

Financials 2019

Financials 2019 – Reader's guide

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



Notes

1–3 Basis of preparation

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

4–5 Risks

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

6–14 Income statement

These notes provide supporting information for the income statement.

15–34 Balance sheet

These notes provide supporting information for the balance sheet.

35–37 Off balance sheet items

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

38–40 Group structure and related parties

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

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

IS = Income statement

BS = Balance sheet

CF = Cash flow

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Financial performance and position

Strong operational performance in 2019 – financial targets achieved

Key financial ratios ¹⁾

	2019	2018	2017
Return on capital employed, %	10.0	6.7	7.1
Comparable net debt/EBITDA	3.0	3.6	0.8

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

Key figures

EUR million	2019	2018	2017	Change 19/18
IS Sales	5,447	5,242	4,520	4%
Comparable EBITDA	1,766	1,523	1,275	16%
IS Comparable operating profit	1,191	987	811	21%
IS Operating Profit	1,110	1,138	1,158	-2%
- of sales %	20.4	21.7	25.6	
IS Share of profit of associates and joint ventures	744	38	148	1,858%
IS Profit before income tax	1,728	1,040	1,111	66%
- of sales %	31.7	19.8	24.6	
IS Earnings per share, EUR	1.67	0.95	0.98	76%
CF Net cash from operating activities	2,015	804	993	151%
Shareholders' equity per share, EUR	14.61	13.33	14.69	10%
Interest-bearing net debt (at end of period)	5,260	5,509	988	
Return on shareholders' equity, %	11.9	6.8	6.6	
Equity-to-assets ratio, %	57	54	61	

During 2019, we continued our determined efforts to implement Fortum's strategy. We focused on operational excellence in all our operations, re-assessed parts of our district heating business, continued to build solar and wind power, reached an agreement to increase our shareholding in Uniper, and improved our financial results substantially. At year-end, we reached our long term 10% target for return on capital employed.

In June, we announced our intention to assess the strategic options for the district heating and cooling business in Estonia and in Joensuu, Finland. The assessment concluded in the divestment of the Joensuu operations on 10 January 2020, for approximately EUR 530 million, releasing cash, strengthening our balance sheet, and unlocking

value. We are initiating an extended assessment that includes our district heating and cooling businesses in all Baltic countries, in Poland, and in Järvenpää, Finland.

In October, our Uniper investment took a leap forward with our agreement to buy an additional stake, in excess of 20%, in the company. In November, we received approval to close the transaction from the Russian Government Commission, subject to certain conditions. The clarification of these conditions is somewhat delayed, due to the recent change of the Russian Government. In December, we received approval from the United States. We are still confident to achieve closing during the first quarter of 2020. As announced previously, with closing we will seek adequate board representation in the Supervisory Board of Uniper reflecting our ownership. This naturally includes the chairmanship.

As the majority owner, Fortum will focus on cooperation and strategic alignment with Uniper. Our two companies are already well-positioned to drive forward the European energy transition. Together, both companies can benefit from a further aligned strategic focus to enable a carbon-neutral Europe by 2050. During the transition, Europeans expect their energy companies to execute ambitious climate policies while continuing to provide electricity and heat at all times and at an affordable cost. The German Government's coal exit law, presented last week, reflects these requirements – coal-fired generation will be phased out by the end of 2038 at the latest. Fortum stands for a strategy of decarbonisation, which of course also applies to our investments, and supports Uniper's decision to close down the company's old coal-fired units as the company's new coal-fired CHP plant Datteln 4 is taken into use. As long as coal has to be used to provide for security of supply in Germany, it makes sense to use it in the most efficient and clean units.

We have continued our decarbonisation efforts during the year and will do so in the future. We have therefore decided to tighten our climate target for specific CO₂ emissions by 10% to 180 gCO₂/kWh, applicable to Fortum's stand-alone fleet for the year 2020. We are building more solar and wind power while also utilising our 'capital recycling' business model to release cash. This enables us to invest more with a limited equity exposure. Another major effort is our commitment to carbon-neutral district heating in Espoo, Finland, in the 2020s, accelerated by our goal to discontinue the use of coal in Espoo in 2025. Other examples of work for a cleaner energy system in Finland include the sustainable decommissioning of the one-gigawatt Inkoo coal-fired power plant showing a recycling rate of 92% of the material, placing the Meri-Pori coal-fired power plant into the Finnish national peak-load reserve capacity system from July 2020, as well as the recent decisions of Fortum's associated company Turun Seudun Energiatuotanto to close down the coal-fired unit Naantali 2. In Sweden, Fortum's joint venture Stockholm Exergi has decided to decommission its last coal-fired unit after this heating season.

The comparable operating profit for 2019 increased by more than EUR 200 million to EUR 1.2 billion, mainly driven by a clear result improvement in the Generation segment and also supported by improved results in the

Consumer Solutions and Russia segments. In addition, our share of profits from associated companies and joint ventures increased to almost EUR 750 million, largely thanks to our share of Uniper's profits. Our focus on cash flow measures, together with the strong results in 2019, increased our cash flow to more than EUR 2 billion at year-end. Our comparable net debt-to-EBITDA at year-end was 3.0x. When adjusting the net debt with the impact of the divestment of the Joensuu district heat business in January 2020 and the announced sale of a 80% share of our Nordic wind portfolio, we also achieved our other long-term financial target of a comparable net debt-to-EBITDA ratio of around 2.5x. Maintaining strong cash flow and consistent deleveraging are also central for our credit rating. Fortum's key objective is to have a solid investment-grade rating of at least BBB to preserve financial flexibility and good access to capital markets after the Uniper transaction has been closed.

The fourth-quarter results were characterised by the strong improvement in the Generation segment, driven by clearly higher hydro volumes and good operational performance. The higher hedge price helped us achieve a higher power price, in spite of the clearly lower spot prices in the Nordics. All other operational segments also improved their results. In City Solutions, the result recovered after a disappointing third quarter. The hard work in Consumer Solutions continued to pay off with EBITDA increasing for the ninth consecutive quarter. In the Russia segment, the improvement in the heat business supported the results.

Based on Fortum's 2019 results, our financial position and the outlook for the coming years, Fortum's Board of Directors is proposing an unchanged dividend of EUR 1.10 per share for the calendar year 2019. With an earnings per share of EUR 1.67, the proposal corresponds to a pay-out ratio of 65.9%, which is within the 50%-80% range of our dividend policy.

Financial results

Sales by segment

EUR million	2019	2018	Change 19/18
Generation	2,141	1,842	16%
City Solutions	1,200	1,110	8%
Consumer Solutions	1,835	1,759	4%
Russia	1,071	1,069	0%
Other Operations	115	103	12%
Netting of Nord Pool transactions ¹⁾	-529	-516	
Eliminations	-387	-125	
IS Total	5,447	5,242	4%

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

Comparable EBITDA by segment

EUR million	2019	2018	Change 19/18
Generation	939	763	23%
City Solutions	309	310	0%
Consumer Solutions	141	110	28%
Russia	469	417	12%
Other Operations	-91	-78	-17%
Total	1,766	1,523	16%

Comparable operating profit by segment

EUR million	2019	2018	Change 19/18
Generation	794	628	26%
City Solutions	121	135	-10%
Consumer Solutions	79	53	49%
Russia	316	271	17%
Other operations	-119	-99	-20%
IS Total	1,191	987	21%

Operating profit by segment

EUR million	2019	2018	Change 19/18
Generation	771	736	5%
City Solutions	127	130	-2%
Consumer Solutions	20	75	-73%
Russia	317	273	16%
Other operations	-127	-76	-67%
IS Total	1,110	1,138	-2%

Share of profits of associated companies and joint ventures

EUR million	2019	2018	Change 19/18
Generation	10	-72	114%
City Solutions	37	74	-50%
Consumer Solutions	0	0	-
Russia	59	36	64%
Other operations	638	0	-
IS Total	744	38	1,858%

For further information see ► **Note 6** Segment reporting.

Fortum's sales increased by 4% and comparable operating profit improved by 21% and was EUR 1,191 (987) million. The higher hydro and nuclear volumes and higher achieved power price in the Generation segment as well as the improved performance in the Russia and Consumer Solutions segments were the main contributors to the result improvement.

Operating profit for the period was impacted by EUR -81 (151) million of items affecting comparability, mainly from the fair value change of non-hedge-accounted derivatives (► **Note 7**). In the third quarter of 2018, Fortum recorded a capital gain of EUR 77 million from the sale of the 10% stake in Hafslund Produksjon.

The share of profit of associates and joint ventures was EUR 744 (38) million. Fortum's share of Uniper's profits, EUR 632 (-2) million, comprises Uniper's October-December 2018 and January-September 2019 results

and the impact on Uniper's results from the reinstatement of the UK capacity market in the fourth quarter of 2019, totalling EUR 601 (-2) million, as well as the fair value adjustments reversal according to the purchase price allocation of Uniper for 2019, EUR 31 (-) million (► **Note 3**). The share of profit of Uniper includes 'Non-operating results', EUR 392 (79) million. Co-owned nuclear companies accounted for EUR 16 (1) million, Stockholm Exergi for EUR 24 (61) million, including the EUR -22 million effect of the impairment booked in Stockholm Exergi relating to the early decommissioning of CHP6 (See Segment Review, City Solutions), and TGC-1 for EUR 54 (40) million (► **Note 19**).

Net finance expenses amounted to EUR 125 (136) million, of which net interest expenses were EUR 139 (114) million. Interest expenses include the remaining amortised cost of EUR 13 million due to the prepayment of the bridge financing for the acquisition of Uniper shares in 2018. Other financial expenses include the EUR 10 million cost for the new committed credit facilities related to the acquisition of an additional minimum stake of 20.5% in Uniper. Net finance expenses included a positive impact of EUR 40 million related to the regular nuclear technical update in Finland (► **Note 29**).

Profit before income taxes was EUR 1,728 (1,040) million.

Taxes for the period totalled EUR 221 (181) million. The effective income tax rate, according to the income statement, was 12.8% (17.5%). The comparable effective income tax rate, excluding the impact of the share of profit of associated companies and joint ventures as well as non-taxable capital gains, tax rate changes, and other major one-time income tax effects, was 22.4% (22.0%) (► **Note 13**).

The profit for the period was EUR 1,507 (858) million. Earnings per share were EUR 1.67 (0.95), of which EUR -0.07 (0.15) per share were related to items affecting comparability.

Cash flow

In 2019, net cash from operating activities was strong and increased by EUR 1,211 million to EUR 2,015 (804) million, mainly impacted by a EUR 356 (-524) million change in settlements for futures on Nasdaq Commodities, the improved comparable EBITDA of EUR 1,766 (1,523)

Financial position and cash flow

EUR million	2019	2018	Change 19/18
Interest expense	-167	-148	-13%
Interest income	28	34	-18%
Fair value gains and losses on financial instruments	8	-8	200%
Other financial expenses - net	6	-15	140%
IS Finance costs - net	-125	-136	8%
Interest-bearing liabilities	6,694	6,093	10%
Less: Liquid funds	1,435	584	146%
Interest-bearing net debt	5,260	5,509	-5%

million, dividends received of EUR 239 (61) million, and a EUR -33 (-146) million change in working capital. The impact of the change of realised foreign exchange gains and losses was EUR 14 (231) million.

Net cash from investing activities was EUR -369 (-4,398) million. The comparison period in 2018 included the acquisition of Uniper shares. Capital expenditure increased by EUR 116 million to EUR 695 (579) million. Cash collaterals and restricted cash decreased by EUR 347 million, including the non-cash collateral arrangement in the first quarter to release pledged cash from the Nordic power exchange, which had a major positive impact of EUR 310 million. Consequently, cash flow before financing activities increased significantly to EUR 1,646 (-3,594) million.

Proceeds from long-term liabilities were EUR 2,805 (1,764) million, arising from the issuance of new bonds totalling EUR 2.5 billion under the Euro Medium Term Note (EMTN) programme and a bilateral loan of EUR 300 million. The proceeds from the issued bonds were used to repay the bridge financing of EUR 1,750 million related to the acquisition of Uniper shares in 2018 and repayment of a bond of EUR 750 million. The total payments of long-term liabilities were EUR 2,567 (586) million. The net increase in liquid funds was EUR 806 (-3,268) million.

Dividends received totalled EUR 239 (61) million, mainly related to dividends received from Uniper EUR 165 (-) million, Stockholm Exergi EUR 40 (39) million, Turun Seudun Energiantuotanto EUR 20 (10) million, and TGC-1 EUR 10 (7) million.

Assets and capital employed

At the end of 2019, total assets amounted to EUR 23,364 (22,409) million. Liquid funds at the end of the period increased to EUR 1,433 (584) million. Capital employed was EUR 19,929 (18,170) million.

Equity

Equity attributable to owners of the parent company totalled EUR 12,982 (11,841) million. The dividend of EUR 1.10 per share for 2018 was approved by the 2019 Annual General Meeting (AGM) on 26 March 2019 and paid on 4 April 2019. The increase in equity of EUR 1,141 million was mainly related to the net profit for the period of EUR 1,482 million, the positive impact from fair valuation of cash flow hedges of EUR 561 million, and the positive translation differences of EUR 253 million, partly offset by the dividend payment of EUR 977 million.

Financing

Net debt decreased by EUR 249 million to EUR 5,260 (5,509) million, including lease liabilities of EUR 114 million. Interest-bearing liabilities increased by EUR 601 million and liquid funds increased by EUR 851 million. The dividend, EUR 977 million, was paid on 4 April 2019.

At the end of 2019, the Group's liquid funds (including cash balances of EUR 2 million relating to assets held for sale) totalled EUR 1,435 (584) million. Liquid funds include cash and bank deposits held by PAO Fortum of EUR 201 (317) million. At the end of 2019, Fortum had undrawn committed credit facilities amounting to EUR 1,800 (1,800) million, of which EUR 1,750 million is maturing in June 2023. In the fourth quarter of 2019, Fortum signed additional committed credit facilities of EUR 8,300 million for the acquisition of Uniper shares as announced on 8 October 2019 (► **Note 24**). On 7 January 2020, Fortum cancelled EUR 3,000 million of these new committed credit facilities.

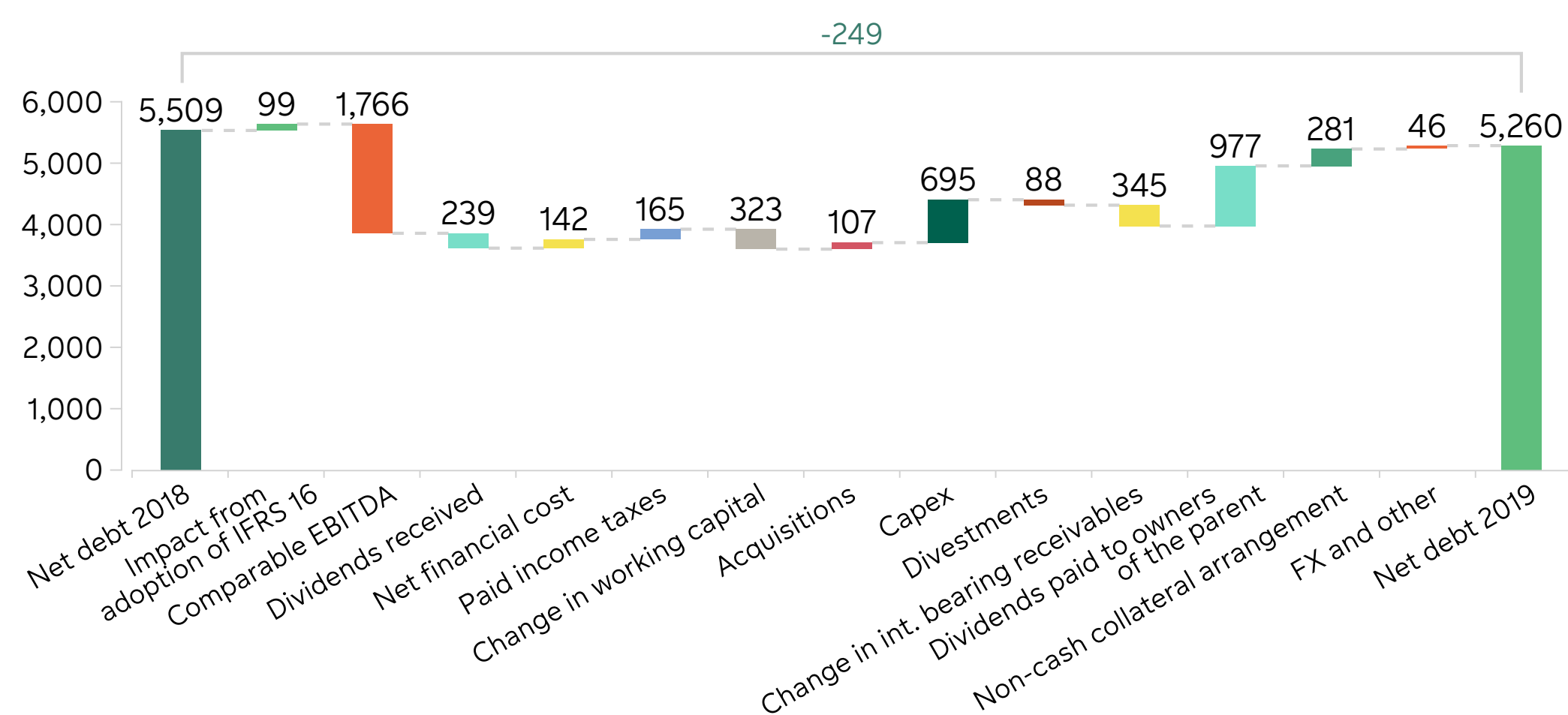
On 19 February 2019, Fortum issued bonds with a total nominal value of EUR 2,500 million under its EMTN programme. The bonds were issued in three tranches with the following maturities; EUR 1,000 million with a 0.875% fixed coupon maturing on 27 February 2023; EUR 750 million with a 1.625% fixed coupon maturing on 27 February 2026; and EUR 750 million with a 2.125% fixed coupon maturing on 27 February 2029.

The proceeds from the issued bonds were used to repay the bridge financing of EUR 1,750 million related to the acquisition of the initial 49.99% stake in Uniper in 2018 and repayment of a 6% fixed-coupon bond of EUR 750 million, which resulted in a more balanced debt maturity profile. In April 2019, Fortum drew a five-year EUR 300 million bilateral financial loan.

Following Fortum's announcement to acquire an additional stake of more than 20.5% of Uniper's shares, Standard & Poor's and Fitch reviewed the credit rating of Fortum. In October 2019, Standard & Poor's placed Fortum's long-term credit rating of BBB on CreditWatch Negative. The short-term rating is at level A-2. In October 2019, Fitch Ratings placed Fortum's long-term credit rating of BBB and short-term credit rating of F2 on Rating Watch Negative. Both rating agencies are expected to update the credit ratings after the closing of the acquisition of at least an additional 20.5% of Uniper shares. Standard & Poor's have announced that they will likely consolidate Uniper into Fortum and link the issuer credit rating on Uniper to that of Fortum upon antitrust approval.

Fortum's key objective is to have a solid investment-grade rating of at least BBB, in order to preserve financial flexibility and good access to capital markets post-closing of the above-mentioned acquisition of Uniper shares, and to strengthen its financial profile longer term. This will provide appropriate financial stability and support to the enlarged group.

Change in net debt during 2019, EUR million



Key figures

The comparable net debt-to-EBITDA ratio for 2019 was 3.0x (3.6x). The target is to steer the leverage from the current net debt-to-EBITDA ratio towards the long-term over-the-cycle target of approximately 2.5x. When adjusting net debt with the impact of the divestment of the Joensuu district heating business and the announced sale of a 80% share of our Nordic wind portfolio, Fortum's long-term target of around 2.5x was achieved.

Gearing was 40% (46%) and the equity-to-assets ratio was 57% (54%). Equity per share was EUR 14.61 (13.33). Return on capital employed (ROCE) for 2019 was 10.0% (6.7%). Fortum targets a long-term over-the-cycle return on capital employed of at least 10%.

Fortum's key financial targets will be revisited in due course to ensure alignment with a commitment to retain a solid investment grade rating of at least BBB.

Operating and regulatory environment

Nordic countries

According to preliminary statistics, electricity consumption in the Nordic countries was 392 (399) TWh, as milder weather during the first quarter and slightly lower industrial demand caused a slight decrease in the power demand.

At the beginning of 2019, the Nordic water reservoirs were at 74 TWh, which is 10 TWh lower than the long-term average and 8 TWh lower than one year earlier. At the end of the year, the reservoirs were at 79 TWh, which is 5 TWh below the long-term average and 5 TWh higher than one year earlier. In April 2019, the Norwegian energy regulator (NVE) revised the Norwegian reservoir statistics. The reported reference levels and historical deviations have been updated accordingly.

Power consumption

TWh	2019	2018	2017
Nordic countries	392	399	392
Russia	1,059	1,055	1,035
Tyumen	94	92	95
Chelyabinsk	35	35	33
Russia Urals area	260	260	261

During 2019, the average system spot price in Nord Pool was EUR 38.9 (44.0) per MWh. The average area price in Finland was EUR 44.0 (46.8) per MWh and in Sweden (SE3, Stockholm) EUR 38.4 (44.5) per MWh.

In 2019, the average German spot price was EUR 37.7 (44.5) per MWh.

The market price of CO₂ emission allowances (EUA) showed some volatility during the year, but ended the year at the same price level as in the beginning of the year, at EUR 25 per tonne.

Average prices

	2019	2018	2017
Spot price for power in Nord Pool power exchange, EUR/MWh	38.9	44.0	29.4
Spot price for power in Finland, EUR/MWh	44.0	46.8	33.2
Spot price for power in Sweden, SE3, Stockholm, EUR/MWh	38.4	44.5	31.2
Spot price for power in Sweden, SE2, Sundsvall, EUR/MWh	37.9	44.2	30.8
Spot price for power in European and Urals part of Russia, RUB/MWh ¹⁾	1,289	1,247	1,204
Average capacity price, tRUB/MW/month	624	609	535
Spot price for power in Germany, EUR/MWh	37.7	44.5	34.2
Average regulated gas price in Urals region, RUB/1,000 m ³	3,910	3,801	3,685
Average capacity price for old capacity (CCS), tRUB/MW/month ²⁾	154	148	148
Average capacity price for new capacity (CSA), tRUB/MW/month ²⁾	1,096	1,075	899
Spot price for power (market price), Urals hub, RUB/MWh ¹⁾	1,117	1,043	1,041
CO ₂ , (ETS EUA), EUR/tonne CO ₂	25	16	6
Coal (ICE Rotterdam), USD/tonne	61	92	84
Oil (Brent Crude), USD/bbl	64	72	55

1) Excluding capacity tariff.

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

Water reservoirs

TWh	31 Dec 2019	31 Dec 2018	31 Dec 2017
Nordic water reservoirs level	79	74	86
Nordic water reservoirs level, long-term average	84	83	83

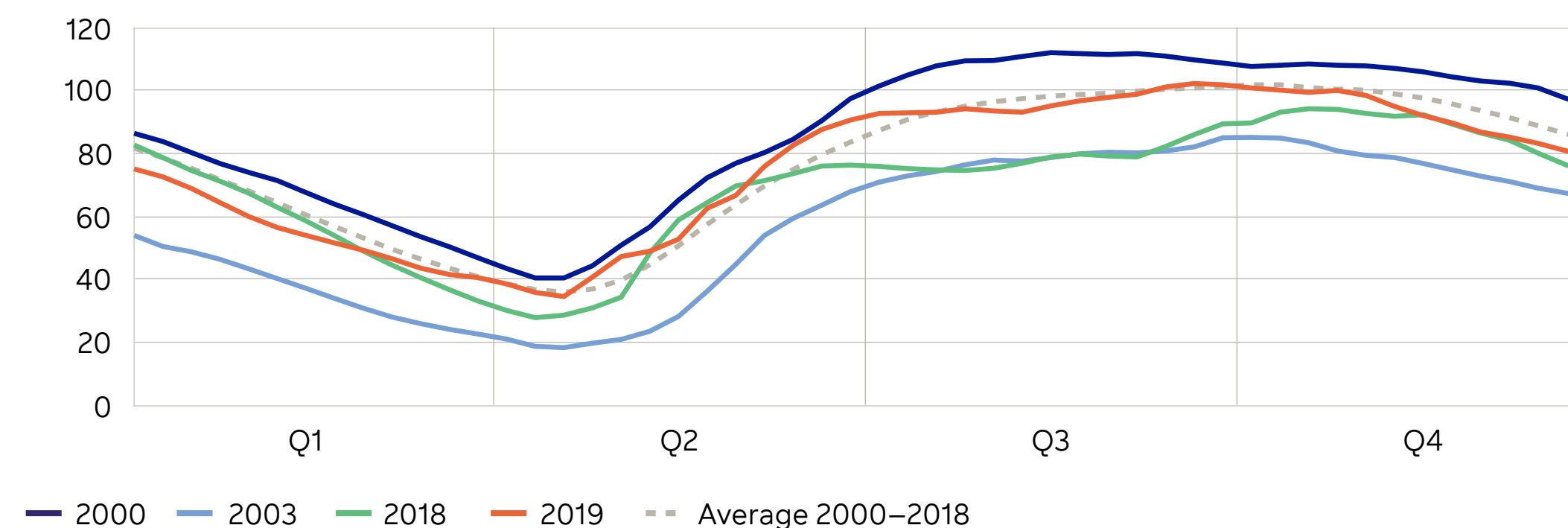
Russia

Fortum operates mainly in the Tyumen and Khanty-Mansiysk area of Western Siberia, where industrial production is dominated by the oil and gas industries, and in the Chelyabinsk area of the Urals, which is dominated by the metal industry. The Russian market is divided into two price zones and Fortum operates in the First Price Zone (European and Urals part of Russia).

According to preliminary statistics, Russian electricity consumption was 1,059 (1,056) TWh and 807 (810) TWh in the First Price Zone in 2019.

In 2019, the average electricity spot price, excluding capacity prices, was RUB 1,289 (1,247) per MWh in the First Price Zone and RUB 1,117 (1,043) per MWh in the Urals hub.

Nordic water reservoirs, energy content, TWh



Source: Nord Pool

Export/import

TWh (+ = import to, - = export from Nordic area)	2019	2018	2017
Export/import between Nordic area and Continental Europe+Baltics	-8	-10	-15
Export/import between Nordic area and Russia	8	8	6
Export/import Nordic area, total	0	-2	-9

Regulatory environment

New EU institutions with a strong focus on climate

Following the EU elections in May, the new Parliament took office. The Commission headed by President Ursula von der Leyen started at the beginning of December and, without delay, issued the first outline of its Green Deal.

The European Council, except Poland, endorsed the target of reaching EU economy-wide climate neutrality by 2050. Meanwhile, the Commission announced its intention to triple the budget of the Just Transition Fund to EUR 100 billion, with the target to ease the transformation in heavily fossil-reliant countries. Polish adherence will be reconsidered in the European Council in June 2020, whilst the 2050 EU economy-wide target will be part of the Climate Law due in February 2020.

Fortum welcomes the firm climate orientation of the new EU institutions.

The European Green Deal emerging

In December, the European Commission published a Communication on the European Green Deal. It will be the new Commission's bold political initiative, aiming at EU economy-wide climate neutrality by 2050. The Commission is expected to launch up to 50 related initiatives during the next two years.

While, the Green Deal will not be solely about climate ambition, it is expected to deliver extensive growth for Europe bundling all EU policy areas and all sectors of society. The Green Deal comprises, among other things, energy supply, circular economy, ecosystems, biodiversity, and mainstreaming of sustainability in all EU policies.

Practically all energy and climate targets and policies will be subject to revision, and consequently, entail a regulatory risk. The Commission will present a Green Financing Strategy in autumn 2020 in order to enable the private sector to contribute to the financing of a green transition.

Fortum welcomes the Green Deal and considers sector integration and electrification as offering significant solutions and business opportunities to meet the ambitious goals of the Green Deal.

Sustainable finance regulation adopted

In December, the European Council and Parliament reached an agreement on the taxonomy regulation of sustainable finance. The taxonomy creates a unified classification system for what can be considered sustainable investments. The regulation still needs to be formally approved by the Council and Parliament and is expected to enter into force by the end of 2022.

The regulation strongly leans towards renewable energy technologies. Nuclear and gas may qualify as 'transitional activities', depending on the outcome of the assessment that will be carried out by the Commission during 2020. The status of waste-to-energy is still open whilst the treatment of hazardous waste has been classified as sustainable.

As such, the objective of the sustainable finance initiative is in line with Fortum's strategy. Fortum has, however, strongly advocated for an approach based on CO₂ emissions and technology-neutrality in compliance with the Paris Agreement. There is a risk that if the taxonomy discriminates against some low-carbon technologies, the financing costs of such investments will increase in the future and result in unduly expensive decarbonisation.

EIB's new energy lending policy approved

In November, the European Investment Bank (EIB) agreed on a new energy lending policy and confirmed the EIB's increased ambition in climate action and environmental sustainability. EIB will align all financing activities with the goals of the Paris Agreement from the end of 2020 and end financing for fossil fuel energy projects from the end of 2021.

The Sustainable Europe Investment Plan launched by the new Commission targets to unlock EUR 1 trillion of climate action and environmentally sustainable investments by 2030. The EIB will play a key role in this and will gradually turn into a climate bank. EIB will no longer consider new financing for fossil fuel energy projects, including gas. In addition, EIB set a new Emissions Performance Standard of 250g of CO₂/kWh for power and heat projects. This will replace the current 550g of CO₂/kWh standard. Nuclear and renewable energy projects continue to be eligible for funding. If in line with the EU waste hierarchy and national waste management plans, waste-to-energy projects are also eligible.

The new EIB lending policy is well in line with Fortum's strategy.

German climate and coal phase-out legislation

In September 2019, the German Government released an extensive climate and energy package in order to meet the 2030 emission reduction target of 55% and carbon-neutrality by 2050. In December, the German Parliament approved the climate package. The package includes a national emissions trading system for the transport and building sectors with carbon prices of EUR 25 in 2021 and EUR 55 in 2025. To offset the higher costs for consumers and companies, the climate package includes subsidies for electric cars and tax incentives for greener heating, electricity, and housing.

The climate protection law ("Klimaschutzgesetz") sets annual CO₂ emission reduction targets for the period 2020–2030 for six sectors: energy, industry, transport, buildings, agriculture, waste management, and others.

In addition, the Government decided on a coal phase-out plan, based on the earlier proposal and is committed to propose legislation in line with the recommendations of the Coal Commission, and to publish a gas strategy including hydrogen. The coal phase-out legislation was approved by the federal cabinet on 29 January 2020 and is expected to be completed in the first half of 2020. In the years 2026 and 2029, the Government plans to carry out large-scale reviews of how the coal phaseout is progressing. The review will inform the decision on whether the phase-out can be brought forward by three years, i.e. that Germany could phase out coal as early as 2035. With regards to the new coal-fired plant Datteln 4, owned by Uniper, the Government announced its interest to allow the commissioning of the plant while, at the same time, old and less-efficient plants would be closed.

In Fortum's opinion, it would be essential to have the respective legislation become effective as soon as possible, as the first auctions for the closure of hard coal plants are planned already for summer 2020 and the first plants are to be closed in 2022.

Changed Swedish taxation resulted in new CHP and waste-to-energy taxes

In line with a broad political agreement made in January 2019, containing new taxes of up to EUR 1.5 billion, legislation on the taxation of waste

incineration was approved by the Swedish Government on 4 December 2019. The tax level was set at SEK 75/tonne in 2020 and will increase to SEK 125/tonne by 2022.

As part of the tax change, the Government also passed a law to increase the tax for fossil-fuelled CHP plants, effective from August 2019. The Government has not specified the definition of a green tax, and additional taxes are likely to be presented during the spring of 2020.

Swedish energy agreement collapses

In December, the Conservatives and Christian Democrats left the Swedish broad energy agreement made in 2016. The main reason was the ongoing disagreement on nuclear power, with the opposition wanting to update the agreement with more nuclear friendly wording. The collapse of the agreement will not have any major financial implications for Fortum as key elements in the original agreement, mainly tax reductions for hydro and nuclear power, have already been implemented. However, it will most likely result in increasing regulatory uncertainty, especially for nuclear power.

Segment reviews

Business model

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

With core operations in 10 countries, Fortum employs a diverse team of more than 8,000 energy-sector professionals. Fortum has some 130 hydro power plants, 26 combined heat and power (CHP), condensing, and nuclear power plants, as well as four wind power parks and four solar power plants. Globally, the company supplies heat in 24 cities and towns and has five waste-to-energy plants. Fortum's key markets are the Nordic and Baltic countries, Russia, Poland, and India.

Fortum's business divisions are Generation, City Solutions, Consumer Solutions and Russia. Other Operations includes corporate functions, R&D and technology development projects, as well as Fortum's shareholding in Uniper SE.

In November 2018, Fortum announced that the solar and wind businesses were reorganised and the wind operations became a business area within the Generation segment and the solar operations within the City Solutions segment. Previously these were included in Other Operations. The Russian wind and solar operations continue as a part of the Russia segment. Fortum has restated its 2018 comparative segment reporting figures in accordance with the new organisation structure.

Generation

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

EUR million	2019	2018	Change 19/18
Sales	2,141	1,842	16%
- power sales	2,006	1,771	13%
of which Nordic power sales ¹⁾	1,568	1,415	11%
- other sales	135	71	90%
Comparable EBITDA	939	763	23%
Comparable operating profit	794	628	26%
Operating profit	771	736	5%
Share of profits of associates and joint ventures ²⁾	10	-72	114%
Comparable net assets (at period-end)	6,147	6,485	-5%
Comparable return on net assets, %	12.8	10.8	19%
Capital expenditure and gross investments in shares	260	262	-1%
Number of employees	1,109	1,091	2%

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

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

The Generation segment's total power generation in the Nordic countries increased due to higher hydro and nuclear volumes. The hydro volumes in the comparison period were low mainly due to the historically low levels in the third quarter of 2018. The segment's overall operational performance and the load factor for nuclear generation were at a good level. The nuclear load factor for the Fortum fleet and partly owned companies was at the highest level in Fortum's history with the Loviisa 1 power plant setting a new production record. The CO₂-free production accounted for 100% (100%) of the total power generation.

The achieved power price in the Generation segment increased by EUR 2.2 per MWh, +6%, driven by higher hedge prices and successful optimisation of hydropower production, as well as higher first-quarter spot power prices.

Comparable operating profit increased by 26%, mainly due to higher hydro and nuclear volumes and the higher achieved power price.

Operating profit was affected by EUR -23 (108) million of items affecting comparability, mainly related to the fair value change of non-hedge-accounted derivatives. In the third quarter of 2018, Fortum recorded a capital gain of EUR 77 million from the sale of the 10% stake in Hafslund Produksjon ([▶ Note 6](#)).

The share of profits of associated companies and joint ventures totalled EUR 10 (-72) million ([▶ Note 19](#)).

The annual outages of the Loviisa nuclear power plant were managed well. The maintenance outages at Unit 1 and Unit 2 lasted 20 days and 26 days, respectively. Both units underwent a refuelling outage, during which approximately one quarter of the fuel was replaced.

In June 2019, Posiva decided to start construction of the encapsulation plant for spent nuclear fuel and start equipping the Onkalo final depository with systems needed for the final disposal. The start of the final disposal will still require licences to operate. In September 2019, the final disposal of spent nuclear fuel took a step forward, as the foundation stone for Posiva's encapsulation plant was laid at Onkalo, in Eurajoki, Finland. Posiva will dispose of the high-level nuclear waste of its owners, Fortum Power and Heat Oy (share of ownership 40%) and Teollisuuden Voima (TVO) (share of ownership 60%).

In December 2019, 440 MW of the production capacity of Fortum's Meri-Pori power plant was selected for inclusion in the Finnish national peak-load reserve capacity system from 1 July 2020 to 30 June 2022.

Power generation by source

TWh	2019	2018	Change 19/18
Hydropower, Nordic	20.3	19.1	6%
Wind power, Nordic	0.4	0.3	33%
Nuclear power, Nordic	23.5	22.8	3%
Thermal power, Nordic	0.2	0.1	100%
Total	44.4	42.3	5%

Nordic sales volume

TWh	2019	2018	Change 19/18
Nordic sales volume	51.3	48.4	6%
of which Nordic Power sales volume ¹⁾	42.7	40.5	5%

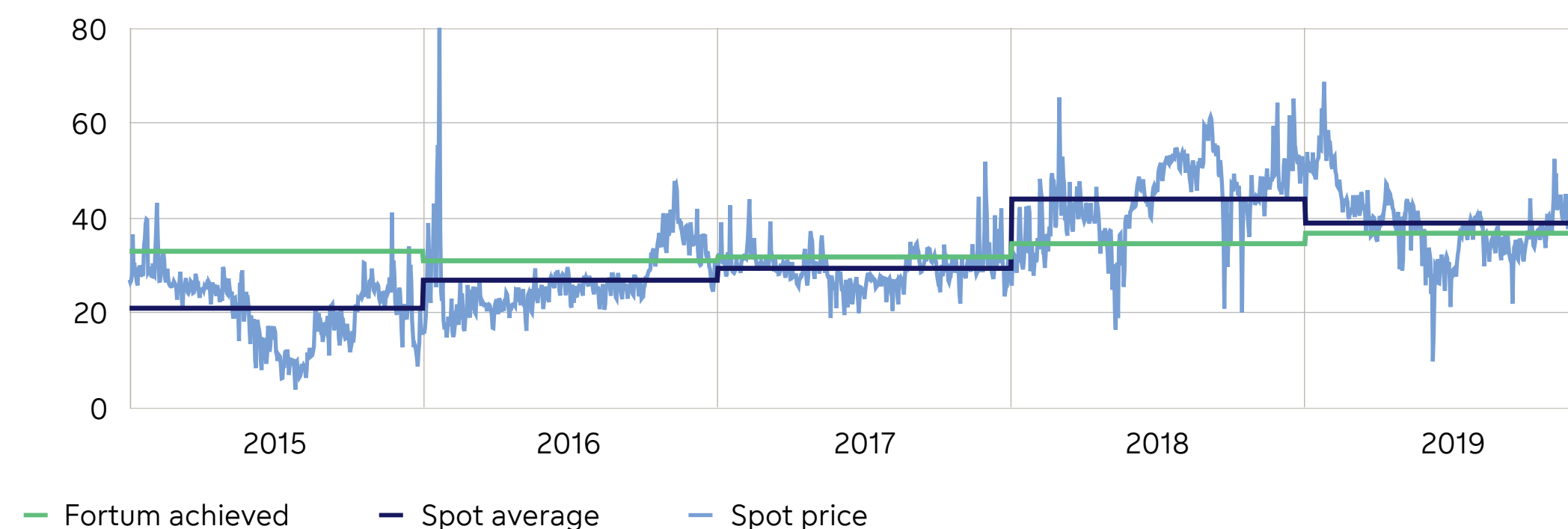
¹⁾ The Nordic power sales income and volume includes hydro, wind, and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

Sales price

EUR/MWh	2019	2018	Change 19/18
Generation's Nordic power price ¹⁾	36.8	34.6	6%

¹⁾ Generation's Nordic power price includes hydro, wind, and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

Nord Pool, power price, 2015–2019, EUR/MWh



Source: Nord Pool, Fortum

City Solutions

City Solutions is responsible for developing sustainable solutions for urban areas into a growing business for Fortum. The segment comprises heating, cooling, waste-to-energy, biomass, and other circular economy solutions, as well as solar power production. The business operations are located in the Nordics, the Baltic countries, Poland, and India. The segment also includes Fortum's 50% holding in Stockholm Exergi, which is a joint venture and is accounted for using the equity method.

