS compatible. The results of Fortum's scenario analysis have a direct and strong influence on Fortum's climate-related risks and opportunities, overall strategy and business objectives. Fortum's strategy needs to be built upon the scenario analysis, and the strategy consequently

			shapes the main 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 below +2°C pathway. Participation in Fortum's scenario analysis process is delegated company-widely in Fortum, and all Business divisions and business units are involved, but the Market Analysis teams in Fortum and Uniper, as well as Corporate Strategy have been the main process drivers and owners.
Physical climate scenarios RCP 4.5	Company-wide		The climate-related scenarios, which Fortum has utilised in its scenario analysis, relate to varying degrees of global warming temperatures between +1.5°C - +2°C and +2.5°C - +3°C by 2100. The current global ambition level represents the scenario with global warming temperatures between +2°C and +2.5°C by 2100. In this scenario, Europe's decarbonisation is close to -90% by 2050. These time-frames are commonly used by organizations such as the IPCC. Fortum's climate-related scenarios comply with RCP2.6 and RCP4.5. Participation in Fortum's scenario analysis process is delegated company-widely in Fortum, and all Business divisions and business units are involved, but the Market Analysis teams in Fortum and Uniper, as well as Corporate Strategy have been the main process drivers and owners.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

Examples of focal questions: What kind of shift in energy demand is expected when the society decarbonizes? How does the shift vary between the scenarios? How to ensure security of supply and affordability during transition?

Fortum's climate-relates scenario analysis focuses on the possibilities and impacts of reducing global and European CO2 emissions. Special emphasis is on the European power and gas sectors which can provide carbon-free and low-carbon energy for reducing emissions in the whole economy. Sector integration with hydrogen and other gases produced by electricity, as well as carbon-free district heat production are essential elements of the future energy system. The impacts of CO2 pricing, as well as investment cost and technology development are studied in the scenario analysis. The

analysis seeks to find optimal development paths for the needed major future investments in European industrial transformation, carbon-free power generation, hydrogen production, and system flexibility.

Results of the climate-related scenario analysis with respect to the focal questions

Decarbonization of the society shifts energy demand from fossil fuels to CO2-free energy sources. The largest growth is expected in the CO2-free electricity and clean gas (e.g. hydrogen) demand. The demand growth for CO2-free electricity and clean gas is estimated to take place in all climate-related scenarios, only the timing and volume of the growth varies between the scenarios.
In the power generation 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, and studying measures to reduce their emissions. 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. In 2021, findings from the scenario analysis were used as key inputs supporting Fortum’s FEM and Board of Directors to approve new climate-related targets.

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	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. In 2020, Fortum announced a new strategy and its commitment to carbon neutrality. 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. In line with its strategy, as described in C2.4a Opportunities,

		Fortum aims to build on its first-mover position in hydrogen economy. Fortum's subsidiary Uniper is a pacesetter in low-carbon hydrogen, and its first 'power-to-gas' unit in Falkenhagen, Germany, entered service already in 2013. In 2020-2021, Fortum and Uniper announced plans to cooperate in green hydrogen production with Perstorp, a chemicals company that aims to produce sustainable methanol in Sweden. 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. 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 pandemic in 2020-2021. 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. The significance and magnitude of impact of identified opportunities in relation to products and services is high.
Supply chain and/or value chain	Yes	Fortum's most significant climate-related risks in the company's supply chain are related to fuel procurement, particularly coal, natural gas, and biomass. Fortum both transforms own operations to carbon neutral, which reduces the need for fossil fuel use, and utilises supply chain management, e.g., country and counter-party risk assessments, supplier qualification and supplier audits, including climate-related issues. 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. At year-end 2021, Fortum Group's coal volume purchased via

		direct contract from Bettercoal suppliers was 67%. Fortum is actively working towards diversification of the coal procurement sources to its power plants in Europe to improve the security of supply. To mitigate risks related to gas supply chain, Fortum's subsidiary Uniper is actively working to make the energy supply more secure by driving further diversification of the company's gas procurement sources. To support this and to help meet the predicted growing demand for gas, Uniper is expanding its LNG business and is currently looking at the potential of building an LNG terminal in Wilhelmshaven in Germany. 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 2021, nearly 86% of the wood-based biomass fuel purchased by Fortum Group originated from certified sources; certified wood-based biomass fuel originates from sustainably managed forests. This percentage excludes biomass purchases in the Baltic countries, where Fortum completed the sale of its CHP plants and district heating networks in July 2021. The significance and magnitude of impact of identified risks in relation to the supply chain is from low to medium.
Investment in R&D	Yes	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). In 2021, Fortum spent EUR 61 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. In 2021, Fortum's Bio2X programme, which is partly funded by Business Finland, continued the project to evaluate the

		possibilities for building a biorefinery in Germany that would utilise straw as raw material. Straw can offer a new source of raw material for the production of sustainable materials and chemicals. Fortum, excluding Uniper, also collaborated with about 40 universities, universities of applied sciences, and research institutions in different countries in 2021. 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. The significance and magnitude of impact of identified opportunities in relation to investments in R&D is high.
Operations	Yes	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. 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 developed new wind power plants in the Nordic countries in 2021. 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. 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. As described in C2.4a Opportunities, Fortum has the 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. 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. In 2021, Fortum's, excluding Uniper, combined energy savings of the energy-efficiency improvement projects were 179 GWh/a. In 2021, Fortum's subsidiary Uniper also implemented energy-efficiency improvement projects at the 428-MW Gönyü CCGT (Combined Cycle Gas Turbine) power plant in Hungary, and at the 442-MW Enfield CCGT plant in the UK. The significance and magnitude of impact of identified risks in relation to operations is from low to medium.

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	Capital expenditures and allocation: Fortum capital expenditure for growth investments is prioritised for climate-related opportunities. More than half is indicatively assigned for renewables, a significant share for hydrogen and other clean gases, and rest for environmental and security of supply solutions. Fortum Group is the third largest CO2-free power generator in Europe. Fortum aims to become carbon neutral by reducing the coal based power production rapidly, and convert natural gas based power generation into clean gas over time. Fortum targets significant growth in the renewable energy over the next five years. 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. In 2021, Fortum's investments were EUR 335 million (about 30% 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 293 million. In 2021, Fortum invested EUR 29 million into wind power production in the Nordic countries. Fortum, excluding Uniper, invested EUR 100 million in hydropower production, mainly maintenance, legislation and productivity investments, and Fortum's subsidiary Uniper invested EUR 66 million in hydropower production. In 2021, Fortum's investments also included solar investments in India EUR 32 million. Acquisitions, divestments and assets: Fortum acquires and invests in renewable and CO2-free energy

		production assets, as described in C2.3a Risks and C2.4a Opportunities. Fortum targets to build 1.5–2 GW of new renewable power generation by 2025, primarily in Europe. Fortum's investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation). The 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. At the end of 2021, Fortum and Uniper announced the investment decision for the construction of the 380-MW wind farm in Närpes and in Kristinestad, Finland. The wind turbines are expected to be fully commissioned in 2024. In Finland, Fortum and the City of Espoo have together committed to make the district heating network in Espoo area carbon-neutral by 2029. Fortum has set an intermediate goal to discontinue the use of coal in Espoo in 2025. In 2021, the new 25-MW heat pump unit was commissioned at the Suomenoja plant, Espoo. 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, in the United Kingdom by 2024, and in the Netherlands by 2029. In Germany, Uniper's the lignite-fired 900-MW Schkopau power plant was sold in 2021. The 757-MW Wilhelmshaven power plant ceased coal-fired power generation at the end of 2021, and the focus will be on hydrogen. Additionally, there is an ongoing construction project of two new CCGTs to replace the existing coal-fired Scholven power plant. In July 2021, Fortum sold its coal-fired Argayash CHP plant. Following the decision earlier in 2021 to transition from coal to gas at the Chelyabinsk CHP-2 plant, this transaction will reduce annual CO2 emissions by approximately 2 million tonnes and allow the Russia division to discontinue its use of coal by the end of 2022. Revenues: The strategic actions described above adjust Fortum revenues to be more resilient to climate-related risks. The CO2 allowance price enables faster transition as CO2 allowance price is among the most decisive factors affecting the electricity price and 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.

		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, 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. 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. Direct and indirect costs: 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. 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. 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.

C3.5

(C3.5) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s transition to a 1.5°C world?

Yes

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization’s transition to a 1.5°C world.

Financial Metric

CAPEX

Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)

60

Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)

100

Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)

100

Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world

Fortum aims to decarbonise its own operations and to strengthen and grow in CO2-free power generation. Fortum's target is to build 1.5–2 GW of new renewable energy capacity by 2025, primarily in Europe. Fortum's investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation).
In 2021, Fortum invested EUR 335 million in CO2-free energy production globally, EUR 188 million into gas-based production in Uniper and Russia, and EUR 48 million in district heat networks in City Solutions and Russia. Additionally, Fortum's investments in Consumer Solutions totalled EUR 52 million, and this amount consists of, e.g., new product development costs. The total Capital expenditure was EUR 1,117 million.

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 about 50-55% of total CAPEX, i.e. up to EUR 1,500 million in 2021-2025. Fortum also intends to invest in clean gas (e.g. hydrogen) development, and the share of the growth CAPEX for hydrogen and other 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 renewables growth, as wells as hydrogen and other clean gas growth.

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)

Scope 1
Scope 2
Scope 3

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Category 1: Purchased goods and services
Category 2: Capital goods
Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)
Category 4: Upstream transportation and distribution
Category 5: Waste generated in operations
Category 6: Business travel
Category 7: Employee commuting
Category 8: Upstream leased assets
Category 9: Downstream transportation and distribution
Category 10: Processing of sold products
Category 11: Use of sold products

Base year

2019

Base year Scope 1 emissions covered by target (metric tons CO2e)

67,496,200

Base year Scope 2 emissions covered by target (metric tons CO2e)

1,561,700

Base year Scope 3 emissions covered by target (metric tons CO2e)

120,228,000

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

189,285,900

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

100

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2050

Targeted reduction from base year (%)

100

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

0

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

69,082,100

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

842,100

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

120,228,000

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

190,152,200

% of target achieved relative to base year [auto-calculated]

-0.4576674755

Target status in reporting year

Underway

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

In 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 greenhouse gas emissions), in line with the goals of the Paris Agreement, by 2050 at the latest. Fortum Group includes Uniper's total Scope 1 and 2 greenhouse gas (GHG) emissions in its base-year 2019 for Scope 1 and 2 GHG emissions. As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020.

In 2021, Fortum also developed a new target for the reduction of indirect Scope 3 greenhouse gas (GHG) emissions, which play a significant role in Fortum's total GHG emissions. Fortum has committed a reduction of Scope 3 GHG emissions by 35% by 2035 at the latest, compared to its base-year 2021 for Scope 3 GHG emissions.

Plan for achieving target, and progress made to the end of the reporting year

In Fortum's first strategic priority, Fortum focuses on reducing CO2 emissions from its own operations, is committed to carbon neutrality, and aims to drive the clean energy transition. By 2030, Fortum will phase out or exit about 8 GW of coal-fired power generation. Fortum has built a solid track record of its decarbonisation path to reach carbon neutrality while ensuring security of supply also in exceptional times.
Fortum also strengthens and grows in CO2-free power generation. Fortum targets to build 1.5–2 GW of new renewable power generation by 2025, primarily in Europe. Fortum's investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation). In 2021, Fortum's CO2-free power generation, including renewable energy and nuclear power, was 75 TWh. 64% of Fortum's power generation in Europe, and 40% of Fortum's total power generation globally was CO2-free.