EUR million	2019	2018	Change 19/18
Sales	1,200	1,110	8%
- heat sales	615	604	2%
- power sales	153	134	14%
- waste treatment sales ¹⁾	250	211	18%
- other sales ²⁾	181	161	12%
Comparable EBITDA	309	310	0%
Comparable operating profit	121	135	-10%
Operating profit	127	130	-2%
Share of profits of associates and joint ventures	37	74	-50%
Comparable net assets (at period-end)	3,892	3,794	3%
Comparable return on net assets, %	4.7	5.5	-15%
Capital expenditure and gross investments in shares	322	242	33%
Number of employees	1,970	2,017	-2%

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

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

Heat sales volumes were at the same level as in the previous year. Power sales volumes increased, mainly due to higher power volumes in the new unit in Naantali, Finland.

Comparable operating profit decreased by 10%. The main reason for the decline was the profit of EUR 26 million recorded in the third quarter of 2018 from the sale of a 54% share of Fortum's Indian solar portfolio, partly offset by the positive impact of one-time effects in the fourth quarter of 2019 and the strong result improvement during the year in the Norwegian heating and cooling business. The full-year comparable operating profit from the recycling and waste business was close to the level of the

previous year. The cost synergies related to the Hafslund transaction materialised gradually during 2019, with targeted annual synergies of EUR 5–10 million expected to be achieved by the end of 2020.

Operating profit was affected by EUR 7 (-5) million of items affecting comparability, mainly related to capital gains and the fair value change of non-hedge-accounted derivatives (► [Note 6](#)).

The share of profits of associated companies and joint ventures totalled EUR 37 (74) million, the main part of which was related to the share of profit of Stockholm Exergi, EUR 24 (61) million and Turun Seudun Energiantuotanto EUR 13 (13) million (► [Note 19](#)).

In September 2019, Fortum announced, in line with Fortum's strategy and the target to achieve carbon-neutral district heating in Espoo during the 2020's, the intention to discontinue the use of coal in the Espoo district heating network by the end of 2025.

In December 2019, the Swedish Government decided to implement new taxes on fossil fuels used for heat production in CHP plants, taking effect from August 2019. Consequently, during 2019, the board of Stockholm Exergi decided to decommission the last coal-fired unit in Stockholm, CHP6, starting from the end of the 2019–2020 heating season. Fortum's share of profits from Stockholm Exergi was impacted by EUR -22 million related to the impairment booked in Stockholm Exergi's fourth-quarter 2019 results.

On 20 December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland, to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately EUR 530 million, and the cash was received at the completion of the divestment on 10 January 2020. Fortum will record a tax-exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results.

Heat sales by country

TWh	2019	2018	Change 19/18
Finland	3.8	3.8	0%
Poland	3.3	3.5	-6%
Norway	1.7	1.6	6%
Other countries	2.0	1.9	5%
Total	10.8	10.8	0%

Power sales by country

TWh	2019	2018	Change 19/18
Finland	1.6	1.4	14%
Poland	0.6	0.5	20%
Other countries	1.0	1.0	0%
Total	3.2	2.9	10%

Consumer Solutions

Consumer Solutions is responsible for the electricity and gas retail businesses in the Nordics and Poland, including the customer service, invoicing, and debt collection businesses. Fortum is the largest electricity retail business in the Nordics, with approximately 2.4 million customers across different brands in Finland, Sweden, Norway, and Poland. The business provides electricity as well as related value-added and digital services.

EUR million	2019	2018	Change 19/18
Sales	1,835	1,759	4%
- power sales	1,630	1,547	5%
- other sales	206	212	-3%
Comparable EBITDA	141	110	28%
Comparable operating profit	79	53	49%
Operating profit	20	75	-73%
Comparable net assets (at period-end)	640	648	-1%
Capital expenditure and gross investments in shares	55	47	17%
Number of employees	1,327	1,399	-5%

The electricity sales volumes increased by 1%, mainly due to increased sales to business customers, partly offset by the impact of the warmer weather in the first and fourth quarters and the reduced number of customers. The decrease in the number of customers was the result of a more selective customer acquisition and retention approach. Throughout the year, the market sentiment in the Nordics continued to be challenging with tough competition and high customer churn. However, during the integration and restructuring of Hafslund, Fortum has been able to improve its competitive position in the Nordics. Higher market prices, especially in the first quarter, was the main driver for the 5% increase in sales.

Comparable operating profit increased by 49%, mainly supported by higher sales margins. The higher sales margins are a result of the active development of the product and service portfolios following the Hafslund integration and subsequent development of the business. Part of the improvement was related to favourable market conditions in the first half of the year, temporarily increasing profitability in certain areas of the customer portfolio. The annual EUR 10 million cost synergies related to the Hafslund transaction, projected to materialise by the end of 2020, fully materialised already during 2019.

Operating profit was affected by EUR -59 (22) million of items affecting comparability, due to the fair value change of non-hedge-accounted derivatives (► **Note 6**).

In August 2019, the Polish Price Freeze Act became effective. This had a EUR -1 million impact on the operating profit.

Sales volumes

TWh	2019	2018	Change 19/18
Electricity ¹⁾	30.6	30.4	1%
Gas ²⁾	4.1	4.1	0%

1) 2018 figure corrected from previously published.

2) Not including wholesale volumes.

Number of customers

Thousands ¹⁾	2019	2018	Change 19/18
Electricity	2,340	2,440	-4%
Gas	40	30	33%
Total	2,380	2,470	-4%

1) Rounded to the nearest 10,000.

Russia

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

EUR million	2019	2018	Change 19/18
Sales	1,071	1,069	0%
- power sales	924	872	6%
- heat sales	145	193	-25%
- other sales	2	4	-50%
Comparable EBITDA	469	417	12%
Comparable operating profit	316	271	17%
Operating profit	317	273	16%
Share of profits of associates and joint ventures	59	36	64%
Comparable net assets (at period-end)	3,205	2,789	15%
Comparable return on net assets, %	12.3	10.3	19%
Capital expenditure and gross investments in shares	133	117	14%
Number of employees	2,955	2,941	0%

In 2018, Fortum and STS Corporation established the Yustek joint venture for the heat distribution and supply in Chelyabinsk. The operations of the Yustek joint venture started in November 2018 and became fully operational in January 2019 by obtaining the single heat supplier status and related tariffs. Fortum has transferred the heat networks in Chelyabinsk and certain heat-only boilers with a capacity of 1,661 MW to the Yustek joint venture under a lease agreement. In 2018, the businesses transferred to the Yustek joint venture had a marginal annual effect on the comparable operating profit of the Russia segment.

Power generation volumes remained stable during the year. Heat production volumes decreased following the transfer of the heat distribution business in Chelyabinsk, including certain heat-only boilers,

Russian power generation and heat production

TWh	2019	2018	Change 19/18
Russian power generation	29.3	29.6	-1%
Russian heat production	17.3	20.4	-15%

to the Yustek joint venture. The warmer weather in both the Chelyabinsk and Tyumen areas also had a negative impact.

Sales remained stable. The negative effect of the transfer of the heat distribution business in Chelyabinsk to the Yustek joint venture, and lower heat volumes due to the warmer weather in Chelyabinsk and Tyumen were offset by higher electricity prices, higher CSA payments at Nyagan 2, and the stronger Russian rouble.

Comparable operating profit increased by 17%, supported by higher electricity margins, lower bad-debt provisions, and higher received CSA payments. The increase in CSA payments was related to Nyagan 2 receiving higher payments for the last years of the CSA period starting from the third quarter of 2018. The effect of the change in the Russian rouble exchange rate was EUR 4 million.

The share of profits of associated companies and joint ventures totalled EUR 59 (36) million, mainly related to the share of profit of TGC-1, EUR 54 (40) million, and the Yustek joint ventures in Chelyabinsk and Tyumen, EUR 2 (1) million (► **Note 19**).

Key electricity, capacity and gas prices for Fortum Russia

	2019	2018	Change 19/18
Electricity spot price (market price), Urals hub, RUB/MWh	1,117	1,043	7%
Average regulated gas price, Urals region, RUB/1,000 m ³	3,910	3,801	3%
Average capacity price for CCS and other, tRUB/MW/month ¹⁾²⁾	154	148	4%
Average capacity price for CSA, tRUB/MW/month ²⁾	1,096	1,075	2%
Average capacity price, tRUB/MW/month	624	609	2%
Achieved power price for Fortum in Russia, RUB/MWh	1,990	1,888	5%
Achieved power price for Fortum in Russia, EUR/MWh ³⁾	27.3	25.6	7%

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

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

3) Translated using the average exchange rate.

Other Operations

Other Operations comprises corporate functions, technology and innovation, internal and external ventures, R&D, as well as Fortum's shareholding in Uniper, which is consolidated as an associated company from 30 June 2018 (► [Note 3](#)).

EUR million	2019	2018	Change 19/18
Sales ¹⁾	115	103	12%
Comparable EBITDA	-91	-78	-17%
Comparable operating profit	-119	-99	-20%
Operating profit	-127	-76	-67%
Share of profits of associates and joint ventures	638	0	-
Comparable net assets (at period-end)	4,356	4,023	8%
Capital expenditure and gross investments in shares	49	4,003	-99%

1) Mainly internal sales.

Uniper investment and purchase price allocation

In 2017, Fortum announced a public takeover offer to buy shares in Uniper. In June 2018, the offer was settled and Fortum's ownership was 47.12%. At the end of 2018, Fortum's ownership in Uniper was 49.99%. The total acquisition cost for the initial 49.99% stake in Uniper of EUR 3,968 million, including direct costs relating to the acquisition, is reported in 'Participations in associated companies and joint ventures'. The purchase price allocation was finalised during the second quarter of 2019. Uniper's balance sheet as of 30 June 2018 has been used as the starting point for the purchase price allocation; however, a fair value adjustment of EUR 613 million has been made for the acquired assets and liabilities. Fortum's share of the goodwill on Uniper's balance sheet, EUR 930 million, is derecognised, as it is not an identifiable asset according to IFRS. Potential future impairments of goodwill (existing as of 30 June 2018) booked by Uniper will therefore be reversed to

Fortum's share of profits of associates and joint ventures. The fair value adjustments of EUR 613 million relates mainly to political and regulatory risks that are reflected in the fair value of certain generation and production assets. The fair value adjustment will be reversed to 'Share of profits of associates and joint ventures' over a period of 20 years, EUR 31 million annually. If Uniper reports negative impacts relating to these generation and production assets, Fortum will assess the potential need to use this fair value adjustment to reverse the negative impacts (► [Note 3](#)).

In May 2019, Uniper hosted its AGM. The AGM approved the proposed dividend of EUR 0.90 per share, which, for Fortum, corresponds to received dividends of EUR 165 million.

On 8 October 2019, Fortum announced it had entered into agreements with Elliott and Knight Vinke to acquire an additional stake of at least 20.5% in Uniper for approximately EUR 2.3 billion, increasing Fortum's share in Uniper to more than 70.5% (subject to regulatory clearances) and the total investment in Uniper to approximately EUR 6.2 billion, representing an average acquisition price of EUR 23.97 per share (► [Notes 3 and 19](#)).

In 2018, in connection with the acquisition of the initial stake of 49.99% in Uniper, Fortum already received unconditional merger clearance from the European Commission with no further clearance required in the EU for any further acquisitions. On 30 December 2019, Fortum received regulatory clearance in the United States for the transaction. On 14 November 2019, the Russian Government Commission for Monitoring Foreign Investments approved, subject to certain conditions, the closing of the acquisition. The clarification of these conditions is still ongoing. Closing of the transactions is still subject to customary merger control clearance in Russia, and is expected by the end of the first quarter of 2020.

Fortum will fully consolidate Uniper as a subsidiary in its financial statements from closing of the transaction. The transaction will be

financed with existing cash resources and committed credit facilities, that were syndicated to 13 banks in the fourth quarter of 2019. Fortum's key objective is to have a solid investment-grade rating of at least BBB, in order to preserve financial flexibility and good access to capital markets post-closing of the acquisition of an additional stake of at least 20.5% in Uniper, and to strengthen its financial profile longer term. This will provide the appropriate financial stability and support for the enlarged group. As Uniper publishes its interim reports later than Fortum, Fortum's share of Uniper's results is accounted for with a time lag of one quarter, with potential adjustments. Fortum's 2019 Financial Statements include Fortum's share of Uniper's October-December 2018 and January-September 2019 results (► [Note 3](#)). Uniper will report its full year 2019 results on 10 March 2020 and its first-quarter 2020 results on 7 May 2020.

On 30 January 2020, Uniper announced an ambitious phase-out plan for its German hard-coal-fired power production. The company plans to shut down a total of 1,500 MW of hard-coal capacity by the end of 2022 and a further 1,400 MW by the end of 2025. The last remaining hard-coal-fired power plant would be the 1,100-MW Datteln 4 power plant that must be decommissioned in 2038, at the latest, according to the draft law on coal phase-outs in Germany.

Financial results of Other Operations

Comparable operating profit declined, mainly as a result of the increased spend in Business Technology, including internal and external ventures. The investments in Valo Ventures and the related costs totalled EUR 23 million.

The share of profits of associated companies and joint ventures totalled EUR 638 (0) million (► [Note 19](#)). Fortum's share of Uniper's profits EUR 632 (-2) million, comprises Uniper's October-December 2018 and January-September 2019 results and the impact from reinstatement of the UK capacity market in the fourth quarter 2019, totalling EUR 601 (-2)

million, as well as the fair value adjustments reversal according to the purchase price allocation of Uniper for 2019, EUR 31 (-) million (► [Note 3](#)). EUR 392 (79) million of non-operating results from Uniper are included in the share of profits (► [Note 19](#)).

Capital expenditures, divestments and investments in shares

EUR million	2019	2018
Capital expenditure		
Intangible assets	75	53
Property, plant and equipment	638	532
Total	713	584
Gross investments in shares		
Subsidiaries	13	36
Associated companies and joint ventures	73	4,041
Other investments	20	11
Total	106	4,088

In 2019, capital expenditures and investments in shares totalled EUR 819 (4,672) million, of which the Solberg acquisition from the Solberg-Blaiken asset swap amounted to EUR 36 million. Capital expenditures, excluding the impact of the Solberg-Blaiken asset swap, were EUR 683 (584) million (► [Note 6](#)). In 2018, investments in shares were mainly attributable to the purchase of Uniper shares.

Fortum expects to start or has started power and heat production capacity of new power plants and expects to upgrade its existing plants as follows:

	Type	Electricity capacity MW	Heat capacity MW	Supply starts
Generation				
Hydro plants in Sweden and Finland	Hydro	14		2019
Hydro plants in Sweden and Finland	Hydro	~15		2020
Sørfjord, Norway ¹⁾	Wind	97		Q4/2019
Kalax, Finland	Wind	90		-Q3/2020
City Solutions				
Zabrze, Poland	CHP	75	145	1 April 2019
Kivenlahti, Finland	Bio HOB ²⁾		58	2020
Suomenoja, Finland	Heat pump		20	2021
Pavagada 2, India	Solar	250		5 August 2019
Rajasthan, India	Solar	250		Q4/2020
Russia				
Solar ³⁾	Solar	116		2021–2022

1) The Sørfjord wind park is part of the transaction with Credit Suisse Energy Infrastructure Partners and an 80% share will be sold once it is commissioned.

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

3) Separate investment decision needed.

Generation

Through its interest in TVO, Fortum is participating in the building of Olkiluoto 3 (OL3), a 1,600-MW nuclear power plant unit in Finland. OL3 is funded through external loans, share issues, and shareholder loans according to shareholder agreements between the owners and TVO. As a 25% shareholder in OL3, Fortum has committed to pro rata funding of the project. At the end of the reporting period, Fortum's outstanding loan receivables related to OL3 were EUR 170 million and the outstanding commitment was EUR 63 million. In March 2019, the Finnish Government

granted an operating licence for OL3. According to the time schedule updated by plant supplier Areva-Siemens consortium in December 2019, the plant will start regular electricity generation in March 2021 (► [Note 37](#)).

In December 2019, Fortum and Credit Suisse Energy Infrastructure Partners (CSEIP) signed an agreement whereby funds advised by CSEIP will acquire an 80% stake in Fortum's Nordic wind portfolio. Fortum will continue to manage the construction and serve as long-term asset manager for the wind portfolio. The portfolio consists of the operational Nygårdsfjellet (32 MW, Norway), Ånstadblåheia (50 MW, Norway), and Solberg (76 MW, Sweden) wind parks as well as the Kalax (90 MW, Finland) wind park, which is under construction. The parties have also agreed that funds advised by CSEIP will invest in an 80% share of the Sørfjord (97 MW, Norway) wind park, once it is fully commissioned. Part of the capacities are already operational and the remaining part is expected to be commissioned by the end of the third quarter of 2020. In addition, Fortum and CSEIP have agreed on further cooperation and exclusivity on a new project in Sävar, Sweden (154 MW) with the ambition to build it at a later stage. The total consideration of the divestment of the 80% stake on a debt- and cash-free basis is expected to be approximately EUR 250 million, of which EUR 170 million is related to the first quarter of 2020. The transaction is subject to regulatory approvals in the EU and is expected to close in the first quarter of 2020. The sale will have a minor positive effect on the Generation segment's first-quarter 2020 comparable operating profit.

In May 2019, Fortum announced the restructuring of Fortum's and Skellefteå Kraft's ownership in the two jointly owned Swedish wind parks Solberg and Blaiken. Through an asset swap arrangement, Fortum became the sole owner of the 76-MW Solberg wind park and Skellefteå Kraft the sole owner of the 248-MW Blaiken wind park. The Solberg-acquisition related to the Solberg-Blaiken asset swap amounted to EUR 36 million. The asset swap arrangement was finalised in August 2019 and had a minor impact on Fortum's cash flow and results.

In May 2019, Fortum made the investment decision to start construction of the 90-MW Kalax wind park in Närpes, Finland. The capital expenditure of the wind park is approximately EUR 90 million. The wind park is expected to be fully operational in the first quarter of 2021 at the latest. In October 2019, Fortum signed a 12-year power purchase agreement selling 70% of the power production of the Kalax wind park to Neste Corporation.

In January 2019, Fortum acquired all remaining C-shares of TVO, entitling it to 100% of the power production of the Meri-Pori coal condensing power plant, an increase from 67% previously. In December, 440 MW of the production capacity of Fortum's Meri-Pori power plant was selected for inclusion in the Finnish national peak-load reserve capacity system from 1 July 2020 to 30 June 2022.

City Solutions

In December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately EUR 530 million. The transaction was completed on 10 January 2020 and Fortum will record a tax exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results. In June 2019, Fortum announced it would review and consider strategic options for the Joensuu and Estonian district heating businesses. The strategic review of the Estonian district heating business is still ongoing. An extended assessment that includes the district heating and cooling businesses in all Baltic countries, in Poland, and in Järvenpää, Finland, is also being initiated.

In May 2019, Fortum announced its plan to construct a new 20-MW heat pump unit at the Suomenoja power plant in Espoo, Finland, to produce carbon-neutral district heating and to replace fossil fuel-based heat production. The unit is planned for commissioning in spring 2021 and will, together with the Kivenlahti bio-HOB, increase the share of Espoo's carbon-neutral district heating production in 2022 to over 50%. The final investment decision to build the unit was made in the fourth quarter of 2019.

In March 2019, Fortum announced that it had won the right from Solar Energy Corporation of India to build a 250-MW solar power plant

in Rajasthan, India. Commissioning of the plant is expected in the fourth quarter of 2020.

In June 2018, Fortum won the right to build a 250-MW solar power plant in the Pavagada solar park in Karnataka, India. The capital expenditure was approximately EUR 160 million. The plant was fully commissioned by 5 August 2019.

In June 2018, Fortum signed an agreement to sell a 54% share of its solar power company operating four solar power plants in India to UK Climate Investments (40%) and Elite Alfred Berg (14%). In April 2019, Elite Alfred Berg used its option to buy an additional 2% from Fortum.

In 2015, Fortum decided to build a new multi-fuel CHP plant in Zabrze, Poland. The new plant is primarily fuelled by refuse-derived fuel (RDF) and coal; however, it is also able to use a mixture of fuels. The new plant has a production capacity of 145 MW of heat and 75 MW of electricity and replaces the existing purely coal-fired units in Zabrze and Bytom. Commissioning was somewhat delayed from the original plan and commercial operations started on 1 April 2019.

Russia

In April 2019, the Ministry of Energy of the Russian Federation selected Fortum and Energy Sales Company Vostok's 50/50 joint venture as the guaranteed electricity retail supplier to 1.5 million customers in the Chelyabinsk region as of 1 July 2019. The decision was made based on an auctioning process held in March 2019. In the auction, the joint venture committed to a 100% reimbursement of the RUB 4.8 billion debt of Chelyabenergosbyt, corresponding to approximately EUR 66 million. The transaction required a limited equity investment from Fortum, as the joint venture financed the major part of the reimbursement with external debt. For Fortum, the net impact of the reimbursement was substantially lower due to the fact that Fortum was the single largest creditor, with EUR 11 million of the debt.

In June 2019, Fortum won the right to build 5.6 MW of solar capacity in Russian CSA auctions, in addition to the 110 MW won in June 2018. The power plants are to be commissioned during the years 2021–2022.

In June 2018, the Fortum-Rusnano wind investment fund (50/50 joint venture) won the right to build 823 MW of wind capacity in a CSA

auction. The wind parks were to be commissioned during the years 2019–2023. During the fourth quarter of 2018, the wind investment fund made an investment decision on a 100-MW wind farm. Power production and capacity supply is expected to start during the first half of 2020.

In June 2017, the Fortum-Rusnano wind investment fund won the right to build 1,000 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during the years 2018–2022. In the fourth quarters of 2017, 2018, and 2019, the wind investment fund made investment decisions on a 50-MW, a 200-MW, and a 250-MW wind farm, respectively. On 1 January 2019, the 50-MW wind farm started operation. Power production and capacity supply at the 200-MW wind farm is expected to start during the first half of 2020 and at the 250-MW wind farm during the fourth quarter of 2020.

The investment decisions related to the renewable capacities won by Fortum and the Fortum-Rusnano wind investment fund in 2017, 2018, and 2019 are made on a case-by-case basis. Fortum's maximum equity commitment is RUB 15 billion. In the longer term, Fortum seeks to maintain an asset-light structure.

Research and development

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

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

The Group reports its R&D expenditure on a yearly basis. In 2019, Fortum's R&D expenditure was EUR 67 (56) million, or 1.2% (1.1%) of sales.

	2019	2018	2017	Change 19/18
R&D expenditure, EUR million	67	56	53	20%
R&D expenditure, % of sales	1.2	1.1	1.2	

Changes in Group management

In August 2019, Fortum announced that Marco Ryan, a member of Fortum's Board of Directors, resigned from the Board following his appointment at the energy company BP. Fortum's Shareholders' Nomination Board evaluated the Board of Directors' ability to function and concluded that the Board had full capacity to continue in its remaining composition until the 2020 Annual General Meeting.

Annual General Meeting 2019

Fortum Corporation's Annual General Meeting on 26 March 2019 adopted the Financial Statements and the Consolidated Financial Statements for the financial period 1 January-31 December 2018, and discharged from liability the members of the Fortum Board of Directors and the President and CEO for the year 2018.

The Annual General Meeting decided to pay a dividend of EUR 1.10 per share for the financial year that ended on 31 December 2018. The record date for the dividend payment was 28 March 2019 and total dividends of EUR 977 million were paid on 4 April 2019.

The Annual General Meeting confirmed the remuneration for Board service for the upcoming term as follows: EUR 75,000 per year for the Chairman, EUR 57,000 per year for the Deputy Chairman, EUR 40,000 per year for a Member, and EUR 57,000 per year for the Board member acting as the Chairman of the Audit and Risk Committee if he or she is not simultaneously acting as Chairman or Deputy Chairman of the Board. In addition, a fee of EUR 600 will be paid for each Board meeting and Board Committee meeting. For Board members living outside Finland in

Europe, the fee for each meeting will be doubled, and for Board members living outside Europe, the fee for each meeting will be tripled. For Board members living in Finland, the fee for each Board and Board Committee meeting will be doubled for meetings held outside Finland and tripled for meetings held outside Europe. For Board and Committee meetings held as a telephone conference, the basic meeting fee will be paid to all members. No fee will be paid for decisions made without a separate meeting.

The Annual General Meeting decided that the number of the members in the Board of Directors will be nine. Mr. Matti Lievonon was elected as Chairman, Klaus-Dieter Maubach as Deputy Chairman, and Ms Eva Hamilton, Mr. Kim Ignatius, Ms Essimari Kairisto, Ms Anja McAlister, Mr. Veli-Matti Reinikkala, Mr. Marco Ryan and Mr. Philipp Rösler as Members. In August 2019, Marco Ryan resigned from the Board following his appointment at the energy company BP.

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

The Annual General Meeting authorised the Board of Directors to decide on the repurchase and disposal of the company's own shares up to maximum of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. Only the unrestricted equity of the company can be used to repurchase own shares on the basis of the authorisation. It was also decided that own shares cannot be repurchased or disposed for the purposes of the company's incentive and remuneration schemes. These authorisations cancelled the authorisations resolved by the Annual General Meeting of 2018 and they will be effective until the next Annual General Meeting and in any event no longer than for a period of 18 months. The authorisations have not been used as of 5 February 2020.

The Annual General Meeting authorised the Board of Directors to decide on contributions in the total maximum amount of EUR 500,000 for charitable or similar purposes, and to decide on the recipients, purposes and other terms of the contributions. The authorisation will be effective until the next Annual General Meeting. The authorisation has not been used as of 5 February 2020.

Board decisions

At the meeting held after the Annual General Meeting 2019, Fortum's Board of Directors elected to the Nomination and Remuneration Committee Matti Lievonon as Chairman and Eva Hamilton, Klaus-Dieter Maubach and Anja McAlister as members. Furthermore, the Board elected to the Audit and Risk Committee Kim Ignatius as Chairman and Essimari Kairisto, Veli-Matti Reinikkala, Marco Ryan and Philipp Rösler as members.

Shareholders Nomination Board

On 3 October 2019, Mr. Kimmo Viertola, Director General, Prime Minister's Office, Ownership steering department (Chairman), Mr. Jouko Pölönen, President and CEO, Ilmarinen Mutual Pension Insurance Company, and Mr. Risto Murto, President and CEO, Varma Mutual Pension Insurance Company were appointed to Fortum's Shareholders' Nomination Board. In addition, the Chairman of Fortum's Board of Directors, Mr. Matti Lievonon, is a member of the Shareholders' Nomination Board.

On 31 January 2020, Fortum's Shareholders' Nomination Board submitted its proposals to Fortum's Board of Directors for the 2020 Annual General Meeting concerning the number of the Board members, the members to be nominated to the Board of Directors, and the election of the Chairman and Deputy Chairman. The Shareholders' Nomination Board did not reach a unanimous proposal, and consequently did not make a proposal for the remuneration paid to the Board of Directors for their following term of office.

Other major events during the reporting period

On 19 December 2019, the Board of Directors decided to commence the 2020–2022 long-term incentive (LTI) plan for key employees and executives. The Board of Directors also decided to update the terms and conditions of the LTI programme, valid for the plans commencing as of the beginning of 2020, to include more precise malus and clawback clauses. The 2020–2022 LTI plan is part of Fortum's ongoing LTI programme and otherwise follows the same principles as the previous plan. The 2020–2022 LTI plan will comprise approximately 140

participants, including the members of Fortum Executive Management. The Board of Directors also decided to establish a Restricted Share programme, as a supplement to the LTI programme, and reserve shares that potentially will be allocated under the 2020–2022 plan. The Restricted Share programme will follow the main terms and conditions of the general LTI programme with the exception that the allocated shares will be delivered after the three-year plan period independent of performance measures, subject to continued employment. The maximum number of shares that may be delivered as a reward is expected to be 660,000 shares for the 2020–2022 LTI plan and 60,000 shares for the 2020–2022 Restricted Share plan.

On 11 October 2019, the Board of Directors decided to establish an Employee Share Savings (ESS) programme and launch the savings period for the year 2020 under that programme. The shares for the ESS programme will be purchased from the market quarterly after Fortum's interim reports have been published. Dividends paid for the shares will be reinvested in additional shares to be purchased from the market after the dividend payment. The Board of Directors will annually decide on the potential launch of each individual savings period. The ESS programme participants will, as a gross reward, be granted one matching share for each two purchased savings shares after approximately three years from the beginning of the savings period. The total amount of all savings for the 2020 savings period may not exceed EUR 6 million. More than 40% of the eligible employees took the opportunity to invest in the first ESS plan.

Events after the balance sheet date

On 6 February 2020, Fortum announced, in line with its strategy and continued review of the business portfolio, that it had decided to assess strategic options, including possible divestment, of its district heating and cooling businesses in Poland, Estonia, Lithuania, Latvia, and Järvenpää in Finland. Based on initial assessments, these district heating and cooling businesses have been identified as operations that could provide higher growth and value potential with an alternative ownership structure.

On 20 December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland, to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately

EUR 530 million, and the cash was received at the completion of the divestment on 10 January 2020. Fortum will record a tax-exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results.

Key drivers and risks

Fortum's financial results are exposed to a number of financial, operational, strategic, and sustainability-related risks. Fortum is exposed to these risks both directly and indirectly through its associated companies and joint ventures. The principal associated companies and joint ventures are Uniper SE, TVO, OKG AB, Forsmarks Kraftgrupp AB, Kemijoki Oy, TGC-1, and Stockholm Exergi AB. For more information about the risk exposures, please see each respective company's annual report.

One of the key factors influencing Fortum's business performance is the Nordic electricity wholesale price. The key short-term drivers behind the electricity wholesale price development in the Nordic region are commodity prices, such as coal and gas, European electricity wholesale prices, prices for CO₂ emission allowances, the hydrological situation, temperatures, and the electricity import-export balance. In the longer term, global economic growth and changes to energy policy and regulations impact commodity and CO₂ emission allowance prices, which, in turn, impact the Nordic wholesale price of electricity. In addition, increased volatility in exchange rates could have both translation and transaction effects on Fortum's financials, especially through the Russian rouble and Swedish krona.

Operational risks resulting from failed internal processes or systems or from external events can have a negative impact on Fortum's results. In all regions, fuel prices and power plant availability also impact profitability.

Changes in the regulatory and fiscal environment create risks and opportunities for the energy and environmental management business. The main strategic risk is that the regulatory and market environment develops in a way that we have not been able to foresee and prepare for. In response to these uncertainties, Fortum analyses and assesses a number of future market and regulation scenarios, including the impact of these on different generation forms and technologies. As a result, Fortum's strategy includes broadening of the revenue base and diversification into new

businesses, technologies, and markets. The environmental management business is based on the framework and opportunities created by environmental regulation. Being able to respond to customer needs created by the tightening regulation is a key success factor.

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

For further details on Fortum's risks and risk management, see the ▶ **Risk management** section of the Operating and financial review and ▶ **Note 4** Financial risk management.

Outlook

Hedging

At the end of 2019, approximately 75% of the Generation segment's estimated Nordic power sales volume was hedged at EUR 34 per MWh for 2020, and approximately 40% at EUR 33 per MWh for 2021.

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

Capital expenditure and divestments

Fortum currently estimates its capital expenditure, including maintenance but excluding acquisitions, to be approximately EUR 700 million (previously expected to be less than EUR 600–650 million) in 2020. This includes approximately EUR 200 million of solar and wind investments, which are subject to the capital recycling business model. The maintenance capital expenditure in 2020 is estimated to be approximately EUR 300 million, well below the level of depreciation.

Nordic market

Electricity is expected to continue to gain a higher share of total energy consumption. Electricity demand in the Nordic countries during the next few years is expected to grow annually by approximately 0.5% on average. The growth rate will largely be determined by the macroeconomic development in Europe and especially in the Nordic countries and, in the longer term, also by the rate of electrification of industry, transportation, and heating.

During the fourth quarter of 2019 the gas price was at a low level, and also the front-year gas price decreased. Coal prices decreased, EUA prices developed sideways, and oil prices increased.

At the end of January 2020, the forward quotation for coal (ICE Rotterdam) for the remainder of 2020 was around USD 53 per tonne and the market price for EUAs for 2020 at the level of EUR 24 per tonne. The Nordic system electricity forward price on Nasdaq Commodities for the remainder of 2020 was around EUR 20 per MWh and for 2021 around EUR 27 per MWh. In Germany, the electricity forward price for the remainder of 2020 was around EUR 36 per MWh and for 2021 around EUR 41 per MWh. The Nordic water reservoirs were about 6 TWh above the long-term average and 13 TWh higher than one year earlier.

Generation

The Generation segment's achieved Nordic power price typically depends on factors such as hedge ratios, hedge prices, spot prices, availability and utilisation of Fortum's flexible production portfolio, as well as currency fluctuations. Excluding the potential effects from changes in the power generation mix, a 1 EUR/MWh change in the Generation segment's Nordic

power sales achieved price will result in an approximately EUR 45 million change in Fortum's annual comparable operating profit. The achieved power price also includes the results of optimisation of Fortum's hydro and nuclear production, as well as operations in the physical and financial commodity markets.

In June 2018, the Swedish Parliament adopted new hydro legislation effective 1 January 2019. The new legislation states that the power industry shall create a joint hydropower fund to finance major parts of the required environmental actions. Consequently, a fund has been established with a total financial cap of SEK 10 billion to be paid over a 20-year period. All major utilities will contribute to the fund based on their share of Swedish hydropower production. Fortum's share of the fund's total financing is 23%. In addition to the new legislation, the Government issued an ordinance that came into force on 11 January 2019 to establish a national prioritisation plan for the revision of hydropower permits.

In June 2018, the Swedish Administrative Court of Appeal gave its decisions on Fortum Sverige AB's hydropower production-related real-estate tax assessments for the years 2009–2014. The court decisions were not in Fortum's favour. Fortum applied for the right to appeal from the Supreme Administrative Court, but did not receive permission to appeal. As the Administrative Court, the Administrative Court of Appeal in Stockholm, and the Supreme Administrative Court have handled only the arguments concerning state aid, the case concerning the other legal arguments has now been transferred back to the Administrative Court. The disputed amount, excluding interest for the time period, totals approximately SEK 510 million (approximately EUR 49 million). Moreover, Fortum's Swedish companies have appeals for 2011–2016 pending before the Administrative Court relating to the real-estate tax rate for their hydropower plants and referring to the same legal grounds. Fortum has paid the real-estate tax in accordance with the legislation. If the final court decision is unfavourable to Fortum, it will not impact Fortum's results. In December 2018, Fortum Sverige AB filed a complaint to the EU Commission regarding the Swedish real-estate tax for hydropower plants for 2017 and prior years. Fortum has asked the Commission to investigate whether the Swedish legislation regarding the real-estate tax for hydropower plants and the Swedish court decisions are in line with EU state aid rules.

According to the Swedish Government's budget proposal for the coming years, presented in September 2016, the Swedish hydropower real-estate tax will decrease from 2.8% to 0.5%. The tax is being reduced in four steps: in January 2017 to 2.2%; in January 2018 to 1.6%; in January 2019 to 1.0%; and in January 2020 to 0.5%. In 2018, the tax was EUR 65 million, in 2019 EUR 40 million, and in 2020 it is expected to be approximately EUR 25 million. In addition to the decrease in the tax rate, the hydropower real-estate tax values, which are linked to electricity prices, were updated in 2019. The real-estate tax values are updated every six years.

City Solutions

In City Solutions, growth in cash flow and earnings is mainly achieved through investments in new plants and through acquisitions. Heat prices, fuel cost, CO₂ prices, availability, taxation and regulatory changes, flexibility and efficiency of the plants, as well as gate fees for receiving waste are the key drivers for profitability, but power prices and weather conditions also affect profitability. Fortum aims to create new businesses with potential for sizeable profit contribution, e.g. within the areas of waste and recycling and the bio-economy.

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

In March 2019, Fortum announced that it had won the right from Solar Energy Corporation of India to build a 250-MW solar power plant in Rajasthan, India. The solar park will be entitled to a fixed tariff of 2.48 INR/kWh for 25 years. Commissioning of the plant is expected in the fourth quarter of 2020.

In June 2018, Fortum won the right to build a 250-MW solar power plant in the Pavagada solar park in Karnataka, India. The capital expenditure was approximately EUR 160 million and the solar park is entitled to a fixed tariff of 2.85 INR/kWh for 25 years. The plant was fully commissioned by 5 August 2019.

Consumer Solutions

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

Russia

In the Russia segment, capacity payments based on CSA contracts are a key driver for earnings growth, as capacity payments based on CSA contracts are considerably higher than for CCS auctions. Currently, Fortum's CSA capacity amounts to 2,368 MW. In February 2019, the System Administrator of the wholesale market published data from 2018 regarding the WACC and the CPI, which were used to calculate the CSA price for 2019. The CSA payments were revised downwards to reflect the lower bond rates and upwards due to the lower earnings from the electricity-only-market. The net impact of the adjustments was a minor increase of the CSA payments for 2019.

In addition, thermal power plants are entitled to clearly higher CSA payments starting approximately six years after commissioning. In 2020, no such increase in CSA payments is expected for the Fortum generation fleet.

Fortum's other Russian generation capacity, totalling 2,560 MW, is allowed to participate in the CCS auctions. The long-term CCS auctions for the years 2018–2021 were held in 2015, 2016, and 2017. All Fortum plants offered in the auctions were selected. The nominal CCS price was 111 tRUB/MW/month for 2018, 110 tRUB/MW/month for 2019, 115 tRUB/MW/month for 2020, and 134 tRUB/MW/month for 2021. The CCS auctions for 2022–2024 were held in August 2019. The nominal CCS price was 168 tRUB/MW/month for 2022, 171 tRUB/MW/month for 2023, and 182 tRUB/MW/month for 2024. The CCS auction for 2025 is expected to be held in February 2020. Fortum has also obtained so-called "forced mode status", i.e. it receives payments with a higher rate, for some of the units at the Argayash power plant. "Forced mode status" was obtained for 195 MW for the years 2018–2019, for 175 MW for the year 2020, and for 105 MW for the year 2021.

In June 2019, Fortum won the right to build 5.6 MW of solar capacity in a CSA auction, in addition to the 110 MW won in June 2018. The power plants will receive a guaranteed CSA price for a period of 15 years, corresponding to approximately RUB 14,000 per MWh and RUB 15,000 per MWh, respectively. The plants are to be commissioned during 2021–2022.

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

In June 2017, the Fortum-Rusnano wind investment fund won the right to build 1,000 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during 2018–2022 and will receive a guaranteed CSA price corresponding to approximately RUB 7,000–9,000 per MWh for a period of 15 years. In the fourth quarters of 2017, 2018, and 2019, the wind investment fund made investment decisions on a 50-MW, 200-MW, and 250-MW wind farm, respectively.

The Russian Government increased the gas price by 1.4% in July 2019. Fortum estimates the gas price to be increased by 3% in July 2020.

Other Operations

For information on the financial impact of the Uniper shareholding, please see ▶ **Notes 3 and 19**.

Income taxation

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

In Belgium, Fortum has received income tax assessments for the years 2008–2012. The tax authorities disagree with the tax treatment of Fortum EIF NV, which was later merged into Fortum Project Finance NV. Fortum finds the tax authorities' interpretation to be inconsistent with the local regulation and has appealed the decisions. The Court of First Instance

in Antwerp rejected Fortum's appeal for the years 2008 and 2009 in June 2014. Fortum found the decision unjustifiable and appealed to the Court of Appeal. In January 2016, Fortum received a favourable decision from the Court of Appeal in Antwerp in which the Court disagreed with the tax authorities' interpretation and the tax assessment for 2008 was nullified. The tax authorities disagreed with the decision and filed an appeal to the Supreme Court (Hof van Cassatie) in March 2016. In April 2019, the Advocate General at the Supreme Court issued his opinion, which was in favour of Fortum Project Finance. In May 2019, the Supreme Court, however, annulled the decision of the Court of Appeal of Antwerp and referred the case back to the Court of Appeal of Ghent for full retrial. Fortum's appeals concerning 2009–2012 are still pending and Fortum expects the remaining years to follow the final decision for 2008. Based on legal analysis and a supporting legal opinion, no provision has been accounted for. The amount of additional tax claimed is EUR 36 million for the year 2008, EUR 27 million for 2009, EUR 15 million for 2010, EUR 21 million for 2011, and EUR 15 million for 2012. The tax has already been paid.

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

Sustainability

Sustainability at Fortum

Fortum gives balanced consideration in its operations to climate and resource issues, as well as its impacts on personnel and society. Fortum conducted a sustainability materiality analysis in 2019 and the renewed sustainability priority areas are the following:

Personnel and society		Climate and resources
Business ethics and compliance	Employee wellbeing, health and safety	Climate change and GHG emissions
Customer rights and satisfaction	Labour rights	Energy efficiency
Human rights	Innovation and digitalisation	Circular economy
Corporate governance	Economic value creation	Emissions to air, land and water
Stakeholder engagement	Diversity and equal opportunity	Water use
		Security of supply

The Group-level sustainability targets are linked to the main sustainability priority areas and emphasise Fortum's role in society. They measure not only environmental and safety targets, but also Fortum's reputation, customer satisfaction, employee wellbeing, and the security of power and heat production. Targets are set annually and are based on continuous operational improvement. A new target in 2019 is the Contractor safety improvement index.

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

Group sustainability targets and performance 2019

	Target	2019	2018
Climate and resources			
Specific CO ₂ emissions from total energy production as a five-year average, g/kWh	≤200	186	186
Energy-efficiency improvement by 2020, baseline 2012, GWh/a	≥1,900	1,707	1,637
Major EHS incidents, no. ¹⁾	≤18	11	18
Energy availability of CHP plants, %	≥95.0	95.9	96.4
Personnel and society			
Reputation index, based on One Fortum Survey	≥73.0	72.3	72.5
Customer satisfaction index (CSI), based on One Fortum Survey	70–74	54–80	63–83
Lost Workday Injury Frequency (LWIF), own personnel and contractors	≤1.7	1.7	1.8
Severe occupational accidents, no.	0	1	4
Quality of investigation process of occupational accidents, major EHS incidents and near misses	Level 3.0	Level 3.0	Level 3.0
GAP index, implementation of EHS minimum requirements	Level 3.0	Level 3.0	Level 2.0
Contractor safety improvement index	Level 2.0	Level 2.0 ²⁾	-
Sickness-related absences, %	≤2.5	3.0	2.8

1) The figure does not include the exceedances caused by possible changes in permit limits in Russia.

2) The reporting of the Contractor safety improvement index started in the second quarter of 2019. The figure is still excluding City Solutions' solar power sites.

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

Fortum is a significant economic actor in its operating countries. The most significant direct monetary flows of Fortum's operations come from revenue from customers, procurements of goods and services from

suppliers, compensation to lenders, dividends to shareholders, growth and maintenance investments, employee wages and salaries, and taxes paid.

Fortum supports social development and wellbeing in its operating countries by e.g. paying taxes. The tax benefits Fortum produces to society include not only corporate income taxes, but also several other taxes. In 2019, Fortum's taxes borne were EUR 397 (299) million. Fortum publishes its tax footprint annually.

Fortum is listed on the Nasdaq Helsinki exchange and is included in the STOXX Global ESG Leaders, OMX Sustainability Finland, ECPI®, Euronext Vigeo Eurozone 120, Euronext Vigeo Europe 120 and Equileap Gender Equality indices. Fortum is also ranked in category B in the CDP Climate Change 2019 rating, and it has received a rating A in the MSCI ESG Ratings assessment in 2019, and a Prime Status (B-) rating by ISS ESG Corporate Rating. In June 2019, Fortum became a constituent of the FTSE4Good Index Series.

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

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

Sustainability risks and opportunities

Fortum's operations are exposed to risks, which if materialised can have adverse effects on the environment and on the safety and security of employees, contractors and neighbouring societies. Key sustainability

risks, including climate-related risks, are reported to Fortum Executive Management and the Audit and Risk Committee as part of the annual review of material risks and uncertainties for the Group. These risks are presented in the Risk management section in the Operating and financial review. Climate change and the need for decarbonisation and resource efficiency are changing the energy industry in a profound way, and these changes also create new business opportunities for Fortum.

Sustainability governance and policies

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

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

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

Fortum's main internal policies and instructions guiding sustainability

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

Business ethics

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

In addition to internal reporting channels, Fortum employees and partners can report suspicions of misconduct confidentially by using the "SpeakUp" channel on Fortum's internal and external web pages.

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

No cases of corruption or bribery were confirmed in 2019.

Climate and resources

Fortum's Group-level targets for climate and resources are related to CO₂ emissions, energy efficiency, secure supply of electricity and heat for customers, and major Environmental, Health and Safety (EHS) incidents.

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

Energy

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

and power (CHP). In line with the strategy, Fortum targets a multi-gigawatt wind and solar portfolio, which is subject to the capital recycling business model.

In 2019, Fortum's power generation was 76.3 (74.6) TWh and heat production 26.4 (29.8) TWh. 59% (57%) of the total power generation was CO₂-free. In Europe, 96% (96%) of the power generation was CO₂-free. Investments in CO₂-free production were EUR 401 (278) million. Investments in hydro, wind and solar power and bioenergy totalled EUR 344 (180) million.

Fortum has a Group-level target to achieve annual energy-efficiency improvements of ≥1,900 GWh by 2020 compared to 2012. Fortum achieved 1,707 GWh/a by the end of 2019.

The main fuels that Fortum uses to produce electricity and heat are natural gas, uranium, coal, waste-derived fuels and biomass fuels. The most significant fuel was natural gas, which accounted for 63% (63%) of the total fuel consumption. The next highest fuel use was uranium 20% (21%). Coal accounted for 10% (8%) of the total fuel use, and waste-derived fuels and biomass fuels 3% (4%) and 3% (3%), respectively. Russia accounted for 99% of the use of natural gas and 57% of the use of coal.

An uninterrupted and reliable energy supply is critical for society to function. With planned preventive maintenance and condition monitoring, Fortum ensures that the power plants operate reliably to produce the electricity and heat customers need. The energy availability of the company's CHP plants in 2019 was, on average, 95.9% (96.4%), outperforming the target of ≥95.0%.

Climate

Fortum expects the concern about climate change to increase the demand for low-carbon production and energy-efficient solutions and products. Fortum aims to mitigate climate change by investing in CO₂-free energy production and by improving energy and resource efficiency. Fortum is also adapting its operations to climate change in production planning and in the assessment of growth projects and investments.

In 2019, Fortum's direct CO₂ emissions were 19.1 (20.1) Mt. 85% of CO₂ emissions originated from Russian power plants. Direct CO₂ emissions decreased primarily because of the decreased power and heat production. Of the total CO₂ emissions, 2.1 (2.5) Mt were within the EU's emissions trading scheme (ETS). The estimate for Fortum's free emission allowances in 2019 is 0.7 (0.8) Mt.

Fortum's total CO ₂ emissions (million tonnes, Mt)	2019	2018	2017
Total emissions	19.1	20.1	18.4
Emissions subject to ETS	2.1	2.5	2.4
Free emission allowances	0.7	0.8	1.0
Emissions in Russia	16.3	16.9	15.4

In 2019, Fortum's specific carbon dioxide emissions from total energy production were 189 (192) g/kWh. The specific CO₂ emissions from total energy production as a five-year average were 186 (186) g/kWh, which is better than Fortum's Group target of ≤200 g/kWh.

Circular economy

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

In 2019, Fortum received about 1.6 (1.6) million tonnes of non-hazardous waste and about 600,000 (600,000) tonnes of hazardous waste from customers. As much of the waste stream as possible is recycled, recovered or reused. Waste that is unsuitable for recycling or reuse as a material is incinerated in Fortum's waste-to-energy plants in the Nordic countries, Lithuania and Poland.

Emissions

Fortum's activities cause various emissions to air. In addition to carbon dioxide (CO₂) emissions, these include flue-gas emissions, such as sulphur

dioxide (SO₂), nitrogen oxide (NO_x) and particle emissions. All power plants operate in compliance with their air emission limits.

Fortum's flue-gas emissions (1,000 tonnes)	2019	2018	2017
Sulphur dioxide emissions	14.9	16.8	18.8
Nitrogen oxide emissions	24.8	26.1	26.4
Particle emissions	11.7	9.6	15.8

Fortum's target regarding major EHS incidents is to have no more than 18 major EHS incidents annually. Major EHS incidents are monitored, reported and investigated, and corrective actions are implemented. In 2019, there were 11 (18) major EHS incidents in Fortum's operations. The major EHS incidents included three fires, two environmental non-compliances, four leaks, one explosion, and one INES (International Nuclear Event Scale) level 1 incident. The major EHS incidents did not have significant environmental impacts.

Water and biodiversity

Fortum uses large volumes of water at various types of power plants and in district heating networks. In most cases, power plants do not consume water – the water is discharged back to the same water system from where it was withdrawn. Fortum withdrew a total of 2,100 (2,100) million m³ of water in production operations; 94% of this amount was used as cooling water.

Fortum's main impacts on biodiversity are related to hydropower production. Fuel procurement and flue-gas emissions may also have a negative impact on biodiversity. On the other hand, increasing CO₂-free production mitigates the biodiversity loss caused by climate change. Fortum's Biodiversity Manual and Biodiversity Action Plan define the company's approach to biodiversity management.

Radioactive waste

In 2019, 21.9 (20.3) tonnes of spent nuclear fuel was removed from Loviisa power plant's reactors in Finland. High-level radioactive spent fuel is stored in an interim storage at the Loviisa power plant site. The final

disposal of the high-level radioactive spent fuel originating at the Loviisa power plant is scheduled to begin at Olkiluoto in Eurajoki in the 2040s.

Personnel and society

Fortum's Group-level targets for personnel and society are related to operational and occupational safety, employee wellbeing, as well as reputation and customer satisfaction.

Personnel

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

Fortum's operations are mainly based in the Nordic countries, Russia, Poland and the Baltic Rim area. The total number of employees at the end of 2019 was 8,191 (8,286).

Group personnel statistics	2019	2018	2017
Number of employees, 31 December	8,191	8,286	8,785
Average number of employees	8,248	8,767	8,507
Total amount of employee benefits, EUR million	480	459	423
Departure turnover, % (of permanent employees)	11.2	16.1	10.5
Permanent employees, %	96.8	95.9	95.2
Full-time employees, % (of permanent employees)	97.7	98.2	98.1
Female employees, %	32	32	32
Females in management, %	30	30	29

Occupational safety

For Fortum, excellence in safety is the foundation of the company's business and an absolute prerequisite for efficient and interruption-free production. Fortum strives to be a safe workplace for the employees, contractors and service providers who work for the company. The Group Sustainability Policy, the Minimum Requirements for EHS Management

and more detailed Group-level EHS manuals steer the work. A certified OHSAS 18001 or ISO 45001 safety management system covers 96.5% (97.0%) of Fortum's power and heat production worldwide.

In 2019, Fortum's Lost Workday Injury Frequency (LWIF) for own personnel and contractors was 1.7 (1.8), achieving the set target level (≤1.7). In 2019, there was one occupational violence case in Russia, which was classified as severe accident. The Group target for 2019 was zero severe occupational accidents.

In 2019, the quality of investigation process of occupational accidents, major EHS incidents, and serious near misses was at the level of 3.0 (3.0), achieving the set target level (3.0).

In 2019, the GAP index was at the level 3.0 (2.0), achieving the set target level (3.0). The GAP index measures how well the Group's EHS minimum requirements are realised at the power plant level.

Fortum is continuing its efforts to improve contractor safety, and it systematically assesses contractor safety performance as part of supplier qualification and during work. In 2019, contractor safety improved significantly, and the Contractor safety improvement index was at the level of 2.0, achieving the set target level (2.0). However, the assessment had not yet covered all Fortum operations. The Contractor safety improvement index measures how well Fortum has managed to implement measures targeting improvements in contractor safety.

In 2019, Fortum introduced a "Safety walks" training programme for Fortum's top management. The programme paid special attention to top management's role in improving the safety culture. It included coaching and practical training in the necessary personal leadership skills. It also focused on systems and structures that support the transformation of the safety culture.

Personnel wellbeing

Fortum's goal with workplace wellbeing activities is to promote the health and occupational safety of employees and the functionality of the work community. In 2019, the Energise Your Day wellbeing programme was expanded to the former Hafslund companies in Finland, Sweden, Norway and Poland, and is now under way in all Fortum's operating countries.

In 2019, the percentage of sickness-related absences was 3.0 (2.8), which did not meet the target level of ≤2.5. Sickness absences increased especially in Russia and Norway.

Society

Customer satisfaction

Fortum's targets for reputation and customer satisfaction are monitored annually. In the One Fortum Survey in 2019, the combined company reputation index among key stakeholder groups was 72.3 (72.5) points, on a scale of 0–100, which did not meet the target of ≥73.0 points.

The Group-level target (70–74 points, on a scale of 0–100) for customer satisfaction was achieved among all business areas with two exceptions: retail electricity sales and EV charging solutions for both consumers and businesses.

Supply chain

Fortum's total purchasing volume in 2019 was EUR 3.8 (3.7) billion, and Fortum had about 14,000 suppliers of goods and services. Fortum expects its business partners to act responsibly and to comply with the Fortum Code of Conduct and the Fortum Supplier Code of Conduct. Fortum assesses the performance of its business partners with supplier qualification and supplier audits. In 2019, Fortum conducted a total of 14 (13) supplier audits in Poland, Russia, India, China, Indonesia and Vietnam. In addition, one coal supplier in Kazakhstan was assessed against the Bettercoal Code by a third party.

Human rights

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

A human rights assessment is carried out for investment projects – especially in new operating areas – and also for new countries where Fortum plans to expand the sales of products and services. In 2019, 6 (7) of these assessments were made.

In 2019, there were no grievances related to human rights filed through Fortum's formal grievance channels, nor were there any grievances carried over from the previous year.

Corporate citizenship

Fortum's operations impact the local communities where the power plants are located, and the company engages in many kinds of collaboration with local stakeholders. According to Fortum's Policy for Sponsoring and Donations, the company's sponsorships focus on the wellbeing of children and youth, renewable energy projects, R&D and innovations supporting Fortum's strategy. In addition, Fortum sponsors projects related to recycling, recovery and reuse. Fortum also engages in collaboration with universities through different research and development projects. In 2019, Fortum's support for activities promoting the common good totalled about EUR 2.7 (3.8) million. In addition, the grants awarded by Fortum Foundation, not part of Fortum Group, totalled about EUR 660,000 (680,000).

Risk management

Risk management framework and objectives

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

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

Risk management organisation

The main principle is that risks are managed at source meaning that each Division and Corporate Function Head is responsible for managing risks that arise within their business operations. However, certain risks, such as currency, interest rate, liquidity and refinancing risks, are managed centrally.

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

Corporate Risk Policy Structure

Approving body

Board of Directors

President and CEO

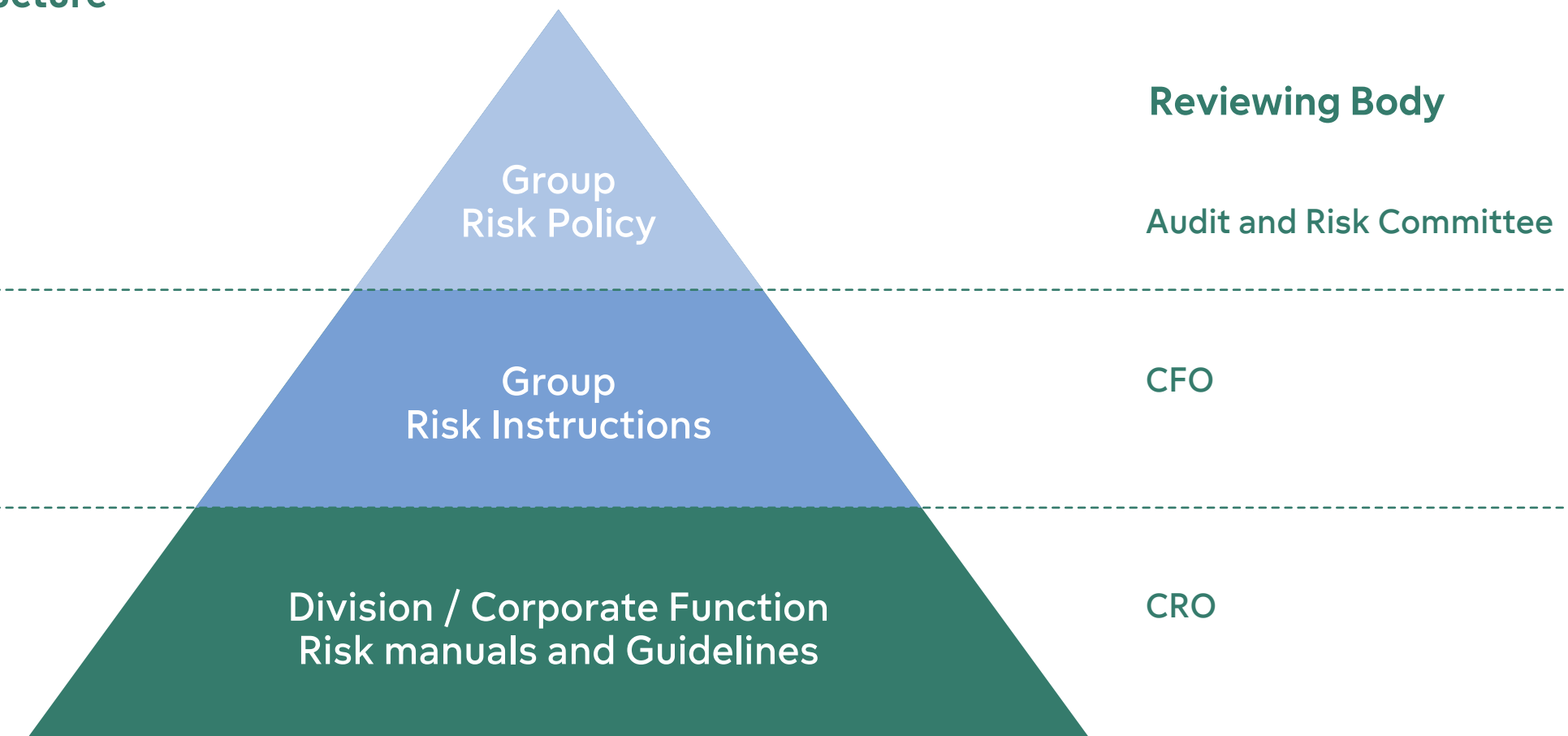
Division / Corporate Function Head

Reviewing Body

Audit and Risk Committee

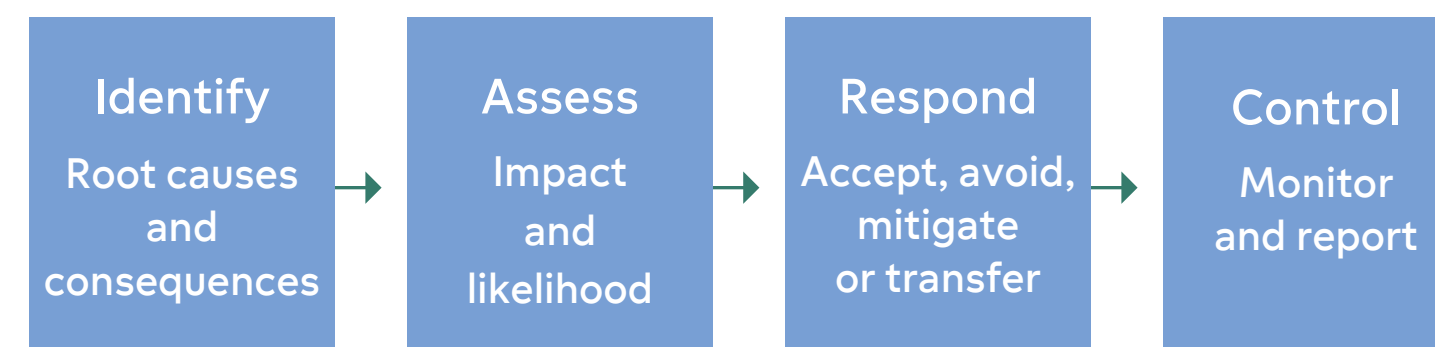
CFO

CRO



maturity of risk management in Divisions and Corporate Functions and for providing independent monitoring and reporting of material risk exposures to Fortum Executive Management (FEM), the ARC and the Board of Directors. Risk control functions and controllers in the business monitor and report risks to the CRO.

Risk management process



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

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

Risk factors

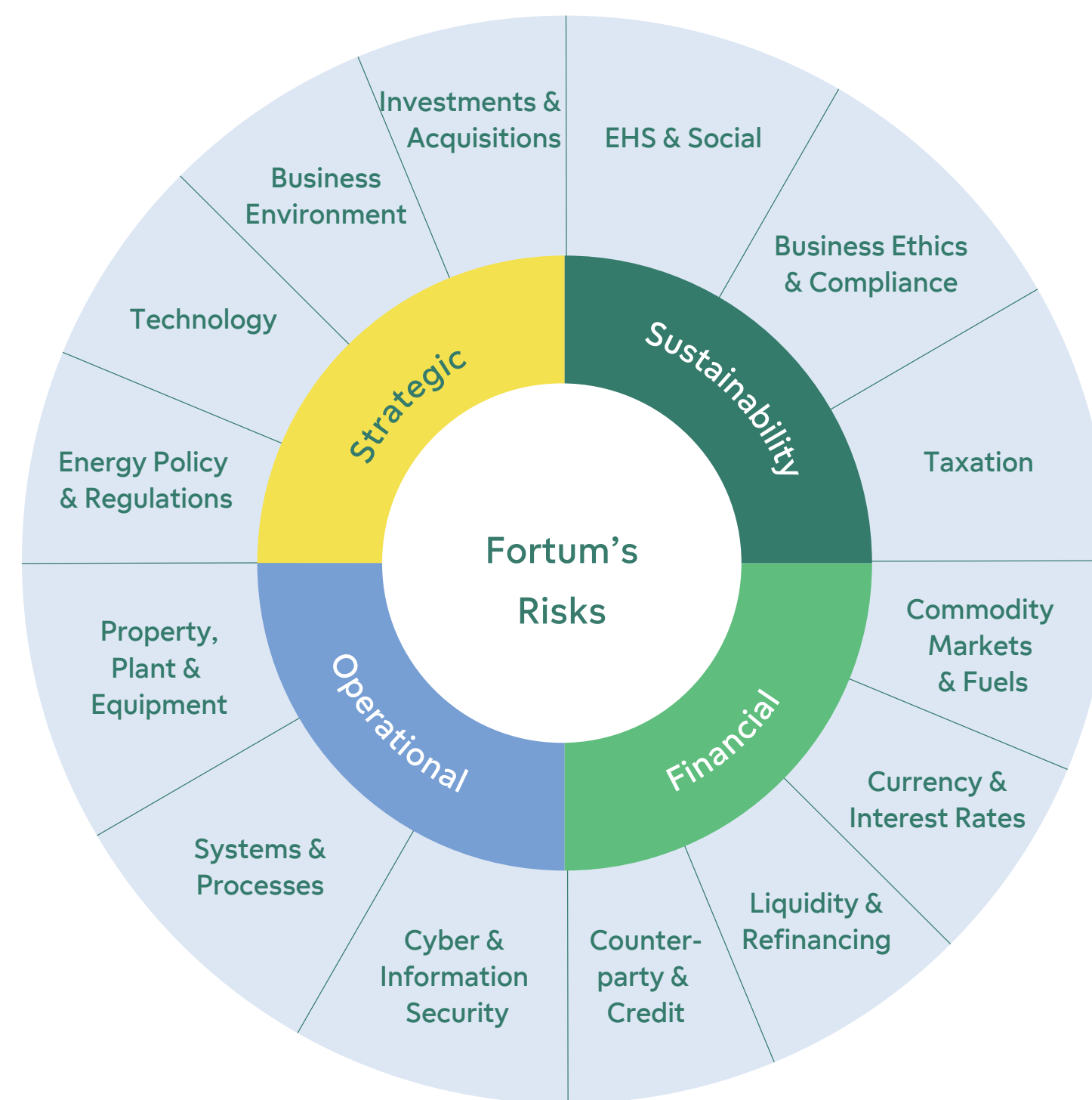
Strategic risks

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

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

Business Environment

Fortum operates in a global business environment and is therefore exposed to political and other risks which affect the macroeconomic development and consumer behaviour in the markets where Fortum operates. As operations expand to new geographical regions, markets and businesses, the operating environment becomes more complex and this risk may increase. The current trend of increasingly nationalistic policies and protectionism may lead to more trade restrictions which in



turn could affect demand for Fortum's products and services. Fortum continuously monitors how the business environment develops in its operating countries in order to be able to react quickly to market shifts and changes in consumer behaviour.

Investment and acquisition risks

Fortum's strategy includes growth of operations in new businesses, technologies and geographies. This includes an increasing number of partly-owned companies and joint ventures where Fortum does not necessarily have full operational control. Fortum is exposed to a number of risks indirectly through these companies and joint ventures. These risks are monitored and followed-up through Fortum's representation in the respective company Board of Directors and through expert committees. The principal associated companies and joint ventures are Forsmarks Kraftgrupp AB, Kemijoki Oy, OKG AB, Stockholm Exergi AB, TGC-1, Teollisuuden Voima Oyj and Uniper SE. The most significant of these is Uniper SE due to its size, complexity and the phase of the investment. For more information about the risk exposures in these companies, please see each respective company's annual report and other relevant disclosures.

Fortum's recent and current investments, as well as any future investment or acquisition, including possible future partnerships, entail risk such as:

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

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

Energy policy and regulation risks

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

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

Nordic/EU

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

- increasing policy costs and uncoordinated national mechanisms hindering an integrated, flexible and dynamic power market,
- overlapping national carbon policies diluting the EU ETS and carbon price despite the ETS reform,
- increasing cost burden for hydro power in Finland, driven by fish obligations, grid costs and real estate taxation,
- unbalanced implementation of the EU Water Framework directive in Sweden leading to lower production volumes,
- stricter sustainability requirements for forest biomass leading to reduced availability and increasing costs,
- implementation of national waste incineration taxes or restrictive measures affecting the operational environment or the competitiveness of the waste-to-energy business as part of overall circular economy promotion,
- acceptability issues related to different fuels or technologies (bio, waste, nuclear, wind, CCS etc.) potentially limiting or slowing down new investments either in power production or transmission grids,
- substantial retroactive changes and/or discontinuation of prevailing CHP support schemes in the Baltic countries and Poland or deteriorating competitiveness of CHP due to fuel tax increases,
- undue heavy-touch price-regulation of district heating in order to enhance the affordability and other social aspects of protecting the end-customers.

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

Russia

Fortum's business in Russia is exposed to political, economic and social uncertainties and risks resulting from changes in regulation, legislation, economic and social upheaval and other similar factors. The current economic sanctions may be enlarged and/or extended having direct and indirect impacts on the business environment. The main energy policy-related risks in Russia are linked to the development of the whole energy

sector, part of which, is liberalised, like the wholesale electricity market, while other parts, like gas, heat, and retail electricity, are not. Regulated sectors are inherently exposed to a risk of regulatory changes which could affect Fortum's operations.

Technology risks

Fortum's strategy includes developing or acquiring new technologies, as well as digitalising the business. Fortum's R&D and innovation activities focus on the development of the energy system towards a future low-carbon economy and developing circular economy solutions, bio-economy, other renewable energy concepts and innovative solutions for its customers. New technologies expose Fortum to risks related to intellectual property rights, data privacy and viability of technologies. Technology risks are managed by assessing and monitoring the viability of new technology throughout its development cycle, and selectively developing and investing in a diversified portfolio of projects consisting of different technologies.

Sustainability risks

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

Environmental, health and safety and social risks

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

Environmental, health and safety (EHS) risks as well as social risks related to Fortum's supply chain are evaluated through supplier qualification as well as internal and external audits and risk assessments including partner and country risk assessments. Corrective and preventive actions are implemented when necessary. EHS and social risks related to investments are evaluated in accordance with Fortum's Investment Manual. Environmental risks and liabilities in relation to past actions have been assessed and, where necessary, provisions have been made for future remedial costs.

Tax risk

Fortum operates in a number of countries and is therefore exposed to changes in and conflicts between local and international taxation. Political pressure has resulted in numerous new laws and rules with unclear wording and wide scope creating differences in how tax authorities interpret new rules. This has led to a tax environment with increased tax burden and poor clarity of tax consequences. Clarity and predictability around how our operations are taxed has decreased due to the changing regulation. In addition, new regulation creates material volume of new complex compliance work.

Fortum aims to identify simple and cost-efficient solutions to manage taxes in a sustainable manner. Fortum's tax principle is that

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

Business ethics and compliance risks

Fortum's operations are subject to laws, rules and regulations set forth by the relevant authorities, exchanges, and other regulatory bodies in all markets in which Fortum operates. Fortum's ability to operate in certain countries may be affected by future changes to local laws and regulations.

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

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

Financial risks

Commodity market and fuel risks

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

Electricity price and volume risks

In competitive electricity markets, such as the Nordpool spot market exchange in the Nordic region, the wholesale price of electricity is determined as the balance between supply and demand. The short-term factors affecting electricity prices and volumes on the Nordic market include hydrological conditions, temperature, wind, CO₂ emission allowance prices, fuel prices, economic development, transmission capacity and the import/export situation.

Electricity price risks are mainly hedged by entering into electricity derivatives contracts on the Nasdaq Commodities exchange. The ability to implement hedging strategies is dependent on a well-functioning and liquid derivatives market. There is a risk of decreasing liquidity on the Nasdaq Commodities exchange, and alternatives including use of OTC derivative contracts and products traded on other exchanges are used to mitigate this risk. Hedging strategies are continuously evaluated as electricity and other commodity market prices, the hydrological balance and other relevant parameters change. In 2019, the models used for evaluating hedging strategies and reporting risk were developed to cover more parameters and improve the use of especially hydrological data. Hedging of the Generation segment's power sales is performed in EUR on a Nordic level covering both Finland and Sweden, and the currency component of these hedges in the Swedish entity is currently

not hedged. In Russia, electricity and capacity prices are the main source of market risk. Electricity price exposure is partly mitigated through regulated fixed-price bilateral agreements, but the majority of electricity sales is exposed to spot price risk. Capacity from newer units is sold under capacity supply agreements where the price is set by the Russian Federation to ensure the return on investments. Capacity from old units has been sold until 2024 via capacity supply auctions which have already been conducted.

Emission and environmental value risks

The European Union has an emissions trading scheme to reduce the amount of CO₂ emissions. In addition to the emissions trading scheme, there are other trading schemes in environmental values in place in Sweden, Norway and Poland. Part of Fortum's power and heat generation is subject to requirements of these schemes. There is currently no trading scheme in Russia for emissions or other environmental values. However, Russia has announced intentions to comply with the Paris Agreement, but there is uncertainty related to how and when a possible carbon market could be implemented.

The main factors influencing the prices of CO₂ emission allowances and other environmental values are political decisions and the supply and demand balance. Fortum hedges its exposure to these prices and volumes through the use of CO₂ derivatives and environmental certificates.

Fuel price and volume risks

Power and heat generation requires use of fuels that are purchased on global or local markets. The main fuels used by Fortum are natural gas, uranium, coal, various biomass-based fuels and waste. The main risk factor for fuels that are traded on global markets such as coal and natural gas, is the uncertainty in price. Prices are largely affected by demand and supply imbalances that can be caused by, e.g. increased demand growth in developing countries, natural disasters or supply constraints in countries experiencing political or social unrest. For fuels that are sourced on local or regional markets, such as bio-fuels, the volume risk in terms of

availability of the raw material of appropriate quality is more significant as there may be a limited number of suppliers. Due to the current sanctions, there are also risks related to imported fuels from Russia.

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

Liquidity and refinancing risks

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

Fortum's access to and cost of financing is dependent on having an investment-grade rating. The current investment in Uniper has increased Fortum's leverage, and with the announced increase in ownership, there is an increased risk of downgrade in the credit rating which could negatively impact Fortum's access to cost-efficient financing. After the closing of transaction, through which an additional minimum of 20.5% share in Uniper will be acquired, Fortum's key objective is to maintain an investment-grade rating and to strengthening its financial profile longer term. Fortum maintains an active dialogue with credit rating agencies to ensure understanding of Fortum's strategy and planned measures which target to achieve a financial and business profile that supports a solid investment grade rating.

Currency and interest rate risks

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

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

Counterparty and credit risks

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

Credit risk exposures relating to financial derivative instruments are often volatile. The majority of commodity derivatives are exchange-traded and cleared through clearing houses such as Nasdaq Clearing AB or through clearing banks. During 2019, Nasdaq Clearing AB has continued implementation of its risk management enhancement program in order to reduce the risk of member defaults. In addition, the trend toward more use of futures contracts instead of forward contracts is decreasing the credit exposure toward clearing houses. Derivatives contracts are also entered into directly with external counterparties and such contracts are limited to high-credit-quality counterparties active on the financial or commodity markets.

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

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

Operational risks

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

Systems and Process Risks

System and process risks are mainly caused by design failures or human errors. Mitigation includes process automation, testing and education. Process-related risks are assessed and controls for the most relevant risks are defined and implemented as part of the internal controls framework. IT-system risk management is based on an IT Service

Lifecycle Model, and related processes and practices which has been developed using reference frameworks such as COBIT and ITIL. Business continuity plans are in place for business critical processes.

Property, plant and equipment

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

Combined heat and power (CHP) and recycling and waste

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

Hydro power

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

Nuclear power

Fortum owns the Loviisa nuclear power plant, and has minority interests in two Finnish and two Swedish nuclear power companies. At the Loviisa power plant, the assessment and improvement of nuclear safety is a continuous process performed under the supervision of the Radiation and Nuclear Safety Authority of Finland (STUK).

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

Wind and Solar

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

Cyber and information security risks

Fortum's business operations and customer related services are dependent on well-functioning IT and information management systems and processes. Due to the nature of the business, large amounts of data are processed and used for decision-making, serving customers and in internal and external communication and reporting. Securing information and availability of the systems are essential for Fortum. Cyber security risks, including risks related to information, operation technology (OT) and digitalisation, are managed centrally by Corporate Security in collaboration with Divisions and Corporate Functions, especially the Business Technology function. The Group's cyber security governance model, instructions and procedures set requirements for managing and mitigating cyber security risks.

The Business Technology function, other support functions and outsourcing partners are responsible for identifying and mitigating operational IT/OT security related risks as well as managing IT/OT security incidents. Divisions are responsible for business continuity planning and IT functions are responsible for IT service continuity.

Climate-related risks

Mitigating climate change, adapting to it and driving the transition to a lower-carbon economy is an integral part of Fortum's strategy. Successfully managing climate-related risks and opportunities is a key element in delivering on the strategy.

Management of climate-related risks is integrated into Fortum's risk management framework and follows the same governance and processes as Fortum's other material risk and uncertainties. Climate-related risks are identified and assessed by the various business areas through an annual bottom-up process. Risk owners are assigned for managing the risks and they are regularly reported and followed-up in business area and division management teams. In 2019, Fortum emphasized climate-related risks as part of the process including a specific top-down review of climate-related risks by Group experts. The key climate-related risks are reported to FEM and the ARC as part of the annual review of material risks and uncertainties for the Group.

Climate-related risks can be divided into two categories; transition risks and physical risks. The identified physical risks are generally found in the operational risk category whereas transition risks are generally longer-term and part of the strategic risk category

Transition risks

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 brand and reputation can be negatively impacted by changes in stakeholder perception about Fortum's ability to deliver on its strategy.

One of the key risks is that the transition develops faster and with policy tools or technologies that have not been anticipated or planned for. The key risks related to climate policy and regulation include the revision of the EU targets for greenhouse gas reduction, renewable energy and energy efficiency leading to overlapping or inefficient mechanisms, tighter restrictions on incineration and burning of various fuels and a more regulated electricity market due to the increase in intermittent renewable production. Fortum favours a market-based approach to decarbonisation with CO₂ pricing as a key tool and clear criteria for capacity remuneration. Fortum supports the use of waste and sustainable biomass as part of the EU circular economy. Additionally, increased flexibility in demand is needed to cope with the expected increase in intermittent renewable production.

The transition to a low-carbon economy also poses risks if there emerge new, disruptive technologies that create cheap sources of flexibility or storage in the energy market. Additionally, if there is an accelerated decline in the cost of renewable energy, it could decrease the value of existing conventional power and heat generation assets. Fortum continuously monitors technology development and invests into a broad portfolio of innovative technologies. Fortum also monitors the price development of renewables and evaluates both divestment and investment opportunities to optimise the portfolio with the aim of lower carbon emissions.

Climate-change may affect the demand and supply of energy products due to consumer behaviour and changing weather patterns. This could lead to, e.g. lower and more volatile electricity prices which negatively affect the revenues of baseload generation assets. Energy efficiency measures and warmer weather may also impact the demand for heating to a larger extent than currently expected.

Stakeholder views on sustainability may lead to stricter demands by shareholders. Stricter definitions of sustainable finance set by the EU may also make it more difficult to access financing. Additionally, there is a risk of increasing activity by NGOs which could affect key stakeholder perception. Fortum's investment in Uniper is currently increasing the exposure to these risks. In order to mitigate these risks, Fortum focuses on the sustainability impacts of strategy and business

decisions, communicating transparently about strategy implementation to key stakeholders, ensuring a broad base of investors and flexibility in financing including a diversified bond portfolio.

Physical risks

Fortum's operations and assets are exposed to external events, the frequency and magnitude of which may increase as a result of climate change. Changes in precipitation, inflows and temperatures may affect hydropower production as well as bioenergy supply and availability. Intense storms with, e.g. flash floods could increase the risk of dam breaches as well as causing local damages and production outages. Warmer weather may also lead to a need for new cooling or process water sources and extreme warm and dry summer periods could result in forest fires which potentially damage assets or lead to grid outages restricting power supply. 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. Climate change scenarios are, e.g. taken into account in the long-term dam safety investment program so that extreme flooding situations can be managed.

Fortum share and shareholders

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

Share key figures

EUR	2019	2018	2017
Earnings per share	1.67	0.95	0.98
Cash flow per share	2.27	0.91	1.12
Equity per share	14.61	13.33	14.69
Dividend per share	1.10 ¹⁾	1.10	1.10
Payout ratio, %	65.9 ¹⁾	115.8	112.2
Dividend yield, %	5.0 ¹⁾	5.8	6.7

¹⁾ Board of Directors' proposal for the planned Annual General Meeting 17 March 2020.

For full set of share Key figures 2010–2019, see the section [Key figures](#) in the Financial Statements.

Shareholders value, share price performance and volumes

Fortum's mission is to deliver excellent value to its shareholders. Fortum's share price has appreciated approximately 22% during the last five years, while Dow Jones European Utility Index has increased 14%. During the same period Nasdaq Helsinki Cap index has increased 37%. During 2019 Fortum's share price appreciated approximately 15%, while Dow Jones European Utility index increased 26% and Nasdaq Helsinki Cap index increased 15%.

In 2019, a total of 372.3 million (2018: 474.7) Fortum Corporation shares, totalling EUR 7,467 million, were traded on Nasdaq Helsinki. The highest quotation of Fortum Corporation shares during 2019 was EUR 22.50, the lowest EUR 18.09, and the volume-weighted average EUR 20.14. The closing quotation on the last trading day of the year 2019 was EUR 22.00 (2018: 19.10). Fortum's market capitalisation, calculated using the closing quotation of the last trading day of the year, was EUR 19,542 million (2018: 16,966).

In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market. During 2019, approximately 73% (2018: 68%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

Share capital

Share capital

EUR million	2019		2018	
	Number of shares	Share capital	Number of shares	Share capital
Registered shares at 1 January	888,294,465	3,046	888,367,045	3,046
Cancellation of treasury shares	-	-	72,580	-
Registered shares at 31 December	888,294,465	3,046	888,294,465	3,046

Fortum Corporation has one class of shares. By the end of 2019, a total of 888,294,465 shares (2018: 888,294,465) had been issued. Each share entitles the holder to one vote at the Annual General Meeting. All shares entitle holders to an equal dividend. At the end of 2019 Fortum Corporation's share capital, paid in its entirety and entered in the trade register, was EUR 3,046,185,953.00.