List the emissions reduction initiatives which contributed most to achieving this target

Target reference number

Abs 2

Year target was set

2020

Target coverage

Country/region

Scope(s)

Scope 1
Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2019

Base year Scope 1 emissions covered by target (metric tons CO2e)

26,168,000

Base year Scope 2 emissions covered by target (metric tons CO2e)

1,527,300

Base year Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

27,695,300

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

50

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

50

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

40

Target year

2030

Targeted reduction from base year (%)

50

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

13,847,650

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

30,035,200

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

818,300

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

30,853,500

% of target achieved relative to base year [auto-calculated]

-22.8067578253

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

Please explain target coverage and identify any exclusions

In 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.

Plan for achieving target, and progress made to the end of the reporting year

Fortum focuses on its own operations and power plants and reduce CO2 emissions from these sources. By 2030, Fortum will phase out or exit about 8 GW of coal-fired power generation. Fortum also grows in CO2-free power generation. Fortum targets to build 1.5–2 GW of new renewable power generation by 2025, primarily in Europe. Fortum’s investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation). In 2021, Fortum’s CO2-free power generation, including renewable energy and nuclear power, was 75 TWh, and 64% of Fortum's power generation was CO2-free in Europe.

List the emissions reduction initiatives which contributed most to achieving this target

Target reference number

Abs 3

Year target was set

2020

Target coverage

Country/region

Scope(s)

Scope 1
Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2019

Base year Scope 1 emissions covered by target (metric tons CO2e)

26,168,000

Base year Scope 2 emissions covered by target (metric tons CO2e)

1,527,300

Base year Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

27,695,300

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

40

Target year

2035

Targeted reduction from base year (%)

100

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

0

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

30,035,200

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

818,300

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

30,853,500

% of target achieved relative to base year [auto-calculated]

-11.4033789127

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

Please explain target coverage and identify any exclusions

In 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.

Plan for achieving target, and progress made to the end of the reporting year

Fortum focuses on its own operations and power plants and reduce CO2 emissions from these sources. By 2030, Fortum will phase out or exit about 8 GW of coal-fired power generation. Fortum also grows in CO2-free power generation. Fortum targets to build 1.5–2 GW of new renewable power generation by 2025, primarily in Europe. Fortum’s investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation). In 2021, Fortum’s CO2-free power generation, including renewable energy and nuclear power, was 75 TWh, and 64% of Fortum's power generation was CO2-free in Europe.

List the emissions reduction initiatives which contributed most to achieving this target

Target reference number

Abs 4

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 3

Scope 2 accounting method

Scope 3 category(ies)

Category 1: Purchased goods and services
Category 2: Capital goods
Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)
Category 4: Upstream transportation and distribution
Category 5: Waste generated in operations
Category 6: Business travel
Category 7: Employee commuting
Category 8: Upstream leased assets
Category 9: Downstream transportation and distribution
Category 10: Processing of sold products
Category 11: Use of sold products

Base year

2021

Base year Scope 1 emissions covered by target (metric tons CO2e)

Base year Scope 2 emissions covered by target (metric tons CO2e)

Base year Scope 3 emissions covered by target (metric tons CO2e)

120,228,000

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

120,228,000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

100

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2035

Targeted reduction from base year (%)

35

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

78,148,200

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

120,228,000

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

120,228,000

% of target achieved relative to base year [auto-calculated]

0

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 target coverage and identify any exclusions

In 2021, Fortum developed a new target for the reduction of indirect Scope 3 greenhouse gas (GHG) emissions, which play a significant role in Fortum's total GHG emissions. Fortum has committed a reduction of Scope 3 GHG emissions by 35% by 2035 at the latest, compared to its base-year 2021 for Scope 3 GHG emissions.

Plan for achieving target, and progress made to the end of the reporting year

In 2021, Fortum set a Scope 3 greenhouse gas (GHG) emissions target. The Scope 3 target relates mainly to strategic priorities: 'Leverage the strong position in gas to enable the energy transition' and 'Partner with industrial and infrastructure customers'.
Fortum is a significant provider of flexible gas-fired generation and a major provider and trader of gas for European energy and industrial customers. Fortum will decarbonise gas-fired power generation and transition to clean gases (e.g. hydrogen) over time, and Fortum is actively assessing and pursuing opportunities for this.
Fortum will utilise its competences to help customers reduce their carbon footprint and environmental impacts. Examples of services include grid stability services to TSOs

(Transmission System Operators), waste-to-energy and recycling solutions, and low-carbon industrial solutions. Fortum will also build on its first-mover position in hydrogen to support industries to decarbonise their processes.

List the emissions reduction initiatives which contributed most to achieving this target

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, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next 2 years

Please explain target coverage and identify any exclusions

In 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. In the European generation, the target is to be carbon neutral already earlier, in 2035 at the latest. Fortum Group includes Uniper's total Scope 1 and 2 greenhouse gas (GHG) emissions in its base-year 2019 for Scope 1 and 2 GHG emissions. As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020.

In 2021, Fortum also developed a new target for the reduction of indirect Scope 3 greenhouse gas (GHG) emissions, which play a significant role in Fortum's total GHG emissions. Fortum has committed a reduction of Scope 3 GHG emissions by 35% by 2035 at the latest, compared to its base-year 2021 for Scope 3 GHG emissions.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Unsure

Planned milestones and/or near-term investments for neutralization at target year

Planned actions to mitigate emissions beyond your value chain (optional)

In Fortum's first strategic priority, Fortum focuses on reducing CO2 emissions from its own operations and is committed to carbon neutrality, and aims to drive the clean energy transition. By 2030, Fortum will phase out or exit about 8 GW of coal-fired power generation. Fortum also strengthens and grows in CO2-free power generation. Fortum targets to build 1.5–2 GW of new renewable power generation by 2025, primarily in Europe. Fortum's investments in renewables, such as wind and solar power, are mainly done through partnerships (e.g. joint ventures and associates or other forms of cooperation). In 2021, Fortum's CO2-free power generation, including renewable energy and nuclear power, was 75 TWh. In 2021, 64% of Fortum's power generation in Europe, and 40% of Fortum's total power generation globally was CO2-free.
Fortum's subsidiary Uniper is currently assessing all options to mitigate emissions, including prevention and mitigation measures, CCS (Carbon Capture and Storage), CCU (Carbon Capture and Utlisation), and offsetting in order to reach carbon neutrality by 2050.

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 CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	6	275,000
Implementation commenced*	0	0
Implemented*	7	138,600
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

Energy efficiency in production processes

Machine/equipment replacement

Estimated annual CO2e savings (metric tonnes CO2e)

370

Scope(s) or Scope 3 category(ies) where emissions savings occur

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 2021, Fortum invested EUR 104 million into hydropower production in Sweden and Finland, mainly maintenance, legislation, and productivity investments. The investment programme includes, e.g., Fortum's Utanen hydropower plant in Finland. The total investments in energy-efficiency improvements at hydropower plants are approx. EUR 10 million annually. In 2021, Fortum completed the refurbishments of hydropower plants in Sweden and Finland with the capacity increase of 5 MW, resulting in the CO2-free power generation increase of 8 GWh annually.

Initiative category & Initiative type

Low-carbon energy generation

Other, please specify

Heat pump

Estimated annual CO2e savings (metric tonnes CO2e)

35,700

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
1,140,000

Investment required (unit currency – as specified in C0.4)
8,010,000

Payback period
4-10 years

Estimated lifetime of the initiative
21-30 years

Comment
In Finland, the Espoo Clean Heat project is transforming the City of Espoo's district heating to carbon neutral by 2029. In 2021, the new 25-MW heat pump unit was commissioned at the Suomenoja plant in Espoo, Finland.

Initiative category & Initiative type
Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
88,000

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
10,500,000

Investment required (unit currency – as specified in C0.4)
800,000

Payback period
1-3 years

Estimated lifetime of the initiative
11-15 years

Comment

Fortum's subsidiary Uniper's Datteln 4 power plant in Germany: By retrofitting drives on all burner swirl flap cabinets and integrating them directly into the main control system, the combustion swirl could be adjusted automatically depending on the coal quality (e.g. the volatile components) via the linkage located outside the burner. Same efficiency despite burning lower coal qualities leads to considerable savings in two main areas: Coal consumption reduction and CO2 emission reductions. The project completed in 2021.

Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

7,600

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

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

191,000

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

62,000

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

Fortum's subsidiary Uniper's Gönyü power plant in Hungary: Utilising existing anti-icing system to improve efficiency at part load operation. The project determined the operating conditions (load, ambient) at which the air-inlet heating could be used to improve the plant efficiency. Based on project results, predicted CO2 savings of 7,600 t/year. The project completed in 2021.

Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

130

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
202,000

Investment required (unit currency – as specified in C0.4)
15,000

Payback period
1-3 years

Estimated lifetime of the initiative
16-20 years

Comment
Fortum's subsidiary Uniper's Franken 1 power plant in Germany: Root cause analysis of combustion instabilities, particularly during start up. These require significant intervention from the operators to manage the risk of power reduction, exceeding emissions and unit trips. Recommendations for improvements. Estimated CO2 saving about 130 t/year, The project completed in 2021.

Initiative category & Initiative type
Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
4,400

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
375,000

Investment required (unit currency – as specified in C0.4)
2,500,000

Payback period
1-3 years

Estimated lifetime of the initiative
16-20 years

Comment

Fortum's subsidiary Uniper's CDC power plant in the UK: Assessment of installation of anti-icing system similar to Gonyü started in 2021 to improve efficiency at part load operation. Estimated CO2 saving about 4,440 t/year.

Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

2,400

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

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

388,000

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

36,000

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

Fortum's subsidiary Uniper's Grain power plant in the UK: Assessment of increasing the fuel gas primary heat temperature to increase operational efficiency started in 2021. Estimated CO2 reduction about 2,400 t/year (based on 30°C fuel gas temperature increase on all three units).