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

Shareholders

At the end of 2019 the Finnish State owned 50.76% of the company's shares. The Finnish Parliament has authorised the Government to reduce the Finnish State's holding in Fortum Corporation to no less than 50.1% of the share capital and voting rights.

The proportion of nominee registrations and direct foreign shareholders was 30.5% (2018: 30.8%).

Shareholders, 31 December 2019

Shareholders	No. of shares	Holding %
Finnish State	450,932,988	50.76
Ilmarinen Mutual Pension Insurance Company	11,773,000	1.33
Varma Mutual Pension Insurance Company	8,921,167	1.00
The Finnish Social Insurance Institution	7,030,896	0.79
Kurikan Kaupunki	6,203,500	0.70
The State Pension Fund	4,600,000	0.52
Elo Mutual Pension Insurance Company	4,530,000	0.51
OP-Finland	2,867,011	0.32
Danske Invest Finnish Equity Fund	2,150,000	0.24
Schweizerische Nationalbank	2,029,745	0.23
Säästöpankki Kotimaa Mutual Fund	1,222,017	0.14
Nordea Pro Finland Fund	1,161,013	0.13
OP-Henkivakuutus Ltd.	909,824	0.10
Finnish Cultural Foundation	821,611	0.09
Nominee registrations and direct foreign ownership ¹⁾	268,856,293	30.27
Other shareholders in total	114,285,400	12.87
Total number of shares	888,294,465	100.00

1) Excluding Schweizerische Nationalbank

By shareholder category	% of total amount of shares
Finnish shareholders	
Corporations	1.30
Financial and insurance institutions	1.72
General government	55.80
Non-profit organisations	1.21
Households	9.48
Non-Finnish shareholders	30.50
Total	100.00

Breakdown of share ownership, 31 December 2019

Number of shares owned	No. of shareholders	% of shareholders	No. of shares	% of total amount of shares
1–100	42,657	32.97	2,159,339	0.24
101–500	48,493	37.48	12,845,972	1.45
501–1,000	18,443	14.26	13,578,106	1.53
1,001–10,000	18,745	14.49	48,643,484	5.48
10,001–100,000	961	0.74	21,245,211	2.39
100,001–1,000,000	68	0.02	19,012,711	2.14
1,000,001–10,000,000	10	0.01	40,715,349	4.58
over 10,000,000	2	0.00	462,705,988	52.09
	129,379	100.00	620,906,160	69.90
In the joint book-entry account and in special accounts on 31 December			596	0.00
Nominee registrations			267,387,709	30.10
Total			888,294,465	100.00

Management shareholding 31 December 2019

At the end of 2019, the President and CEO and other members of the Fortum Executive Management owned 263,002 shares (2018: 193,227) representing approximately 0.03% (2018: 0.02%) of the total shares in the company.

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

Authorisations from the Annual General Meeting 2019

In 2019, the Annual General Meeting decided to authorise the Board of Directors to decide on the repurchase and disposal of the company's own shares up to a maximum number of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. The authorisation is effective for a period of 18 months from the resolution of the General Meeting. The authorisation had not been used by the end of 2019.

Dividend policy

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

Dividend distribution proposal

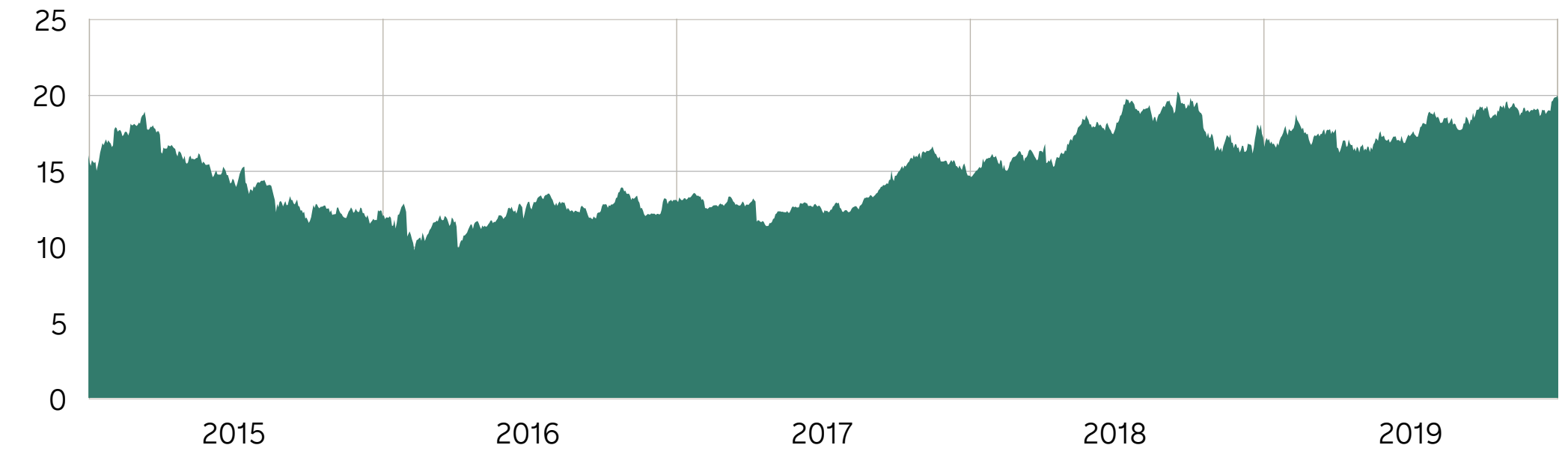
The distributable funds of Fortum Corporation as at 31 December 2019 amounted to EUR 4,219,128,198.51 including the profit of the financial period 2019 of EUR 213,409,797.80. The company's liquidity is good and the dividend proposed by the Board of Directors will not compromise the company's liquidity.

The Board of Directors proposes to the Annual General Meeting that a dividend of EUR 1.10 per share be paid for 2019.

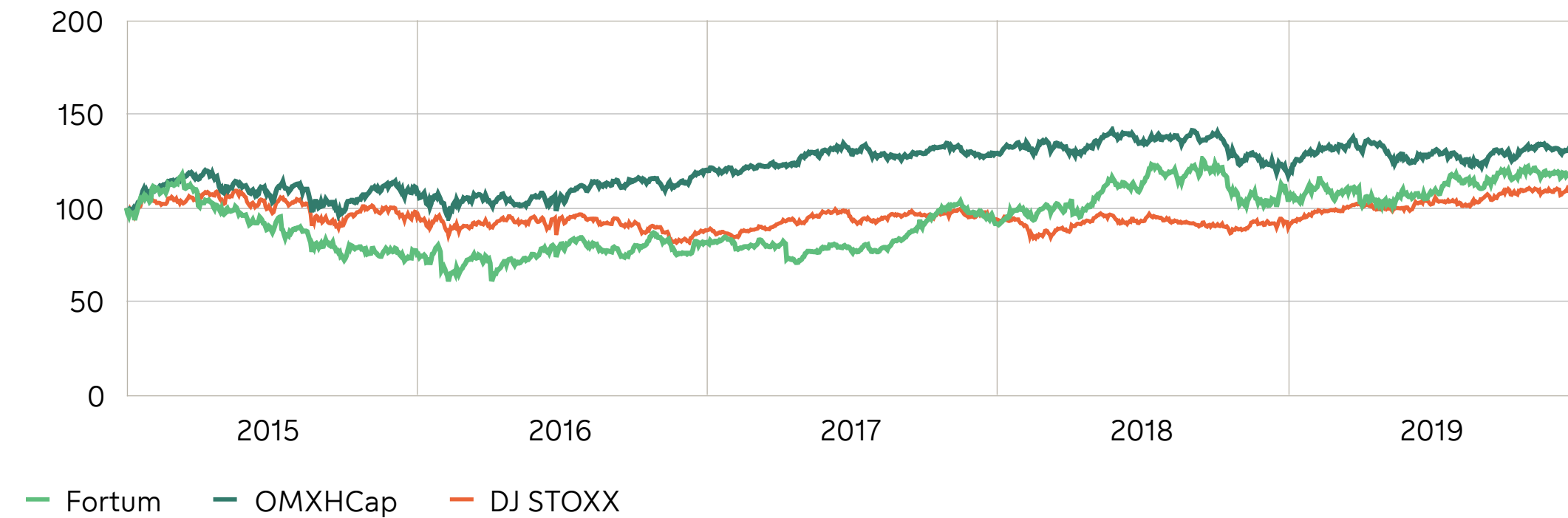
Based on the number of registered shares as at 5 February 2020 the total amount of dividend would be EUR 977,123,911.50. The Board of Directors proposes, that the remaining part of the distributable funds be retained in the shareholders' equity.

The Annual General Meeting will be held on 17 March 2020 at 11:00 EET at Finlandia Hall in Helsinki.

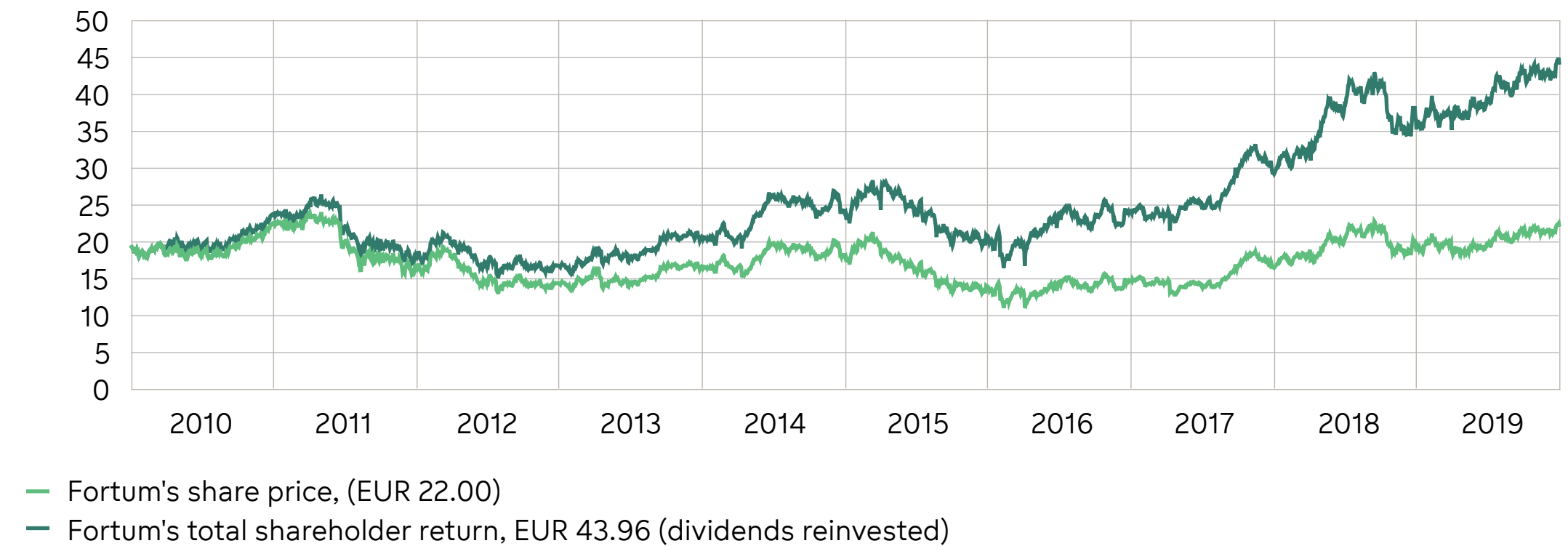
Market capitalisation, EUR billion



Share quotations, index 100 = quote on 2 January 2015



Total shareholder return, EUR



Consolidated income statement

EUR million	Note	2019	2018
Sales	6	5,447	5,242
Other income	9	110	130
Materials and services	10	-2,721	-2,795
Employee benefits	11	-480	-459
Depreciation and amortisation	6, 17, 18	-575	-536
Other expenses	9	-591	-594
Comparable operating profit	6	1,191	987
Items affecting comparability	7	-81	151
Operating profit	6	1,110	1,138
Share of profit of associates and joint ventures	6, 19	744	38
Interest expense		-167	-148
Interest income		28	34
Fair value gains and losses on financial instruments	8	8	-8
Other financial expenses - net		6	-15
Finance costs - net	12	-125	-136
Profit before income tax		1,728	1,040
Income tax expense	13	-221	-181
Profit for the year		1,507	858
Attributable to:			
Owners of the parent		1,482	843
Non-controlling interests		25	15
		1,507	858
Earnings per share for profit attributable to the equity owners of the company (EUR per share)	14		
Basic		1.67	0.95

EUR million	Note	2019	2018
Comparable operating profit		1,191	987
Impairment charges		-8	-4
Capital gains and other		7	102
Changes in fair values of derivatives hedging future cash flow	8	-72	98
Nuclear fund adjustment		-9	-45
Items affecting comparability	6, 7	-81	151
Operating profit		1,110	1,138

See [▶ Definitions for key ratios](#)

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

Consolidated statement of comprehensive income

EUR million	Notes	2019	2018
Profit for the year		1,507	858
Other comprehensive income			
Items that may be reclassified to profit or loss in subsequent periods:			
Cash flow hedges			
Fair value gains/losses in the year		82	-778
Transfers to income statement		635	15
Transfers to inventory/property, plant and equipment		-4	-2
Deferred taxes		-151	162
Net investment hedges			
Fair value gains/losses in the year		-24	32
Deferred taxes		5	-6
Exchange differences on translating foreign operations	4.6	259	-525
Share of other comprehensive income of associates and joint ventures	19	72	-37
Other changes		5	0
		877	-1,141
Items that will not be reclassified to profit or loss in subsequent periods:			
Actuarial gains/losses on defined benefit plans	31	-21	3
Actuarial gains/losses on defined benefit plans in associates and joint ventures		-208	43
		-229	46
Other comprehensive income for the year, net of deferred taxes		649	-1,094
Total comprehensive income for the year		2,155	-236
Total comprehensive income attributable to:			
Owners of the parent		2,120	-239
Non-controlling interests		36	3
		2,155	-236

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

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

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

Consolidated balance sheet

EUR million	Note	31 Dec 2019	31 Dec 2018
ASSETS			
Non-current assets			
Intangible assets	17	1,143	1,087
Property, plant and equipment and right-of-use assets	18	10,123	9,981
Participations in associates and joint ventures	19	6,435	5,978
Share in State Nuclear Waste Management Fund	29	813	899
Other non-current assets	20	151	139
Deferred tax assets	28	77	70
Derivative financial instruments	4	180	229
Long-term interest-bearing receivables	21	651	683
Total non-current assets		19,571	19,065
Current assets			
Inventories	22	230	233
Derivative financial instruments	4	131	326
Short-term interest-bearing receivables	21	384	409
Income tax receivables	28	133	172
Trade and other receivables	23	1,176	1,620
Deposits and securities (maturity over three months)		76	29
Cash and cash equivalents		1,356	557
Liquid funds	24	1,433	584
Total current assets		3,486	3,344
Assets held for sale			
	3	307	-
Total assets		23,364	22,409

EUR million	Note	31 Dec 2019	31 Dec 2018
EQUITY			
Equity attributable to owners of the parent			
Share capital	25	3,046	3,046
Share premium		73	73
Retained earnings		9,982	9,232
Other equity components		-118	-510
Total		12,982	11,841
Non-controlling interests	26	252	236
Total equity		13,235	12,077
LIABILITIES			
Non-current liabilities			
Interest-bearing liabilities	27	6,118	5,007
Derivative financial instruments	4	137	362
Deferred tax liabilities	28	865	720
Nuclear provisions	29	813	899
Other provisions	30	87	91
Pension obligations	31	125	98
Other non-current liabilities	32	167	182
Total non-current liabilities		8,311	7,358
Current liabilities			
Interest-bearing liabilities	27	570	1,086
Derivative financial instruments	4	252	829
Trade and other payables	33	943	1,058
Total current liabilities		1,766	2,973
Liabilities related to assets held for sale			
	3	52	-
Total liabilities		10,129	10,332
Total equity and liabilities		23,364	22,409

Consolidated statement of changes in total equity

EUR million	Note	Share capital	Share premium	Retained earnings		Other equity components			Owners of the parent	Non-controlling interests	Total equity
				Retained earnings and other funds	Translation of foreign operations	Cash flow hedges	Other OCI items	OCI items associates and joint ventures			
Equity 1 January 2019		3,046	73	11,937	-2,705	-638	99	30	11,841	236	12,077
Net profit for the year				1,482					1,482	25	1,507
Translation differences					247	7	0	-1	253	6	259
Other comprehensive income						561	-40	-136	385	5	390
Total comprehensive income for the year				1,482	247	568	-40	-137	2,120	36	2,156
Cash dividend	14			-977					-977	-23	-1,000
Other				-2					-2	4	2
BS Equity 31 December 2019		3,046	73	12,441	-2,459	-70	60	-108	12,982	252	13,235
BS Equity 31 December 2017		3,046	73	12,062	-2,187	-40	70	24	13,048	239	13,287
Impact from change in accounting principle (IFRS 9 and 15)				7					7		7
Equity 1 January 2018		3,046	73	12,069	-2,187	-40	70	24	13,055	239	13,295
Net profit for the year				843					843	15	858
Translation differences					-519	0	1	-1	-518	-7	-525
Other comprehensive income				0		-599	28	6	-564	-5	-569
Total comprehensive income for the year				843	-519	-598	29	6	-239	3	-236
Cash dividend	14			-977					-977	-6	-983
Other				2					2	0	2
BS Equity 31 December 2018		3,046	73	11,937	-2,705	-638	99	30	11,841	236	12,077

Translation differences

Translation of financial information from subsidiaries in foreign currency is done using average rate for the income statement and end rate for the balance sheet. The exchange rate differences occurring from translation to EUR are recognised in equity. Translation differences impacted equity attributable to owners of the parent company with EUR 253 million during 2019 (2018: -518). Translation differences are mainly related to RUB and SEK. Part of this translation exposure has been hedged and the foreign currency hedge result, amounting to EUR -14 million (2018: 24), is included in other OCI items.

For information regarding exchange rates used, see [► Note 1](#) Significant accounting policies. For information about translation exposure see [► Note 4.6](#) Interest rate risk and currency risk.

Cash flow hedges

The impact on equity attributable to owners of the parent from fair valuation of cash flow hedges, EUR 568 million (2018: -598), mainly relates to fair valuation of derivatives, such as futures and forwards, hedging electricity price for future transactions, where hedge accounting is applied. When electricity price is higher (lower) than the hedging price, the impact on equity is negative (positive).

Cash dividends

A dividend for 2018 was decided in the Annual General Meeting on 26 March 2019 and paid on 4 April 2019. See [► Note 14](#) Earnings and dividend per share.

Consolidated cash flow statement

EUR million	Note	2019	2018
Cash flow from operating activities			
Profit for the year		1,507	858
Adjustments:			
Income tax expense		221	181
Finance costs - net		125	136
Share of profit of associates and joint ventures		-744	-38
Depreciation and amortisation		575	536
Operating profit before depreciations (EBITDA)		1,685	1,674
Items affecting comparability		81	-151
Comparable EBITDA		1,766	1,523
Non-cash flow items		-1	-90
Interest received		29	23
Interest paid		-177	-171
Dividends received		239	61
Realised foreign exchange gains and losses		14	231
Income taxes paid		-165	-94
Other items		-13	-9
Funds from operations		1,691	1,474
Change in settlements for futures		356	-524
Change in working capital		-33	-146
Net cash from operating activities		2,015	804
Cash flow from investing activities			
Capital expenditures	17, 18	-695	-579
Acquisitions of shares	6	-107	-4,088
Proceeds from sales of fixed assets		35	38
Divestments of shares		53	259
Shareholder loans to associated companies and joint ventures		9	-24
Change in cash collaterals and restricted cash		311	-36
Change in other interest-bearing receivables		25	31
Net cash used in investing activities		-369	-4,398

EUR million	Note	2019	2018
Cash flow before financing activities		1,646	-3,594
Cash flow from financing activities			
Proceeds from long-term liabilities		2,805	1,764
Payments of long-term liabilities		-2,567	-586
Change in short-term liabilities		-78	135
Dividends paid to the owners of the parent	14	-977	-977
Dividends paid to non-controlling interests		-23	-5
Other financing items		1	-4
Net cash from/used in financing activities		-839	326
Total net increase(+)/decrease(-) in liquid funds		806	-3,268
Liquid funds at the beginning of the year		584	3,896
Foreign exchange differences in liquid funds		44	-43
Liquid funds at the end of the year ¹⁾	24	1,435	584

1) Includes cash balances of EUR 2 million relating to assets held for sale at 31 December 2019. See ▶ [Note 3](#) Acquisitions, disposals and assets held for sale.

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

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

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

Change in net debt

EUR million	Note	2019	2018
Net debt 1 January		5,509	988
Impact from change in accounting principle (IFRS 16 and IFRS 9)		99	1
Foreign exchange rate differences		-51	15
Comparable EBITDA		1,766	1,523
Non-cash flow items		-1	-90
Paid net financial costs		-142	77
Dividends received		239	61
Income taxes paid		-165	-94
Change in settlements for futures and working capital		323	-670
Capital expenditures		-695	-579
Acquisitions		-107	-4,088
Divestments and proceeds from sale of fixed assets		88	298
Shareholder loans to associated companies		9	-24
Change in other interest-bearing receivables		336	-5
Dividends to the owners of the parent		-977	-977
Dividends to non-controlling interests		-23	-5
Other financing activities		-4	-7
Net cash flow (- increase in net debt)		646	-4,580
Impact of non-cash collateral arrangement		281	-
Fair value change of bonds, amortised cost valuation, acquired debt and other changes		68	-75
Net debt 31 December	27	5,260	5,509

Additional cash flow information

Change in working capital

EUR million	2019	2018
Change in interest-free receivables, decrease(+)/increase(-)	63	-186
Change in inventories, decrease(+)/increase(-)	4	-3
Change in interest-free liabilities, decrease(-)/increase(+)	-100	43
CF Total	-33	-146

Capital expenditure in cash flow

EUR million	Note	2019	2018
Capital expenditure	6	713	584
Change in not yet paid investments, decrease(+)/increase(-)		-9	5
Capitalised borrowing costs		-9	-10
CF Total		695	579

Capital expenditures for intangible assets and property, plant and equipment were in 2019 EUR 713 million (2018: 584). Capital expenditure in cash flow in 2019 EUR 695 million (2018: 579) is including payments related to capital expenditure made in previous year i.e. change in trade payables related to investments EUR -9 million (2018: 5) and excluding capitalised borrowing costs EUR -9 million (2018: -10), which are presented in interest paid.

See also information about the investments by segments and countries in [▶ Note 6](#) Segment reporting.

Acquisition of shares in cash flow

Acquisition of shares, net of cash acquired, amounted to EUR 107 million during 2019 (2018: 4,088). Acquisition of shares during 2018 include mainly the acquisition of shares in Uniper SE. For further information see [▶ Note 3](#) Acquisitions, disposals and assets held for sale.

Divestment of shares in cash flow

EUR million	Note	2019	2018
Proceeds from sales of subsidiaries, net of cash disposed	3	15	88
Proceeds from sales of associates and joint ventures	19, 3	33	171
Proceeds from sales of other investments		4	0
CF Total		53	259

During 2019 there were no material divestments. For further information regarding divestments during 2018 see [▶ Note 3](#) Acquisitions and disposals and assets held for sale.

1 Significant accounting policies

1.1 Basic information

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

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

These financial statements were approved by the Board of Directors on 5 February 2020.

1.2 Basis of preparation

The consolidated financial statements of Fortum Group for the year ended 31 December 2019 have been prepared in accordance with International Financial Reporting Standards (IFRS) and IFRIC Interpretations as adopted by the European Union. The consolidated financial statements also comply with Finnish accounting principles and corporate legislation.

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

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

1.2.1 Measures for performance

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

Fortum uses APMs in the financial target setting and forecasting, management follow-up of financial performance of segments and the Group, as well as the allocation of resources in the Group's performance management process. Items affecting comparability are excluded from Comparable operating profit and Comparable EBITDA and disclosed separately in Fortum's consolidated income statement to support the understandability of business performance when comparing results between periods.

Items classified as Items affecting comparability include accounting effects from valuation according to IFRS not arising from the performance of business operations. Such items include fair valuation of financial derivatives hedging future cash flows where hedge accounting is not applied according to IFRS 9, Financial Instruments; and the effects from accounting for Fortum's share of the State Nuclear Waste Fund where the asset on the balance

sheet cannot exceed the related provision according to IFRIC 5, Rights to Interests Arising from Decommissioning, Restoration and Environmental Rehabilitation Funds. Further, business performance of operations cannot be compared from one period to another without adjusting for one-time items relating to capital gains, significant impairments and transaction costs arising from acquisitions. Such items are also treated as Items affecting comparability. According to IFRS 3, Business Combinations, transaction costs related to the acquisitions of subsidiary shares are recognised in the consolidated income statement. Such costs are presented in Capital gains and other within Items affecting comparability. The main business performance measurements have been used consistently since 2005.

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

1.3 Principles for consolidation

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

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

1.3.1 Subsidiaries

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

Acquisition of subsidiaries are accounted for using the acquisition method. The consideration transferred is measured as the aggregate of acquisition date fair values of assets given and liabilities incurred or assumed. Identifiable assets acquired and liabilities assumed are measured initially at acquisition date fair values, irrespective of the extent of any minority interest. The excess of the cost of acquisition over the fair value of the Group's share of identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the fair value of net assets of the subsidiary acquired, the difference is recognised directly in the consolidated income statement.

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

Intercompany transactions, balances and unrealised gains on transactions between Group companies are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Where necessary, subsidiaries' accounting policies have been changed to ensure consistency with the policies the Group has adopted.

The Fortum Group subsidiaries are disclosed in [► Note 40](#) Subsidiaries by segment on 31 December 2019.

1.3.2 Associates

Associated companies are entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. The Group's interests in associated companies are accounted for using the equity method of accounting. See [► Note 19](#) Participations in associated companies and joint ventures.

1.3.3 Joint ventures

Joint ventures are arrangements in which the Group has joint control. Joint ventures are accounted for using the equity method of accounting. See [► Note 19](#) Participations in associated companies and joint ventures.

1.3.4 Non-controlling interests

Non-controlling interests in subsidiaries are identified separately from the equity of the owners of the parent company. Non-controlling interests are initially measured at the non-controlling interests' proportionate share of the fair value of the acquiree's identifiable net assets. Subsequent to acquisition, the carrying amount of non-controlling interests is the amount of those interests at initial recognition plus the non-controlling interests' share of subsequent changes in equity. See [► Note 26](#) Non-controlling interests.

1.4 Foreign currency transactions and translation

1.4.1 Functional and presentation currency

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

1.4.2 Transactions and balances

Transactions denominated in foreign currencies are translated using the exchange rate at the date of transaction. Receivables and liabilities denominated in foreign currencies outstanding on the balance sheet date are translated using the balance sheet date exchange rate. Exchange rate differences are recognised in the consolidated income statement. Net exchange differences relating to financing components are recognised in financial income or

expenses, except when deferred to equity as qualifying cash flow hedges. Translation differences on financial assets through other comprehensive income are included in Other equity components in equity.

1.4.3 Group companies

Income statement and cash flow statement of subsidiaries, whose functional currencies are not euro, are translated into euro using the average exchange rates; whereas the balance sheets of such subsidiaries are translated into euro using the closing exchange rates on the balance sheet date. On consolidation, exchange rate differences arising from the translation of the net investment in foreign entities, and of borrowings and other currency instruments designated as hedges for such investments, are taken to equity. When a foreign operation is sold, such exchange differences are recognised in the consolidated income statement as part of the gain or loss on sale. Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at closing rate.

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

Key exchange rates in Fortum's consolidated financial statements

	Currency	Average rate		Balance sheet date rate	
		2019	2018	31 Dec 2019	31 Dec 2018
Sweden	SEK	10.5572	10.2591	10.4468	10.2548
Norway	NOK	9.8524	9.6432	9.8638	9.9483
Poland	PLN	4.2992	4.2614	4.2568	4.3014
Russia	RUB	72.7949	73.8035	69.9563	79.7153

1.4.4 Associates and joint ventures

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

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1.5 Other significant accounting policies

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

Accounting policy	Note	IFRS standard
Segment reporting	6	Segment reporting
Revenue recognition	6, 23	Segment reporting and Trade and other receivables
Government grants	18	Property, plant and equipment and Right-of-use Assets
Share-based payments	11	Employee benefits and Board remuneration
Income taxes	28	Income taxes on the balance sheet
Joint arrangements	19	Participations in associated companies and joint ventures
Investments in associates	19	Participations in associated companies and joint ventures
Other shares and participations	15, 20	Financial assets and liabilities by categories and Other non-current assets
Intangible assets	17	Intangible assets
Tangible assets	18	Property, plant and equipment and Right-of-use Assets
Leases	34	Leases
Inventories	22	Inventories
Earnings per share	14	Earnings and dividend per share
Pensions and similar obligations	31	Pension obligations
Decommissioning obligations for the nuclear plant and spent fuel	29	Nuclear related assets and liabilities
Provisions	30	Other provisions
Contingent liabilities	36	Pledged assets and contingent liabilities
Financial instruments	4, 15, 16	Financial risk management, Financial assets and liabilities by categories and Financial assets and liabilities by fair value hierarchy
Liquid funds	24	Liquid funds
Borrowings	27	Interest-bearing liabilities

1.6 New accounting standards, amendments and interpretations

Fortum adopted IFRS 16, Leases on 1 January 2019. Other new standards, amendments and interpretations effective from 1 January 2019 did not have a material impact on Fortum's consolidated financial statements.

IFRS 16 Leases

Nature of change	IFRS 16 Leases replaced IAS 17 Leases and specifies how to recognise, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring lessees to recognise assets and liabilities for most leases on the balance sheet as the distinction between operating and finance lease is removed. For lessors, there are no significant changes.
Date of adoption and transition method	Fortum adopted IFRS 16 on 1 January 2019 using the modified retrospective method. In accordance with the IFRS 16 transition guidance, comparatives were not restated. Right-of-use assets were recognised equal to the value of lease liabilities, adjusted by the amount of any prepaid or accrued lease payments recognised on the balance sheet before initial application.
	IFRS 16 allows certain practical expedients to simplify the initial adoption of IFRS 16, as well as the ongoing application of IFRS 16. On adoption, Fortum adjusted the right-of-use assets by the amount of onerous lease contract provisions recognised on the consolidated balance sheet in accordance with IAS 37, Provisions, Contingent Liabilities and Contingent Assets. On an ongoing basis, Fortum has applied the exemption of not recognising short-term leases and leases of low value assets on the consolidated balance sheet.

Impact

The adoption of IFRS 16 had the following impact on the consolidated opening balance sheet:

Consolidated balance sheet

EUR million	31 Dec 2018 (IAS 17)	Capitalisation of leases	Other	1 Jan 2019 (IFRS 16)
Property, plant and equipment and right-of-use assets	9,981	96		10,077
Other non-current assets	139		-1	138
Total assets	22,409	96	-1	22,504
Interest-bearing liabilities	6,093	99		6,192
Other provisions	91		-3	88
Trade and other payables	1,058		-1	1,057
Total equity and liabilities	22,409	99	-4	22,504

Reconciliation of lease liabilities and operating lease commitments on transition is presented below:

EUR million	
Operating lease commitments 31 December 2018	216
Leases not yet commenced but to which Fortum is committed	-41
Leases with variable payments not included in the measurement of lease liabilities	-16
Exempted from recognition	-12
Discounting effect	-28
Other changes	-20
Lease liabilities 1 January 2019	99

The majority of right-of-use assets are office buildings and land areas. No new leases were identified as leases according to IFRS 16.

The weighted average incremental borrowing rate applied to lease liabilities on 1 January 2019 was 1.9%.

See [Note 34](#) Leases for lease accounting policy and required ongoing disclosures.

Other new standards and interpretations

Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)

In March 2019, IFRIC published an agenda decision on Physical settlement of contracts to buy or sell a non-financial item (IFRS 9). The decision clarifies how an entity applies IFRS 9 to fixed price contracts to buy or sell a non-financial item that are fair valued through profit or loss even though the contract is physically settled. The published agenda decision discusses the presentation of these contracts in the income statement and will not have an impact to net profit.

For Fortum the amount of contracts within the scope of the agenda decision is limited. Majority of Fortum's physical contracts are used for own expected purchase, sale or usage requirements and therefore are not fair valued ("own use exemption" under IFRS 9). Physical contracts to buy or sell a non-financial item are fair valued through income statement when fair value option to off-set accounting mismatch is used, or when own use exemption or hedge accounting cannot be applied. Effects are treated as changes in fair values of derivatives hedging future cash flow and adjusted to sales and materials and services, EUR -31 million and EUR -15 million, respectively, when calculating Fortum's alternative performance measures.

New standards, amendments and interpretations effective from 1 January 2020

Other new standards, amendments and interpretations issued by the balance sheet date and effective from 1 January 2020, or later, are not expected to have a material impact on Fortum's consolidated financial statements.

2 Critical accounting estimates and judgements

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

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

The table below lists the areas where management's accounting estimates and judgements are most critical to reported results and financial position; as well as where to find more information on the areas of critical accounting estimate and judgement.

Critical accounting estimates and judgements	Note
Judgement used in the purchase price allocation of the acquisition of Uniper shares	3 Acquisitions, disposals and assets held for sale
Assigned values and useful lives determined for intangible assets and property, plant and equipment acquired in a business combination	17, 18 Intangible assets; Property, plant and equipment and right-of-use assets
Assumptions related to impairment testing of property, plant and equipment and intangible assets as well as associated companies and joint ventures	17, 18 Intangible assets; Property, plant and equipment and right-of-use assets
Judgement used when assessing the nature of Fortum's interest in its investees, when considering the classification of Fortum's joint arrangements, as well as commitments arising from these arrangements	19 Participations in associated companies and joint ventures
Assumptions and estimates regarding future tax consequences	28 Income taxes on the balance sheet
Assumptions made to determine long-term cash flow forecasts of estimated costs for provision related to nuclear production	29 Nuclear related assets and liabilities
Assumptions made when estimating provisions	30 Other provisions
Assumptions used to determine future pension obligations	31 Pension obligations

3 Acquisitions, disposals and assets held for sale

ACCOUNTING POLICIES

ASSETS HELD FOR SALE

Assets or disposal groups are classified as assets held for sale if their carrying amounts will be recovered principally through a sale transaction rather than through continuing use. For this to be the case, the asset, or the disposal group, must be available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such assets or disposal groups, and the sale must be highly probable. These assets, or in the case of disposal groups, assets and liabilities, are presented separately on the consolidated balance sheet and measured at the lower of the carrying amount and fair value less costs to sell. Assets classified as held for sale, or included in a disposal group classified as held for sale, are not depreciated.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: UNIPER PURCHASE PRICE ALLOCATION

Preparing purchase price allocation requires management to make judgements when determining the fair value of the assets and liabilities acquired. In Uniper transaction the purchase price allocation has been based on publicly available information since Uniper is a listed company and a competitor of Fortum. Due to the unique circumstances, preparing the purchase price allocation has required management judgement.

3.1 Acquisitions

EUR million	2019	2018
Gross investments in shares in subsidiary companies	13	36
Gross investments in shares in associated companies and joint ventures	73	4,041
Gross investments in other shares	20	11
Total	106	4,088

3.1.1 Uniper investment

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

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regulatory approvals, Fortum is allowed to purchase additional shares up to 50% of shares and voting rights in Uniper. The final settlement of the offer took place on 26 June 2018.

The shareholders who tendered their shares to Fortum's offer were paid EUR 21.31 per share. The shareholders also benefitted from Uniper's dividend that was paid following the Annual General Meeting in early June 2018. Fortum paid a total consideration of EUR 3.7 billion for all shares tendered. The total consideration was financed with existing cash resources of EUR 1.95 billion and bridge loan financing from committed credit facilities of EUR 1.75 billion. On 26 June 2018, Fortum closed the Uniper offer and became the company's largest shareholder with 47.35% of the shares. Since then Fortum acquired additional shares in Uniper and held 49.99% of the shares at 31 December 2018. There has been no change in the ownership during 2019.

On 8 October 2019, Fortum entered into agreements to acquire all the shares held by funds managed by Elliott Management Corporation and its affiliates ("Elliott") and Knight Vinke Energy Advisors Limited and its affiliates ("Knight Vinke"), a total in excess of 20.5%. Fortum will pay approximately EUR 2.3 billion for the combined shareholding, corresponding to EUR 29.93 per share. Upon closing of the transactions, Fortum's share in Uniper will increase to more than 70.5% and the total investment in Uniper to approximately EUR 6.2 billion, representing an average acquisition price of EUR 23.97 per share. On 30 December 2019, Fortum received regulatory clearance in the United States for the transaction. Closing of the transaction is still subject to customary merger control clearances in Russia, and is expected by the end of the first quarter of 2020. Fortum will fully consolidate Uniper as a subsidiary in its financial statements from closing of the transaction.

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

In 2018, Uniper's sales totaled EUR 78.2 billion and adjusted EBITDA was EUR 1.5 billion. Uniper employs around 12,000 people and had total assets of EUR 51 billion at the end of 2018. Uniper is listed on the Frankfurt stock exchange.

Fortum consolidates Uniper as an associated company from 30 June 2018 with three months time lag. For additional information see [► Note 19](#) Participations in associated companies and joint ventures.

Uniper purchase price allocation	EUR million
Total acquisition cost	3,968
Acquired net assets at 30 June 2018	5,512
Fortum's share of goodwill on the balance sheet of Uniper at 30 June 2018	-930
Fair value adjustment at 30 June 2018	-613
Fair value of the acquired net assets at 30 June 2018	3,968

The purchase price allocation was finalised during Q2/2019. Uniper's balance sheet at 30 June 2018 was used as the starting point for the purchase price allocation, however a fair value adjustment of EUR 613 million has been made for the acquired assets and liabilities. The total acquisition cost including direct costs relating to the acquisition, EUR 3,968 million, is reported in the 'Participations in associates and joint ventures'.

Fortum's share of the goodwill on Uniper's balance sheet, EUR 930 million, is derecognised as it is not an identifiable asset according to IFRS. Potential future impairments of goodwill (existing at 30 June 2018) booked by Uniper will thereby be reversed to Fortum's share of profits of associates and joint ventures.

Fair value adjustment, EUR 613 million, relates mainly to political and regulatory risks that are reflected in the fair value of certain generation and production assets. The fair value adjustment will be reversed to Share of profits of associates and joint ventures over a period of 20 years from 1 January 2019, approximately EUR 30 million on annual basis. If Uniper reports negative impacts relating to these generation and production assets, Fortum will assess potential need to use this fair value adjustment to reverse these negative impacts. The remaining fair value adjustment post tax at 31 December 2019 amounted to EUR 582 million.

Preparing purchase price allocation requires management to make judgements when determining the fair value of the assets and liabilities acquired. In Uniper transaction the purchase price allocation has been based on publicly available information since Uniper is a listed company and a competitor of Fortum. Due to the unique circumstances, preparing the purchase price allocation has required management judgement.

For information about Fortum's share of profit from Uniper, see [► Note 19](#) Participations in associated companies and joint ventures. See also [► Note 35](#) Capital and other commitments.

3.1.2 Acquisitions of subsidiary companies 2019

In May 2019, Fortum announced the restructuring of Fortum's and Skellefteå Kraft's ownership in the two jointly owned Swedish wind parks Solberg and Blaiken. Through an asset swap arrangement, Fortum became the sole owner of the 76-MW Solberg wind park and Skellefteå Kraft the sole owner of the 248-MW Blaiken wind park. Both the investments in Solberg and divestment of Blaiken includes shares and assets. The asset swap arrangement was finalised in August 2019 and had only a minor impact on Fortum's cash flow and results.