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	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. In 2021, Fortum’s, excluding Uniper, combined energy savings of the

	energy-efficiency improvement projects were 179 GWh/a. Significant projects improving energy efficiency were completed in 2021, among others, the new heat pump at the Suomenoja plant in Finland, produces 104 GWh carbon-neutral energy annually. Additionally, improvements in heat recovery and decreasing leakages in the district heat network in the Espoo–Kirkkonummi area, Finland, increased energy production by 11 GWh annually. Hydropower plant refurbishments with the new renewable electricity capacity of 5 MW in Finland and Sweden, excluding Uniper. This enables to produce an additional 8 GWh electricity annually.
Internal price on carbon	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. In 2021, of the direct carbon dioxide emissions, 28.9 million tonnes were within the EU and the UK emissions trading system (ETS). 96% of CO2 emissions from Fortum's total energy production in Europe were within the sphere of the EU ETS. 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. Progress in performance of internal carbon price is followed-up monthly and reported to the Fortum Executive Management and Fortum Board of Directors on regular basis.
Dedicated budget for low-carbon product R&D	Fortum's each new research and development (R&D) project is assessed against the criteria of carbon dioxide emissions reduction and resource efficiency. In 2021, Fortum spent EUR 61 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. 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. 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.
Internal incentives/recognition programs	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. Develop Sales and Commercialisation Excellence is one of Fortum's, excluding Uniper, four Must-Win Battle (MWB) programs for 2019–2021. By MWB development programs, Fortum prioritized competences and topics needed for successful implementation of Fortum's strategy. The initiative brought a considerable change within the areas of strategic customer management, online marketing, value sales, and sales training. Partnering with industrial and infrastructure customers was a strategic priority of the project, and was well achieved. The projects' implementation continues in Fortum’s business units and business functions. Fortum's Business Technology, Innovation and Venturing team has also organized 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 2021, Fortum and Uniper continued cooperation to identify and implement synergy benefits for both companies. Fortum has, e.g., supported the One Team strategic cooperation areas of Nordic hydropower, physical trading optimisation, wind and solar development, and hydrogen projects. In 2021, Fortum also started sales cooperation with Uniper, e.g., in areas of nuclear decommissioning and dismantling services, and battery recycling.
Employee engagement	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. 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.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

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

Type of product(s) or service(s)

Power

Other, please specify

Hydropower, wind and solar power, nuclear power, bio-originated fuels

Description of product(s) or service(s)

Fortum is one of the Nordic countries' leading sellers of CO2-free and guarantees-of-origin-labelled electricity. Fortum sells CO2-free electricity to its customers in the Nordic countries and Poland, as well as in Germany. Fortum's electricity and heat products replace in certain cases the customer's alternative and more carbon intensive energy production and consequently reduce greenhouse gas emissions. Especially this concerns Fortum's eco-labelled products, which are CO2-free. The origin of the electricity produced from renewable energy sources, such as hydropower, wind and solar power, was guaranteed with European guarantees of origin (GoO). Some of the sold electricity is also guaranteed with, e.g., the pan-European Eko Hydro and Eko Wind label granted by environmental organisations and, in Sweden, with the Bra Miljöval label.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Other, please specify

European guarantees of origin (GoO) and other eco-labels, and Residual Mix methodology

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Cradle-to-gate

Functional unit used

The avoided CO2 emissions are calculated based on the Nordic Residual Mix methodology.

Reference product/service or baseline scenario used

The residual mix is a key tool for avoiding double counting of the same amount of electricity from a certain energy source. Fortum uses the European Residual Mix calculation methodology based on AIB in its CO2 emission calculations. The AIB develops, uses and promotes a European, harmonised and standardised system of energy certification for all energy carriers: the European Energy Certificate System.

Life cycle stage(s) covered for the reference product/service or baseline scenario

Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

2,800,000

Explain your calculation of avoided emissions, including any assumptions

Fortum sells CO2-free electricity, which is certified with European Guarantees of Origin (GoO) of eco-labels on national nature conservation associations. Nuclear power is also categorized as CO2-free electricity generation. 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 2021, the avoided CO2 emissions by Fortum's electricity sales were approx. 2.8 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.

In 2021, Fortum's electricity sales to private and commercial customers was about 30 TWh in the Nordic countries, and also in Poland. Over 50% of the electricity sales was guaranteed by CO2-free energy sources, mainly hydropower and other renewable energy sources. The share of CO2-free nuclear power generation was about 16%.

In 2021, Fortum's power sales was EUR 5,909 million (including netting of Nord Pool transactions), of which about 40% (EUR 2,253 million) was electricity sales to customers and about 60% (EUR 3,656) was power sales of electricity generation, excluding Uniper. Power sales of electricity generation in Russia accounted for EUR 761 million.

In 2021, the majority of Fortum's, excluding Uniper, electricity production was CO2-free in Europe (i.e. 97%), and electricity production in Russia was mainly fossil-fueled. This results about 68% revenue from CO2-free power products. The figure excludes Uniper.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

68

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 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 Fortum's subsidiary Uniper's gas storage sites and natural gas and LNG supply chain. Fortum's subsidiary Uniper has gas storage sites in Germany, the United Kingdom and Austria, and capacity for re-gasifying liquefied natural gas (LNG). Gas storage sites 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 2021, Fortum's Scope 1 greenhouse gas (GHG) emissions were 69.1 million CO2-eq tonnes, and this accounted for about 36% of Fortum's total greenhouse gas (GHG) emissions. The majority of Fortum's Scope 1 direct CO2 emissions, 68.7 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 99.4%, and the share of methane (CH4) emissions was only 0.1% 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 carries out preventive maintenance activities and planned refurbishments regularly at all power plants, as well as gas storage sites, in 12 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, Fortum's subsidiary 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.
Fortum's subsidiary Uniper has had several ongoing projects and studies to develop methane leak detection and repair, and venting minimisation at Uniper's gas storage sites, among others (2021 update):
- Flaring of emissions from labyrinth seals of compressor units (ESE) in operation
- Definition of closed relief areas to minimize vent gas (Epe 2017, Bierwang, implemented 2016)
- Access points in process piping (Bierwang, implemented 2017) - possibility to route gas to CHP that is not directly connected concept study in progress

- Compressed air or nitrogen as replacement for methane actuator gas (Bierwang, implemented 2017) Most of the actuators were replaced, still ongoing
- Losses from planned maintenance measures are flared (ESE) in operation
- Mobile GDRM to route high to low pressure gas usage (Epe) implemented in 2021

Fortum's subsidiary Uniper has also upcoming projects and measures at Uniper's gas storage sites:

- 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 from 2023
- Exchange of pony turbos of ME01 & 02 (gas driven à air driven) concept study done, replaced from 2023
- Ongoing studies on flash gas tanks to reduce flash gas emissions
- Ongoing studies on leakage detection systems (detection by drones, cars, cameras etc.)
- Amending the discharging groups and change of drying units on well pads in Bierwang in 2022
- Reduce emission from gas analyzers in Epe from 2022 and ESE from 2024
- Reduce emission from gas analyzers in BW from 2025, and in Holford from 2026

Fortum's subsidiary Uniper's LNG shipments including relevant climate relevant information are requested and gathered by the LNG suppliers. In 2020-2021, 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 2022 response, in C.EU4.6.)

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in boundary	Fortum's subsidiary Uniper's Scope 3 emission boundary was increased due to availability of (calculated) emission factors for Scope 3 category 4 (mainly EF for Pipeline Gas in the EU and USA) and a wider boundary of Scope 3 category 11 (now including sales to resellers in addition to end-users), both impacting Uniper's Scope 3 emission accounting significantly if compared to the previous year.

C5.1c

(C5.1c) Have your organization's base year emissions been recalculated as result of the changes or errors reported in C5.1a and C5.1b?

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	No, because the impact does not meet our significance threshold	Fortum Group, including Uniper, has committed carbon neutrality (Scope 1, 2, and 3 emissions) globally, in line with the goals of the Paris Agreement, by 2050 at the latest. The increase in Uniper's Scope 3 emissions due to a change of Scope 3 emission boundary does not have an impact the carbon neutrality target.

C5.2

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

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 for Scope 1.

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 for Scope 2.

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 for Scope 2.

Scope 3 category 1: Purchased goods and services

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

930,400

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 2: Capital goods

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

380,800

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

22,285,400

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 4: Upstream transportation and distribution

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

17,170,800

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 5: Waste generated in operations

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

26,000

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 6: Business travel

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

1,600

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 7: Employee commuting

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

6,300

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 8: Upstream leased assets

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

56,900

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 9: Downstream transportation and distribution

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

54,600

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 10: Processing of sold products

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

140,900

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3.

Scope 3 category 11: Use of sold products

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

79,174,300

Comment

Fortum Group includes Uniper's total Scope 3 greenhouse gas emissions in its base year 2021 for Scope 3. Fortum Group's Scope 3 expanded as category 11 now also includes sales to resellers in addition to sales to end-users.

Scope 3 category 12: End of life treatment of sold products

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

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 downstream emissions that would be reported

on Fortum Group level. Fortum's all Scope 3 downstream emissions have been assessed and disclosed.

Scope 3 category 13: Downstream leased assets

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

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 downstream emissions that would be reported on Fortum Group level. Fortum's all Scope 3 downstream emissions have been assessed and disclosed.

Scope 3 category 14: Franchises

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

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 or downstream emissions that would be reported on Fortum Group level. Fortum's all Scope 3 downstream emissions have been assessed and disclosed.

Scope 3 category 15: Investments

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

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 or downstream emissions that would be reported on Fortum Group level. Fortum's all Scope 3 downstream emissions have been assessed and disclosed.

Scope 3: Other (upstream)

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

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.

Scope 3: Other (downstream)

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

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 downstream emissions that would be reported on Fortum Group level. Fortum's all Scope 3 downstream emissions have been assessed and disclosed.

C5.3

(C5.3) 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)

69,082,100

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2021, Fortum's Scope 1 greenhouse gas emissions accounted for about 36% 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.

C6.3

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

Reporting year

Scope 2, location-based

650,700

Scope 2, market-based (if applicable)

842,100

Comment

As the majority owner of Uniper, Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. In 2021, Fortum's Scope 2 greenhouse gas emissions accounted for less than 1% of total greenhouse gas emissions.

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

Emissions in reporting year (metric tons CO2e)

930,400

Emissions calculation methodology

Average spend-based method

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

100

Please explain

(i) The volumes and categories of purchased goods and services are based on Fortum's, excluding Uniper, and Uniper's purchasing databases. Fortum has assessed Fortum Group's Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Emission data from EXIOBASE has been used in the calculation of 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 biggest source of uncertainty in the reported emissions is the emission factors (score: fair) for spending on different groups of goods and services. The data on spending of purchases is relatively accurate (score: good).
(iii) As a part of the assessment, Fortum has estimated the Group's 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.
(iv) Regarding the Scope 3 category 1 and 2 division of spends, Fortum has added more precision to the spend categorisation, which determines EXIOBASE emission factors. In addition, precision is added with introducing EUR 1 million spend threshold, which marks spends that need more precise categorization into Scope 3 categories 1 and 2. The logic of EUR 1 million threshold follows GHG Protocol's technical guidance of identifying spends between category 1 'Purchased goods and services' and category 2 'Capital goods'.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

380,800

Emissions calculation methodology

Average spend-based method

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

100

Please explain

(i) The volumes and categories of capital goods are based on Fortum's, excluding Uniper, and Uniper's purchasing databases. We have assessed Fortum Group's Scope 3 emissions based on GHG Protocol's Corporate Value Chain Accounting and Reporting Standard. Emission data from EXIOBASE has been used in the calculation of 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 biggest source of uncertainty in the reported emissions is the emission factors (score: fair) for spending on different groups of goods and services. The data on spending of purchases is relatively accurate (score: good).
(iii) As a part of the assessment, Fortum has estimated the Group's 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.
(iv) Regarding the Scope 3 category 1 and 2 division of spends, Fortum has added more precision to the spend categorisation, which determines EXIOBASE emission factors. In addition, precision is added with introducing EUR 1 million spend threshold, which marks spends that need more precise categorization into Scope 3 categories 1 and 2. The logic of EUR 1 million threshold follows GHG Protocol's technical guidance of identifying spends between category 1 'Purchased goods and services' and category 2 'Capital goods', as well as the nature of typical category 2 spends.

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

22,285,400

Emissions calculation methodology

Average product method
Fuel-based method
Distance-based method

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

50

Please explain

(i) Fuel data (primary data) is from Fortum's databases. Emission factors (secondary data) are based on literature and publicly available information (Ecoinvent, DEFRA, VTT Finland, IPCC). The GWP values IPCC Fifth Assessment Report, 2014 (AR5), 100-year time horizon. Sold electricity volumes (primary data), as well as upstream emissions of purchased electricity and heat (primary data), are from Fortum's, excluding Uniper, and Uniper's databases. Emission factors (secondary data) are based on literature and publicly available information (AIB, DEFRA).
(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 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 Group. Fuel data (score: very good) from Fortum's own statistics is reliable and accurate. Sold electricity data (score: good) from Fortum's own statistics is reliable.
(iii) Emissions from fuel value chains include emissions from fuel production (e.g. mining, refining and processing), fuel transportation and storage. Emission factors from international and national sources have been applied for each part of the value chain.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

17,170,800

Emissions calculation methodology

Fuel-based method

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

50

Please explain

(i) Primary data for upstream transportation is from Fortum's, excluding Uniper, and Uniper's database. Emission factors (secondary data) are based on publicly available information (DBI carbon footprint).
(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 biggest uncertainty is related to emission factors (score: fair) applied.
(iii) Upstream transportation of Fortum's own use of fuels, as well as upstream emissions of purchased electricity and heat, are already accounted for in Scope 3 category 3 (Fuel- and energy-related activities).

Waste generated in operations

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

26,000

Emissions calculation methodology

Waste-type-specific method

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

100

Please explain

(i) Waste data has been collected from Fortum Group’s environmental data management systems and covers all operations of the company. 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 (score: very good) is from Fortum's own company sources. 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 biowaste, 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.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,600

Emissions calculation methodology

Fuel-based method

Distance-based method

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

100

Please explain

(i) The data consists of air travel, which is the most important source of business travel emissions for Fortum Group in its operation countries. The data also includes Fortum's, excluding Uniper, use of leased cars 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 Group's Travel Agencies, and the data is reliable, but not fully representative, as it may not cover the company's all operating countries. Emission factors from a Finnish LIPASTO database, and IPCC are reliable (score: good).
(iii) Air travel reports were provided by Fortum Group's Travel Agencies. Fortum's, excluding Uniper, CO2 emission calculation for traffic exhaust emissions and fuel consumption is based on the Finnish VTT LIPASTO database. CH4 and N2O emissions are calculated using IPCC 2006 emission factors.

Employee commuting

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

6,300

Emissions calculation methodology

Distance-based method

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

0

Please explain

(i) The emissions have been estimated based on publicly available data and in-house calculations (assuming 25% of staff using own car and distance from home to work in average 17 km). Company benefit cars are included in Scope 1 emissions and reported separately. 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 (score: poor) for employee commuting is not available. The employee commuting distance is an average estimate and not based on any 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 reliable (score: good).
(iii) The emissions have been estimated based on publicly available data and in-house calculations (assuming 25% of staff using own car and distance from home to work in average 17 km). Company benefit cars are included in Scope 1 emissions and reported separately.

Upstream leased assets

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

56,900

Emissions calculation methodology

Fuel-based method

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

50

Please explain

(i) Primary data for upstream transportation is from Uniper's database. An emission factor (secondary data) for marine fuel oil is based on publicly available information (DEFRA).
(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 biggest uncertainty is related to the emission factor (score: fair) applied.

Downstream transportation and distribution

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

54,600

Emissions calculation methodology

Fuel-based method

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

50

Please explain

(i) Primary data for upstream transportation is from Uniper's database. Emission factors (secondary data) for marine fuel oil and other transportation fuels are based on literature and publicly available information (DEFRA).
(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 biggest uncertainty is related to the emission factors (score: fair) applied.
(iii) 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 4 and 8, correspondingly.

Processing of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

140,900

Emissions calculation methodology

Average product method

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

100

Please explain

(i) The volume of sold products (gypsum) has been collected from Fortum’s own environmental data management systems. 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.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

79,174,300

Emissions calculation methodology

Average product method

Fuel-based method

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

100

Please explain

(i) The volume of sold fuel data (primary data) is from Fortum's, excluding Uniper, and Uniper's databases. Emission factors (secondary data) are based on literature and publicly available information (DEFRA).

(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 scored the quality of primary and secondary data as very good/good/fair/poor. 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. Sold fuel data (score: good) from Fortum's own statistics is reliable.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

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’s does not manufacture products that would require end-of-life treatment. Therefore, the Scope 3 category 12 'End of life treatment of sold products' does not apply to Fortum’s operations.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

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 relevant downstream leased assets that would be reported at the Group level. Therefore, the Scope 3 category 13 'Downstream leased assets' does not apply to Fortum's operations. Upstream leased assets (i.e. vessels) are included in Scope 3 category 8 'Upstream leased assets'.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

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 category 14 'Franchises' does not apply to Fortum's operations.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

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 category 15 'Investments' does not apply to Fortum's operations. Fortum is a shareholder in a Finnish hydropower company Kemijoki Oy and in a Finnish nuclear power company TVO, among others. Production of hydropower and nuclear power is CO2-free (Scope 1 emissions), and the companies do not disclose their Scope 2 and 3 CO2 emissions publicly.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

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

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 downstream 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.

	CO2 emissions from biogenic carbon (metric tons CO2)	Comment
Row 1	2,491,000	In 2021, Fortum's total direct biogenic carbon dioxide emissions were about 2.5 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

0.00062

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

69,924,300

Metric denominator

unit total revenue

Metric denominator: Unit total

112,400,000,000

Scope 2 figure used

Market-based

% change from previous year

39

Direction of change

Decreased

Reason for change

In 2021, Fortum's Scope 1 and 2 GHG emissions increased by about 40% and revenue increased by about 129% compared to 2020, resulting in total decrease of 39% 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 CO2e)	GWP Reference
CO2	68,718,550	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	250,500	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	112,550	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	400	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	100	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 CO2 emissions	Gross Scope 1 methane emissions	Gross Scope 1 SF6 emissions	Total gross Scope 1 emissions	Comment

	(metric tons CO2)	(metric tons CH4)	(metric tons SF6)	(metric tons CO2e)	
Fugitives	400	16,800	100	17,300	Fortum's Scope 1 emissions of fugitives includes CH4, SF6, HFCs, and refrigerants in CO2-eq.
Combustion (Electric utilities)	68,709,900	95,700	0	69,056,100	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)	8,700	0	0	8,700	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	39,115,250
Germany	13,744,800
United Kingdom of Great Britain and Northern Ireland	8,611,200
Netherlands	4,425,150
Hungary	832,400
Finland	815,200

Poland	811,500
Sweden	226,900
Norway	200,300
Denmark	154,000
United Arab Emirates	48,000
India	0
Other, please specify Emissions from the Baltic countries, divested in the end of June 2021.	97,400

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	15,662,650
City Solutions	2,200,750
Generation	6,300
Uniper	51,212,400

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	69,056,100	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. 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 2021, the share of Scope 1 direct GHG emissions accounted for about 36% of Fortum's total

		GHG emissions. The share of carbon dioxide from Fortum's Scope 1 GHG emissions was 99%.

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	115,200	Decreased	0.2	Increased use of biomass identified at two Fortum's CHP plants in Poland. Additionally, the increased use of bio-originated waste fuels identified at Fortum's waste-to-energy plants Denmark, Finland and Norway in 2021. These changes decreased Fortum's Scope 1 + 2 GHG emissions about 115,200 t CO2e. Emission value calculated as = (actual) Scope 1+2 emissions (2021) - (production (2020) * specific emissions (2020) + Scope 2 (2020))) / total Scope 1+2 emissions (2020). Emission value: (-16,700-5,500-20,200-38,300-34,500) / 49,855,500 =(-115,200)/49,855,500 =-0.2%
Other emissions reduction activities	284,700	Decreased	0.6	Less coal-fired power and heat production at Fortum's Suomenoja CHP plant and Meri-Pori power plant in Finland, as well as the Zabrze HOBs plant in Poland, decreased Fortum's direct CO2 emissions in 2021. Additionally, the higher energy efficiency at five CHP plants in Russia decreased the CO2 emissions in 2021. These activities decreased Fortum's Scope 1 + 2 GHG emissions about 284,700 t CO2e.

				Emission value calculated as = (actual Scope 1+2 emissions (2021) - (production (2020) * specific emissions (2020) + Scope 2 (2020))) / total Scope 1+2 emissions (2020). Emission value: (-41,700-6,900-5,600-135,700-20,900-73,200-700) / 49,855,500 =(-284,700)/49,855,500 =-0.6%
Divestment	649,100	Decreased	1.3	Divestments of CHP plants and HOBs, in the Baltic countries, and the Argayash CHP plant in Russia, decreased Fortum's Scope 1 + 2 GHG emissions about 649,100 tCO2e compared to 2020. Emission value: (-27,400-14,200-88,700-518,800)/19,354,600 =(-649,100)/49,855,500=-1.3%
Acquisitions	11,256,000	Increased	22.6	Fortum's acquisition of Uniper increased Fortum's Scope 1+2 GHG emissions by 2,156,300 tCO2e compared to 2020. Fortum has consolidated Uniper as a subsidiary as of 31 March 2020. Emission value: (Uniper's Scope 1 + 2 GHG emissions in 2021 - Uniper's Scope 1 + 2 GHG emissions as of Q2/2020) / (total Scope 1+2 emissions (2020)) = (11,256,000)/49,855,500 =22.6%
Mergers	0	No change	0	No mergers in 2021
Change in output	9,280,600	Increased	18.6	Fortum's GHG emissions increased, because of the increased power and heat production at Fortum's power plants. Emission value calculated as = (production (2021) * specific emissions (2020)) - actual emissions (2020)) / (total Scope 1+2 emissions (2020)). Fortum's subsidiary Uniper's electricity generation also increased in 2021 compared to 2020; the value (7,900,000 t) is estimated. Emission value: (9,280,600)/49,855,500 =18.6
Change in methodology	0	No change	0	No change in methodology in 2021

Change in boundary	0	No change	0	No change in boundaries in 2021
Change in physical operating conditions	590,000	Increased	1.2	The secondary drivers for Fortum's subsidiary Uniper's increased emission volumes in 2021 over 2020 were: high commodity (particularly gas) price volatility of commodities, resulted in a shift towards relative higher coal-fired generation in 2021 compared to 2020, and the first full-year operation of new coal-fired power plant Datteln 4 in Germany (started in May 2020). The value (590,000 t) is estimated. Emission value: (590,000)/49,855,500 =1.2
Unidentified	0	No change	0	No unidentified changes in emissions in 2021
Other	0	No change	0	No other change in emissions in 2021

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)	7,195,500	345,839,300	353,034,800
Consumption of purchased or acquired electricity		376,400	2,255,400	2,631,800
Consumption of purchased or acquired heat		0	24,600	24,600
Consumption of self-generated non-fuel renewable energy		41,066,400		41,066,400
Total energy consumption		48,638,300	348,119,300	396,757,600

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.

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

4,102,400

MWh fuel consumed for self-generation of electricity

2,395,250

MWh fuel consumed for self-generation of heat

913,650

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

793,500

Comment

In 2021, Fortum 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.