3.1.3 Acquisitions of subsidiary companies 2018

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

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

3.1.4 Other share transactions

In April 2017, Fortum and RUSNANO, a Russian state-owned development company, signed a 50/50 investment partnership in order to secure the possibility of a Russian Capacity Supply Agreement (CSA) wind portfolio in Russia. The wind investment fund 50/50 owned by Fortum and RUSNANO was awarded 1,000 MW wind capacity in Russian wind CSA auction in June 2017. The investments decisions will be made on a case-by-case basis within the total mandate of the wind investment fund. Fortum's equity stake in the wind investment fund totals a maximum of RUB 15 billion (EUR 214 million). The amount is invested over time (within approximately 5 years) as it is subject to positive investment decisions. During 2019 Fortum invested EUR 66 million (2018: 61) in the fund.

3.2 Disposals

EUR million	2019	2018
Gross divestments of shares in subsidiary companies	15	147
Gross divestments of shares in associated companies and joint ventures	10	160
Gross divestments of other investments	4	0
Total	30	306

3.2.1 Disposals of subsidiary companies

During 2019 there were no material divestments.

On 20 December 2019, Fortum and Credit Suisse Energy Infrastructure Partners (CSEIP) signed an agreement whereby funds advised by CSEIP are to acquire an 80% stake in Fortum's Nordic wind portfolio. The total consideration of the divestment of the 80% stake on a debt- and cash-free basis is expected to be approximately EUR 250 million (including Sørfjord wind park which is still under construction), of which EUR 170 million is related to the first quarter of 2020. The transaction is subject to regulatory approvals in the EU and is expected to close in the first quarter of 2020. The sale will have a minor positive effect on the Generation segment's first-quarter 2020 comparable operating profit.

On 20 December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately EUR 530 million and the cash was received at the completion of the divestment on 10 January 2020. See ▶ **Note 39** Events after the balance sheet date for additional information.

On 31 August 2018, Fortum sold a 54% share of its solar power company operating four solar power plants in India to UK Climate Investments (40%) and Elite Alfred Berg (14%). In line with Fortum's 'capital recycling' business model, the result from the transaction, EUR 26 million, is recognised in Other operations' Comparable operating profit. The total consideration from the divestment on a debt- and cash-free basis, including the effect of deconsolidating Fortum's minority part of the net debt, is EUR 147 million. In April 2019, Elite Alfred Berg used their option to buy an additional 2% from Fortum.

Divestments of shares in subsidiaries - Impact on financial position

EUR million	2019	2018
Gross divestments of shares in subsidiary companies	15	147
Intangible assets and property, plant and equipment	9	138
Other non-current and current assets	1	7
Liquid funds	0	12
Interest-bearing loans	0	-108
Other liabilities and provisions	-1	-4
Net assets divested	9	45
Reclassified to participations in associates and joint ventures	-	20
Result from transaction	7	26

3.2.2 Other disposals

In August 2019, the restructuring of Fortum's and Skellefteå Kraft's ownership in the two jointly owned Swedish wind parks Solberg and Blaiken was finalised. See ▶ **Note 3.1.1** Acquisitions of subsidiary companies 2019 for additional information.

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

3.3 Assets held for sale

At 31 December 2019 assets relating to the disposal of Fortum's share in the Nordic wind portfolio, excluding the Sørfjord wind park which is still under construction, (Generation segment) and assets relating to the disposal of the district heating business in Joensuu, Finland (City Solutions segment), have been classified as assets held for sale.

EUR million	31 Dec 2019
Assets held for sale	
Intangible assets, property, plant and equipment and right-of-use assets	290
Other non-current and current assets	15
Liquid funds	2
Total	307
Liabilities related to assets held for sale	
Lease liabilities	6
Deferred tax liabilities	20
Other liabilities and provisions	26
Total	52

4 Financial risk management

Fortum's risk management framework, objectives, organisation and processes as well as a description of strategic, sustainability, financial and operational risks can be found in the Risk management section of the Operating and financial review (OFR).

4.1 Commodity market and fuel risks

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

4.2 Electricity price and volume risk

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

Fortum's sensitivity to the Nordic electricity market price is dependent on the hedge level for a given time period. As per 31 December 2019, approximately 75% of the Generation segment's estimated Nordic power sales volume was hedged for the calendar year 2020 with a price 34 EUR/MWh and approximately 40% for the calendar year 2021 with a price 33 EUR/MWh. Assuming no changes in production volumes, hedge ratios or cost structure a 1 EUR/MWh change in the market price of electricity would affect Fortum's 2020 comparable operating profit by approximately EUR 11 million and for 2021 by approximately EUR 27 million. The volume used in this sensitivity analysis is 45 TWh which includes the electricity production sold to the spot market in Sweden and Finland in the Generation segment without minority owner's shares of electricity or other pass-through sales, and excluding the volume of Fortum's coal-condensing generation. This volume is heavily dependent on price level, the hydrological situation, the length of annual maintenance periods and availability of power plants. Sensitivity is calculated only for electricity market price movements. Hydrological conditions, temperature, wind, CO₂ allowance prices, fuel prices, economic development, transmission capacity and the import/export situation all affect the electricity price on short-term basis and effects of individual factors cannot be separated.

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

4.2.1 Sensitivity arising from financial instruments according to IFRS 7

Sensitivity analysis shows the sensitivity arising from financial electricity derivatives as defined in IFRS 7. These derivatives are used for hedging purposes within Fortum. Sensitivities are calculated based on 31 December 2019 (31 December 2018) position. Positions are actively managed in the day-to-day business operations and therefore the sensitivities vary from time to time. Sensitivity analysis includes only the market risks arising from derivatives i.e. the underlying physical electricity sales and purchases are not included. Sensitivity is calculated with the assumption that electricity forward and futures quotations in Nasdaq Commodities and in EEX would change 1 EUR/MWh for the period Fortum has derivatives.

Sensitivity according to IFRS 7

+/- 1 EUR/MWh change in electricity forward and futures quotations, EUR million	Effect	2019	2018
Effect on Profit before income tax	-/+	4	1
Effect on Equity	-/+	49	56

4.2.2 Electricity derivatives

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

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

Electricity derivatives by instrument 2019

	Volume, TWh				Fair value, EUR million		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Electricity derivatives	31	22	0	53	467	571	-105
Total							
Netting against electricity exchanges ¹⁾					-372	-372	0
Total					95	199	-105

Electricity derivatives by instrument 2018

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

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

Maturity analysis of commodity derivatives

Amounts in the table are fair values.

EUR million	2019				2018			
	Under 1 year	1–5 years	Over 5 years	Total	Under 1 year	1–5 years	Over 5 years	Total
Electricity derivatives, liabilities	147	52	0	199	706	305	0	1,011
Electricity derivatives, assets	82	13	0	95	94	53	0	147
Other commodity derivatives, liabilities	52	11	0	63	77	13	0	90
Other commodity derivatives, assets	34	10	0	44	116	24	0	140

4.3 Fuel price risks

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

4.4 Emission allowance price and volume risk

Part of Fortum's power and heat generation is subject to requirements of emission trading schemes. Fortum hedges its exposure to emission prices and volumes through the use of CO₂ futures. Most of these CO₂ futures are own use contracts valued at cost and some are treated as derivatives in the accounts included in the table above as part of "Other commodity derivatives".

4.5 Liquidity and refinancing risk

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

Financing is primarily raised on parent company level and distributed internally through various internal financing arrangements. For example Fortum's Russian operations are financed via intra group internal long-term RUB denominated loans. The internal RUB loan receivables are hedged via external forward contracts offsetting the currency exposure for the internal lender. On 31 December 2019, 89% (2018: 95%) of the Group's total external financing was raised by the parent company Fortum Corporation.

On 31 December 2019, the total interest-bearing debt was EUR 6,688 million (2018: 6,093). Interest-bearing net debt was EUR 5,260 million (2018: 5,509) including EUR 4 million relating to assets held for sale at 31 December 2019.

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

On 31 December 2019, loan maturities for the coming twelve-month period amounted to EUR 551 million (2018: 1,086). Liquid funds amounted to EUR 1,433 million (2018: 584).

In the fourth quarter of 2019, Fortum signed new committed credit facilities of an additional EUR 8.3 billion for the purchase of Uniper shares announced on 8 October 2019. At the end of December 2019, the committed and undrawn credit facilities amounted to EUR 10.1 billion (Dec 31 2018: 1.8). On 7 January 2020, Fortum cancelled EUR 3 billion of these new committed credit facilities.

Maturity of loans

EUR million	2019
2020	551
2021	526
2022	1,036
2023	1,093
2024	303
2025 and later	3,071
Total	6,580

For more information on loans, see [Note 27](#) Interest-bearing liabilities.

Maturity of undiscounted lease liabilities

EUR million	2019
Due within a year	20
Due after one year and within five years	52
Due after five years	65
Total	137

For more information on leases, see [▶ Note 34](#) Leases.

Liquid funds, major credit lines and debt programmes 2019

EUR million	Total facility	Drawn amount	Available amount
Liquid funds			
Cash and cash equivalents			1,357
Deposits and securities over 3 months			76
Total			1,433
of which in Russia (PAO Fortum)			201
Committed credit lines			
EUR 1,750 million syndicated credit facility	1,750	-	1,750
EUR 8,300 million syndicated credit facility ¹⁾	8,300	-	8,300
Bilateral overdraft facilities	50	-	50
Total	10,100	0	10,100
Debt programmes (uncommitted)			
Fortum Corporation, CP programme EUR 1,000 million	1,000	10	990
Fortum Corporation, CP programme SEK 10,000 million	957	0	957
Fortum Corporation, EMTN programme EUR 8,000 million	8,000	4,196	3,804
Total	9,957	4,206	5,751

1) In the fourth quarter of 2019, Fortum signed new committed credit facilities of an additional EUR 8.3 billion for the purchase of Uniper shares announced on 8 October 2019. On 7 January 2020, Fortum cancelled EUR 3.0 billion of these new committed credit facilities.

Liquid funds, major credit lines and debt programmes 2018

EUR million	Total facility	Drawn amount	Available amount
Liquid funds			
Cash and cash equivalents			556
Deposits and securities over 3 months			29
Total			584
of which in Russia (PAO Fortum)			317
Committed credit lines			
EUR 1,750 million syndicated credit facility	1,750	-	1,750
Bilateral overdraft facilities	50	-	50
Total	1,800	0	1,800
Debt programmes (uncommitted)			
Fortum Corporation, CP programme EUR 500 million	1,000	180	820
Fortum Corporation, CP programme SEK 5,000 million	975	27	948
Fortum Corporation, EMTN programme EUR 8,000 million	8,000	2,448	5,552
Total	9,975	2,655	7,320

Liquid funds amounted to EUR 1,433 million (2018: 584), including PAO Fortum's cash and bank deposits amounting to EUR 201 million (2018: 317).

See also [▶ Note 24](#) Liquid funds.

Maturity analysis of interest-bearing liabilities and derivatives

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

EUR million	2019				2018			
	Under 1 year	1–5 years	Over 5 years	Total	Under 1 year	1–5 years	Over 5 years	Total
Interest-bearing liabilities	661	3,207	3,333	7,201	1,212	3,616	1,792	6,620
Interest rate and currency derivatives liabilities	4,163	807	91	5,061	3,665	682	16	4,363
Interest rate and currency derivatives receivables	-4,117	-821	-99	-5,037	-3,736	-726	-20	-4,482
Total	707	3,193	3,325	7,225	1,141	3,572	1,788	6,501

On the balance sheet date, the average rate of outstanding currency and interest rate derivatives done in SEK and RUB was 10.534 and 71.230, respectively.

4.6 Interest rate risk and currency risk

4.6.1 Interest rate risk

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

On 31 December 2019, the average duration of the net debt portfolio (including derivatives) was 2.6 years (2018: 1.6). Approximately 65% (2018: 79%) of the debt portfolio was on a floating rate basis or fixed rate loans maturing within the next 12-month period. The flow risk, measured as the difference between the base case net interest cost estimate and the worst-case scenario estimate for Fortum's net debt portfolio for the coming 12 months, was EUR 10 million (2018: 13).

The average interest rate for the portfolio consisting mainly of EUR loans and including derivatives was 1.6% at the balance sheet date (2018: 1.7%). Part of the external loans EUR 787 million (2018: 686) have been swapped to RUB and the average interest cost for these loans, including cost for hedging the RUB, was 7.8% at the balance sheet date (2018: 8.3%). The average interest rate on loans and derivatives on balance sheet date, 31 December 2019, was 2.3% (2018: 2.4%). Average interest rate on loans and derivatives for 2019 was 2.7% (2018: 3.0%).

The average interest rate on deposits and securities excluding Russian deposits on 31 December 2019 was -0.13% (2018: -0.11%). Liquid funds held by PAO Fortum amounted to EUR 201 million (2018: 317) and the average interest rate for this portfolio was 3.9% at the balance sheet date.

4.6.2 Currency risk

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

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

The currency risk relating to transaction exposures is measured using absolute EUR equivalent amounts from each currency. The mandate for the open transaction exposure is EUR 50 million. On 31 December 2019 the open transaction exposure, excluding Generation segment's EUR/SEK exposure, was EUR 1 million (2018: 6). The open translation exposure on 31 December 2019 was EUR 8,292 million (2018: 7,723).

Had EUR been 5% weaker/stronger on closing date, then the impact from transaction exposure to profit and loss statement would have been EUR +0.04/-0.04 million (2018: +0.3/-0.3 million) and impact from translation exposure to group's equity EUR +414/-414 million (2018: +386/-386 million).

Group Treasury's transaction exposure

EUR million	2019			2018		
	Net Position	Hedge	Open	Net Position	Hedge	Open
RUB	570	-570	0	541	-541	0
SEK	1,439	-1,440	-1	969	-969	0
PLN	439	-439	1	366	-365	0
NOK	245	-244	0	296	-290	6
INR	132	-132	0	93	-93	0
USD	-147	147	0	-117	116	0
Other	-4	5	1	-16	16	0
Total	2,674	-2,673	1	2,132	-2,126	6

Transaction exposure is defined as already contracted or forecasted foreign exchange dependent items and cash flows. Transaction exposure is divided into balance sheet exposure and cash flow exposure. Balance sheet exposure reflects currency denominated assets and liabilities for example loans, deposits and accounts receivable/payable in currencies other than the company's base currency. Cash flow exposure reflects future forecasted or contracted currency flows in foreign currency deriving from business activities such as sales, purchases or investments. Net foreign exchange differences from transaction exposure are entered under financial income

or expense when related to financial items or when related to accounts receivable/payable entered under items included in operating profit. Conversion differences related to qualifying cash flow hedges are deferred to equity.

Fortum's policy is to hedge balance sheet exposures in order to avoid exchange rate differences in the income statement. The Group's balance sheet exposure mainly relates to financing of non-euro subsidiaries and the fact that the Group's main external financing currency is EUR. For derivatives hedging this balance exposure Fortum does not apply hedge accounting, because they have a natural hedge in the income statement. Realized cash flows from derivatives however cause impact in group's consolidated cash flow statement. In 2019 positive effect was 14 million (2018: 231).

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

Group translation exposure

EUR million	2019			2018		
	Net Investment	Hedge	Open	Net Investment	Hedge	Open
RUB	2,612	-222	2,391	2,364	-144	2,220
SEK	3,964	-144	3,821	3,704	-244	3,460
NOK	1,662	-	1,662	1,625	-	1,625
PLN	266	-	266	291	-	291
Other	154	-	154	128	-	128
Total	8,656	-365	8,292	8,111	-388	7,723

Translation exposure position includes net investments in foreign subsidiaries and associated companies. Exchange differences arising from the translation of the net investment in foreign entities are taken to equity. The net effect of exchange differences on equity attributable to equity holders mainly from RUB and SEK was EUR 253 million in 2019 (2018: -518). Part of this translation exposure has been hedged and the foreign currency hedge result amounted to EUR -14 million in 2019 (2018: 24).

Interest rate and currency derivatives by instrument 2019

EUR million	Notional amount Remaining lifetimes				Fair value		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Forward foreign exchange contracts	3,925	359	-	4,284	11	57	-45
Interest rate swaps	-	2,715	1,525	4,240	153	53	100
Interest rate and currency swaps	104	263	-	367	8	17	-10
Total	4,029	3,337	1,525	8,891	172	127	45
Of which long-term					156	74	82
Short-term					16	53	-37

Interest rate and currency derivatives by instrument 2018

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

4.7 Credit risk

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

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

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

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

4.7.1 Credit quality of major financial assets

Fortum recognises the loss allowance for expected credit losses on financial assets classified to amortised cost category at each reporting date. Impairment requirements are based on an expected credit loss (ECL) model which replaced the incurred loss model of IAS 39. The impairment model is applied to financial assets such as trade receivables, loan receivables and restricted cash given as collateral for commodity exchanges. Expected credit loss is calculated on an individual contract basis for deposits, commercial papers and loan receivables. No impairment loss is recognised on cash in bank accounts. The expected credit losses according to this model are based on assessment of the individual counterparty's risk of default. The risk of default is evaluated at each reporting date based on credit ratings to determine if credit risk has increased significantly. A change of credit rating from investment to non-investment grade constitutes a significant increase in credit risk. If the credit risk on the financial asset has not increased significantly since the initial recognition, loss allowance equals to 12 month ECL. If the credit risk on the financial asset has increased significantly since initial recognition, loss allowance equals to the lifetime expected credit losses. There have been no significant increases in credit risk during 2019. The loss allowance for deposits, commercial papers and loan receivables totalled EUR 1 million on 31 December 2019. Amounts for interest-bearing receivables including bank deposits and derivative financial instruments recognised as assets are presented by counterparties.

Credit quality of major financial assets

EUR million	2019		2018	
	Carrying amount	of which past due	Carrying amount	of which past due
Investment grade receivables				
Deposits, commercial papers and cash in bank accounts	1,099	-	168	-
Fair values of interest rate and currency derivatives	172	-	268	-
Fair values of electricity and other commodity derivatives	4	-	58	-
Total investment grade receivables	1,275	-	494	-
Energy exchange receivables				
Fair value of derivatives on Nasdaq Commodities	54	-	76	-
Fair value of derivatives on European Energy Exchange AG	0	-	4	-
Fair value of derivatives on the Polish Power Exchange	4	-	75	-
Total energy exchange receivables	58	-	155	-
Associates and joint venture receivables				
Loan receivables	625	-	641	-
Fair values of electricity and other commodity derivatives	4	-	22	-
Total associates and joint venture receivables	629	-	663	-
Other receivables				
Investments in commercial papers	156	-	46	-
Russian deposits with non-investment grade banks	60	-	260	-
Restricted cash mainly given as collateral for commodity exchanges	65	-	379	-
Receivable from SIBUR related to divested shares of OOO Tobolsk CHP	57	-	70	-
Loan and other interest bearing receivables	6	-	2	-
Fair values of electricity and other commodity derivatives	72	-	53	-
Total other receivables	416	-	810	-
Total	2,378	-	2,122	-

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Deposits and securities

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

EUR million	2019	2018
Counterparties with external credit rating from Standard & Poor's, Fitch and/or Moody's Investment grade ratings		
AAA	-	-
AA+/AA/AA-	198	62
A+/A/A-	545	30
BBB+/BBB/BBB-	356	76
Total investment grade ratings	1,099	168
Non-investment grade ratings		
BB+/BB/BB-	60	260
B+/B/B-	-	-
Below B-	-	-
Total non-investment grade ratings	60	260
Counterparties without external credit rating from Standard & Poor's, Fitch or Moody's		
Government or municipality	-	-
Fortum Rating 5 - Lowest risk	156	46
Fortum Rating 4 - Low risk	-	-
Fortum Rating 3 - Normal risk	-	-
Fortum Rating 2 - High risk	-	-
Fortum Rating 1 - Highest risk	-	-
No rating	-	-
Total non-rated counterparties	156	46
Total	1,315	474

In addition, cash in other bank accounts totalled EUR 118 million on 31 December 2019 (2018: 110).

See [Note 24](#) Liquid funds.

Interest rate and currency derivatives

EUR million	2019		2018	
	Receivables	Netted amount ¹⁾	Receivables	Netted amount ¹⁾
Counterparties with external credit rating from Standard & Poor's, Fitch and/or Moody's Investment grade ratings				
AAA	-	-	-	-
AA+/AA/AA-	14	0	46	26
A+/A/A-	137	15	180	59
BBB+/BBB/BBB-	20	10	42	24
Total investment grade ratings	172	24	268	109
Total associates and joint ventures	-	-	-	-
Counterparties without external credit rating from Standard & Poor's, Fitch or Moody's				
Total	172	24	268	109

1) The netted amount includes the cash received in accordance with Credit Support Annex agreements EUR 65 million (2018: 75).

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Electricity, coal, gas and oil derivatives and CO₂ emission allowances treated as derivatives

EUR million	2019		2018	
	Receivables	Netted amount	Receivables	Netted amount
Counterparties with external credit rating from Standard & Poor's, Fitch and/or Moody's Investment grade ratings				
AAA	-	-	-	-
AA+/AA/AA-	1	1	-	-
A+/A/A-	3	1	56	60
BBB+/BBB/BBB-	0	0	2	2
Total investment grade ratings	4	2	58	62
Non-investment grade ratings				
BB+/BB/BB-	0	0	0	0
B+/B/B-	2	0	-	-
Below B-	-	-	-	-
Total non-investment grade ratings	2	0	0	0
Total associates and joint ventures	4	0	22	0
Counterparties without external credit rating from Standard & Poor's, Fitch or Moody's				
Government or municipality	2	0	12	0
Fortum Rating 5 - Lowest risk	21	19	12	1
Fortum Rating 4 - Low risk	9	3	13	5
Fortum Rating 3 - Normal risk	13	11	3	1
Fortum Rating 2 - High risk	0	0	3	3
Fortum Rating 1 - Highest risk	0	0	-	-
No rating	24	18	10	3
Total non-rated counterparties	69	51	53	13
Total	79	53	133	75

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

All counterparties for currency and interest rate derivatives and the majority of counterparties for bank deposits have an external rating from Standard & Poor's, Fitch and/or Moody's credit agencies. The above rating scale is for Standard & Poor's and Fitch rating categories. For those counterparties only rated by Moody's, the rating has been translated to the equivalent Standard and Poor's and Fitch rating category. For counterparties rated by more than one rating agency, the lowest of the ratings is used.

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

5 Capital risk management

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

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

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

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

In addition, Fortum continues to review its business portfolio in line with its strategic priorities emphasising CO₂-free assets, flexibility, and low operating cost to fit the changing business environment. Fortum will also drive focused growth in the power value chain and seek to build options for significant new businesses for the future.

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

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

Following Fortum's announcement to acquire an additional stake of more than 20.5% of Uniper's shares, Standard & Poor's and Fitch reviewed the credit rating of Fortum. In October 2019, Standard & Poor's placed Fortum's long-term credit rating of BBB on CreditWatch Negative. The short-term rating is at level A-2. In October 2019, Fitch Ratings placed Fortum's long-term credit rating of BBB and short-term credit rating of F2 on Rating Watch Negative. Both rating agencies are expected to update the credit ratings after the closing of the acquisition of at least an additional 20.5% of Uniper shares.

Fortum's key objective is to have a solid investment-grade rating of at least BBB, to preserve financial flexibility and good access to capital markets post-closing of the above mentioned acquisition of Uniper shares, and to strengthen its financial profile longer term. This will provide appropriate financial stability and support to the enlarged group.

Fortum's key financial targets will be revisited in due course to ensure alignment with a commitment to retain a solid investment grade rating of at least BBB.

Comparable net debt/EBITDA ratio

EUR million	Note	2019	2018
Interest-bearing liabilities		6,694	6,093
Less: Liquid funds ¹⁾		1,435	584
Net debt	27	5,260	5,509
Operating profit		1,110	1,138
Add: Depreciation and amortisation		575	536
EBITDA		1,685	1,674
Less: Items affecting comparability		-81	151
Comparable EBITDA		1,766	1,523
Comparable net debt/EBITDA		3.0	3.6

¹⁾ Net debt is calculated as interest-bearing liabilities minus liquid funds without deducting interest-bearing receivables amounting to EUR 1,035 million (2018: 1,092).

Return on capital employed, %

EUR million	Note	2019	2018
Profit before income tax		1,728	1,040
Interest expenses		167	148
Other financial expenses	12	15	26
+Interest and other financial expenses		181	174
Profit before taxes + interest and other financial expenses		1,909	1,214
Capital employed			
Total assets		23,364	22,409
Total liabilities		10,129	10,332
- Interest-bearing liabilities		6,694	6,093
- Total interest-free liabilities		3,435	4,239
Capital employed		19,929	18,170
Capital employed at the end of previous period		18,170	18,172
Average capital employed		19,051	18,171
Return on capital employed, %		10.0%	6.7%

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

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6 Segment reporting

SIGNIFICANT ACCOUNTING POLICIES

REVENUE RECOGNITION

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

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

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

POWER SALES TO WHOLESALE MARKETS

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

POWER SALES TO RETAIL CUSTOMERS

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

HEAT SALES

In many areas the district heating service covers both the distribution and sale of heat. Fortum is usually responsible for delivering the whole service, even when heat is being produced by a third party, and is acting as a principal for heat sales as well. There is only one performance obligation, which is to stand-ready to supply heat to the customer. The fees charged from the customer generally comprise a fixed monthly charge and a variable fee based on the volume of heat supplied. As Fortum's promise is to stand ready to deliver heat, the fixed and variable components are recognised based on the fees chargeable from the customer. In Russia, Baltics and Poland there are also areas where Fortum operates only the heat production facilities while some third party is responsible for the distribution of heat. In these areas the performance obligation is to supply heat and revenue is recognised based on the volume of heat that Fortum is entitled to charge from the customer.

WASTE TREATMENT SALES

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

Waste treatment sales include also various types of soil and landfill site projects, which mostly take place at customer sites. Fees charged are invoiced based on payment schedules agreed with the customer. The customer obtains the benefit of the construction work simultaneously when the construction work proceeds, and therefore project revenues are recognised over time. Progress of the construction is best measured either through costs incurred, or the completed area of the construction site.

COSTS FOR OBTAINING CUSTOMERS

Incremental costs for obtaining new customers as well as renewing existing customer contracts in Consumer Solutions division are capitalised as intangible asset and amortised over the expected contract duration.

NETTING AND INTER-SEGMENT TRANSACTIONS

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

6.1 Business structure

Fortum's business divisions are Generation, City Solutions, Consumer Solutions and Russia. Other Operations includes corporate functions, R&D and technology development projects, as well as Fortum's shareholding in Uniper SE.

In November 2018, Fortum announced that the solar and wind businesses were reorganised and the wind operations became a business area within the Generation segment and the solar operations within the City Solutions segment. These were included in Other Operations until 31 December 2018. The Russian wind and solar operations continue as a part of the Russia segment. Fortum has restated its 2018 comparative segment reporting figures in accordance with the new organisation structure.

6.2 Segment structure

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

Description of reportable segments:

		Group			
		Generation	City Solutions	Consumer Solutions	Russia
Divisions					
		Generation	City Solutions	Consumer Solutions	Russia
Reporting segments		Generation is responsible for Nordic power production. The segment comprises nuclear, hydro, wind, and thermal power production, as well as power portfolio optimisation, trading, industrial intelligence, and global nuclear services.	City Solutions is responsible for developing sustainable solutions for urban areas into a growing business for Fortum. The segment comprises heating, cooling, waste-to-energy, biomass, and other circular economy solutions, as well as solar power production. The business operations are located in the Nordics, the Baltic countries, Poland, and India. The segment also includes Fortum's 50% holding in Stockholm Exergi, which is a joint venture and is accounted for using the equity method.	Consumer Solutions is responsible for the electricity and gas retail businesses in the Nordics and Poland, including the customer service, invoicing, and debt collection businesses. Fortum is the largest electricity retail business in the Nordics, with approximately 2.4 million customers across different brands in Finland, Sweden, Norway, and Poland. The business provides electricity as well as related value-added and digital services.	The Russia segment comprises power and heat generation and sales in Russia. The segment also includes Fortum's over 29% holding in TGC-1, which is an associated company and is accounted for using the equity method.

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6.3 Definitions for segment information

Fortum's segment information discloses the financial measurements used in financial target setting and forecasting, management's follow up of financial performance and allocation of resources in the Group's performance management process. These measurements that are considered as Alternative Performance Measures, such as Comparable operating profit and Comparable return on net assets, have been used consistently since 2005. See ► **Note 1** Significant accounting policies.

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

6.4 Segment information

Consolidated income statement

EUR million	Note	Generation ¹⁾		City Solutions ¹⁾		Consumer Solutions		Russia		Other Operations		Total	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Power sales ²⁾		2,006	1,771	153	134	1,630	1,547	924	872	0	0	4,714	4,324
Heat sales		0	0	615	604	0	0	145	193	0	0	760	797
Waste treatment sales		0	0	250	211	0	0	0	0	0	0	250	211
Other sales		135	71	181	161	206	212	2	4	115	103	639	550
Sales		2,141	1,842	1,200	1,110	1,835	1,759	1,071	1,069	115	103	6,363	5,883
Internal eliminations		-259	2	-45	-37	3	-11	0	0	-86	-79	-387	-125
Netting of Nord Pool transactions ³⁾												-529	-516
IS External sales		1,883	1,844	1,155	1,073	1,839	1,748	1,071	1,069	29	24	5,447	5,242
Comparable EBITDA		939	763	309	310	141	110	469	417	-91	-78	1,766	1,523
IS Depreciation and amortisation		-145	-135	-188	-175	-62	-57	-153	-147	-28	-22	-575	-536
IS Comparable operating profit		794	628	121	135	79	53	316	271	-119	-99	1,191	987
Impairment charges	7	-3	-4	0	0	0	0	0	0	-6	0	-8	-4
Capital gains and other	7	3	77	5	-1	0	0	1	2	-2	23	7	102
Changes in fair values of derivatives hedging future cash flow	7, 8	-15	79	2	-4	-59	22	0	0	0	0	-72	98
Nuclear fund adjustment	7, 29	-9	-45	0	0	0	0	0	0	0	0	-9	-45
IS Items affecting comparability	7	-23	108	7	-5	-59	22	1	2	-8	23	-81	151
IS Operating profit		771	736	127	130	20	75	317	273	-127	-76	1,110	1,138
IS Share of profit/loss of associates and joint ventures	19, 29	10	-72	37	74	0	0	59	36	638	0	744	38
IS Finance costs - net												-125	-136
IS Income taxes												-221	-181
IS Profit for the year												1,507	858

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

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

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

Segment assets and liabilities

EUR million	Note	Generation		City Solutions		Consumer Solutions		Russia		Other Operations		Total	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Non-interest-bearing assets		6,433	6,861	3,728	3,582	942	1,044	2,630	2,408	192	173	13,924	14,069
BS Participations in associates and joint ventures	19, 29	838	854	584	641	0	0	681	495	4,331	3,988	6,435	5,978
Eliminations												-107	-114
Total segment assets		7,271	7,715	4,312	4,223	942	1,044	3,311	2,903	4,523	4,161	20,252	19,933
Interest-bearing receivables	21											1,035	1,092
BS Deferred tax assets	28											77	70
Other assets												567	731
BS Liquid funds	24											1,435	584
Total assets												23,364	22,409
Segment liabilities		1,124	1,230	419	429	302	396	107	114	167	138	2,119	2,308
Eliminations												-107	-114
Total segment liabilities												2,012	2,194
BS Deferred tax liabilities	28											885	720
Other liabilities												537	1,325
Total liabilities included in capital employed												3,435	4,239
Interest-bearing liabilities	27											6,694	6,093
BS Total equity												13,235	12,077
Total equity and liabilities												23,364	22,409

Segment assets and liabilities include assets held for sale. See [Note 3](#) Acquisitions, disposals and assets held for sale.

Gross investments / divestments

EUR million	Note	Generation		City Solutions		Consumer Solutions		Russia		Other Operations		Total	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Gross investments in shares	19, 3	13	14	9	33	0	0	66	63	18	3,977	106	4,088
Capital expenditure	17, 18	247	248	313	209	55	47	67	54	31	26	713	584
Gross divestments of shares	3	12	160	2	147	0	0	0	0	16	0	30	306

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

EUR million	Note	Generation		City Solutions		Consumer Solutions		Russia		Other Operations	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Comparable operating profit		794	628	121	135	79	53	316	271	-119	-99
Share of profit/loss of associates and joint ventures	19	10	-72	37	74	0	0	59	36	638	0
Adjustment to share of profit/loss of associates and joint ventures ¹⁾		-13	94	22	0	0	0	0	0	-461	-38
Comparable operating profit including share of profit of associates and joint ventures		791	650	179	209	79	53	375	307	58	-137
Segment assets at the end of the year		7,271	7,715	4,312	4,223	942	1,044	3,311	2,903	4,523	4,161
Segment liabilities at the end of the year		1,124	1,230	419	429	302	396	107	114	167	138
Comparable net assets		6,147	6,485	3,892	3,794	640	648	3,205	2,789	4,356	4,023
Comparable net assets average ²⁾		6,190	6,019	3,823	3,808	602	671	3,041	2,976	4,192	2,361
Comparable return on net assets, %		12.8	10.8	4.7	5.5	13.2	7.8	12.3	10.3	1.4	-5.8

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

2) Average net assets are calculated using the opening balance of the financial year and each quarter's closing value.

Segment assets and liabilities include assets held for sale. See [Note 3](#) Acquisitions, disposals and assets held for sale.

Employees

	Generation		City Solutions		Consumer Solutions		Russia		Other Operations		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Number of employees 31 Dec	1,109	1,091	1,970	2,017	1,327	1,399	2,955	2,941	830	838	8,191	8,286
Average number of employees	1,122	1,107	1,979	1,994	1,379	1,473	2,942	3,378	825	814	8,248	8,767

6.5 Group-wide disclosures

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

The table below presents sales by geographical area based on customer location. Assets, capital expenditure and personnel are reported where assets and personnel are located. Participations in associates and joint ventures are not presented by location since these companies may have business in several geographical areas.

Due to the large number of customers and the variety of business activities, there is no individual customer whose business volume is material to Fortum's total business volume.

Sales by geographical area based on customer location

EUR million	2019	2018
Nordic	3,740	3,619
Russia	1,071	1,069
Poland	375	331
Other countries	261	223
IS Total	5,447	5,242

Nordic power production is not presented by country since Nordic power production is mainly sold through Nord Pool.

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Capital expenditure by country

EUR million	2019	2018
Finland	199	215
Sweden	114	89
Norway	115	97
Russia	67	54
Poland	47	86
Other countries	171	43
Total	713	584

Segment assets by country

EUR million	2019	2018
Finland	4,130	4,589
Sweden	4,125	4,202
Norway	1,605	1,622
Russia	2,630	2,408
Poland	671	645
Other countries and eliminations	656	488
Non-interest bearing assets	13,817	13,955
BS Participations in associates and joint ventures	6,435	5,978
Total	20,252	19,933

Segment assets in Finland include EUR 169 million (2018: 590) settlements paid for futures. Segment assets and liabilities include assets held for sale. See [▶ Note 3](#) Acquisitions, disposals and assets held for sale.

Number of employees on 31 December by country

	2019	2018
Finland	2,234	2,238
Sweden	985	981
Norway	660	667
Russia	2,955	2,941
Poland	560	754
Other countries	797	705
Total	8,191	8,286

7 Items affecting comparability

EUR million	2019	2018
Impairment charges	-8	-4
Capital gains and other	7	102
Changes in fair values of derivatives hedging future cash flow	-72	98
Nuclear fund adjustments	-9	-45
IS Total	-81	151

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

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

Impairment charges

Impairment charges are recognised in items affecting comparability and include impairment charges and potential provisions (mainly dismantling). Impairment charges are adjusted from depreciation and amortisation. The impairment charges during 2019 amounted to EUR -8 million (2018: -4).

Capital gains and other

Capital gains and other include capital gains and transaction costs from acquisitions, which are adjusted from other income and other expenses, respectively. Capital gains and other in 2019 amounted to EUR 7 million (2018: 102). The comparison year includes the capital gain of EUR 77 million from the sale of Fortum's 10% stake in Hafslund Produksjon Holding AS and EUR 26 million from the sale of Espoo head office. For more information regarding disposals of shares, see [▶ Note 3](#) Acquisitions, disposals and assets held for sale.

Fair value changes on derivatives

Changes in the fair values of financial derivative instruments hedging future cash flows that do not qualify for hedge accounting, or own use exemption cannot be applied, or physical contracts to buy or sell a non-financial item, which are fair value using fair value option to offset accounting mismatch, are recognised in items affecting comparability. This is done to improve the understanding of the financial performance when comparing results from one period to another. For more information regarding fair value changes of derivatives, see [▶ Note 8](#) Fair value changes of derivatives and underlying items in income statement.

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Nuclear waste management fund adjustment

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

The nuclear cost estimates and technical plan was updated during 2019 which led to a decrease in provision of EUR 100 million. The reduced provision led to negative nuclear fund adjustment of EUR 54 million. The periodisation of the fund target led to a positive fund adjustment of EUR 51 million which is booked as an interest-free receivable.

Fortum reassessed assumptions used for all nuclear related assets and liabilities during 2018. The increase of the nuclear provision for the Loviisa nuclear power plant in Finland lead to recognition of an additional share of the Finnish nuclear fund. The increase of the provision due to the reassessment and the additional share in the fund were both included in Items affecting comparability in 2018. The net profit impact from all these nuclear related adjustments was close to zero.

For more information regarding nuclear waste management, see [Note 29](#) Nuclear related assets and liabilities.

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

Fair value changes in operating profit presented below are arising from financial derivatives hedging future cash flows where hedge accounting is not applied according to IFRS 9 and the ineffectiveness from cash flow hedges. Table includes also fair value changes from physical contracts to buy or sell a non-financial items, which are fair valued through income statement when fair value option to off-set accounting mismatch is used, or when own use exemption or hedge accounting cannot be applied.

Fair value changes of currency derivatives in net financial expenses arise mainly from balance sheet hedges without hedge accounting status according to IFRS 9, because they are natural hedges of loans and receivables. Fair value change of interest rate hedges without hedge accounting is EUR -2 million (2018: -8).

EUR million	2019	2018
In operating profit		
Fair value changes from derivatives not getting hedge accounting status		
Electricity derivatives	5	77
Currency derivatives	-3	3
Other commodity derivatives	-73	17
Total effect in operating profit	-72	98
In finance costs		
Exchange gains and losses on loans and receivables ¹⁾	91	-100
Fair value changes of derivatives not getting hedge accounting status		
Cross currency interest rate derivatives ¹⁾	30	8
Foreign currency derivatives ¹⁾	-120	91
Rate difference on forward contracts	-1	3
Currency derivatives	-91	102
Interest rate derivatives	-2	-8
Fair value change of hedging derivatives in fair value hedge relationship	27	-24
Fair value change of hedged items in fair value hedge relationship	-23	24
Total ²⁾	-89	94
Total effect in finance costs	2	-6
Total effect on profit before income tax	-70	92

¹⁾ Exchange gains and losses on loans, receivables and derivatives totaling EUR 0 million (2018: -1).

²⁾ Including fair value gains and losses on hedged financial instruments and foreign currency and interest rate derivatives EUR 1 million (2018: -5). See also [Note 12](#) Finance costs - net.

9 Other income and other expenses

ACCOUNTING POLICIES

OTHER INCOME

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

RESEARCH AND DEVELOPMENT COSTS

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

9.1 Other income

EUR million	2019	2018
Rental income	23	12
Insurance compensation	8	1
Subsidies	28	47
Other items	54	71
IS Total	110	130

In 2018, other included a profit of EUR 26 million from the partial sale of Fortum's solar power company in India according to the 'capital recycling' business model. See also [Note 3](#) Acquisitions, disposals and assets held for sale.

9.2 Other expenses

EUR million	2019	2018
Operation and maintenance costs	134	130
Property taxes	71	109
IT and telecommunication costs	94	77
Other items	292	278
IS Total	591	594

The major components recorded in other expenses are the external operation and maintenance costs of power and heat plants. Property taxes include taxes relating to directly owned hydropower production of EUR 39 million (2018: 65). Other includes expenses relating to properties and other operative expenses.