In 2021, nearly 86% of the wood-based biomass fuel purchased by Fortum Group originated from certified sources; certified wood-based biomass fuel originates from sustainably managed forests. This percentage excludes biomass purchases in the Baltic countries, where Fortum completed the sale of its power plants in July 2021.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

689,800

MWh fuel consumed for self-generation of electricity

402,750

MWh fuel consumed for self-generation of heat

153,650

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

133,400

Comment

In 2021, Fortum 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. Biomass and other biofuels are carbon-neutral, and they are not emitting fossil CO2 emissions in combustion.

In 2021, nearly 86% of the wood-based biomass fuel purchased by Fortum Group originated from certified sources; certified wood-based biomass fuel originates from sustainably managed forests. This percentage excludes biomass purchases in the Baltic countries, where Fortum completed the sale of its power plants in July 2021.

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

3,955,800

MWh fuel consumed for self-generation of electricity

320,450

MWh fuel consumed for self-generation of heat

301,100

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

3,334,250

Comment

In 2021, Fortum used other renewable fuels such as agrobiomass, bio-originated waste, and bio-originated hazardous waste in the Nordic countries, the Netherlands, the Baltic countries, and Poland. Fortum's Scope 1 greenhouse gas emissions (GHG) have been calculated and analysed on the basis of plant-specific data. Agrobiomass, bio-originated waste, and bio-originated hazardous waste are carbon-neutral, and they are not emitting fossil CO2 emissions in combustion.

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

73,046,400

MWh fuel consumed for self-generation of electricity

47,526,700

MWh fuel consumed for self-generation of heat

214,300

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

25,305,400

Comment

In 2021, Fortum's use of coal was about 21% of total fuel consumption globally. Fortum used hard coal in energy production in Germany, the United Kingdom, Russia, the Netherlands, Poland, and Finland. 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 and the UK 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 2021, about 42% of Fortum's total Scope 1 CO2 emissions are subject to the EU and the UK 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%.

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

626,400

MWh fuel consumed for self-generation of electricity

438,700

MWh fuel consumed for self-generation of heat

130,700

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

57,000

Comment

In 2021, 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 and the UK 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 2021, about 42% of Fortum's total Scope 1 CO2 emissions are subject to the EU and the UK 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 fuel oil having an uncertainty 2-5%. Thus the estimated accredited uncertainty is in total less than 5%.

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

213,823,000

MWh fuel consumed for self-generation of electricity

154,722,300

MWh fuel consumed for self-generation of heat

357,500

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

58,743,200

Comment

In 2021, Fortum's use of natural gas was about 61% of total fuel consumption globally. Fortum 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 80% 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 and the UK 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 2021, about 30% of Fortum's total Scope 1 CO2 emissions are subject to the EU and the UK 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%.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

56,791,000

MWh fuel consumed for self-generation of electricity

55,907,700

MWh fuel consumed for self-generation of heat

28,750

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

854,550

Comment

In 2021, Fortum used other non-renewable fuels such as fossil-originated waste, fossil-originated hazardous waste, and peat. Fortum also used uranium as nuclear fuel (55,907,700 MWh) in Finland and Sweden. Use of uranium is not emitting CO2 or GHG emissions, and, therefore, nuclear power generation is CO2-free electricity.
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 2021, about 30% of Fortum's total Scope 1 CO2 emissions are subject to the EU ETS, and these emissions have an uncertainty 0-2%.

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

353,034,800

MWh fuel consumed for self-generation of electricity

261,713,850

MWh fuel consumed for self-generation of heat

2,099,650

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

89,221,300

Comment

Fortum uses various fuels, such as natural gas, coal, lignite, uranium, biomass fuels, and waste-derived fuels, to produce electricity, heat, and steam. In 2021, Russia's share of Fortum's total fuel consumption was about 53%. The most significant fuel used in Fortum's energy production is natural gas. In 2021, Fortum's use of natural gas was about 61% of the total fuel consumption globally.

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)

6,855

Gross electricity generation (GWh)

18,127

Net electricity generation (GWh)

17,599

Absolute scope 1 emissions (metric tons CO2e)

15,950,700

Scope 1 emissions intensity (metric tons CO2e per GWh)

906

Comment

In 2021, Fortum, including Uniper, used hard coal in Germany, Russia, the Netherlands, Poland, Finland, and the United Kingdom.

Lignite

Nameplate capacity (MW)

3,046

Gross electricity generation (GWh)

6,714

Net electricity generation (GWh)

6,518

Absolute scope 1 emissions (metric tons CO2e)

6,417,400

Scope 1 emissions intensity (metric tons CO2e per GWh)

985

Comment

In 2021, Fortum, including Uniper, used lignite in Russia and Germany.

Oil

Nameplate capacity (MW)

1,639

Gross electricity generation (GWh)

18

Net electricity generation (GWh)

17

Absolute scope 1 emissions (metric tons CO2e)

118,900

Scope 1 emissions intensity (metric tons CO2e per GWh)

6,828

Comment

In 2021, 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)

22,193

Gross electricity generation (GWh)

91,026

Net electricity generation (GWh)

88,375

Absolute scope 1 emissions (metric tons CO2e)

34,814,700

Scope 1 emissions intensity (metric tons CO2e per GWh)

394

Comment

The most significant fuel used in Fortum's energy production is natural gas. In 2021, 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.

Sustainable biomass

Nameplate capacity (MW)

210

Gross electricity generation (GWh)

1,511

Net electricity generation (GWh)

1,467

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

In 2021, 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.
In 2021, nearly 86% of the wood-based biomass fuel purchased by Fortum Group originated from certified sources; certified wood-based biomass fuel originates from sustainably managed forests. This percentage excludes biomass purchases in the Baltic countries, where Fortum completed the sale of its power plants in July 2021.

Other biomass

Nameplate capacity (MW)

40

Gross electricity generation (GWh)

254

Net electricity generation (GWh)

247

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

In 2021, 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.
In 2021, nearly 86% of the wood-based biomass fuel purchased by Fortum Group originated from certified sources; certified wood-based biomass fuel originates from sustainably managed forests. This percentage excludes biomass purchases in the Baltic countries, where Fortum completed the sale of its power plants in July 2021.

Waste (non-biomass)

Nameplate capacity (MW)

80

Gross electricity generation (GWh)

698

Net electricity generation (GWh)

488

Absolute scope 1 emissions (metric tons CO2e)

244,900

Scope 1 emissions intensity (metric tons CO2e per GWh)

502

Comment

In 2021, 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)

4,560

Gross electricity generation (GWh)

37,277

Net electricity generation (GWh)

36,400

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 2021, Fortum's nuclear capacity was 1,487 MW in Finland and 3,073 MW in Sweden, and in total 4,560 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

In 2021, Fortum had no ongoing CCS projects.

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

In 2021, Fortum had no ongoing geothermal plant projects.

Hydropower

Nameplate capacity (MW)

8,406

Gross electricity generation (GWh)

40,372

Net electricity generation (GWh)

36,335

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 2021, Fortum's hydropower capacity was 1,553 MW in Finland, 4,871 MW in Sweden, 1,982 MW in Germany, and in total 8,406 MW.

Wind

Nameplate capacity (MW)

35

Gross electricity generation (GWh)

102

Net electricity generation (GWh)

92

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Fortum has wind power production in Russia. In 2021, Fortum's wind power capacity was 35 MW in Russia.

Solar

Nameplate capacity (MW)

35

Gross electricity generation (GWh)

592

Net electricity generation (GWh)

533

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. In 2021, Fortum's solar power capacity was 35 MW in Russia.

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

In 2021, Fortum had no any marine-related production operations.

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

In 2021, Fortum had no other renewable production operations.

Other non-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

In 2021, Fortum had no other non-renewable production operations.

Total

Nameplate capacity (MW)

47,099

Gross electricity generation (GWh)

196,691

Net electricity generation (GWh)

188,071

Absolute scope 1 emissions (metric tons CO2e)

57,546,600

Scope 1 emissions intensity (metric tons CO2e per GWh)

306

Comment

In 2021, Russia's share of Fortum's electricity generation was about 38%, and Russia's share of Fortum's total fuel consumption was about 53%. Of Fortum's direct carbon dioxide emissions from energy production, 57% originated from Russian operations, 20% from Germany, 12% from the United Kingdom, 6% from the Netherlands, and 1% from Finland.

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

Denmark

Consumption of electricity (MWh)

30,850

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

30,850

Country/area

Finland

Consumption of electricity (MWh)

330,150

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

330,150

Country/area
Germany

Consumption of electricity (MWh)
976,300

Consumption of heat, steam, and cooling (MWh)
24,100

Total non-fuel energy consumption (MWh) [Auto-calculated]

1,000,400

Country/area
Hungary

Consumption of electricity (MWh)
1,000

Consumption of heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]

1,000

Country/area
Netherlands

Consumption of electricity (MWh)
378,400

Consumption of heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]

378,400

Country/area
Norway

Consumption of electricity (MWh)
536,000

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

536,000

Country/area

Poland

Consumption of electricity (MWh)

8,450

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

8,450

Country/area

Russian Federation

Consumption of electricity (MWh)

75,900

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

75,900

Country/area

Sweden

Consumption of electricity (MWh)

147,550

Consumption of heat, steam, and cooling (MWh)

500

Total non-fuel energy consumption (MWh) [Auto-calculated]

148,050

Country/area

United Kingdom of Great Britain and Northern Ireland

Consumption of electricity (MWh)

140,500

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

140,500

Country/area

Other, please specify

Baltic countries

Consumption of electricity (MWh)

6,500

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

6,500

Country/area

India

Consumption of electricity (MWh)

0

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

0

Country/area

United Arab Emirates

Consumption of electricity (MWh)

200

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

200

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 organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.

Coal – hard

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

342,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

39.4

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in fossil-based electricity totalled EUR 530 million mainly in Uniper and Russia. Of this amount, Fortum invested EUR 188 million into gas-fired generation, and the rest into coal-fired generation. The Fortum Group's investments in coal-fired generation included both hard coal-based and lignite-based production.

By 2030, Fortum will phase out or exit about 8 GW of coal-fired power generation. The

coal-exit is proceeding even faster than anticipated: within less than one year, Fortum has been able to announce accelerated coal phase-out of six of its coal-fired power plants in Germany and the UK compared to the original timetable.

Lignite

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in fossil-based electricity totalled EUR 530 million, mainly in Uniper and Russia. Of this amount, Fortum invested EUR 188 million into gas-fired generation, and the rest into coal-fired generation. The Fortum Group's investments in coal-fired generation included both hard coal-based and lignite-based production.

Oil

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

Fortum has not allocated CAPEX for oil-fired power generation.

Gas

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

188,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

21.7

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

20

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in fossil-based electricity totalled EUR 530 million, mainly in Uniper and Russia. Of this amount, Fortum invested EUR 188 million into gas-fired generation.

Fortum Group's estimated annual capital expenditure (CAPEX) for 2022 is approximately EUR 1,500 million, including maintenance and excluding acquisitions. The share of maintenance CAPEX is estimated to be EUR 800 million. The share of the maintenance CAPEX for gas-based production over the next 5 years is only indicative and based on the actual 2021 figures. Additionally, 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.

Sustainable biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

3,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0.3

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

1

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in biomass-based production totalled EUR 3 million.

Fortum Group's estimated annual capital expenditure (CAPEX) for 2022 is approximately EUR 1,500 million, including maintenance and excluding acquisitions. The share of maintenance CAPEX is estimated to be EUR 800 million. The share of the maintenance CAPEX for biomass-based production over the next 5 years is only indicative and based on the actual 2021 figures.

Other biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

Fortum Group's estimated annual capital expenditure (CAPEX) for 2022 is approximately EUR 1,500 million, including maintenance and excluding acquisitions. The share of maintenance CAPEX is estimated to be EUR 800 million. The share of the maintenance CAPEX for biomass-based production over the next 5 years is only indicative and based on the actual 2021 figures.

Waste (non-biomass)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

32,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

3.7

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

5

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in waste fuel-based production totalled EUR 32 million.

Fortum Group's estimated annual capital expenditure (CAPEX) for 2022 is approximately EUR 1,500 million, including maintenance and excluding acquisitions. The share of maintenance CAPEX is estimated to be EUR 800 million. The share of the maintenance CAPEX for hydropower over next the 5 years is only indicative and based on the actual 2021 figures. Additionally, 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.

Nuclear

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

72,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

8.3

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

13

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in nuclear power production totalled EUR 72 million in Finland and Sweden.
Fortum Group's estimated annual capital expenditure (CAPEX) for 2022 is approximately EUR 1,500 million, including maintenance and excluding acquisitions. The share of maintenance CAPEX is estimated to be EUR 800 million. The share of the maintenance CAPEX for nuclear power over next the 5 years is only indicative and based on the actual 2021 figures. 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 hydropower and nuclear power.

Geothermal

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

Fortum has not allocated CAPEX for geothermal power generation.

Hydropower

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

170,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

19.6

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

20

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in hydropower production totalled EUR 170 million in Finland and Sweden.
Fortum Group's estimated annual capital expenditure (CAPEX) for 2022 is approximately EUR 1,500 million, including maintenance and excluding acquisitions. The share of maintenance CAPEX is estimated to be EUR 800 million. The share of the maintenance CAPEX for hydropower over next the 5 years is only indicative and based on the actual 2021 figures. The hydropower power activities are included in the Generation and Uniper segments. The maintenance capital expenditure in the Generation segment can be roughly divided in hydropower and nuclear power.

Wind

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

29,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

3.3

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

21

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in wind power production totalled EUR 29 million in the Nordic countries.
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. Fortum aims to build 1.5–2 GW of new renewable electricity capacity by 2025, primarily in Europe.

Solar

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

32,000,000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

3.7

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

10

Explain your CAPEX calculations, including any assumptions

In 2021, Fortum Group's investments in solar power production totalled EUR 32 million in India.

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.

Marine

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

Fortum has not allocated CAPEX for marine-related generation.

Fossil-fuel plants fitted with CCS

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

Fortum has not allocated CAPEX for fossil-fuel plants fitted with CCS.

Other renewable (e.g. renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

10

Explain your CAPEX calculations, including any assumptions

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 other 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.

Other non-renewable (e.g. non-renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

Fortum has not allocated CAPEX for other non-renewable generation.

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, material recycling, as well as industrial and TSO (Transmission	750,000,000	25	2025

	System Operator) services, accounts for about 25% of total growth CAPEX. Capital expenditure will depend on market conditions, asset rotation, and balance sheet strength.			
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 growth 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 2021, Fortum's R&D expenditure was EUR 61 (2020: 56) million, or 0.1% (2020: 0.1%) 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,	Applied research and development	81-100%	61,000,000	In 2021, Fortum's R&D expenditure was EUR 61 million, or 0.1% of sales. Fortum's R&D activities aim at

demand response, utilisation of bio-originated materials				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 electric vehicle (EV) charging solutions. For developing circular economy and improving resource efficiency, Fortum is also focusing on material recovery, as well as bio-originated materials. Fortum develops continuously activities that increase the proportion of waste materials kept in circulation. 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.

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 2021.pdf

Page/ section reference
Fortum's Greenhouse Gas Emissions verification in 2021; 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

2022_Suomenojan voimalaitos_päästöjen todennusraportti.pdf

Page/ section reference
Verification Statement in 2021 (Suomenoja CHP plant), pages: 1-7

Relevant standard

European Union Emissions Trading System (EU ETS)

Proportion of reported emissions verified (%)

30

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 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 2021.pdf

Page/ section reference

Fortum's Greenhouse Gas Emissions verification in 2021; 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 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 2021.pdf

Page/ section reference

Fortum's Greenhouse Gas Emissions verification in 2021; 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: Purchased goods and services

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Capital goods

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Upstream transportation and distribution

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Waste generated in operations

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Business travel

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 2021.pdf

Page/section reference

Fortum’s Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Employee commuting

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Upstream leased assets

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Downstream transportation and distribution

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Processing of sold products

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; Addendum to the Independent limited assurance report, pages: 1-2

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Use of sold products

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 2021.pdf

Page/section reference

Fortum's Greenhouse Gas Emissions verification in 2021; 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?

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 2021 and the previous year 2020.
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 2021 and the previous year 2020.
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 2021 and the previous year 2020.
C7. Emissions breakdown	Year on year emissions intensity figure	International Standard on Assurance Engagements	The verification referred to in C7. includes a comparison of annual

		ISAE3410, Limited assurance	emissions of 2021 and the previous year 2020.

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

UK carbon price floor

UK 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

30

% of Scope 2 emissions covered by the ETS

92

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

438,200

Allowances purchased

19,966,200

Verified Scope 1 emissions in metric tons CO2e

20,404,400

Verified Scope 2 emissions in metric tons CO2e

773,900

Details of ownership

Facilities we own and operate

Comment

In 2021, 28.9 million tonnes were within the EU and the UK emissions trading system (ETS). About 42% of CO2 emissions from our energy production in Europe were within the sphere of the EU and the UK ETS. In 2021, Fortum was granted free emission allowances corresponding to 0.4 million tonnes. In terms of emission allowances, Fortum had a deficit and purchased the shortfall of emission allowances from the markets.

UK ETS

% of Scope 1 emissions covered by the ETS

12

% of Scope 2 emissions covered by the ETS

5

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

0

Allowances purchased

8,550,900

Verified Scope 1 emissions in metric tons CO2e

8,550,900

Verified Scope 2 emissions in metric tons CO2e

44,400

Details of ownership

Facilities we own and operate

Comment

In 2021, 28.9 million tonnes were within the EU and the UK emissions trading system (ETS). About 42% of CO2 emissions from our energy production in Europe were within the sphere of the EU and the UK ETS. In 2021, Fortum was granted free emission allowances corresponding to 0.4 million tonnes. In terms of emission allowances, Fortum had a deficit and purchased the shortfall of emission allowances from the markets.

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

UK carbon price floor

Period start date

January 1, 2021

Period end date

December 31, 2021

% of total Scope 1 emissions covered by tax

12

Total cost of tax paid

179,569,059

Comment

In 2021, Fortum's subsidiary Uniper's generation assets were taxed at 18 BP (21 EUR) for approx. 8,550,907 t of generated CO2 emissions in the UK.

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 and the UK 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.
Currently Fortum's subsidiary Uniper has to participate in the UK carbon price floor, and the EU and the UK ETS by law, and for the purpose of financial analysis of coal-fired and gas-fired plants, spot market price of CO2 certificates (the EU and the UK ETS) are used for all European countries. This allows for a short-term decision process; which kind of power plant is dispatched to fulfil the demand of electricity. All projects in the scheme of the EU and the UK ETS have a financial assessment based on their future CO2 emissions which allows to identify the most profitable options.
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 2021, the new 25-MW heat pump unit was commissioned at the Suomenoja plant in Espoo, Finland. In 2022, Fortum will also increase its non-combustion-based heat production with the

11-MW air-to-water heat pump in Espoo. Fortum has set a goal to discontinue the use of coal in Espoo in 2025. In 2021, Fortum's own hydropower plants in Finland and Sweden produced 5 MW of new renewable electricity production capacity, excluding Uniper. At the end of 2021, Fortum and Uniper announced the investment decision for the construction of the 380-MW wind farm in Närpes and in Kristinestad, Finland. The wind turbines are expected to be fully commissioned in 2024.
Fortum Group, 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, in the United Kingdom by 2024, and in the Netherlands by 2029. The German Government has announced plans to achieve carbon neutrality in Germany by 2045. In Germany, Uniper's 58% stake of the lignite-fired 900-MW Schkopau power plant was sold in 2021. The coal-fired 345-MW Scholven C plant unit will cease commercial power generation at the end of October 2022, by the announcement of the German Federal Network Agency, and will be permanently decommissioned then. There is an ongoing construction project of two new CCGTs to replace the existing coal-fired Scholven power plant. The coal-fired 510-MW Staudinger 5 plant unit will be closed in May 2023. In the United Kingdom, one of four 500-MW units of the coal-fired Ratcliffe power plant will be closed at the end of September 2022, which is two years earlier than the date announced by the UK Government for the coal phase-out.
Replacing coal with natural gas in Central European energy production is one possible short-term 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?

No

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, as well as in the UK, 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 29 million in the Nordic countries in 2021. However, the internal price on carbon based on the EU and the UK 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)

54

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 average EU ETS price at the end of 2021: EUR 54 /ton CO2. The allowance price in the EU ETS (emissions trading system) has varied significantly (from almost 0 up to over 50 euros) during the years 2005-2021. At the end of 2021, the average price was around EUR 50 and this was more than five times higher than in the beginning of 2018. Consequently, the internal price on carbon based on the EU and the UK 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 invests into renewable and CO2-free energy production capacity annually. In 2021, Fortum's investments in CO2-free energy production were EUR 335 million, of which amount Fortum's investments to wind power production totalled EUR 29 million in the Nordic countries. At the end of 2021, Fortum and Uniper announced the construction of the 380-MW wind farm in Närpes and in Kristinestad, Finland. The wind turbines are expected to be fully commissioned in 2024. Fortum has also 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

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

12

% total procurement spend (direct and indirect)

83

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

Rationale for the coverage of your engagement

Climate related requirements for suppliers are set at Fortum's Supplier Code of Conduct and purchasing agreements. At Fortum's Supplier Code of Conduct suppliers are required to consider the climate impact of their operations and to reduce greenhouse gas emissions where reasonable. Major breach of the Code may lead to termination of co-operation.

Fortum's assesses supplier's compliance and performance through supplier qualification process and audits. Certain categories have been set additional requirements for sustainability.

Supplier qualification process:

Fortum's Supplier Code of Conduct acceptance and qualification process is conducted when the contract value is 100 keur or more. In the qualification, Fortum assesses, e.g. the supplier's environmental management systems. In 2021, Fortum recognized the need to gather information of suppliers' climate actions and a new mandatory question about supplier's greenhouse gas emission reduction target was added to the supplier

qualification in January 2022. At the end of 2021, 12% of suppliers which represent 83% of Fortum's purchasing volume, excluding Russia Division and subsidiary Uniper, was from qualified suppliers.
When risks are identified during Fortum's qualification process, the supplier is asked to provide more information or a supplier audit is conducted. Depending on responses, Fortum may continue the qualification process, impose corrective actions, or decide not to qualify the supplier. The qualification is renewed every three years.
Coal:
Coal suppliers compliance and performance is assessed via Bettercoal Initiative of which Fortum and subsidiary Uniper are members of. Bettercoal Code's Principle 11 "Greenhouse Gas Emissions" states that coal suppliers shall have systems in place to measure, avoid and minimize greenhouse gas emissions.
Biomass:
By using certified biomass, Fortum and Uniper ensure that biomass is from sustainably managed forests. 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.
Business travel:
Fortum includes climate change mitigation and emissions reduction solutions into tendering phase and expects suppliers to report performance annually.