Principal auditor's fees

EUR million	2019	2018
Audit fees	2.3	1.7
Audit-related assignments	0.3	0.2
Tax assignments	0.0	0.0
Other assignments	0.8	1.6
Total	3.3	3.5

Deloitte Oy is the appointed auditor until the next Annual General Meeting in 2020. Audit fees include fees for the audit of the consolidated financial statements, review of interim reports, as well as fees for the audit of Fortum Corporation and its subsidiaries. Audit-related assignments include fees for assurance of sustainability reporting, and other assurance and associated services related to the audit. Tax assignments include fees for tax advice services. Other assignments consist of advisory services.

10 Materials and services

EUR million	2019	2018
Materials	2,200	2,296
Materials purchased from associates and joint ventures	369	372
Transmission costs	42	41
External services	110	86
IS Total	2,721	2,795

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

Materials purchased from associates and joint ventures consist of nuclear and hydropower purchased at production cost (including interest costs and production taxes) and purchased steam.

Total materials and services include production taxes of EUR 60 million (2018: 62), including hydro power related property taxes of EUR 13 million (2018: 13). Taxes related to nuclear and hydro production are included in taxes paid through purchases from associates and joint ventures.

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

11 Employee benefits and Board remuneration

EUR million	2019	2018
Wages and salaries	351	345
Pensions		
Defined contribution plans	38	34
Defined benefit plans	5	7
Social security costs	51	48
Share-based incentives ¹⁾	12	3
Other employee costs	23	23
IS Total	480	459

1) Share-based incentives increased in 2019 mainly due to the higher earnings outcome from settled plans.

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

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

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

11.1 Short-term incentives (STI)

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

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

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

11.2 Share-based long-term incentives (LTI)

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

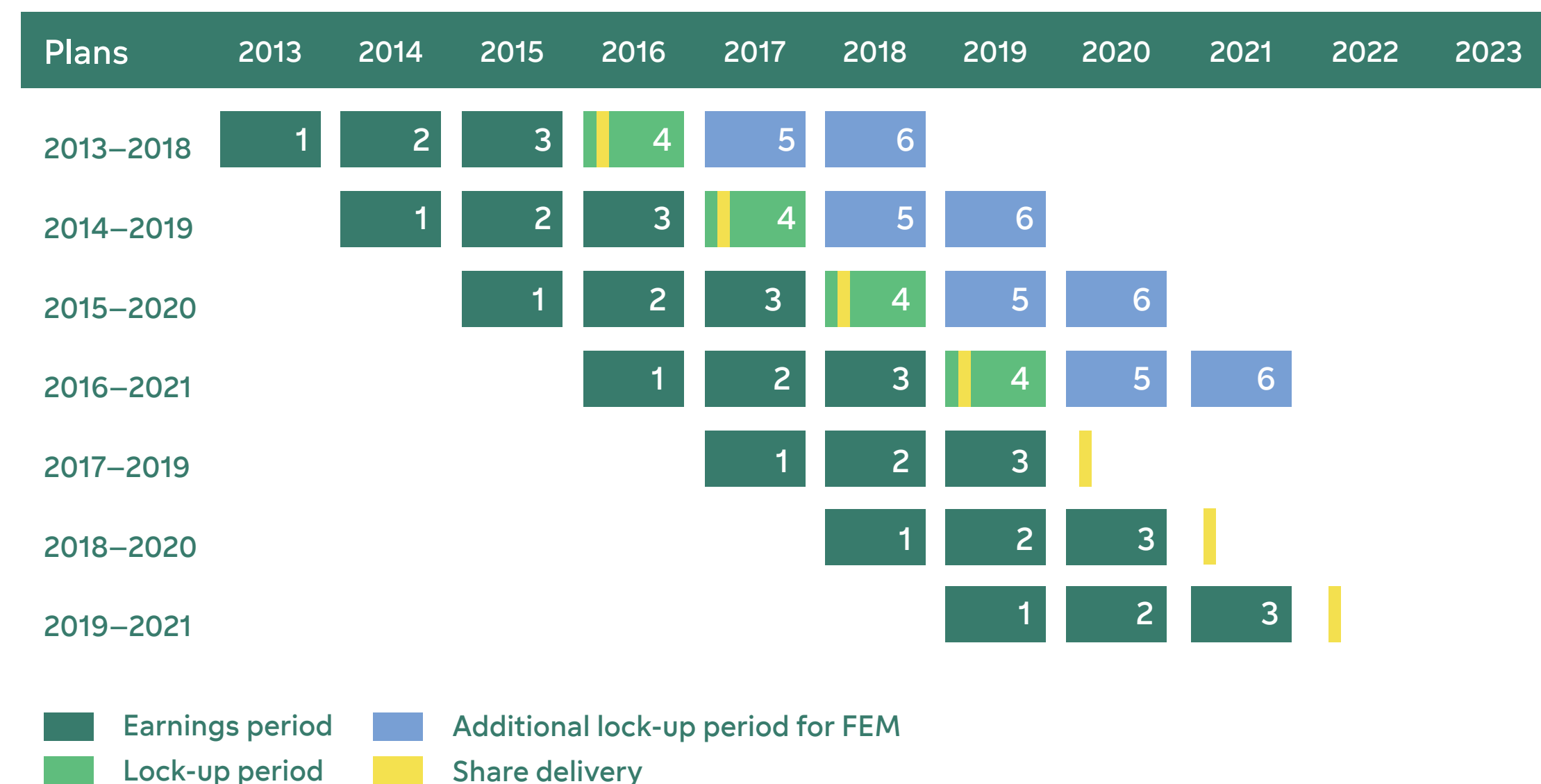
Fortum's LTI programme provides participants with the opportunity to earn company shares. Under the LTI programme and subject to the decision of the Board of Directors, a new LTI plan commences annually. The Board of Directors approves participation of the Fortum Executive Management members in each annually commencing LTI plan. Subject to a decision by the Board of Directors the President and CEO is authorised to decide on individual participants and potential maximum awards for other participants than the Fortum Executive Management in accordance with the nomination guidelines approved by the Board of Directors. Participation in the LTI plan precludes the individual from being a member in the Fortum Personnel Fund.

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

For LTI plans commencing in 2013 to 2016, any shares awarded to Fortum Executive Management members are subject to a three-year lock-up period. Subject to a decision by the Board of Directors, the lock-up period can be reduced to one year for those Fortum Executive Management members whose aggregate ownership of Fortum shares is greater than or equal to their annual salary. For other participants the lock-up period is one year. If the value of the shares decreases or increases during the lock-up or retention period, the participant will carry the potential loss or gain. For LTI plans commencing in 2017 and later, the share awards will not be subject to a minimum lock-up period. However, Fortum Executive Management members whose aggregate ownership of Fortum shares does not yet fulfil the shareholding requirement are required to retain at least 50% of the shares received until the required level of shareholding is met.

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

The share plans under the LTI arrangement are accounted for as partly equity- and partly cash-settled arrangements. The earned reward that the participants receive in shares is accounted for as an equity-settled transaction. For participants receiving cash only, the total arrangement is accounted for as cash-settled transaction. The reward is recognised as an expense during the earnings period with a corresponding increase in the liabilities and for the transactions settled in shares in the equity. The social charges related to the arrangement payable by the employer are accrued as a liability. The LTI liability including social charges at the end of the year 2019 was EUR 14 million (2018: 14), including EUR 7 million (2018: 8) recorded in equity.



At year end 2019 approximately 160 key employees are participants in at least one of the six on-going annual LTI plans (plans 2014–2019, 2015–2020, 2016–2021, 2017–2019, 2018–2020 and 2019–2021).

Shares granted

	Plan 2016–2021	Plan 2015–2020	Plan 2014–2019	Plan 2013–2018
Grant date	21 Feb 2019	13 Feb 2018	13 Feb 2017	12 Feb 2016
Grant price, EUR	19.33	17.04	14.28	12.18
Number of shares granted	293,534	73,377	92,321	152,200
Number of shares subsequently forfeited or released from lock-up and other changes	-21,415	-71,498	-92,150	-152,200
Number of shares under lock-up 31 December 2019	272,119	1,879	171	-

In addition to the shares granted above, share rights have been granted to participants that will receive cash payments instead of shares after the lock-up period. The gross amount of share rights outstanding at the end of the year 2019 for plan 2016–2021 was 148,040, for plan 2015–2020 18,310, for plan 2014–2019 17,793 and for plan 2013–2018 32,066 share rights.

11.3 Fortum Personnel Fund

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

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

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

The fund's latest financial year ended at 30 April 2019 and the fund then had a total of 2,280 members (2018: 2,233). At the end of April 2019 Fortum contributed EUR 2.4 million (2018: 2.0) to the personnel fund as an annual profit-sharing bonus based on the financial results of 2018. The combined amount of members' shares in the fund was EUR 20 million (2018: 19).

The contribution to the personnel fund is expensed as it is earned.

11.4 The President and CEO and the Fortum Executive Management remuneration

The Fortum Executive Management (FEM) consists of ten members, including the President and CEO. The following table presents the total remuneration of the President and CEO and the FEM and takes into account the changes in FEM during the year. The expenses are shown on accrual basis.

Management remuneration

EUR thousand	2019		2018	
	Pekka Lundmark, President and CEO	Other FEM members	Pekka Lundmark, President and CEO	Other FEM members
Salaries and fringe benefits	1,057	3,382	1,048	3,101
Performance bonuses ¹⁾	200	661	228	658
Share-based incentives ¹⁾²⁾	898	3,506	297	1,431
Pensions (statutory)	207	748	250	677
Pensions (voluntary)	265	647	252	596
Social security expenses	39	344	36	254
Total	2,666	9,287	2,112	6,716

1) Based on estimated amounts.

2) Share-based incentives increased in 2019 mainly due to the higher earnings outcome from settled plans.

The annual contribution for the President and CEO Pekka Lundmark's pension arrangement is 25% of the annual salary. The annual salary consists of base salary and fringe benefits. The President and CEO's retirement age is 63. In case his assignment is terminated before the retirement age, the President and CEO is entitled to retain the benefits accrued in the arrangement.

For the other members of the FEM the retirement age varies between 62 and 65. According to Group policy, all new supplementary pension arrangements are defined contribution plans. For the members of the FEM that have defined contribution arrangements, the maximum pension premium percentage can be 25% of the annual salary. Members, who have joined Fortum prior to 1 January 2009, are participating in defined benefit pension arrangements, where the benefit is 60–66% of the final pensionable salary with the pension provided by an insurance company or Fortum's Pension Fund.

A pension liability of EUR 824 thousand (2018: 624) related to the defined benefit plans for FEM members has been recognised on the balance sheet. The additional pension arrangement for the President and CEO is a defined contribution pension plan and thus no liability has been recognised on the balance sheet.

In the event that Fortum decides to give notice of termination to the President and CEO, he is entitled to the salary for the notice period (6 months) and a severance pay equal to 12 months' salary. Other FEM members' termination compensation is equal to 6 to 12 months' salary.

Number of shares delivered to the management

The table below shows the number of shares delivered during 2019 and 2018 to the President and CEO and other FEM members under the LTI arrangements. Shares delivered under the plans are subject to a lock-up period under which they cannot be sold or transferred to a third party.

	2019 ²⁾	2018 ³⁾
FEM members at 31 December 2019		
Pekka Lundmark, CEO	25,765	6,453
Arun Aggarwal (member of FEM from 17 Oct 2018)	-	-
Alexander Chuvayev ¹⁾	33,522	15,930
Per Langer	5,057	1,621
Risto Penttinen	6,232	1,767
Markus Rauramo	11,137	2,103
Arto Rätty	4,931	-
Mikael Rönnblad	3,435	-
Sirpa-Helena Sormunen	6,012	1,879
Tiina Tuomela	7,206	2,117
Former FEM members		
Kari Kautinen (member of FEM until 30 September 2018)	N/A	2,059
Total	103,297	33,929

1) Estimated number of shares after local tax and tax related deductions. Due to local legislation, share rights will be paid in cash instead of shares after the three-year lock-up period.

2) Share delivery based on share plan 2016–2021.

3) Share delivery based on share plan 2015–2020.

11.5 Board of Directors and management shareholding

On 31 December 2019, the members of the Board of Directors owned a total of 8,540 shares (2018: 8,540), which corresponds to 0.00% (2018: 0.00%) of the company's shares and voting rights.

Number of shares held by members of the Board of Directors

	2019	2018
Board members at 31 December 2019		
Matti Lievonen, Chairman	1,500	1,500
Klaus-Dieter Maubach, Deputy Chairman	-	-
Eva Hamilton	40	40
Kim Ignatius	4,000	4,000
Essimari Kairisto	-	-
Anja McAlister	-	-
Veli-Matti Reinikkala	3,000	3,000
Philipp Rösler	-	N/A
Total	8,540	8,540

The President and CEO and other members of the FEM owned a total of 263,002 shares (2018: 193,227), which corresponds to approximately 0.03% (2018: 0.02%) of the company's shares and voting rights.

Number of shares held by members of the Fortum Executive Management

	2019	2018
FEM members at 31 December 2019		
Pekka Lundmark	92,931	67,166
Arun Aggarwal	-	-
Alexander Chuvayev	22,053	22,053
Per Langer	38,248	33,191
Risto Penttinen	18,587	12,355
Markus Rauramo	45,272	34,135
Arto Rätty	4,931	-
Mikael Rönnblad	3,435	-
Sirpa-Helena Sormunen	12,668	6,656
Tiina Tuomela	24,877	17,671
Total	263,002	193,227

11.6 Board remuneration

The Board of Directors comprises five to ten members who are elected at the Annual General Meeting for a one-year term of office, which expires at the end of the first Annual General Meeting following the election. At the end of 2019 the Board of Directors consists of eight members.

The Annual General meeting confirms the yearly compensation for the Board of Directors. Board members are not offered any long-term incentive benefits or participation in other incentive schemes. There are no pension arrangements for the Board members. Social security costs EUR 11 thousand (2018: 11) have been recorded for the fees in accordance with local legislation in respective countries.

Fees for the Board of Directors

EUR thousand	2019	2018
Chairman	75	75
Deputy Chairman	57	57
Chairman of the Audit and Risk Committee ¹⁾	57	57
Members	40	40

1) If not Chairman or Deputy Chairman simultaneously.

Every member of the Board of Directors receives a fixed yearly fee and additional fees for each meeting attended. A meeting fee of EUR 600 is paid for Board and Committee meetings. For Board members living outside Finland in Europe, the meeting fee is EUR 1,200; for Board members living outside Europe, the meeting fee is EUR 1,800. For Board and Committee meetings held as a telephone conference, the meeting fee is paid as EUR 600 to all members. No fee is paid for decisions made without a separate meeting.

Board members are entitled to travel expense compensation in accordance with the company's travel policy.

Compensation for the Board of Directors

EUR thousand	2019	2018
Board members at 31 December 2019		
Matti Lievonen, Chairman from 28 March 2018	89	80
Klaus-Dieter Maubach, Deputy Chairman from 28 March 2018	71	54
Eva Hamilton	54	54
Kim Ignatius, Chairman of the Audit and Risk Committee	67	65
Essimari Kairisto (member of the board from 28 March 2018)	56	42
Anja McAlister	59	60
Veli-Matti Reinikkala	58	54
Philipp Rösler (member of the board from 26 March 2019)	44	N/A
Former Board members		
Sari Baldauf (Chairman until 28 March 2018)	N/A	20
Heinz-Werner Binzel (member of the board until 26 March 2019)	12	54
Marco Ryan (member of the board from 26 March 2019 to 1 August 2019)	19	N/A
Total	529	483

12 Finance costs - net

EUR million	Note	2019	2018
Interest expense			
Borrowings		-171	-155
Other interest expense		-4	-3
Capitalised borrowing costs	18	9	10
Total		-167	-148
Interest income			
Loan receivables and deposits		25	31
Other interest income		3	3
Total		28	34
Fair value gains and losses on financial instruments	8		
Fair value change of interest rate derivatives not getting hedge accounting status		-2	-8
Fair value change of hedging derivatives in fair value hedge relationship		27	-24
Fair value change of hedged items in fair value hedge relationship		-23	24
Rate difference on forward contracts		-1	3
Fair value gains and losses on other investments		7	-3
Total		8	-8
Exchange gains and losses			
Loans and receivables	8	91	-100
Cross currency interest rate derivatives	8	30	8
Foreign currency derivatives	8	-120	91
Write down of loan receivables	21	0	-13
Interest income on share of State Nuclear Waste Management Fund	29	6	7
Unwinding of discount on nuclear provisions	29	7	11
Unwinding of discount on other provisions	30, 31	-10	-3
Other financial income		17	11
Other financial expenses		-15	-26
Total		6	-15
IS Finance costs - net		-125	-136

Interest expenses include interest expenses on interest-bearing loans, interest on interest rate and currency swaps and forward points on forward foreign exchange contracts hedging loans and receivables. Interest expenses were EUR 167 million (2018: 148). Interest expenses in 2019 include the remaining amortised cost of EUR 13 million due to the prepayment of the bridge financing for the acquisition of Uniper shares in 2018.

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Interest income were EUR 28 million (2018: 34) including EUR 12 million (2018: 12) from shareholders' loans to co-owned Swedish nuclear companies, and EUR 11 million (2018: 17) from deposits and commercial papers.

Fair value gain and losses were EUR 8 million (2018: -8). Fair value gains and losses on financial instruments include change in clean price of interest rate and cross-currency swaps not getting hedge accounting and fair value changes of interest rate derivatives in hedge relationship and hedged items. Accrued interest on these derivatives is entered in interest expenses of borrowings. Fair value gains and losses include also rate difference from forward contracts hedging loans and receivables without hedge accounting.

Exchange gains and losses were net zero including exchange rate differences arising from valuation of foreign currency loans and receivables and exchange rate differences from forward foreign exchange contracts and interest rate and currency swaps.

Unwinding of discount on nuclear provisions were EUR 7 million (2018: 11) including in 2019 the positive impact of EUR 40 million related to the regular nuclear technical update in Finland and in 2018 positive effect from changes in assumptions of EUR 49 million due to the adjustment to past unwinding of interest. For additional information see Note 29 Nuclear related assets and liabilities.

Other financial income EUR 17 million (2018: 11) includes EUR 8 million from a receivable from SIBUR (2018: 10), a Russian gas processing and petrochemicals company regarding divested shares of OOO Tobolsk CHP and EUR 6 million, which was returned from Nasdaq default fund in 2019. Other financial expenses were EUR 15 million (2018: 26) including EUR 10 million cost for the new committed credit facilities related to the acquisition of an additional minimum stake of 20.5% in Uniper and in 2018 EUR 20 million cost regarding replenishment to Nasdaq default fund.

Interest rate and currency derivatives in finance costs - net

EUR million	2019	2018
Interest rate and cross currency swaps		
Interest expenses on borrowings	20	27
Exchange rate difference from derivatives	30	8
Rate difference in fair value gains and losses on financial instruments ¹⁾	25	-32
Total fair value change of interest rate derivatives in finance costs - net	75	3
Forward foreign exchange contracts		
Interest expenses on borrowings	-57	-52
Exchange rate difference from derivatives	-120	91
Rate difference in fair value gains and losses on financial instruments	-1	3
Total fair value change of currency derivatives in finance costs - net	-178	42
Total	-103	45

¹⁾ Fair value gains and losses on financial instruments include fair value changes from interest rate swaps not getting hedge accounting amounting to EUR -2 million (2018: -8) and fair value change of hedging derivatives in fair value hedge relationship to EUR 27 million (2018: -24).

13 Income tax expense

13.1 Profit before tax

EUR million	2019	2018
Finnish companies	303	113
Swedish companies	383	396
Russian companies	312	261
Other companies ¹⁾	730	270
IS Total	1,728	1,040

¹⁾ Includes share of profits from Uniper of EUR 632 million (2018: -2).

Profit before tax split by country represents the respective countries' part of the profit before tax for Fortum Group according to IFRS, i.e. based on the same accounting principles as for the Consolidated Financial Statements. This means that the respective country profits include such items as for example share of profits from associates and effects of accounting for nuclear provisions, which are not included in taxable profits in the local subsidiaries.

13.2 Major components of income tax expense by major countries

EUR million	2019	2018
Current taxes		
Finnish companies	-40	-7
Swedish companies	-79	-3
Russian companies	-51	-38
Other companies	-63	-46
Total	-233	-94
Deferred taxes		
Finnish companies	-15	-18
Swedish companies	6	-73
Russian companies	-6	-11
Other companies	30	15
Total	15	-87
Adjustments recognised for current tax of prior periods		
Finnish companies	-2	-1
Swedish companies	0	0
Russian companies	0	0
Other companies	-1	0
Total	-3	-1
IS Income tax expense	-221	-181

13.3 Income tax rate

The table below explains the difference between the theoretical enacted tax rate in Finland compared to the tax rate in the consolidated income statement.

EUR million	2019	%	2018	%
Profit before tax	1,728		1,040	
Tax calculated at nominal Finnish tax rate	-346	20.0	-208	20.0
Tax rate changes	-3	0.2	17	-1.6
Differences in tax rates and regulations	-62	3.6	6	-0.6
Tax exempt capital gains	2	-0.1	15	-1.5
Expenses not deductible for tax purposes	-8	0.4	-13	1.3
Share of profit of associates and joint ventures	220	-12.7	7	-0.7
Taxes related to dividend distributions	-17	1.0	-14	1.4
Changes in tax valuation allowance related to not recognised tax losses	-5	0.3	11	-1.0
Other items	1	-0.1	-2	0.2
Adjustments recognised for taxes of prior periods	-3	0.2	0	0.0
IS Income tax expense	-221	12.8	-181	17.5

Key tax indicators:

- The weighted average applicable income tax rate for 2019 is 23.6% (2018: 19.4%)
- The effective income tax rate in the income statement for 2019 is 12.8% (2018: 17.5%)
- The comparable effective income tax rate (excluding the share of profits from associates and joint ventures as well as tax exempt capital gains, tax rate changes and other major one time income tax effects) for 2019 is 22.4% (2018: 22.0%).

See [Definitions of key figures](#).

The major items affecting the effective income tax rate are as follows:

Share of profit of associates and joint ventures during 2019 reduced the effective income tax rate with 12.7%, main item being the share of profit from Uniper EUR 632 million. This share of profit has also largely impacted the difference in tax rates and regulations increasing the rate with 3.6% overall.

Effective income tax rate impacted by gains or losses on sale of shares. In many countries like in Finland, Sweden, Netherlands and Norway income on capital gains and losses is treated as tax exempt. The purpose of this is to tax the operative income of the company and avoid taxing the same income twice in case of the sale of the shares. Taxation of capital gains or losses is in line with the taxation of dividend income.

Fortum has had tax audits ongoing during 2019. Based on earlier audits Fortum has received income tax assessments in Belgium for the years 2008–2012. In previous years, Fortum has appealed all assessments

received. Based on legal analysis, no provision has been accounted for in the financial statements related to Belgium 2008–2012 tax audits.

For further information regarding the ongoing tax appeals see [Note 37](#) Legal actions and official proceedings.

During 2019 entities primarily in Sweden and Belgium used a portion of the deferred tax asset relating to tax loss carry forwards.

Fortum has a material deferred tax liability owing to its investments in non-current assets. These assets are depreciated more rapidly for tax than for accounting purposes resulting in lower current tax payments at the start of an asset's lifetime and higher tax payments at the end of its lifetime. This difference results in a deferred tax liability.

See also [Note 28](#) Income taxes on the balance sheet.

14 Earnings and dividend per share

ACCOUNTING POLICIES

EARNINGS PER SHARE

Basic earnings per share is calculated by dividing the net profit attributable to the owners of the parent company by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares purchased by the Group and held as treasury shares.

DIVIDENDS

Dividends proposed by the Board of Directors are not recognised in the financial statements until they have been approved by the Company's shareholders at the Annual General Meeting.

14.1 Earnings per share

Earnings per share, basic

	2019	2018
IS Profit attributable to owners of the parent (EUR million)	1,482	843
Weighted average number of shares (thousand)	888,294	888,312
Basic earnings per share (EUR)	1.67	0.95

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

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

14.2 Dividend per share

Dividends proposed by the Board of Directors are not recognised in the financial statements until they have been approved by the Company's shareholders at the Annual General Meeting.

A dividend in respect of 2019 of EUR 1.10 per share, amounting to a total dividend of EUR 977 million based on the amount of shares registered as at 5 February 2020, is to be proposed at the planned Annual General Meeting on 17 March 2020. These Financial statements do not reflect this dividend.

A dividend for 2018 of EUR 1.10 per share, amounting to a total of EUR 977 million, was decided in the Annual General Meeting on 26 March 2019 and the dividend was paid on 4 April 2019.

A dividend for 2017 of EUR 1.10 per share, amounting to a total of EUR 977 million, was decided in the Annual General Meeting on 28 March 2018 and the dividend was paid on 10 April 2018.

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15 Financial assets and liabilities by categories

ACCOUNTING POLICIES

FINANCIAL ASSETS

Fortum classifies its financial assets in the following categories according to IFRS 9: financial assets at amortised cost, financial assets at fair value through profit and loss and financial assets at fair value through other comprehensive income. The classification is made at initial recognition and depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them.

In order for the financial asset to be classified and measured at amortised cost or fair value through other comprehensive income, it needs to give rise to cash flows that are solely payments of the principal and interest on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level. When the SPPI criteria is not met, financial assets are classified to fair value through profit and loss category.

Financial assets are presented as non-current assets unless they are held for trading, expected to be realized within 12 months at the closing date or they have a maturity of under 12 months at closing date. These are classified as current assets.

FINANCIAL ASSETS AT AMORTISED COST

Fortum measures financial assets at amortised cost when the financial asset is included in the held-to-collect business model with fixed or determinable payments that are payments of amount outstanding or interest on it. They arise when the Group provides money, goods or services directly to a debtor. Financial assets at amortised cost include non-derivative financial assets with fixed or determinable payments that are not quoted in an active market.

Financial assets at amortised cost are subject to impairment. Gains and losses from derecognition of the asset are recognised in profit and loss.

FINANCIAL ASSETS AT FAIR VALUE THROUGH PROFIT AND LOSS

Financial assets at fair value through profit and loss include financial assets held for trading in the short term, financial assets designated upon initial recognition irrevocably as fair value through profit and loss and financial assets mandatorily recognised at fair value through profit and loss according to IFRS 9. Fortum has also elected to classify equity investments (i.e. other investments) irrevocably as financial assets at fair value through profit and loss. These are mainly comprised of shares in unlisted companies. Derivatives are classified as held for trading unless they are designated as effective hedging instruments.

Gains and losses arising from changes in the fair value are included in the income statement in the period in which they arise.

FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

Other investments designated at fair value through other comprehensive income are not subject to impairment assessment and are never recycled to profit and loss. Dividends received are recognised in profit and loss.

Fortum currently does not have material other investments that have been irrevocably classified as financial assets at fair value through other comprehensive income.

DERECOGNITION

Fortum derecognises financial assets when the rights to receive cash flows from the assets have expired or when it has substantially transferred the risks and rewards of the assets outside of the Group.

IMPAIRMENT

Fortum recognizes an allowance for expected credit losses (ECL) according to IFRS 9 for financial assets measured at amortised cost. See further information on ECL in [Note 4.7.1](#) Credit quality of major financial assets and in [Note 23](#) Trade and other receivables.

Financial assets measured at fair value through profit or loss are not included in ECL assessment as they are already measured at fair value which takes into account expected credit losses. A financial asset is written-off when there is no reasonable expectation of recovering the contractual cash flows.

FINANCIAL LIABILITIES

All financial liabilities are recognised initially at fair value. In the case of loans and borrowings and payables, incurred transaction costs are deducted. In subsequent periods, all non-derivative financial liabilities are stated at amortised cost; any difference between proceeds (net of transaction costs) and the redemption value is recognised as interest cost over the period of the borrowing using the effective interest rate method.

Derivative financial instruments entered into by the Group, that are not designated as hedging instruments are classified as liabilities at fair value through profit and loss. Amortisation of the effective interest rate and gains and losses of liabilities are recognised in the statement of profit and loss.

Group's financial liabilities include trade and other payables, loans and borrowings and derivative financial instruments. Borrowings or portion of borrowings being hedged with a fair value hedge are recognised at fair value through profit and loss. Derecognition of financial liabilities takes place when the Group has fulfilled the contractual obligations.

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ACCOUNTING FOR DERIVATIVE FINANCIAL INSTRUMENTS AND HEDGING ACTIVITIES

Within the ordinary course of business the Group routinely enters into sale and purchase transactions for commodities. The majority of these transactions take the form of contracts that were entered into and continue to be held for the purpose of receipt or delivery of the commodity in accordance with the Group's expected sale, purchase or usage requirements ("own use exemption"). Such contracts are not within the scope of IFRS 9. Physical contracts to buy or sell a non-financial item, which are fair valued using the fair value option to off-set accounting mismatch, or where own use exemption or hedge accounting cannot be applied are fair valued through income statement.

Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently remeasured at their fair value. The method of recognising the resulting gain or loss depends on whether the derivative is designated as a hedging instrument eligible for hedge accounting, and if so, the nature of the item being hedged. The Group designates certain derivatives as either: (1) hedges of highly probable forecast transactions (cash flow hedges); (2) hedges of the fair value of recognised assets or liabilities (fair value hedge); or (3) hedges of net investments in foreign operations.

The Group documents at the inception of the transaction the relationship between hedging instruments and hedged items, whether the hedged item is one or several risk components separately or in aggregation, as well as its risk management objective and strategy for undertaking various hedge transactions. When applying hedge accounting the Group also documents its assessment, of whether the derivatives that are used in hedging transactions are meeting the hedge accounting effectiveness criteria: (1) there is an economic relationship between the hedged item and the hedging instrument, (2) the effect of credit risk does not dominate the value changes that result from that economic relationship; and (3) the hedge ratio of the hedging relationship is the same as applied in the risk management. The Group also documents its assessment, both at hedge inception and on an ongoing basis, of whether the derivatives that are used in hedging transactions are highly effective by assessing the prospective capacity of the derivatives in offsetting changes in fair values or cash flows of hedged items. Hedge accounting is discontinued only when the hedging relationship ceases to meet the hedge effectiveness criteria.

CASH FLOW HEDGE

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges are recognised in equity. Gain or loss relating to the ineffective portion is recognised immediately in the income statement. Amounts accumulated in equity are recycled in the income statement in the periods when the hedged item will affect profit and loss (for instance when the forecasted sale that is hedged takes place). However, when the forecast transaction that is hedged results in the recognition of a non-financial asset (for example, inventory) or a liability, the gains and losses previously deferred in equity are transferred from equity and included in the initial measurement of the cost of the asset or liability.

When a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity is recognised in the income statement when the forecast transaction is ultimately also recognised in the income statement. When a forecasted transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately recognised in the income statement.

Fortum hedges its exposure to commodity market risks and applies hedge accounting by risk components. Hedge accounting is applied to Nordic electricity price risk, where the Nordic area priced physical electricity delivery is commonly divided into three risk components: (1) system price risk, (2) electricity price area difference risk (EPAD) and (3) currency risk. For each of these separate risk components there are specific derivative contracts available, which each are being a perfect hedge without any ineffectiveness for the associated risk component.

FAIR VALUE HEDGE

Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recorded in the income statement, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.

If the hedge no longer meets the criteria for hedge accounting, the adjustment to the carrying amount of a hedged item for which the effective interest method is used is amortised to profit and loss for the period to maturity.

NET INVESTMENT HEDGING IN FOREIGN OPERATIONS

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gain or loss on the hedging instrument relating to the effective portion of the hedge is recognised in equity; the gain or loss relating to the ineffective portion is recognised immediately in the income statement. Gains and losses accumulated in equity are included in the income statement when the foreign operation is disposed of.

DERIVATIVES THAT DO NOT QUALIFY FOR HEDGE ACCOUNTING

Certain derivative instruments hedging future cash flows do not qualify for hedge accounting. Fair value changes of commodity derivative instruments are recognised in items affecting comparability in the income statement, whereas fair value changes of interest rate and currency derivative instruments are recognised in finance costs - net.

Financial assets and liabilities in the tables below are split into categories in accordance with IFRS 9. The categories are further divided into classes which are the basis for valuing a respective asset or liability. Further information can be found in the Notes mentioned in the table.

See [▶ Note 1.6](#) Physical settlement of contracts to buy or sell non-financial item (IFRS 9)

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Financial assets by category 2019

EUR million	Note	Amortised cost	Fair value through profit and loss			Fair value through other comprehensive income	Total
			Hedge accounting, fair value hedges	Non-hedge accounting	Other financial assets	Cash flow hedges	
Financial instruments in non-current assets							
Other non-current assets	20	75			75		151
Derivative financial instruments	4						
Electricity derivatives				12		1	13
Interest rate and currency derivatives			153	2		1	156
Other commodity future and forward contracts				10			10
Long-term interest-bearing receivables	21	628			23		651
Financial instruments in current assets							
Derivative financial instruments	4						
Electricity derivatives				40		42	82
Interest rate and currency derivatives				7		9	16
Other commodity future and forward contracts				34			34
Trade receivables	23	736					736
Short-term interest-bearing receivables	21	69			315		384
Liquid funds	24	1,433					1,433
Total		2,941	153	105	413	53	3,666

Financial assets by category 2018

EUR million	Note	Amortised cost	Fair value through profit and loss			Fair value through other comprehensive income	Total
			Hedge accounting, fair value hedges	Non-hedge accounting	Other financial assets	Cash flow hedges	
Financial instruments in non-current assets							
Other non-current assets	20	90			49		139
Derivative financial instruments	4						
Electricity derivatives				52		1	53
Interest rate and currency derivatives			122	4		26	152
Other commodity future and forward contracts				24			24
Long-term interest-bearing receivables	21	642			41		683
Financial instruments in current assets							
Derivative financial instruments	4						
Electricity derivatives				84		10	94
Interest rate and currency derivatives				97		19	116
Other commodity future and forward contracts				116		0	116
Trade receivables	23	800					800
Short-term interest-bearing receivables	21	379			30		409
Liquid funds	24	584					584
Total		2,495	122	377	120	56	3,170

Financial liabilities by category 2019

MEUR	Note	Amortised cost	Fair value through profit and loss			Fair value through other comprehensive income	Lease liabilities	Total
			Hedge accounting, fair value hedges	Non-hedge accounting	Other financial liabilities	Net investment and Cash flow hedges		
Financial instruments in non-current liabilities								
Interest-bearing liabilities	27	3,736	2,293 ¹⁾				89	6,118
Derivative financial instruments	4							
Electricity derivatives				22		30		52
Interest rate and currency derivatives			25	3		47		75
Other commodity future and forward contracts				11				11
Financial instruments in current liabilities								
Interest-bearing liabilities	27	270			281		19	570
Derivative financial instruments	4							
Electricity derivatives				62		85		147
Interest rate and currency derivatives				49		4		53
Other commodity future and forward contracts				52				52
Trade payables	33	316						316
Other liabilities	33	168						168
Total		4,490	2,318	199	281	166	108	7,562

1) Fair valued part of bond in fair value hedge relationship.

Financial liabilities by category 2018

MEUR	Note	Amortised cost	Fair value through profit and loss		Fair value through other comprehensive income	Total
			Hedge accounting, fair value hedges	Non-hedge accounting	Cash flow hedges	
Financial instruments in non-current liabilities						
Interest-bearing liabilities	27		4,077	930 ¹⁾		5,007
Derivative financial instruments	4					
Electricity derivatives					70	235
Interest rate and currency derivatives				25	2	16
Other commodity future and forward contracts					13	13
Financial instruments in current liabilities						
Interest-bearing liabilities	27		1,086			1,086
Derivative financial instruments	4					
Electricity derivatives					65	641
Interest rate and currency derivatives					45	1
Other commodity future and forward contracts					77	0
Trade payables	33		334			334
Other liabilities	33		212			212
Total			5,709	955	272	7,830

1) Fair valued part of bond in fair value hedge relationship.

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16 Financial assets and liabilities by fair value hierarchy

ACCOUNTING POLICIES

Fair value measurements are classified using a fair value hierarchy i.e. Level 1, Level 2 and Level 3 that reflects the significance of the inputs used in making the measurements.

FAIR VALUES UNDER LEVEL 1 MEASUREMENT HIERARCHY

The fair value of some commodity derivatives traded in active markets (such as publicly traded electricity options, coal, gas and oil futures) are market quotes at the closing date.

FAIR VALUES UNDER LEVEL 2 MEASUREMENT HIERARCHY

The fair value of financial instruments including electricity derivatives traded in active markets is based on quoted market prices at the closing date. Known calculation techniques, such as estimated discounted cash flows, are used to determine fair value of interest rate and currency financial instruments. The fair value of interest-rate swaps is calculated as the present value of the estimated future cash flows. The fair value of forward foreign exchange contracts is determined using forward exchange market rates at the closing date. Fair values of options are determined by using option valuation models. The fair value of financial liabilities is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the Group for similar financial instruments. In fair valuation, credit spread has not been adjusted, as quoted market prices of the instruments used are believed to be consistent with the objective of a fair value measurement.

The Group bases the calculation on existing market conditions at each closing date. Financial instruments used in Fortum are standardised products that are either cleared via exchanges or widely traded in the market. Commodity derivatives are generally cleared through exchanges such as for example NASDAQ Commodities and financial derivatives done with creditworthy financial institutions with investment grade ratings.

FAIR VALUES UNDER LEVEL 3 MEASUREMENT HIERARCHY

Investments in unlisted shares classified as other investments for which the fair value can't be reliably measured. Fair value gains and losses of other investments are booked through profit and loss.

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Financial assets

EUR million	Note	Level 1		Level 2		Level 3		Netting ¹⁾		Total	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
In non-current assets											
Other investments	20	0	0			75	49			75	49
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				9	23			-8	-22	1	1
Non-hedge accounting				26	146			-15	-94	12	52
Interest rate and currency derivatives											
Hedge accounting				154	149					154	149
Non-hedge accounting				2	4					2	4
Other commodity future and forward contracts											
Non-hedge accounting		10	29	1				-1	-5	10	24
Interest-bearing receivables						23	41			23	41
In current assets											
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				101	93			-59	-83	42	10
Non-hedge accounting		1	2	304	585			-265	-502	39	84
Interest rate and currency derivatives											
Hedge accounting				9	19					9	19
Non-hedge accounting				7	97					7	97
Other commodity future and forward contracts											
Non-hedge accounting		314	203	2				-282	-87	34	116
Interest-bearing receivables		281				34	30			315	30
Total		606	234	615	1,116	132	120	-630	-793	724	675

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

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Financial liabilities

EUR million	Note	Level 1		Level 2		Level 3		Netting ¹⁾		Total	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
In non-current liabilities											
Interest-bearing liabilities ²⁾	27			2,293	930					2,293	930
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				38	257			-8	-22	30	235
Non-hedge accounting				37	163			-15	-94	22	70
Interest rate and currency derivatives											
Hedge accounting				72	42					72	42
Non-hedge accounting				3	2					3	2
Other commodity future and forward contracts											
Non-hedge accounting		11	18	0	0			-1	-5	10	13
In current liabilities											
Interest-bearing liabilities	27			281						281	
Derivative financial instruments	4										
Electricity derivatives											
Hedge accounting				143	724			-59	-83	85	641
Non-hedge accounting			1	328	566			-265	-502	62	65
Interest rate and currency derivatives											
Hedge accounting				4	1					4	1
Non-hedge accounting				49	45					49	45
Other commodity future and forward contracts											
Non-hedge accounting		334	158		7			-282	-87	52	77
Total		345	177	3,248	2,737	0	0	-630	-793	2,963	2,121

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

2) Fair valued part of bonds when hedge accounting is applied (fair value hedge).

Net fair value amount of interest rate and currency derivatives is EUR 45 million, including assets EUR 172 million and liabilities EUR 127 million. Fortum has cash collaterals based on Credit Support Annex agreements with some counterparties. At the end of December 2019 Fortum had received EUR 65 million from Credit Support Annex agreements. The received cash has been booked as short-term interest-bearing liability.

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17 Intangible assets

ACCOUNTING POLICIES

Intangible assets, except goodwill, are stated at the historical cost less accumulated amortisation and impairment losses. They are amortised on a straight-line method over their expected useful lives.

GOODWILL

Goodwill represents the excess of the cost of an acquisition over the fair value of the Group's share of net identifiable assets of the acquired subsidiary, associate or joint venture at the date of acquisition. Goodwill on acquisitions of subsidiaries is included in intangible assets and tested yearly for impairment. Goodwill on acquisition of associates and joint ventures is included in investments in associates and joint ventures and is tested for impairment as part of the overall balance. Goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed. Gains and losses on disposal of an entity include the carrying amount of goodwill relating to the entity sold.

COMPUTER SOFTWARE

Acquired computer software licences are capitalised on the basis of the costs incurred when bringing the software into use. Costs associated with developing or maintaining computer software are recognised as an expense as incurred. Costs that are directly associated with the production of identifiable and unique software products controlled by the Group, and that will generate economic benefits exceeding costs beyond one year, are recognised as intangible assets. Direct costs include the software development employee costs and an appropriate portion of relevant overheads. Computer software costs recognised as assets are amortised over their estimated useful lives (three to five years).

TRADEMARKS AND LICENSES

Trademarks and licences are shown at historical cost less accumulated amortisation and impairment losses, as applicable. Amortisation is calculated using the straight-line method to allocate the cost of trademarks and licences over their estimated useful lives (15–20 years).

CONTRACTUAL CUSTOMER RELATIONSHIPS

Contractual customer relationships acquired in a business combination are recognised at fair value on acquisition date. The contractual customer relations have a finite useful life and are carried at costs less accumulated amortisation. Amortisation is calculated using the straight-line method over the expected duration of the customer relationship.

COSTS FOR OBTAINING CUSTOMERS

Incremental costs for obtaining new customers as well as renewing existing customer contracts are capitalised as intangible assets and amortised over the expected contract duration.

EMISSION ALLOWANCES

The Group accounts for emission allowances based on currently valid IFRS standards where purchased emission allowances are accounted for as intangible assets at cost, whereas emission allowances received free of charge are accounted for at nominal value. For CO₂ emissions from power and heat production, a provision is recognised. CO₂ emission costs is settled by returning emission allowances. To the extent that the Group already holds allowances to cover emission costs, the provision is measured at the carrying amount of those allowances. Any shortfall of allowances held over the obligation is valued at the current market value of allowances. The emission cost is recognised in the income statement within materials and services. The sales gains and losses of emission allowances not used for covering the obligation from CO₂ emissions, are reported in other income.

IMPAIRMENT TESTING OF NON-FINANCIAL ASSETS

The individual assets' carrying values are reviewed continuously to determine whether there is any indication of impairment. An asset's carrying amount is written down immediately to its recoverable amount if it is greater than the estimated recoverable amount.

In addition, impairment needs are assessed and documented once a year in connection with the long-term forecasting process. Indications for impairment are analysed separately by each division as they are different for each business and include risks such as changes in electricity and fuel prices, regulatory/political changes relating to energy taxes and price regulations etc. Impairment testing needs to be performed if any of the impairment indications exists. Assets that have an indefinite useful life and goodwill, are not subject to amortisation and are tested annually for impairment.

Value in use is determined by discounting the future cash flows expected to be derived from an asset. If it's not possible to estimate the cash flows generated by an individual asset, the impairment testing is performed on a cash-generating unit level. Fortum defines the cash-generating unit (CGU) as the smallest business area where the tested assets generate cash flows that are independent of the cash flows generated by other assets in other business areas. Goodwill is allocated to the cash-generating unit or lowest level of groups of cash-generating units that benefit from the synergies of the acquired goodwill. Cash flow projections are based on the most recent long-term forecast that has been approved by management and the Board of Directors. Cash flows arising from future investments such as new plants are excluded unless projects have been started. The cash outflow needed to complete the started projects is included.

Non-financial assets other than goodwill that suffered an impairment charge are reviewed for possible reversal of the impairment at each reporting date.

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CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSIGNED VALUES AND USEFUL LIVES IN ACQUISITIONS

In an acquisition acquired intangible and tangible assets are fair valued and their remaining useful lives are determined. Management believes that the assigned values and useful lives, as well as the underlying assumptions, are reasonable. Different assumptions and assigned lives could have a significant impact on the reported amounts.

The Group has significant carrying values in property, plant and equipment, intangible assets and participations in associated companies and joint ventures which are tested for impairment according to the accounting policy described above.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS RELATED TO IMPAIRMENT TESTING

The Group has significant carrying values in property, plant and equipment, intangible assets and participations in associated companies and joint ventures which are tested for impairment according to the accounting policy described in the notes. The recoverable amounts of cash-generating units have been determined based on value in use calculations. These calculations are based on estimated future cash flows from most recent approved long-term forecast. Preparation of these estimates requires management to make assumptions relating to future expectations. Assumptions vary depending on the business the tested assets are in. For power and heat generation business the main assumptions relate to the estimated future operating cash flows and the discount rates that are used in calculating the present value.

Estimates are also made in an acquisition when determining the fair values and remaining useful lives of acquired intangible and tangible assets.

EUR million	Goodwill		Other intangible assets		Total	
	2019	2018	2019	2018	2019	2018
Cost 1 January	588	613	869	796	1,457	1,409
Translation differences and other adjustments	24	-27	0	-21	24	-49
Acquisition of subsidiary companies	0	0	12	22	12	22
Capital expenditure	0	0	75	53	75	53
Changes in emissions rights	0	0	14	16	14	16
Disposals	0	0	-43	-24	-43	-24
Sale of subsidiary companies	0	0	0	-6	0	-6
Transfer to assets held for sale ¹⁾	0	-	-12	-	-12	-
Reclassifications	0	3	40	35	40	37
Cost 31 December	612	588	954	869	1,566	1,457
Accumulated depreciation 1 January	0	0	370	325	370	325
Translation differences and other adjustments	0	0	-1	-12	-1	-12
Acquisition of subsidiary companies	0	0	0	0	0	0
Disposals	0	0	-43	-24	-43	-24
Sale of subsidiary companies	0	0	0	0	0	0
Transfer to assets held for sale ¹⁾	0	-	-1	-	-1	-
Reclassifications	0	0	14	0	14	0
Depreciation for the period	0	0	84	81	84	81
Accumulated depreciation 31 December	0	0	422	370	422	370
BS Carrying amount 31 December	612	588	531	499	1,143	1,087

1) See ▶ **Note 3** Acquisitions, disposals and assets held for sale.

Goodwill in groups of cash-generating units

EUR million	2019	2018
Consumer Solutions	228	226
City Solutions	208	207
Russia	176	154
Total	612	588

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Other intangible assets

Other intangible assets include capitalised sales commissions for customer acquisition with a carrying amount totalling EUR 79 million at the end of 2019 (2018: 63). The carrying amount consists of capitalised sales commission costs totalling EUR 186 million (2018: 111) and accumulated depreciations totalling EUR 108 million (2018: 49).

Other items in other intangible assets include customer contracts, costs for software products and software licenses, bought emission rights and emission rights received free of charge, which are recognised to the lower of fair value and historical cost.

Impairment testing

Key assumptions used in impairment testing are presented below as well as the basis for determining the value of each assumption. Assumptions are based on internal and external data that are consistent with observable market information, when applicable. The assumptions are determined by management as part of the long-term forecasting process for the Fortum Group.

Key assumptions	Basis for determining the value for key assumptions
Power market development, recycling and waste solutions market development	Historical analysis and prospective forecasting
Regulation framework	Current market setup and prospective forecasting (e.g. CSA mechanism in Russia)
Utilisation of power plants and treatment facilities	Past experience, technical assessment and forecasted market development
Forecasted maintenance investments	Past experience, technical assessment and planned maintenance work
Discount rate	Mostly market based information

The cash flows used in determining the value in use for each cash generating unit are based on the most recent long-term forecasts and are determined in local currency. The period covered by cash flows is related to the useful lives of the assets being reviewed for impairment. The growth rate used to extrapolate the cash flow projections until the end of assets' useful lives is in line with the assumed inflation. In Russia the generation capacity built after 2007 under the Russian Government's Capacity Supply Agreements receives guaranteed capacity payments for a period of 10 years after commissioning.

The discount rate takes into account the risk profile of the country in which the cash flows are generated. There have not been any major changes in the discount rate components or in the methods used to determine them. The long-term pre-tax discount rate used were: City Solutions 7.3%, Consumer Solutions 5.2%-7% depending on location and Russia 11.4%.

The net operating assets of the CGUs and group of CGUs with allocated goodwill are tested yearly for possible impairment. The tested net operating assets include both the goodwill and fair value adjustments arising from the acquisition. At 31 December 2019, the recoverable values were greater than their carrying values and therefore no impairments were booked.

The Group has considered the sensitivity of key assumptions as part of the impairment testing. When doing this any consequential effect of the change on the other variables has also been considered. The calculations are most sensitive to changes in estimated future EBITDA levels and changes in discount rate.

Management estimates that a reasonably possible change in the discount rate used or in future earnings would not cause the carrying amount to exceed its recoverable amount in any of the tested units.

Based on the sensitivity analysis done, if the estimated future EBITDA were 10% lower than management's estimates or pre-tax discount rate applied was 10% higher than the one used, the Group would not need to recognise impairment losses for tested items.

18 Property, plant and equipment and right-of-use assets

ACCOUNTING POLICIES

Property, plant and equipment comprise mainly power and heat producing buildings and machinery, waterfall rights, district heating network and buildings and machinery as well as landfill sites and treatment areas used in waste treatment operations. Property, plant and equipment are stated at historical cost less accumulated depreciation and accumulated impairment losses as applicable in the consolidated balance sheet. Historical cost includes expenditure that is directly attributable to the acquisition of an item and capitalised borrowing costs. Cost may also include transfers from equity of any gains or losses on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment. Acquired assets on the acquisition of a new subsidiary are stated at their fair values at the date of acquisition.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance expenses are charged to the income statement during the financial period in which they are incurred.

Additionally the cost of an item of property, plant and equipment includes the estimated cost of its dismantlement, removal or restoration.

See [Note 30](#) Other provisions for information about asset retirement obligations, [Note 29](#), Nuclear related assets and liabilities, for information about provisions for decommissioning nuclear power plants and [Note 34](#), Leases, for information about right-of-use assets.

Land, water areas and waterfall rights are not depreciated since they have indefinite useful lives. Depreciation on other assets is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, as follows:

Hydro power plant buildings, structures and machinery	40–50 years
Thermal power plant buildings, structures and machinery	25 years
Nuclear power plant buildings, structures and machinery	25 years
CHP power plant buildings, structures and machinery	15–25 years
Recycling and waste treatment facility buildings, structures and machinery	15–40 years
Solar and Wind power plant structures and machinery	25 years
District heating network	30–40 years
Other buildings and structures	20–40 years
Other tangible assets	20–40 years
Other machinery and equipment	3–20 years
Other non-current investments	5–10 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at each closing date. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. See further information on the impairment testing in [Note 17](#) Intangible assets.

GOVERNMENT GRANTS

Grants from the government are recognised at their fair value when there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions. Government grants relating to costs are deferred and recognised in the income statement over the period necessary to match them with the costs that they are intended to compensate. Government grants relating to the purchase of property, plant and equipment are deducted from the acquisition cost of the asset and are recognised as income by reducing the depreciation charge of the asset they relate to.

BORROWING COSTS

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale. Qualifying assets are assets that necessarily take a substantial period of time to get ready for their intended use or sale.

All other borrowing costs are recognised in profit or loss in the period in which they are incurred.

EUR million	Land and waterfall rights		Buildings, plants and structures		Machinery and equipment		Other tangible assets		Advances paid and construction in progress		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Cost 31 December	2,591	2,694	3,851	3,805	7,979	8,335	170	163	631	626	15,222	15,623
Impact from change in accounting principle (IFRS 16) ¹⁾	27	-	57	-	12	-	0	-	0	-	96	-
Cost 1 January	2,617	2,694	3,908	3,805	7,992	8,335	170	163	631	626	15,319	15,623
Translation differences and other adjustments	-55	-104	114	-208	253	-328	-1	-3	6	-82	317	-725
Acquisition of subsidiary companies	0	0	1	3	3	8	5	0	4	1	12	14
Capital expenditure	12	1	8	5	181	3	2	0	435	522	638	532
Additions and decreases in right-of-use assets	4	-	25	-	3	-	0	-	0	-	31	-
Nuclear asset retirement cost	0	0	0	0	-14	16	0	0	0	0	-14	16
Disposals	-1	0	-29	-33	-85	-30	-3	0	0	0	-118	-64
Sale of subsidiary companies	-4	-1	-22	-3	-1	-132	0	0	0	0	-27	-136
Transfer to assets held for sale ²⁾	-6	-	-71	-	-250	-	-14	-	-30	-	-371	-
Reclassifications	11	1	170	281	386	107	42	9	-627	-436	-18	-37
Cost 31 December	2,578	2,591	4,103	3,851	8,467	7,979	201	170	419	631	15,768	15,222
Accumulated depreciation 1 January	0	0	1,678	1,629	3,427	3,349	135	133	0	0	5,241	5,113
Translation differences and other adjustments	0	0	28	-86	83	-177	-1	-2	0	0	111	-265
Acquisition of subsidiary companies	0	0	0	0	0	0	0	0	0	0	0	0
Disposals	0	0	-27	-33	-54	-29	-3	0	0	0	-84	-62
Sale of subsidiary companies	0	0	-18	0	-1	0	0	0	0	0	-19	0
Transfer to assets held for sale ²⁾	0	-	-27	-	-64	-	-2	-	0	-	-93	-
Depreciation for the period	2	0	130	113	356	340	3	3	0	0	491	455
Reclassifications	0	0	0	54	-4	-55	1	1	0	0	-3	0
Accumulated depreciation 31 December	1	0	1,765	1,678	3,745	3,427	132	135	0	0	5,644	5,241
BS Carrying amount 31 December	2,577	2,591	2,339	2,173	4,721	4,552	68	35	419	631	10,123	9,981

1) See additional information in [▶ Note 1](#) Significant accounting policies and [▶ Note 34](#) Leases.

2) See [▶ Note 3](#) Acquisitions, disposals and assets held for sale.

Property, plant and equipment that are subject to restrictions in the form of real estate mortgages amount to EUR 139 million (2018: 158).

See [▶ Note 36](#) Pledged assets and contingent liabilities.

Borrowing costs of EUR 9 million were capitalised in 2019 (2018: 10).

The interest rate used for capitalisation varied between 2%-7% (2018: 2%-6%).

Capitalised borrowing costs

EUR million	Buildings, plants and structures		Machinery and equipment		Advances paid and construction in progress		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
1 January	56	59	146	175	12	12	214	245
Translation differences and other adjustments	5	-6	17	-20	0	-1	22	-26
Increases / disposals	0	0	1	0	8	10	9	10
Sale of subsidiary companies	0	0	0	-4	0	0	0	-4
Transfer to assets held for sale ¹⁾	0	-	-2	-	0	-	-3	-
Reclassification	1	3	8	6	-17	-9	-8	0
Depreciation	-2	0	-8	-11	0	0	-11	-11
31 December	59	56	162	146	3	12	224	214

1) See [▶ Note 3](#) Acquisitions, disposals and assets held for sale.

19 Participations in associated companies and joint ventures

ACCOUNTING POLICIES

The Group's interests in associated companies and jointly controlled entities are accounted for using the equity method of accounting. Assets acquired and liabilities assumed in the investment in associates or joint ventures are measured initially at their fair values at the acquisition date. The excess of the cost of acquisition over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the fair value of the net assets of the associate or joint venture acquired, the difference is recognised directly in the income statement.

The Group's share of its associates or joint ventures post-acquisition profits or losses after tax and the expenses related to the adjustments to the fair values of the assets and liabilities assumed are recognised in the income statement. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. The Group's share of post-acquisition adjustments to associates or joint ventures equity that has not been recognised in the associates or joint ventures income statement, is recognised directly in Group's shareholder's equity and against the carrying amount of the investment.

When the Group's share of losses in an associate or a joint venture equals or exceeds its interest in the associate or joint venture, including any other unsecured receivables, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associate or joint venture.

Unrealised gains on transactions between the Group and its associates or joint ventures are eliminated to the extent of the Group's interest in the associate or joint venture. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates or joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

If more recent information is not available, the share of the profit of certain associated or joint venture companies is included in the consolidated accounts based on the latest available information.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS

Management is required to make significant judgements when assessing the nature of Fortum's interest in its investees and when considering the classification of Fortum's joint arrangements. In the classification, emphasis has been put on decision-making, legal structure and financing of the arrangements.

Management judgement is required when testing the carrying amounts for participations in associated companies and joint ventures for impairment. See **Note 17** Intangible assets for more information.

19.1 Principal associated companies and joint ventures

	OKG AB	Forsmarks Kraftgrupp AB	Kemijoki Oy	Uniper SE	TGC-1	TVO Oyj	Stockholm Exergi AB
Nature of the relationship	Co-owned nuclear company	Co-owned nuclear company	Co-owned hydro company	International energy company (listed)	Energy company (listed)	Co-owned nuclear company	Power and heat company
Classification	Associated company	Associated company	Associated company	Associated company	Associated company	Joint venture	Joint venture
Segment	Generation	Generation	Generation	Other Operations	Russia	Generation	City Solutions
Domicile	Sweden	Sweden	Finland	Germany	Russia	Finland	Sweden
Ownership interest, % ¹⁾	46	26	58	49.99	29	28	50
Votes, %	46	26	28	49.99	29	28	50

1) Kemijoki and TVO have different series of shares. The ownership interest varies due to the changes in equity assigned to the different share series. The ownership interests for 2018 for Kemijoki Oy and TVO were 58% and 25%, respectively.

Shareholdings in power production companies

Power plants are often built jointly with other power producers. Under the consortium agreements, each owner is entitled to electricity in proportion to its share of ownership or other agreements and each owner is liable for an equivalent portion of costs. The production companies are not profit making, since the owners purchase electricity at production cost including interest cost and production taxes. The share of profit of these companies is mainly IFRS adjustments (e.g. accounting for nuclear related assets and liabilities) and depreciations on fair value adjustments from historical acquisitions since the companies are not profit making under local accounting principles.

Fortum has material shareholdings in such power production companies (mainly nuclear and hydro) that are consolidated using equity method either as associated companies (OKG AB, Forsmarks Kraftgrupp AB and Kemijoki Oy) or in some cases as joint ventures (Teollisuuden Voima Oyj (TVO)).

In Sweden nuclear production company shareholdings are 45.5% ownership of the shares in OKG AB and 25.5% ownership of the shares in Forsmarks Kraftgrupp AB. Excluding non-controlling interests in the subsidiaries, Fortum's participation in the companies are 43.4% and 22.2% respectively, which reflects the share of electricity produced that Fortum can sell further to the market. The minority part of the electricity purchased is invoiced further to each minority owner according to their respective shareholding and treated as pass-through.

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In Finland Fortum has an ownership in power production company TVO that has three series of shares which entitle the shareholders to electricity produced in the different power plants owned by TVO.

Shares in series A entitle to electricity produced in nuclear power plants Olkiluoto 1 and 2 and Fortum owns 26.6% of these shares. Series B entitles to electricity in the nuclear power plant presently being built, Olkiluoto 3, and Fortum's ownership in this share series is 25%. Series C entitles to electricity produced in TVO's share of the coal condensing power plant Meri-Pori. Fortum acquired on 1 January 2019 all remaining C-shares of TVO and owns now 100% of these shares. The Meri-Pori power plant is mainly used in Fingrid's capacity reserve and as back-up capacity. The Meri-Pori power plant is accounted for as a joint operation in Fortum.

See also Associated companies in [▶ Note 37](#) Legal actions and official proceedings and Joint operations in the accounting principles in [▶ Note 18](#) Property, plant and equipment and right-of-use assets.

The most significant hydro production company shareholding is 63.8% of the hydro shares and 26.7% of the monetary shares in Kemijoki Oy. Each owner of hydro shares is entitled to the hydropower production in proportion to its hydro shareholding.

Shareholding in Uniper

During 2018 Fortum acquired 49.99% of the shares in Uniper, see [▶ Note 3](#) Acquisitions, disposals and assets held for sale. As Uniper is a listed company and publishes its interim reports later than Fortum, Fortum's share of Uniper's results is accounted for with a time-lag of one quarter with potential adjustments.

Shareholdings in other principal associated companies and joint ventures

Fortum has also other shareholdings in listed companies such as Territorial Generating Company 1 (TGC-1). The shareholding in TGC-1 is accounted for as an associated company as Fortum has representatives in the Board of Directors of the company. The share of profit of TGC-1 is accounted for based on previous quarter information since updated interim information is not normally available.

In Sweden Fortum has a 50% ownership in Stockholm Exergi AB (publ) that is co-owned with the City of Stockholm through Stockholms Stadshus AB. Stockholm Exergi produces district heating, district cooling and electricity and supplies heat and cooling to customers in the Stockholm area.

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Summarised financial information of the principal associated companies in 2019

EUR million	Forsmarks			Uniper SE	
	OKG AB	Kraftgrupp AB	Kemijoki Oy	group	TGC-1 group
Balance sheet	31 Dec 2018	31 Dec 2018	31 Dec 2018	30 Sept 2019	30 Sept 2019
Non-current assets	683	2,473	474	23,917	2,162
Current assets	230	388	4	16,728	312
Non-current liabilities	827	2,704	295	12,507	395
Current liabilities	73	124	131	16,012	152
Equity	13	33	52	12,125	1,926
Attributable to the owners of the parent	13	33	52	11,547	1,775
Attributable to NCI	0	0	0	578	152
Statement of comprehensive income	1 Jan 2018 - 31 Dec 2018	1 Jan 2018 - 31 Dec 2018	1 Jan 2018 - 31 Dec 2018	1 Oct 2018 - 30 Sept 2019	1 Oct 2018 - 30 Sept 2019
Sales	289	536	48	77,895	1,357
Profit or loss	1	-1	-5	1,085	176
Attributable to the owners of the parent	1	-1	-5	1,107	173
Attributable to NCI	0	0	0	-22	3
Total comprehensive income	1	-1	-5	856	178
Attributable to the owners of the parent	1	-1	-5	850	175
Attributable to NCI	0	0	0	6	3
Reconciliation to carrying amount in Fortum Group					
Group's interest in the equity of the associate 1 January 2019	6	9	33	5,512	421
Change in share of profit and OCI items	0	0	-3	473	54
Dividends received	0	0	0	-165	-10
Translation differences and other adjustments	0	0	0	0	56
Group's interest in the equity of the associate 31 December 2019	6	8	30	5,820	523
Fair values on acquisitions and different accounting principles ¹⁾	-6	77	153	-1,514	-18
Carrying amount 31 December 2019	0	86	182	4,306	505
Market value of listed shares ²⁾				5,399	209

1) Impact of different accounting principles include mainly IFRS adjustments for Nuclear liabilities and assets, capitalised borrowing costs and for Uniper the derecognition of goodwill in Uniper's balance sheet and fair value adjustment for the acquired assets and liabilities. For additional information about the Uniper purchase price allocation, see ▶ **Note 3** Acquisitions, disposals and assets held for sale. Fortum records its share of nuclear related assets and liabilities in its nuclear associated companies according to equity method. The basis for recognition is similar as for Loviisa power plant, see accounting principles in ▶ **Note 29** Nuclear related assets and liabilities.

2) The market quotation for the TGC-1 share is affected by the low liquidity of the TGC-1 shares in the Russian stock exchanges. During 2019 trading volumes of TGC-1 shares in relation to the number of shares of the company were approximately 19% (2018: 11%).

Summarised financial information of the principal associated companies in 2018

EUR million	Forsmarks			Uniper SE	
	OKG AB	Kraftgrupp AB	Kemijoki Oy	group	TGC-1 group
Balance sheet	31 Dec 2017	31 Dec 2017	31 Dec 2017	30 Sept 2018	30 Sept 2018
Non-current assets	581	2,336	472	33,213	1,730
Current assets	273	412	8	27,311	258
Non-current liabilities	760	2,603	352	21,070	309
Current liabilities	82	112	71	27,819	138
Equity	13	34	57	11,635	1,540
Attributable to the owners of the parent	13	34	57	11,027	1,429
Attributable to NCI	0	0	0	608	112
Statement of comprehensive income	1 Jan 2017– 31 Dec 2017	1 Jan 2017– 31 Dec 2017	1 Jan 2017– 31 Dec 2017	1 July 2018– 30 Sept 2018	1 Oct 2017– 30 Sept 2018
Sales	426	637	42	17,091	1,229
Profit or loss	1	-1	-11	1	132
Attributable to the owners of the parent	1	-1	-11	-4	127
Attributable to NCI	0	0	0	5	5
Total comprehensive income	1	-1	-11	-10	130
Attributable to the owners of the parent	1	-1	-11	1	125
Attributable to NCI	0	0	0	-11	5
Reconciliation to carrying amount in Fortum Group					
Group's interest in the equity of the associate 1 January 2018	6	9	41	-	454
Change in share of profit and OCI items	0	0	-7	0	40
Dividends received	0	0	0	0	-7
Acquired net assets	0	0	0	5,512	0
Translation differences and other adjustments	0	0	0	0	-66
Group's interest in the equity of the associate 31 December 2018	6	9	33	5,512	421
Fair values on acquisitions and different accounting principles	-6	82	155	-	-18
Difference compared to acquisition price	-	-	-	-1,544	-
Carrying amount 31 December 2018	0	90	188	3,968	403
Market value of listed shares				4,135	114

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Summarised financial information of the principal joint ventures in 2019 and 2018

EUR million	2019		2018	
	TVO Oyj group 30 Sept 2019	Stockholm Exergi AB group 31 Dec 2019	TVO Oyj group 30 Sept 2018	Stockholm Exergi AB group 31 Dec 2018
Balance sheet				
Non-current assets	7,200	2,541	7,231	2,581
Current assets	669	305	420	313
of which cash and cash equivalents	203	0	115	15
Non-current liabilities	5,466	1,356	5,108	1,271
of which non-current interest-bearing liabilities	4,472	983	4,033	903
Current liabilities	636	365	776	418
of which current financial liabilities	514	223	603	246
Equity	1,767	1,126	1,767	1,205
Attributable to the shareholders of the company	1,767	1,125	1,767	1,205
Attributable to NCI	0	1	0	0
Statement of comprehensive income	1 Oct 2018–30 Sept 2019	1 Jan 2019–31 Dec 2019	1 Oct 2017–30 Sept 2018	1 Jan 2018–31 Dec 2018
Sales	287	658	338	683
Depreciation and amortisation	-46	-199	-55	-138
Interest income	13	0	12	0
Interest expense	-36	-18	-44	-17
Income tax expense or income	0	-11	0	-5
Profit or loss	29	41	-10	113
Other comprehensive income	-18	-17	7	2
Total comprehensive income	10	24	-2	116
Attributable to the shareholders of the company	10	24	-2	116
Reconciliation to carrying amount in Fortum Group				
Group's interest in the equity of the joint venture 31 December	448	602	280	608
Impact from change in accounting principle (IFRS 9)	-	-	145	0
Group's interest in the equity of the joint venture 1 January	448	602	425	608
Change in share of profit and OCI items	1	12	-1	58
Dividends received	0	-40	0	-39
Investments	0	0	25	0
Divestments and capital returns	0	0	-2	0
Translation differences and other adjustments	2	-11	0	-25
Group's interest in the equity of the joint venture 31 December	451	563	448	602
Fair values on acquisitions and different accounting principles ¹⁾	-9	-63	-9	-68
Carrying amount 31 December	442	500	439	535

1) Impact of different accounting principles include mainly IFRS adjustments for Nuclear liabilities and assets and capitalised borrowing costs. Fortum records its share of nuclear related assets and liabilities in its nuclear associated companies according to equity method. The basis for recognition is similar as for Loviisa power plant, see accounting principles in [Note 29](#) Nuclear related assets and liabilities.

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19.2 Participations and shares of profits in associated companies and joint ventures

Participations in associated companies and joint ventures on the balance sheet

EUR million	2019	2018
Principal associates	5,079	4,649
Principal joint ventures	942	973
Other associates	65	60
Other joint ventures	348	295
BS Total	6,435	5,978

Changes in participation during the year

EUR million	2019		2018	
	Associated companies	Joint ventures	Associated companies	Joint ventures
Historical cost				
Historical cost 31 December	4,549	831	680	598
Impact from change in accounting principle (IFRS 9)	-	-	20	145
Historical cost 1 January	4,549	831	699	743
Translation differences and other adjustments	27	12	-33	-17
Investments	0	75	3,969	97
Reclassifications	-1	0	-3	20
Divestments and capital returns	0	-29	-83	-12
Historical cost 31 December	4,576	889	4,549	831
Equity adjustments				
Equity adjustments 1 January	160	437	190	432
Translation differences and other adjustments	29	-11	-29	-19
Share of profits of associates and joint ventures	696	48	-32	71
Reclassifications	-11	-4	41	0
Divestments	0	2	0	0
Dividends received	-176	-63	-10	-51
OCI items associates and joint ventures	-130	-8	1	5
Equity adjustments 31 December	569	401	160	437
Carrying amount at 31 December	5,144	1,290	4,709	1,269

During 2019 Fortum received EUR 239 million (2018: 61) in dividends from associates and joint ventures of which EUR 165 million (2018:0) was received from Uniper and EUR 40 million (2018: 39) was received from Stockholm Exergi.

For information about investments and divestments of shares in associated companies, see [► Note 3 Acquisitions, disposals and assets held for sale](#).

Share of profit of associates and joint ventures

EUR million	2019	2018
Principal associates		
Uniper SE	632	-2
OKG AB	12	-58
Forsmarks Kraftgrupp AB	-3	-7
Kemijoki Oy	-5	-9
TGC-1	54	40
Principal associates, total	690	-35
Principal joint ventures		
Stockholm Exergi AB	24	61
TVO Oyj	6	1
Principal joint ventures, total	30	62
Other associates	5	3
Other joint ventures	18	9
IS Total	744	38

There are no unrecognised share of losses of associated companies and joint ventures.

Uniper

Uniper's share of profit is based on reported Net income/loss attributable to shareholders of Uniper SE including impact from Non-operating results e.g. fair value measurement of derivative financial instruments which are subject to volatility. Non-operating results impacted the share of profits in 2019 with EUR 392 million (2018: 79). Fortum's 2019 share of profits from Uniper include Fortum's share of Uniper's Q4 2018 and Q1-Q3 2019 results and the impact from reinstatement of UK capacity market in October 2019, as well as EUR 31 million reversal of the fair value adjustment. The remaining fair value adjustment post tax at 31 December 2019 amounted to EUR 582 million. See more information in [► Note 3 Acquisitions, disposals and assets held for sale](#).

Other associates and joint ventures

In 2019 the share of profit from Stockholm Exergi includes the EUR -22 million effect of the impairment booked in Stockholm Exergi relating to the early decommissioning of combined heat and power (CHP) plant 6, CHP6.

Fortum reassessed assumptions used for all nuclear related assets and liabilities at 31 December 2018. Assumptions were changed for the respective balances of the co-owned nuclear companies in Finland and Sweden, i.e. Teollisuuden Voima Oyj (TVO), Oskarshamn Kraft Grupp AB (OKG), and Forsmarks Kraftgrupp AB. The total impact of the change to share of profit from these associated companies and joint ventures was

EUR -37 million, net of tax, and including additional nuclear waste liability related to legacy waste obligations for Swedish nuclear. The net profit impact from all these nuclear related adjustments was close to zero. For additional information see [▶ Note 29](#) Nuclear related assets and liabilities.

19.3 Transactions and balances

Associated company transactions

EUR million	2019	2018
Sales to associated companies	1	0
Interest income on loan receivables to associated companies	12	12
Purchases from associated companies	259	256

Purchases from associated companies include mainly purchases of nuclear and hydro power at production cost including interest costs and production taxes.

Associated company balances

EUR million	2019	2018
Receivables from associated companies		
Long-term interest-bearing loan receivables	564	581
Trade receivables	0	1
Liabilities to associated companies		
Long-term loan payables	1	0
Trade payables	0	2

For more info about interest-bearing receivables from associated companies, see [▶ Note 21](#) Interest-bearing receivables.

Joint venture transactions

EUR million	2019	2018
Sales to joint ventures	23	39
Purchases from joint ventures	113	124

Purchases from joint ventures include mainly purchases of nuclear and hydro power at production cost including interest costs and production taxes.

Joint venture balances

EUR million	2019	2018
Receivables from joint ventures		
Long-term interest-bearing loan receivables	61	60
Trade receivables	68	53
Other receivables	18	18
Liabilities to joint ventures		
Long-term loan payables	293	293
Trade payables	21	31
Other payables	3	14

For more info about interest-bearing receivables from joint ventures, see [▶ Note 21](#) Interest-bearing receivables.

20 Other non-current assets

EUR million	2019	2018
Other investments	75	49
Interest-free receivables	75	90
BS Total	151	139

Other investments, i.e. shares which are not classified as associated companies or joint ventures, consist mainly of shares in unlisted companies of EUR 75 million (2018: 49). This includes Fortum's indirect shareholding in Fennovoima of EUR 33 million (2018: 33).

21 Interest-bearing receivables

EUR million	2019		2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Long-term loan receivables from associated companies	564	599	581	601
Long-term loan receivables from joint ventures	61	69	60	68
Other long-term interest bearing receivables	26	27	43	43
BS Total long-term interest-bearing receivables	651	695	683	712
Collateral arrangement securities	281	281	-	-
Other short-term interest-bearing receivables	103	103	409	409
BS Total short-term interest-bearing receivables	384	384	409	409
Total	1,035	1,079	1,092	1,121

Long-term interest-bearing receivables include receivables from associated companies and joint ventures of EUR 625 million (2018: 641). These receivables include EUR 558 million (2018: 575) from Swedish nuclear companies, OKG AB and Forsmarks Kraftgrupp AB, which are mainly funded with shareholder loans, pro rata each shareholder's ownership.

During Q1 2019 Fortum entered into a non-cash collateral arrangement to release pledged cash from Nordic power exchange. Fortum has borrowed securities which have replaced pledged cash. At the end of December 2019 Fortum booked a short-term interest-bearing receivable of EUR 281 million and a corresponding short-term liability. See [Note 27](#) Interest-bearing liabilities.

Other interest-bearing receivables include EUR 57 million (2018: 70) from SIBUR, a Russian gas processing and petrochemicals company regarding divested shares of OOO Tobolsk CHP.

Short-term interest-bearing receivables include EUR 65 million (2018: 379) restricted cash mainly given as collateral for commodity exchanges. The European Market Infrastructure Regulation (EMIR) came into force in 2016 requiring fully-backed guarantees.

For further information regarding credit risk management, see [Note 4.7](#) Credit risk.

Interest-bearing receivables

EUR million	Effective interest rate, %	Carrying amount 2019	Repricing			Fair value 2019	Carrying amount 2018	Fair value 2018
			Under 1 year	1–5 years	Over 5 years			
Long-term loan receivables	1.8	651	607	21	23	668	683	712
Short-term receivables	1.1	384	384			384	409	409
Total	1.6	1,035	991	21	23	1,052	1,092	1,121

22 Inventories

ACCOUNTING POLICIES

Inventories mainly consist of fuels consumed in the production process or in the rendering of services. Inventories are stated at the lower of cost and net realisable value being the estimated selling price for the end product, less applicable variable selling expenses and other production costs. Cost is determined using the first-in, first-out (FIFO) method.

Inventories which are acquired primarily for the purpose of trading are stated at fair value less selling expenses.

EUR million	2019	2018
Nuclear fuel	66	72
Coal	44	52
Oil	8	7
Biofuels	4	4
Materials and spare parts	58	56
Other inventories	50	43
BS Total	230	233

Write-downs in inventories amounted to EUR 4 million (2018: 6).

23 Trade and other receivables

ACCOUNTING POLICIES

Trade receivables include revenue based on an estimate of electricity, heat and cooling already delivered but not yet measured and not yet invoiced.

Impairment losses for trade receivables are calculated according to the expected credit loss (ECL) model. An allowance is made on the balance sheet for the expected future credit losses and remains on the balance sheet until it is written off as a credit loss. Allowances may remain on the balance sheet for several years pending the outcome of collection processes and court proceedings. Write-off policies differ by country depending on local legislation and assessment of recovery possibilities. For large trade receivables, ECL is calculated for the individual customer based on the probability of default and expected recovery rate. These estimates are based on the customer's rating and adjusted if there are indications of decreased creditworthiness, e.g. based on payment behaviour. ECL for trade receivables from small customers are calculated on portfolio basis by country and business segment. The credit loss allowances are based on historical analysis of losses when possible, or on average default rates for customers based on externally available information. These rates are adjusted if there are any forward-looking indicators showing changes in expected credit losses. Trade receivables overdue more than 180 days are generally considered to be credit-impaired and allowances are made for the full amount, adjusted for expected recovery rates.

EUR million	2019	2018
Trade receivables	736	800
Accrued interest income	1	1
Accrued income and prepaid expenses	106	59
Cash settlements for futures	177	592
Other receivables	156	168
BS Total	1,176	1,620

Accrued income and prepaid expenses include the receivable of EUR 51 million related to the periodisation of the Finnish nuclear waste management fund target, for additional information see [► Note 29](#) Nuclear relates assets and liabilities. Cash settlements for futures has decreased mainly due to lower electricity prices for the hedging period. Futures are cash settled daily on Nasdaq Commodities exchange.

Trade receivables

Ageing analysis of trade receivables

EUR million	2019			2018		
	Gross	Expected credit loss allowance	Expected credit loss rate, %	Gross	Expected credit loss allowance	Expected credit loss rate, %
Not past due	653	3	0	712	2	0
Past due 1–30 days	58	2	3	63	2	3
Past due 31–90 days	18	5	28	17	4	24
Past due 91–180 days	11	5	45	15	11	73
Past due more than 181 days	95	84	88	77	66	86
Total	836	99	12	885	85	10

Changes in expected credit loss allowance

EUR million	2019	2018
1 January	85	64
Expected credit loss allowance recognised during the period	7	27
Write-offs	-2	-5
Translation differences and other changes	9	-2
31 December	99	85

The majority of impaired trade receivables EUR 72 million (2018: 61) relate to the Russia segment.

Trade receivables by currency (Gross)

EUR million	2019	2018
EUR	219	234
SEK	118	137
RUB	204	197
NOK	175	217
PLN	95	84
Other	25	16
Total	836	885

Trade receivables are arising from a large number of customers mainly in EUR, SEK, RUB and NOK mitigating the concentration of risk.

For further information regarding credit risk management and credit risks, see [► Counterparty risks](#) in the Operating and financial review and [► Note 4.7](#) Credit risk.

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24 Liquid funds

ACCOUNTING POLICIES

Cash and cash equivalents in Liquid funds include cash in hand, deposits held at call with banks and other short-term, highly liquid investments with maturities of three months or less. Deposits and securities with maturity more than 3 months include fixed term deposits and commercial papers with maturity more than three months but less than twelve months. Deposits and securities are measured at amortised cost.

Bank overdrafts are shown within borrowings in current liabilities on the balance sheet. Cash collaterals or otherwise restricted cash are treated as short-term interest-bearing receivables.

EUR million	2019	2018
Cash at bank and in hand	118	203
Deposits and securities with maturity under 3 months	1,239	353
Cash and cash equivalents	1,356	556
Deposits and securities with maturity more than 3 months	76	29
BS Total ¹⁾	1,433	584

1) Excluding cash balances of EUR 2 million relating to assets held for sale at 31 December 2019. See [Note 3](#) Acquisitions, disposals and assets held for sale.

Liquid funds consists of deposits and cash in bank accounts amounting to EUR 893 million and commercial papers of EUR 540 million. The average interest rate on deposits and securities excluding Russian deposits on 31 December 2019 was -0.13% (2018: -0.11%). Liquid funds held by PAO Fortum amounted to EUR 201 million (2018: 317), of which EUR 151 million (2018: 316) was held as bank deposits. The average interest rate for this portfolio was 3.9% at the balance sheet date.