Impact of engagement, including measures of success

Fortum measure's the success of the engagement by the percentage of suppliers involved in the qualification process, and by percentage of fulfilment of the category specific requirements.
Supplier qualification process:
Asking suppliers about their GHG emission reduction target as part of the supplier qualification process, sends a clear message to suppliers of the importance of climate to Fortum. Fortum requires suppliers to complete a supplier qualification process, when the contract value is EUR 100,000 or more. The scope of qualification includes all Fortum's business areas at all operating countries, excluding Russia Division and subsidiary Uniper. At the end of 2021 83% of purchases in the scope of qualification came from qualified suppliers. Of Fortum's fuel spend, excluding Uniper, 97% came from qualified suppliers. Fortum's Russia Division uses its own supplier qualification process based on Russian procurement law. Fortum's subsidiary Uniper collects ESG information including climate responsibility from 59% of its suppliers by number with the target of 100% of active counterparties assessed by 2022.
In 2021, Fortum conducted 4 supplier sustainability audits; Covid-19 pandemic have limited the possibilities to conduct audits.
Coal:
At year-end 2021, Fortum Group's (including Uniper) coal volume purchased via direct contract from Bettercoal suppliers was 67%.
Biomass:
In 2021, 86% of the biomass used at Fortum's power plants and 100% of the biomass used at Uniper's Maasvlakte power plant is sustainability certified.
Engagement with fuel supply chain:
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. 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. In 2021, OGMP recognized Uniper Energy Storage's methane reporting as the "gold standard". In October 2021, Uniper joined fourteen European gas infrastructure operators and gas associations in a project which purpose is to improve and deploy new technologies to curb methane emissions in midstream gas infrastructure.

Comment

C12.1d

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

Climate-related engagement strategy with other partners in the value chain, incl. NGOs

Fortum has an open and regular dialogue with different stakeholders. Annual stakeholder surveys are conducted to systematically monitor the stakeholders' views of Fortum. Partners in the value chain include in addition to service and goods suppliers and customers, also NGOs, local communities, universities and other business partners, for example in R&D cooperation projects. Fortum follows the public dialogue in the countries where it operates, and has dialogue with its stakeholders also through social media channels. Management of stakeholder collaboration at Fortum is assigned particularly to communications, public affairs, corporate sustainability, and the functions responsible for electricity and heat sales, energy production and business development. Responsibilities for managing stakeholder collaboration are primarily determined by stakeholder group or interaction themes. Key interaction areas have annual plans that guide the activities.

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 and natural gas, as well as transparent and reliable reporting. The discussion on climate change mitigation and particularly phasing out coal and natural gas in energy production continued actively with NGOs throughout the year. These kind of stakeholders usually voice their concerns directly with Fortum, e.g., through open letters, on social media, at demonstrations, and by organising various public events and webinars. Fortum has responded to the concerns raised by these organisations on social media, at several virtual meetings, and at the Annual General Meeting (AGM). In Finland, Fortum organised several virtual meetings with representatives of different migrating fish-related organisations. Fortum's experts have also responded to presented questions through blog postings and by giving numerous media interviews.

Climate-related 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 recycling and recovery in environmental construction and earthwork projects.
At the Riihimäki plastic refinery in Finland, 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 recovery as a material is incinerated in Fortum's waste-to-energy (WtE) plants. At the same time, Fortum produces electricity and heat. In 2021, Fortum had WtE plants in Finland, Sweden, and Denmark, as well as in Norway and Lithuania. The Finnish and Swedish operations also include high-temperature incineration plants. In Denmark, Fortum has a plant that is solely dedicated to high-temperature incineration. High-temperature incineration is the best available solution for the destruction of hazardous substances safely.
Fortum's Zabrze CHP plant in Poland also combusts Refuse-Derived Fuel (RDF), and the share of waste can be up to 50% 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.
In 2021, Fortum received a total of almost 2.7 million tonnes of waste from consumers and industry, 48% of which was recovered in its waste-to-energy plants. Of the received waste, about 1.9 million tonnes was non-hazardous, conventional municipal or industrial waste and about 720,000 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.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

Fortum's Supplier Code of Conduct sets the expectations to Fortum's suppliers. Fortum’s suppliers are expected to identify the environmental impacts of their operations and implement mitigation actions when required as well as to consider the climate impact of their operations and reduce greenhouse gas emissions where reasonable. Fortum expects its suppliers to strive to continuously reduce the use of energy and water, as well as minimise waste and emissions to the air, water and land in their operations. All Fortum's suppliers shall at least comply with all applicable environmental laws and regulations.
Acceptance of Fortum's Supplier Code of Conduct is part of the supplier qualification process and the Code is appendix in Fortum's contracts with value 100 kEUR or more. In addition Fortum conducts Know Your counterparty Assessments to active and potential suppliers with contract value exceeding 100 kEUR to monitor compliance with legislation and Supplier Code of Conduct from external sources. Major breach of the Fortum Supplier Code of Conduct may lead to termination of co-operation. Fortum assesses its suppliers sustainability performance through supplier qualification process and audits. Qualification is valid for three years.

% suppliers by procurement spend that have to comply with this climate-related requirement

92

% suppliers by procurement spend in compliance with this climate-related requirement

83

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment
First-party verification

Response to supplier non-compliance with this climate-related requirement

Exclude

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers
Yes, we engage indirectly through trade associations

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

The statement is attached, and can also be found in the following address: https://www.fortum.com/files/fortums-paris-aligned-climate-advocacy-principles/download

Fortum_s_Paris_aligned_climate_advocacy_principles_10032021.pdf

Fortum_climate_lobbying_review_2021.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

Fortum has a governance model in place for its public affairs activities that defines objectives, scope, roles and responsibilities as well as the governing framework of Public Affairs within Fortum. Fortum's strategy together with established business priorities set the operational framework for Public Affairs. In addition, Public Affairs supports other corporate functions, especially corporate communications, brand, sustainability, risk, tax and investor relations. Fortum's Code of Conduct, the EU Transparency Register together with national and local legislation set the operating boundaries for Public Affairs.

Fortum Group’s strategic priorities are yearly translated to concrete lobbying priorities, which are assessed on a quarterly basis. Fortum Public Affairs leads the process relating to preparation, coordination and adoption of Fortum’s Group level lobbying positions in cooperation with relevant business and corporate units.

The purpose of Fortum's Public Affairs is to

- contribute proactively to the development of a good external operational framework for all Fortum's business areas
- support the implementation of Fortum's strategy through lobbying for favorable political and regulatory framework and bring in insight from political trends and regulatory developments to support strategy development and business decisions
- contribute to wider societal objectives such as to the development of national, EU and global climate policy framework in line with the Paris Agreement
- support Fortum’s reputation and brand in close cooperation with Corporate Brand, Communication and Sustainability teams.

As Fortum’s climate targets (published on 3 December 2020 and supplemented on 20 December 2021) are aligned with the Paris Agreement, Fortum’s lobbying messages and activities shall also be consistent with the Paris Agreement. The aim is that this also applies to the key industry associations with whom Fortum cooperates.

Fortum compiles annually, starting in 2021 a Climate Lobbying Review which assesses the Paris alignment of the key industry associations with whom Fortum cooperates, as well as the Paris alignment of Fortum’s own lobbying positions. This report is part of Fortum’s annual Sustainability Reporting.

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Focus of policy, law, or regulation that may impact the climate

Climate-related targets

Specify the policy, law, or regulation on which your organization is engaging with policy makers

EU climate policy

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

EU28

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Fortum encourages the EU and governments to continue implementing and further intensifying policies aimed at reducing greenhouse gas emissions in line with the Paris Agreement. Fortum had extensive dialogue with several governmental organisations and politicians in the EU, the European Commission and the Parliament in particular, and member states.

Fortum has also been active in the federation of the European 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.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

In line with the Paris Agreement, Fortum supports the development of robust and sustainable policies to help the world get to net zero emissions by 2050 and the EU 55% emission reduction target. A cost-efficient and technology-neutral approach for the necessary transformation of the European economy is crucial. The synchronisation of targets and different legislative instruments remains a key issue going forward. It is of high importance to provide coordination between the Emissions Trading Directive and the parallel revision of the Energy Efficiency Directive (EED) and the revised Renewable Energy Directive (REDII). Renewable, low-carbon electricity and hydrogen produced from renewables and low-carbon energy sources together with increased energy efficiency all contribute to the achievement of the EU's climate target.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Emissions trading schemes

Specify the policy, law, or regulation on which your organization is engaging with policy makers

The revision of the EU emissions trading system (EU ETS) for phase 4 (2021-2030), which was proposed as a part of the Fit for 55 legislative package by the European Commission. The objectives of the proposal are to build on the results achieved by the existing EU emissions trading system and adapt it to the increased ambition, and to put a price on pollution in other sectors to incentivise the transition to cleaner technologies.

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

EU28

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Fortum had extensive dialogue with several governmental organisations and politicians in the EU, the European Commission and the Parliament in particular, and member states. In June 2021 Fortum together with the Euroepan energy sector sent a joint call to the European Commission for a prompt and strong revision of the EU ETS to effectively support the increased European climate ambition. During the year Fortum participated in several international business initiatives promoting the role of business in climate change mitigation.

Fortum has also been active in the federation of the European 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.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Fortum has for long been a strong supporter of the EU emissions trading system (EU ETS). It continues to be regarded as the EU's flagship policy towards achieving Europe's climate objectives in a cost-effective manner. Its importance is becoming ever more apparent in the context of the EU's long-term climate ambitions of achieving climate neutrality by 2050. This, along with an increased CO2 reduction target by 2030, is very much in line with Fortum's ambition of going carbon neutral with its European power generation by 2035. A credible, reinforced, and expanded EU ETS, providing a reliable price on CO2 emissions whilst ensuring the necessary flexibility for operators, is key to achieving the European 2030 climate targets and the 2050 climate neutrality objective in a cost-effective way. Fortum welcomes the efforts of the European Commission to review and strengthen the EU ETS.

Fortum thinks that waste incineration should be included in the ETS during the ongoing revision to encourage waste treatment facilities to decarbonize, incentivize households, services and industries to generate less waste and recycle more as the price of treatment increases. The inclusion of this sector would create incentives to reduce emissions e.g. in plants equipped with CCS/CCU technologies.

Fortum supports the introduction of a separate Emissions Trading System for buildings and transport and the prospect of merging both systems into one in the near future. Preference is for a gradual or two-step approach that would first see new sectors included in a separate market-based trading system running in parallel to the current EU ETS.
Fortum supports the proposal to increase the linear reduction factor (LRF) and implement a one-off rebasing of the cap. Fortum also supports the proposal to continue the 24% intake rate until 2030 and to adjust the market stability reserve (MSR) thresholds. Fortum is concerned about the design of the new ETS. The setup of the new system seems complicated regarding the establishment of the cap and the MSR design. Fortum urges for caution on price-based triggers in the MSR and instead would ask to opt for volume-based triggers, as we have in the existing ETS. The basic design of the two systems should be similar and the ground for future linking should be prepared now.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Eurelectric

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Eurelectric supports climate science and bases its goals and arguments on climate science. Eurelectric has strongly welcomed the Paris Agreement as a major landmark in addressing the global climate change challenge. Eurelectric is committed to the objective of making the EU climate neutral by 2050, in line with the Paris Agreement: Eurelectric supports the ambition of net zero greenhouse gas (GHG) emissions in the European economy by 2050.
Eurelectric is fully aligned with the Paris Agreement and Fortum's climate advocacy principles, as evaluated and stated in Fortum's Climate lobbying review 2021.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

IETA (International Emissions Trading Association)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

IETA supports the use of the scientific findings of the Intergovernmental Panel on Climate Change (IPCC) for developing climate policy. IETA is strongly committed to the targets of the Paris Agreement and to the measures required to achieve these. IETA fully supports the objective of making the EU climate neutral by 2050, in line with the Paris Agreement.

IETA is fully aligned with the Paris Agreement and Fortum's climate advocacy principles, as evaluated and stated in Fortum's Climate lobbying review 2021.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Finnish Energy

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Finnish Energy supports climate science and bases its goals and arguments on climate science. Finnish Energy is also committed to the Paris Agreement to limiting global warming. Finnish Energy supports the EU goal of net zero carbon emissions by 2050 and an increased ambition to at least 55% GHG reductions by 2030.

Finnish Energy is fully aligned with the Paris Agreement and Fortum's climate advocacy principles, as evaluated and stated in Fortum's Climate lobbying review 2021.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Swedenergy

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Swedenergy is ambitious in their climate goals for Sweden and the EU. Swedenergy bases its goals and arguments on climate science and is strongly committed to the targets of the Paris Agreement and to the measures required to achieve these.

Swedenergy believes that the EU should reach net zero CO2 emissions by 2050. The association is committed to contributing to Sweden’s climate goal of becoming a fossil-free nation by 2045.

Swedenergy is fully aligned with the Paris Agreement and Fortum’s climate advocacy principles, as evaluated and stated in Fortum's Climate lobbying review 2021.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization’s funding

Have you evaluated whether your organization’s engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Energy Norway

Is your organization’s position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association’s position on climate change, explain where your organization’s position differs, and how you are attempting to influence their position (if applicable)

Energy Norway bases its goals and arguments on climate science. Energy Norway is strongly committed to the targets of the Paris Agreement and to the measures required to achieve these. Energy Norway views that the EU should reach net zero CO2 emissions by 2050. The association believes that Norway should take a leading role as the first renewable and all-electric society in the world.

Energy Norway is fully aligned with the Paris Agreement and Fortum’s climate advocacy principles, as evaluated and stated in Fortum's Climate lobbying review 2021.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization’s funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

EK (Confederation of Finnish Industries)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

EK bases its goals and arguments on climate science. EK is strongly committed to the targets of the Paris Agreement and to the measures required to achieve these. EK believes that the EU should reach net zero CO2 emissions by 2050, first by significantly reducing emissions and secondly by compensating for the remaining emissions.
EK is fully aligned with the Paris Agreement and Fortum's climate advocacy principles, as evaluated and stated in Fortum's Climate lobbying review 2021.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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_Sustainability_2021.pdf

Page/Section reference

Fortum's Sustainability 2021 report: Climate and Resources, pages: 20-55; Fortum's TCFD (Task Force on Climate-related Financial Disclosures) report for 2021 is included in the section Climate, pages: 27–41

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_review_2021.pdf

Page/Section reference

Fortum CEO's Business Review 2021, 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_2021_EN_compressed.pdf

Page/Section reference
Uniper Sustainability Report 2021, pages: 2-38, 41-47, 75-77, 85-97 of total pages: 1-99

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication
In voluntary communications

Status
Complete

Attach the document
Fortum_climate_lobbying_review_2021.pdf

Page/Section reference
Fortum's Climate Lobbying Review. Pages 2-27.

Content elements
Strategy
Other metrics

Comment

Publication
In voluntary communications

Status
Complete

Attach the document

Sustainability_at_Fortum_2021_Presentation.pdf

Page/Section reference

Sustainability at Fortum 2021 Presentation, pages 1-27

Content elements

Strategy
Emissions figures
Emission targets
Other metrics

Comment

Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

Fortum_Financials_2021.pdf

Page/Section reference

Fortum's Financials 2021 report: Fortum’s Non-Financial Information report is included in the Financials 2021, pages: 25-31

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

Loviisa_NPP_environment_report_2021.pdf

Page/Section reference

Loviisa Nuclear Power Plant (NPP) Environmental Report 2021, pages 1-12

Content elements

Emissions figures
Emission targets
Other metrics

Comment

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	Sustainability, including biodiversity-related matters, is an integral part of Fortum's strategy. The highest decision-making authority on sustainability and biodiversity-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, when applicable, biodiversity-related targets. Fortum has not nominated any individual Board member as responsible for biodiversity. Fortum's Board of Directors is setting and following up the annual performance targets, including sustainability and biodiversity-related targets, for the company. Fortum's biodiversity group target for 2021, at least 12 major voluntary measures enhancing biodiversity, was set and followed up by Fortum's Board of Directors. During 2022, Fortum's target is to develop a science-based strategy to measure and enhance the biodiversity impacts of the Group's operations and the new developments. 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. By the CEO's designation the Senior Vice President (SVP), Corporate Affairs, Safety and Sustainability, has the overall responsibility for sustainability, which also includes biodiversity-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.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Adoption of the mitigation hierarchy approach Other, please specify During 2022, we are committed to develop a science-based strategy to measure and enhance the biodiversity impacts of the Group's operations and the new developments.	SDG

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	No, but we plan to assess biodiversity-related impacts within the next two years

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water management Species management Education & awareness Other, please specify

		We annually update our Biodiversity Action Plan, which contains ongoing and planned voluntary biodiversity-related measures. The Biodiversity Action Plan describes Fortum's goal, responsibilities, timelines, and partners for biodiversity projects.

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Other, please specify Fortum's biodiversity target for the year 2021 was: at least 12 major voluntary measures enhancing biodiversity. These measures improve the living conditions of species and strengthen populations. We achieved the target with 13 measures.

C15.6

(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In mainstream financial reports	Other, please specify Biodiversity target and performance against the target	Biodiversity reporting in Fortum Financials 2021, page 21, covers Fortum's biodiversity target and performance for 2021, target for 2022, as well as a short description of Fortum's biodiversity governance and main sources of biodiversity impacts. 1
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators Other, please specify Biodiversity target	Fortum Sustainability 2021 report, pages 48-50. Sustainability at Fortum presentation p. 15-16. Fortum's biodiversity action plan, p. 1-14. Fortum's biodiversity manual , p. 1-5. All are public documents available online. 2, 3, 4, 5

[1]Fortum_Financials_2021.pdf

[2]fortum-biodiversity-action-plan-2021.pdf

[3]Sustainability_at_Fortum_2021_Presentation.pdf

[4]biodiversity_manual_20210101_internet.pdf

[5]Fortum_Sustainability_2021.pdf

C16. 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.

C16.1

(C16.1) 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)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	112,400,000,000

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Requesting member

Elisa Oyj

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The whole cooling production at the Tapiola cooling site in Espoo is delivered to Elisa only.

Emissions in metric tonnes of CO2e

0

Uncertainty (±%)

0

Major sources of emissions

The cooling production is carbon neutral production, and, in addition, purchased electricity, which is used at the Tapiola site, is certified as CO2-free (Guarantees of Origin labelled).

Verified

Yes

Allocation method

Allocation not necessary due to type of primary data available

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Megawatt hours (MWh)

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Requesting member

Eaton Corporation

Scope of emissions

Scope 3

Allocation level

Commodity

Allocation level detail

Emissions in metric tonnes of CO2e

0

Uncertainty (±%)

0

Major sources of emissions

The electricity supplied to the client is CO2-free from 97% nuclear power, and 3% hydropower generation.

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Megawatt hours (MWh)

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

Fortum Sustainability Report 2021

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Customer base is too large and diverse to accurately track emissions to the customer level	Fortum has various business areas and very different products and services for business clients which makes it very challenging to allocate product level emissions to each customer.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

Since the early 2000s, Fortum has been a firm supporter of ambitious EU climate policy with the EU emissions trading system (ETS) as the main instrument to implement and drive the climate policy objectives in the sectors covered by the tool, i.e. energy and industries. The majority of Fortum's direct CO2 emissions, 68.7 million tonnes, are generated from the use of fossil fuels in energy production. Of Fortum's direct carbon dioxide emissions, 57% originated from the Russian operations, 20% from Germany, 12% from the United Kingdom, 6% from the Netherlands, and 1% from Hungary as well as from Finland. Of the direct carbon dioxide emissions in 2021, 28.9 million tonnes were within the EU and the UK emissions trading system (ETS). About 42% of CO2 emissions from Fortum's energy production in Europe were within the sphere of the EU and the UK ETS.

Fortum is one of the Nordic countries' leading sellers of CO2-free and guarantees-of-origin-labelled electricity. Fortum sells CO2-free electricity to our customers in the Nordic countries and Poland, as well as in Germany. The origin of the electricity produced from renewable energy sources, such as hydropower, wind and solar power, was guaranteed with European guarantees of origin (GoO). Some of the electricity Fortum sells is also guaranteed with, e.g., the pan-European Eko Hydro and Eko Wind label granted by environmental organisations and, in Sweden, with the Bra Miljöval label.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Yes, I will provide data

SC4.1a

(SC4.1a) Give the overall percentage of total emissions, for all Scopes, that are covered by these products.

3

SC4.2a

(SC4.2a) Complete the following table for the goods/services for which you want to provide data.

Name of good/ service

Electricity (MWh)

Description of good/ service

Type of product

Final

SKU (Stock Keeping Unit)

Total emissions in kg CO2e per unit

306

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions

GHG Protocol Product Accounting & Reporting Standard

SC4.2b

(SC4.2b) Complete the following table with data for lifecycle stages of your goods and/or services.

Name of good/ service

Electricity (MWh)

Please select the scope

Scope 1

Please select the lifecycle stage

Energy/Fuel

Emissions at the lifecycle stage in kg CO2e per unit

306

Is this stage under your ownership or control?

Yes

Type of data used

Primary

Data quality

High data quality (EU ETS methods and external third party verification)

If you are verifying/assuring this product emission data, please tell us how

EU ETS methods and external third party verification (limited assurance)

SC4.2c

(SC4.2c) Please detail emissions reduction initiatives completed or planned for this product.

Name of good/ service	Initiative ID	Description of initiative	Completed or planned	Emission reductions in kg CO2e per unit
Electricity	Initiative 1	Fortum has committed to the following ambitious climate targets: • Reduction of CO2 emissions (Scope 1 and 2) in European generation by at least 50% by 2030 (compared to base-year 2019) • Carbon neutral (Scope 1 and 2) in European generation by 2035 at the latest • Reduction of Scope 3 GHG emissions by 35% by 2035 at the latest (compared to base-year 2021) • Carbon neutral (Scope 1, 2, and 3 emissions) globally, in line with the goals of the Paris Agreement, by 2050 at the latest. The targets refer to Fortum Group-level reductions and are currently not measured on product level.	Ongoing	

SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?

No

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

The European Climate Pact Submission

Please indicate your consent for CDP to showcase your disclosed environmental actions on the European Climate Pact website as pledges to the Pact.

Yes, we wish to pledge to the European Climate Pact through our CDP disclosure

Please confirm below

I have read and accept the applicable Terms