Liquid funds totalling EUR 1,099 million (2018: 168) are placed with counterparties that have an investment grade rating. In addition, EUR 334 million (2018: 416) have been placed with counterparties separately reviewed and approved by the Group's credit control department.

In the fourth quarter of 2019, Fortum signed new committed credit facilities of an additional EUR 8.3 billion for the purchase of Uniper shares announced on 8 October 2019. At the end of December 2019, the committed and undrawn credit facilities amounted to EUR 10.1 billion (Dec 31 2018: 1.8). On 7 January 2020, Fortum cancelled EUR 3 billion of these new committed credit facilities.

For further information regarding credit risk management and credit risks, see [Note 4.7](#) Credit risk.

25 Share capital

EUR million	2019		2018	
	Number of shares	Share capital	Number of shares	Share capital
Registered shares 1 January	888,294,465	3,046	888,367,045	3,046
Cancellation of Treasury shares	-	-	72,580	-
Registered shares 31 December	888,294,465	3,046	888,294,465	3,046

Fortum Corporation has one class of shares. By the end of 2019, a total of 888,294,465 shares had been issued. Each share entitles the holder to one vote at the Annual General Meeting. All shares entitle holders to an equal dividend. At the end of 2019 Fortum Corporation's share capital, paid in its entirety and entered in the trade register, was EUR 3,046,185,953.00.

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

Fortum Corporation's shares are listed on Nasdaq Helsinki. The trading code is FORTUM (FUM1V until 25 January 2017). Fortum Corporation's shares are in the Finnish book entry system maintained by Euroclear Finland Ltd.

Details on the President and CEO and other members of the Fortum Executive Management Team's shareholdings and interest in the equity incentive schemes is presented in [Note 11](#) Employee benefits and Board remuneration.

25.1 Authorisations from the Annual General Meeting 2019

On 26 March 2019, the Annual General Meeting decided to authorise the Board of Directors to decide on the repurchase and disposal of the company's own shares up to a maximum of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. It was also decided that the repurchases or disposals could not be made for the purposes of the company's incentive and remuneration schemes. The authorisation cancelled the authorisation resolved by the Annual General Meeting of 2018. The authorisation is effective until the next Annual General Meeting and, in any event, for a period no longer than 18 months. The authorisation had not been used by the end of 2019.

25.2 Convertible bond loans and bonds with warrants

Fortum Corporation has not issued any convertible bonds or bonds with attached warrants, which would entitle the bearer to subscribe for Fortum shares. The Board of Directors of Fortum Corporation has no unused authorisations from the General Meeting of shareholders to issue convertible bond loans or bonds with warrants or increase the company's share capital.

26 Non-controlling interests

Principal non-controlling interests

EUR million		2019	2018
PAO Fortum Group	Russia	34	33
AS Fortum Tartu Group	Estonia	37	37
Fortum Oslo Varme AS Group	Norway	166	152
Other		16	14
BS Total		252	236

27 Interest-bearing liabilities

Net debt

EUR million	Net debt 2019	Classified as assets held for sale ¹⁾	BS Total 2019	Net debt 2018
Interest-bearing liabilities	6,694	-6	6,688	6,093
Liquid funds	1,435	-2	1,433	584
Net debt	5,260	-4	5,256	5,509

1) See [Note 3](#) Acquisitions, disposals and assets held for sale.

Net debt is calculated as interest-bearing liabilities less liquid funds without deducting interest-bearing receivables amounting to EUR 1,035 million (2018: 1,092). Interest-bearing receivables mainly consist of shareholder loans to partly owned nuclear companies regarded as long-term financing. For more information see [Note 21](#) Interest-bearing receivables.

Interest-bearing liabilities

EUR million	2019	2018
Loans	6,580	6,093
Lease liabilities ¹⁾	108	-
Total	6,688	6,093

1) Excludes lease liabilities of EUR 6 million relating to assets held for sale at 31 December 2019. See [Note 3](#) Acquisitions, disposals and assets held for sale.

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EUR million	2019	2018
Bonds	4,251	1,746
Loans from financial institutions	329	1,799
Reborrowing from the Finnish State Nuclear Waste Management Fund	1,145	1,158
Lease liabilities	89	-
Other long-term interest-bearing liabilities	304	303
BS Total long-term interest-bearing liabilities	6,118	5,007
Current portion of long-term bonds	0	750
Current portion of loans from financial institutions	33	48
Current portion of other long-term interest-bearing liabilities	40	5
Commercial paper liabilities	10	207
Current portion of lease liabilities	19	-
Collateral arrangement liability	281	-
Other short-term interest-bearing liabilities	187	76
BS Total short-term interest-bearing liabilities	570	1,086
Total	6,688	6,093

Loans

EUR million	Effective interest rate, %	Carrying amount 2019	Repricing			Fair value 2019	Carrying amount 2018	Fair value 2018
			Under 1 year	1–5 years	Over 5 years			
Bonds	2.3	4,251	96	2,539	1,616	4,478	2,496	2,629
Loans from financial institutions	1.3	362	307	39	16	378	1,847	1,901
Reborrowing from the Finnish State Nuclear Waste Management Fund	0.5	1,185	1,185			1,250	1,158	1,218
Other long-term loans ¹⁾	3.3	304	202		102	346	309	351
Total long-term loans ²⁾	1.9	6,102	1,790	2,578	1,734	6,452	5,810	6,099
Collateral arrangement liability	0.8	281	281			281	-	-
Commercial paper liabilities	0.2	10	10			10	207	207
Other short-term loans	2.6	187	187			187	76	76
Total short-term loans	1.5	478	478			478	283	283
Total ³⁾	1.9	6,580	2,268	2,578	1,734	6,930	6,093	6,382

1) Includes loans from Finnish pension institutions of EUR 33 million (2018: 38) and other loans of EUR 271 million (2018: 270).

2) Including current portion of long-term debt of EUR 73 million (Dec 31 2018: 803).

3) The average interest rate on loans and derivatives on 31 December 2019 was 2.3% (2018: 2.4%).

The interest-bearing debt increased in 2019 by EUR 595 million to EUR 6,688 million (2018: 6,093). The amount of short-term financing increased with EUR 195 million, and at the end of the year the amount of short-term financing EUR 478 million (2018: 283) included 65 million (2018: 75) from Credit Support Annex agreements.

During the first quarter of 2019 Fortum issued new bonds under its Euro Medium Term Note (EMTN) programme with a total nominal amount of EUR 2.5 billion: EUR 1.0 billion, four-year bond with 0.875% fixed coupon and two EUR 750 million bonds for seven- and ten-years with 1.625%/ 2.125% fixed coupons respectively.

In March 2019, Fortum repaid maturing bond of EUR 750 million and prepaid the bridge loan of EUR 1.75 billion drawn in June 2018 for the financing of the shares in Uniper.

The amount of reborrowing from the Finnish State Nuclear Waste Management Fund and TVO was increased by EUR 27 million to EUR 1,185 million. Further Fortum signed a five-year EUR 300 million bilateral financial loan agreement which was drawn at the beginning of April 2019.

During the first quarter of 2019 Fortum entered into a non-cash collateral arrangement to release pledged cash from Nordic power exchange. At end of December Fortum booked a short-term interest-bearing debt of EUR 281 million to the lender of the securities, which are included in interest-bearing receivables. See [Note 21](#) Interest-bearing receivables.

The average interest rate for the portfolio consisting mainly of EUR loans was 1.6% at the balance sheet date (2018: 1.7%). Part of the external loans EUR 787 million (2018: 686) have been swapped to RUB and the average interest cost for these loans including cost for hedging the RUB was 7.8% at the balance sheet date (2018: 8.3%). The average interest rate on total loans and derivatives at the balance sheet date was 2.3% (2018: 2.4%).

For more information, see [Note 4](#) Financial risk management [Note 34](#) Leases and [Note 36](#) Pledged assets and contingent liabilities.

Reconciliation of interest-bearing liabilities

EUR million	31 Dec 2018	Impact from change in accounting policy (IFRS 16) ¹⁾	1 Jan 2019	Cash flow from financing activities ²⁾	Non-cash changes			31 Dec 2019
					Non-cash collateral arrangement	Exchange rate differences	Fair value changes and amortised cost	
Bonds	2,496		2,496	1,729		-2	28	4,251
Loans from financial institutions	1,848		1,848	-1,497		-3	14	362
Reborrowing from the Finnish State Nuclear Waste Management Fund	1,158		1,158	27				1,185
Lease liabilities ³⁾	-	99	99	-15			25	108
Other interest-bearing liabilities	592		592	-88	281	-3		782
Total	6,093	99	6,192	156	281	-8	42	6,688

1) See [Note 1](#) Significant accounting policies and [Note 34](#) Leases.

2) Repayments and borrowings.

3) Excludes lease liabilities of EUR 6 million relating to assets held for sale at 31 December 2019. See [Note 3](#) Acquisitions, disposals and assets held for sale.

EUR million	31 Dec 2017	Cash flow from financing activities ¹⁾	Non-cash changes			31 Dec 2018
			Divestments	Exchange rate differences	Fair value changes and amortised cost	
Bonds	2,943	-413		-13	-21	2,496
Loans from financial institutions	283	1,571		-10	4	1,848
Reborrowing from the Finnish State Nuclear Waste Management Fund	1,129	29				1,158
Other interest-bearing liabilities	530	126	-58	-6		592
Total	4,885	1,313	-58	-29	-17	6,093

1) Repayments and borrowings.

27.1 Bond issues

Issued/Maturity	Interest basis	Interest rate, %	Effective interest, %	Currency	Nominal value million	Carrying amount EUR million
Fortum Corporation EUR 8,000 million EMTN Programme ¹⁾						
2011/2021	Fixed	4.000	4.123	EUR	500	508
2012/2022	Fixed	2.250	2.344	EUR	1,000	1,034
2019/2023	Fixed	0.875	0.996	EUR	1,000	998
2019/2026	Fixed	1.625	1.638	EUR	750	759
2019/2029	Fixed	2.125	2.247	EUR	750	760
2013/2023	Floating	Stibor 3M+1.13		SEK	1,000	96
2013/2043	Fixed	3.500	3.719	EUR	100	97
Total outstanding carrying amount 31 December 2019						4,251

1) EMTN = Euro Medium Term Note

28 Income taxes on the balance sheet

ACCOUNTING POLICIES

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated income statement, because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax is provided in full, using the balance sheet approach on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, if the deferred tax arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss, it is not accounted for. Deferred tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the closing date and are expected to apply when the related deferred tax asset is realised or the deferred tax liability is settled.

Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised. Deferred tax assets are set off against deferred tax liabilities if they relate to income taxes levied by the same taxation authority.

Deferred tax is provided on temporary differences arising from investments in subsidiaries, associates and joint ventures, except where the timing of the reversal of the temporary difference is controlled by the Group, and it is probable that the temporary difference will not be reversed in the foreseeable future.

The Group recognises liabilities for anticipated tax dispute issues based on estimates of whether additional taxes will be due. No provision will be recognised in the financial statements if Fortum considers the claims unjustifiable. Therefore, if taxes regarding ongoing tax disputes have to be paid before final court decisions, they will be booked as a receivable. Where the final outcome of these matters is different from the amounts that were initially recorded, such differences will impact the income tax and deferred tax provisions in the period in which such determination is made.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS AND ESTIMATES REGARDING FUTURE TAX CONSEQUENCES

Fortum has deferred tax assets and liabilities which are expected to be realised through the income statement over the extended periods of time in the future. In calculating the deferred tax items, Fortum is required to make certain assumptions and estimates regarding the future tax consequences attributable to differences between the carrying amounts of assets and liabilities as recorded in the financial statements and their tax basis.

Assumptions made include the expectation that future operating performance for subsidiaries will be consistent with historical levels of operating results, recoverability periods for tax loss carry-forwards will not change, and that existing tax laws and rates will remain unchanged into foreseeable future. Fortum believes that it has prudent assumptions in developing its deferred tax balances.

Assumptions and estimates regarding uncertain tax positions are supported by external legal counsel or expert opinion.

If the actual final outcome (regarding tax disputes) would differ negatively from management's estimates with 10%, the Group would need to increase the income tax liability by EUR 11 million at 31 December 2019. For additional information regarding tax disputes, see [Note 37](#) Legal actions and official proceedings.

28.1 Deferred income taxes on the balance sheet

EUR million	2019			2018		
	1 Jan	Change	31 Dec	1 Jan	Change	31 Dec
BS Deferred tax assets	70	7	77	73	-3	70
BS Deferred tax liabilities	-720	-144	-865	-822	100	-720
Net deferred taxes	-651	-137	-788	-749	97	-651

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income taxes relate to the same fiscal authority.

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Movement in deferred tax assets and liabilities 2019

EUR million	Intangible assets	Property, plant and equipment and right-of-use assets	Pension obligations	Provisions	Derivative financial instruments	Tax losses and tax credits carry-forward	Other	Net deferred taxes
1 Jan 2019	-106	-788	20	-15	169	70	-1	-651
Charged to income statement	-5	-30	0	1	19	-5	35	15
Charged to other comprehensive income	7	1	5	0	-156	0	-2	-144
Exchange rate differences, reclassifications and other changes	1	-29	1	-3	0	-1	6	-25
Acquisitions and disposals	-1	-1	0	0	0	0	0	-2
Transfer to assets held for sale ¹⁾	0	24	0	0	0	-2	-1	20
31 Dec 2019	-104	-823	25	-17	33	63	36	-788

1) See [Note 3](#) Acquisition, disposals and assets held for sale.

Movement in deferred tax assets and liabilities 2018

EUR million	Intangible assets	Property, plant and equipment	Pension obligations	Provisions	Derivative financial instruments	Tax losses and tax credits carry-forward	Other	Net deferred taxes
31 Dec 2017	-101	-806	21	7	35	116	-20	-747
Impact from change in accounting principle (IFRS 15)	-3	-	-	-	-	-	-	-3
1 Jan 2018	-104	-806	21	7	35	116	-20	-749
Charged to income statement	0	-24	0	-23	-7	-42	10	-87
Charged to other comprehensive income	0	0	-2	0	159	0	5	162
Exchange rate differences, reclassifications and other changes	3	41	-1	1	-18	-3	4	28
Acquisitions and disposals	-5	1	0	0	0	0	0	-5
31 Dec 2018	-106	-788	20	-15	169	70	-1	-651

Retained earnings when distributed as dividends are subject to withholding tax (e.g. Russia) or distribution tax (e.g. Estonia). Provision has been made for these taxes only to extent that it is expected that these earnings will be remitted in the foreseeable future. At the end of the year deferred income tax liabilities of EUR 13 million (2018:32) have been recognised for the withholding tax and other taxes that would be payable on the distributions.

Change in deferred taxes 2019 and 2018 are mainly related to change in derivative financial instruments through other comprehensive income.

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Deferred income tax assets recognised for tax loss carry-forwards

Deferred income tax assets are recognised for tax loss carry-forward to the extent that realisation of the related tax benefit through future profits is probable. The recognised tax assets relate to losses carry-forward with no expiration date and partly with expiry date as described below.

EUR million	2019		2018	
	Tax losses	Deferred tax asset	Tax losses	Deferred tax asset
Losses without expiration date	171	36	197	43
Losses with expiration date	170	29	110	28
Total	340	65	307	70

Deferred tax assets of EUR 14 million (2018: 10) have not been recognised in the consolidated financial statements, because the realisation is not probable. The major part of the unrecognised tax asset relates to loss carry-forwards that are unlikely to be used in the foreseeable future.

28.2 Income tax receivables

EUR million	2019	2018
Sweden	0	41
Belgium	114	114
Other	19	17
Total	133	172

Income tax receivables reflect payments of corporate income tax done in relation to the year 2019 as well as payments according to received tax audit assessments in relation to previous years.

The income tax receivable in Sweden in 2018 of EUR 41 million relate to overpayment of preliminary income tax.

In Belgium, Fortum has in previous years received income tax assessments for the years 2008–2012. The additional taxes of EUR 114 million have been paid during prior years and based on supporting legal opinions has been booked as an income tax receivable.

See [▶ Note 37](#) Legal actions and official proceedings.

29 Nuclear related assets and liabilities

ACCOUNTING POLICIES

Fortum owns Loviisa nuclear power plant in Finland. In Fortum's consolidated balance sheet, Share in the State Nuclear Waste Management Fund and the Nuclear provisions relate to Loviisa nuclear power plant. Fortum's nuclear related provisions and the related part of the State Nuclear Waste Management Fund are both presented separately on the balance sheet. Fortum's share in the State Nuclear Waste Management Fund is accounted for according to IFRIC 5, Rights to interests arising from decommissioning, restoration and environmental rehabilitation funds which states that the fund assets are measured at the lower of fair value or the value of the related liabilities since Fortum does not have control or joint control over the State Nuclear Waste Management Fund. The Nuclear Waste Management Fund is managed by governmental authorities. The related provisions are the provision for decommissioning and the provision for disposal of spent fuel.

The fair values of the provisions are calculated according to IAS 37 by discounting the separate future cash flows, which are based on estimated future costs and actions already taken. The initial net present value of the provision for decommissioning (at the time of commissioning the nuclear power plant) has been included in the investment cost and is depreciated over the estimated operating time of the nuclear power plant. Changes in the technical plans etc., which have an impact on the future cash flow of the estimated costs for decommissioning, are accounted for by discounting the additional costs to the current point in time. The increased asset retirement cost due to the increased provision is added to property, plant and equipment and depreciated over the remaining estimated operating time of the nuclear power plant. For power plant units taken from use the increase is taken to income statement.

The provision for spent fuel covers the future disposal costs for fuel used until the end of the accounting period. Costs for disposal of spent fuel are expensed during the operating time based on fuel usage. The impact of the possible changes in the estimated future cash flow for related costs is recognised immediately in the income statement based on the accumulated amount of fuel used until the end of the accounting period. The related interest costs due to unwinding of the provision is recognised in the corresponding period.

The timing factor is taken into account by recognising the interest expense related to discounting the nuclear provisions. The interest on the State Nuclear Waste Management Fund assets is presented as financial income.

Fortum's actual share of the State Nuclear Waste Management Fund, related to Loviisa nuclear power plant, is higher than the carrying value of the Fund on the balance sheet. The legal nuclear liability should, according to the Finnish Nuclear Energy Act, be fully covered by payments and guarantees to the State Nuclear Waste Management Fund. The legal liability is not discounted while the provisions are, and since the future cash flow is spread over a very long time horizon, the difference between the legal liability and the provisions are material.

The annual fee to the Fund is based on changes in the legal liability, the interest income generated in the State Nuclear Waste Management Fund and incurred costs of taken actions.

Fortum also has minority interests in nuclear power companies, i.e. Teollisuuden Voima Oyj (TVO) in Finland and OKG Aktiebolag (OKG) and Forsmarks Kraftgrupp AB (Forsmark) in Sweden. The minority shareholdings are classified as associated companies and joint ventures and are consolidated with equity method. Both the Finnish and the Swedish companies are non-profit making, i.e. electricity production is invoiced to the owners at cost including depreciations, interest costs and production taxes accounted for according to local GAAP. Accounting policies of the associates regarding nuclear assets and liabilities have been changed where necessary to ensure consistency with the policies adopted by the Group.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS MADE WHEN ESTIMATING PROVISIONS RELATED TO NUCLEAR PRODUCTION

The provision for future obligations for nuclear waste management including decommissioning of Fortum's nuclear power plant and related spent fuel is based on long-term cash flow forecasts of estimated future costs. The main assumptions are technical plans, timing, cost estimates and discount rate. The technical plans, timing and cost estimates are approved by governmental authorities.

Any changes in the assumed discount rate would affect the provision. If the discount rate used would be lowered, the provision would increase. Fortum has contributed cash to the State Nuclear Waste Management Fund based on a non-discounted legal liability, which leads to that the increase in provision would be offset by an increase in the recorded share of Fortum's part of the State Nuclear Waste Management Fund on the balance sheet. The total effect on the income statement would be positive since the decommissioning part of the provision is treated as an asset retirement obligation. This situation will prevail as long as the legal obligation to contribute cash to the State Nuclear Waste Management Fund is based on a non-discounted liability and IFRS is limiting the carrying value of the assets to the amount of the provision since Fortum does not have control or joint control over the fund.

Based on the Nuclear Energy Act in Finland, Fortum has a legal obligation to fully fund the legal liability decided by the governmental authorities, for decommissioning of the power plant and disposal of spent fuel through the State Nuclear Waste Management Fund.

Both in Finland and in Sweden nuclear operators are legally obligated for the decommissioning of the plants and the disposal of spent fuel (nuclear waste management). In both countries the nuclear operators are obligated to secure the funding of nuclear waste management by paying to government operated nuclear waste funds. The nuclear operators also have to give securities to guarantee that sufficient funds exist to cover future expenses of decommissioning of the power plant and the disposal of spent fuel.

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29.1 Nuclear related assets and liabilities for 100% owned nuclear power plant, Loviisa

EUR million	2019	2018
Carrying values on the balance sheet		
BS Nuclear provisions	813	899
BS Share in State Nuclear Waste Management Fund	813	899
Short term receivable from the State Nuclear Waste Management Fund	51	-
Legal liability and actual share of the State Nuclear Waste Management Fund		
Liability for nuclear waste management according to the Nuclear Energy Act	1,214	1,180
Funding obligation target	1,135	1,180
Fortum's share in the State Nuclear Waste Management Fund	1,180	1,153
Share of the fund not recognised on the balance sheet	316	254

Legal liability for Loviisa nuclear power plant

Finnish nuclear operators have submitted updated technical plan and cost estimates to the Ministry of Economic Affairs and Employment in June 2019. The legal liability on 31 December 2019, decided by the Ministry of Economic Affairs and Employment in November 2019, was EUR 1,214 million.

The legal liability is based on a cost estimate, which is done every year, and a technical plan, which is made every third year. The cost estimate and technical plan was updated in 2019. The legal liability is determined by assuming that the decommissioning would start at the beginning of the year following the assessment year. The provisions are based on the same cash flows for future costs as the legal liability, but the legal liability is not discounted to net present value.

Fortum's share in the State Nuclear Waste Management Fund

According to Nuclear Energy Act, Fortum is obligated to contribute funds in full to the State Nuclear Waste Management Fund to cover the legal liability. Fortum contributes funds to the Finnish State Nuclear Waste Management Fund based on the yearly funding obligation target decided by the governmental authorities in connection with the decision of size of the legal liability. Based on the law, Fortum applied for a periodisation of the fund target, due to a change in the legal liability. The application was approved by the Ministry of Economic Affairs and Employment in November 2019 confirming the fund target at EUR 1,135 million.

Nuclear provisions

EUR million	2019	2018
BS 1 January	899	858
Additional provisions	10	29
Provision used	-29	-26
Provision reversed	-100	-
Unwinding of discount	32	38
BS 31 December	813	899
Fortum's share in the State Nuclear Waste Management Fund	813	899

Nuclear provision and fund accounted according to IFRS

Nuclear provisions include the provision for decommissioning and the provision for disposal of spent fuel. The carrying value of the nuclear provisions, calculated according to IAS 37, decreased by EUR 86 million compared to 31 December 2018, totalling EUR 813 million on 31 December 2019. The decrease in provision during 2019 was arising from the updated cost estimate. The decrease was EUR 100 million, of which the part relating to spent fuel was recognised immediately to the income statement and the part relating to decommissioning was capitalised as property, plant and equipment. The reduced provision led to negative nuclear fund adjustment of EUR 54 million and positive effect to other financial expenses - net of EUR 40 million. The periodisation of the fund target led to a positive fund adjustment of EUR 51 million, but did not have any impact on the provision. The increase of provision in 2018 is mainly arising from changes in assumptions used for the provision.

The carrying value of the Fund on the balance sheet cannot exceed the carrying value of the nuclear provisions according to IFRIC 5. The Fund is from an IFRS perspective overfunded with EUR 316 million, since Fortum's share of the Fund on 31 December 2019 was EUR 1,180 million, while the carrying value of the fund on the balance sheet was EUR 813 million and the short-term receivable from the fund EUR 51 million, see [Note 23](#) Trade and other receivables.

Fortum's share of the Finnish Nuclear Waste Management Fund in Fortum's balance sheet can in maximum be equal to the amount of the provisions according to IFRS. As long as the Fund is overfunded from an IFRS perspective, the effects to operating profit from this adjustment will be positive if the provisions increase more than the Fund and negative if actual value of the fund increases more than the provisions. This accounting effect is not included in Comparable operating profit in Fortum's financial reporting. For more information see [Note 7](#) Items affecting comparability.

Borrowing from the State Nuclear Waste Management Fund

Participants in the Finnish State Nuclear Waste Management Fund are allowed to borrow from the fund according to certain rules. Fortum uses the right to borrow back and has pledged shares in Kemijoki Oy as security for the loans. The loans are renewed yearly. See [▶ Note 27](#) Interest-bearing liabilities and [▶ Note 36](#) Pledged assets and contingent liabilities.

29.2 Nuclear power plants in associated companies and joint ventures

OKG, Forsmark and TVO are non-profit making companies, i.e. electricity production is invoiced to the owners at cost including depreciations, interest costs and production taxes. Invoiced cost is accounted for according to local GAAP. In addition to the invoiced electricity production cost, Fortum makes IFRS adjustments to comply with Fortum's accounting principles. These adjustments include also Fortum's share of the companies' nuclear waste funds and nuclear provisions. During 2018, assumptions for nuclear provision were also changed for the respective balances of the co-owned nuclear companies in Finland and Sweden, i.e. Teollisuuden Voima, (TVO), Oskarshamn Kraftgrupp AB (OKG) and Forsmark Kratgrupp AB. The total impact of the change to share of profit from these associated companies and joint ventures was EUR -37 million, net of tax, and including additional nuclear waste liability related to legacy waste obligations for Swedish nuclear. The net profit impact from all these nuclear-related adjustments is close to zero.

The tables below present the 100% figures relating to nuclear funds and provisions for the companies as well as Fortum's net share.

TVO's total nuclear related assets and liabilities (100%)

EUR million	2019	2018
Carrying values on TVO's balance sheet		
Nuclear provisions	1,041	1,016
Share of the State Nuclear Waste Management Fund	1,041	1,016
of which Fortum's net share consolidated with equity method	0	0
TVO's legal liability and actual share of the State Nuclear Waste Management Fund		
Liability for nuclear waste management according to the Nuclear Energy Act	1,471	1,506
Share of the State Nuclear Waste Management Fund	1,506	1,471
Share of the fund not recognised on the balance sheet	465	455

TVO's legal liability, provision and share of the fund are based on the same principles as described above for Loviisa nuclear power plant. Both the technical plan and cost estimate update in 2019, had a small impact on Fortum's share in TVO's nuclear related assets and liabilities.

TVO's share of the Finnish State Nuclear Waste Management Fund is from an IFRS perspective overfunded with EUR 465 million (of which Fortum's share EUR 124 million), since TVO's share of the Fund on 31 December 2019 was EUR 1,506 million and the carrying value on the balance sheet was EUR 1,041 million.

Participants in the Finnish State Nuclear Waste Management Fund are allowed to borrow from the fund according to certain rules. Fortum is using the right to reborrow funds through TVO based on its ownership. See more information in [▶ Note 27](#) Interest-bearing liabilities.

OKG's and Forsmark's total nuclear related assets and liabilities (100%)

EUR million	2019	2018
OKG's and Forsmark's nuclear related assets and liabilities ¹⁾		
Nuclear provisions	3,932	3,930
Share in the State Nuclear Waste Management Fund	3,363	3,230
Net amount	-570	-701
of which Fortum's net share consolidated with equity method	-201	-242

1) Accounted for according to Fortum's accounting principles. Companies' statutory financial statements are not prepared according to IFRS.

In Sweden Svensk Kärnbränslehantering AB (SKB), a company owned by the nuclear operators, takes care of all nuclear waste management related activities on behalf of nuclear operators. SKB receives its funding from the Swedish State Nuclear Waste Management Fund, which in turn is financed by the nuclear operators.

Nuclear waste fees and guarantees are updated every third year by governmental decision after a proposal from Swedish Radiation Safety Authority (SSM). From September 2018 onwards the proposal is prepared by the National Debt Office. The proposal is based on cost estimates done by SKB and the license holders. An updated technical plan for nuclear waste management was decided by SKB in September 2019 and was handed in to SSM in the end of September. In December 2017 the Swedish government decided the waste fees and guarantees for years 2018–2020. Nuclear waste fees are currently based on future costs with the assumed lifetime of 50 years (40 years in previous decision) for each unit of a nuclear power plant.

In addition to nuclear waste fees nuclear power companies provide guarantees for any uncovered liability and unexpected events.

For more information regarding Fortum's guarantees given on behalf of nuclear associated companies, see [▶ Note 36](#) Pledged assets and contingent liabilities.

30 Other provisions

ACCOUNTING POLICIES

Provisions for environmental obligations, asset retirement obligations, legal claims and other obligations are recognised when the Group has a present legal or constructive obligation as a result of past events to a third party, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. Increase in the provision due to the passage of time is recognised as interest expense.

ENVIRONMENTAL PROVISIONS

Environmental provisions are recognised, based on the current interpretation of environmental laws and regulations, when it is probable that a present obligation has arisen and the amount of such liability can be reliably estimated. Environmental expenditures resulting from the remediation of an existing condition caused by past operations, and which do contribute to current or future revenues, are expensed as incurred.

Environmental provisions include provisions for obligations to cover landfills and clean-up obligations for contaminated land areas. Provisions are determined based on the surface area of the landfill site, remaining land area to be landscaped or otherwise cleaned-up, and the unit cost of conducting the coverage and clean-up activities in the future.

Environmental provisions are also recognised for aftercare and monitoring obligations arising from landfill permit holder's requirement to take into account potential danger to health or the environment posed by a landfill site for a period of at least 30, up to 60, years after the coverage. The aftercare and monitoring provision is determined on the basis of estimated costs and estimated number of years of filling the landfill.

ASSET RETIREMENT OBLIGATIONS

Asset retirement obligation is recognised either when there is a contractual obligation towards a third party or a legal obligation, and the amount can be reliably estimated. Obligating event is, e.g. when a plant is built on a leased land with an obligation to dismantle and remove the asset in the future; or when a legal obligation towards Fortum changes. The asset retirement obligation is recognised as part of the cost of an item of property, plant and equipment when the asset is put in service. Costs are depreciated over the remainder of the asset's useful life.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS MADE WHEN ESTIMATING PROVISIONS

Provisions for present obligations require management to assess the best estimate of the expenditure needed to settle the present obligation at the end of the reporting period. The actual amount and timing of the expenditure might differ from estimates made.

EUR million	2019			2018		
	Environ-mental	Other	Total	Environ-mental	Other	Total
1 January	41	65	106	43	79	122
Increase in provisions	3	14	17	0	25	25
Provisions used	-1	-22	-23	0	-33	-33
Unused provisions reversed	-1	-3	-4	0	-4	-4
Transfer to assets held for sale ¹⁾	-1	0	-1	0	0	0
Exchange rate differences and other changes	8	-2	6	-1	-3	-4
31 December	49	52	101	41	65	106
Of which current provisions ²⁾	0	13	13	0	14	14
BS Of which non-current provisions	49	38	87	41	50	91

1) See ▶ **Note 3** Acquisitions, disposals and assets held for sale.

2) Included in trade and other payables on the consolidated balance sheet, see ▶ **Note 33** Trade and other payables.

Environmental provisions include mainly provisions for obligations to cover and monitor landfills, as well as to clean contaminated land areas. The majority of the provision is estimated to be used within 10–15 years.

Dismantling provisions for the Finnish coal fired power plants are included in Other provisions.

For provisions for decommissioning, and provision for disposal of spent fuel for nuclear production, see ▶ **Note 29** Nuclear related assets and liabilities.

31 Pension obligations

ACCOUNTING POLICIES

The Group companies have various pension schemes in accordance with the local conditions and practises in the countries in which they operate. The schemes are generally funded through payments to insurance companies or the Group's pension funds as determined by periodic actuarial calculations. The Group has both defined benefit and defined contribution plans.

The Group's contributions to defined contribution plans are charged to the income statement in the period to which the contributions relate.

For defined benefit plans, pension costs are assessed using the projected unit credit method. The cost of providing pensions is charged to the income statement as to spread the service cost over the service lives of employees. The net interest is presented in financial items and the rest of the income statement effect as pension cost.

The defined benefit obligation is calculated annually on the balance sheet date and is measured as the present value of the estimated future cash flows using interest rates of high-quality corporate bonds that have terms to maturity approximating to the terms of the related pension liability. In countries where there is no deep market in such bonds, market yields on government bonds are used instead. The plan assets for pensions are valued at market value. The liability recognised on the balance sheet is the defined benefit obligation at the closing date less the fair value of plan assets. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss related to a curtailment is recognised immediately in profit or loss. Gains or losses on settlements of defined benefits plans are recognised when the settlement occurs.

CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS: ASSUMPTIONS USED TO DETERMINE FUTURE PENSION OBLIGATIONS

The present value of the pension obligations is based on actuarial calculations that use several assumptions. Any changes in these assumptions will impact the carrying amount of pension obligations.

Fortum's pension arrangements

Finland

In Finland statutory pension benefits (as determined in Employee's Pension Act /TyEL) provide the employees pension coverage for old age, disability and death of a family provider. The benefits are insured with an insurance company and determined to be defined contribution plans.

In addition the Group has additional old-age and survivors pension benefits arranged with the Fortum Pension Fund. The Fortum Pension Fund is a closed fund managed by a Board, consisting of both employers' and employees' representatives. The Fund is operating under regulation from Financial Supervisory Authority (FSA). The liability has to be fully covered according to the regulations. The national benefit obligation related to the defined benefit plans is calculated so that the promised benefit is fully funded until retirement. After retirement the benefits payable are indexed yearly with TyEL-index. The promised benefit is defined in the rules of the Fund, mostly 66% at a maximum of the salary basis. The salary basis is an average of the ten last years' salaries, which are indexed with a common salary index to the accounting year.

Sweden

In Sweden the Group operates several defined benefit and defined contribution plans like the general ITP-pension plan and the PA-KL and PA-KFS plans that are eligible for employees within companies formerly owned by municipalities. The defined benefit plans are fully funded and have partly been financed through Fortum's own pension fund and partly through insurance premiums. The pension arrangements comprise normal retirement pension, complementary retirement pensions, survivors' pension and disability pension. The most significant pension plan is the ITP-plan for white-collar employees in permanent employment (or temporary employees after a certain waiting period), who fulfil the age conditions. To qualify for a full pension the employee must have a projected period of pensionable service, from the date of entry until retirement age, of at least 30 years.

The Swedish pension fund is managed by a Board, consisting of both employers' and employees' representatives. The fund is operating under regulation from Swedish Financial Supervisory Authority and the County Administrative Board and governed by Swedish law (no. 1967:531). The fund constitutes a security for the employers' defined benefit pension plan liability and the fund has no obligations in relation to pension payments. The employer must have a credit insurance from PRI Pensionsgaranti Mutual Insurance Company for the liability. The liability does not have to be fully covered by the fund according to the regulations.

The part of the ITP multiemployer pension plan that is secured by paying pension premiums to Alecta, in Fortum's case the collective family pension, is accounted for as a defined contribution plan due to that there is no

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consistent and reliable basis to allocate assets or liabilities to the participating entities within the ITP insurance. The reason for this is that it is not possible to determine from the terms of the plan to which extent a surplus or a deficit will affect future contributions.

Norway

Group companies operate both defined contribution and defined benefit plans. Some defined benefit schemes offer benefits common for municipalities in Norway and some are private pension schemes. Benefits include old age pensions, disability pension and survivor's pension, including pension benefits from the National Insurance Scheme (Folketrygden). The schemes are fully funded within the rules set out in the Norwegian insurance legislation.

The majority of the defined benefit plans are closed, either private plans or public plans, that are operated by the Fortum Pension Fund. The Fortum Pension Fund was established in 2018 and the participants were transferred there from the Hafslund and Infratek's Pension Fund. The Group has also a closed public defined benefit plan operated by Oslo Pensjonsforsikring AS. In addition, the Group has defined benefit plans with various insurance companies.

Pension arrangements in other countries

Pension arrangements in Russia include payments made to the state pension fund. These arrangements are treated as defined contribution plans. The Russian (in addition to the defined contribution plans) and Polish companies participate in certain defined benefit plans, defined by collective agreements, which are unfunded and where the company meets the benefit payment obligation as it falls due. The benefits provided under these arrangements include, in addition to pension payments, one-time benefits paid in case of employee mortality or disability as well as lump sum payments for anniversary and financial support to honoured workers and pensioners.

In other countries the pension arrangements are done in accordance with the local legislation and practice, mostly being defined contribution plans.

Main risks relating to defined benefit plans – Finland and Sweden

Overall risks

Finland - If the return of the fund's assets is not enough to cover the raise in liability and benefit payments over the financial year then the employer funds the deficit with contributions unless the fund has sufficient equity.

Sweden - As the pension fund is separated from the funding companies Fortum is not obliged to make additional contributions to the pension fund in any case of deficit. However if the assets decrease to a level lower than the liability according to Swedish GAAP, Fortum's credit insurance cost from PRI will increase.

Change in discount rate

Finland - The discount rate which is used to calculate the defined benefit obligation (according to IFRS) depends on the value of corporate bond yields as at reporting date. A decrease in yields increases the benefit obligation that is offset by increase in the value of fixed income holdings.

Investment and volatility risk

Finland - The pension fund's board accepts yearly an Investment Plan, which is based on an external asset-liability analysis. The assets are allocated to stocks and stock funds, fixed income instruments and real estate. The investments are diversified into different asset classes and to different asset managers taking into account the regulation of the Financial Supervisory Authority.

Sweden - The pension fund operation is regulated by law and supervised by central administrative authorities (Finansinspektionen and the County Administrative Board). The pension fund board decides yearly on a policy for asset allocation and a risk management model that stipulates a maximum acceptable market value decrease of the assets. The major assets are fixed income instruments, stock index funds and cash.

Risks relating to assumptions used

Actuarial calculations use assumptions for future inflation and salary levels and longevity. Should the actual outcome differ from these assumptions, this might lead to higher liability.

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Movement in the net defined benefit liability

EUR million	Defined benefit obligation		Fair value of plan assets		Net defined benefit asset(-)/liability(+)	
	2019	2018	2019	2018	2019	2018
1 January	483	501	-386	-401	97	101
Included in consolidated income statement						
Current service cost	6	8			6	9
Past service cost	-1	-1			-1	-1
Settlements	0	-4	0	2	0	-1
Net interest ¹⁾	10	9	-7	-7	2	2
	14	13	-6	-4	7	9
Included in OCI						
Remeasurement gains(-)/losses(+)	50	-8	-26	2	25	-6
Actuarial gains/losses arising from changes in financial assumptions	52	-12			52	-12
Actuarial gains/losses arising from experience adjustments	-2	4			-2	4
Return on plan assets (excluding amounts included in net interest expense)			-26	2	-26	2
Exchange rate differences	-2	-7	1	5	0	-2
	49	-15	-24	7	24	-8
Other						
Contributions paid by the employer			-2	-1	-2	-1
Benefits paid	-17	-17	13	13	-4	-4
31 December	529	483	-406	-386	123	97
Present value of funded defined obligation					524	480
Fair value of plan assets					-406	-386
Funded status					119	94
Present value of unfunded obligation ²⁾					5	3
Net liability arising from defined benefit obligation					123	97
Pension assets included in other non-current assets on the balance sheet					2	1
BS Pension obligations on the balance sheet					125	98

1) Net interest is presented among financial items in income statement, the rest of costs related to defined benefit plans are included in staff costs (row defined benefits plans in the staff cost specification in ► **Note 11** Employee benefits and Board remuneration).

2) The unfunded obligation relates to arrangements in Russia and Poland.

At the end of 2019 a total of 836 (2018: 833) Fortum employees are included in defined benefit plans providing pension benefits. During 2019 pensions or related benefits were paid to a total of 3,665 (2018: 3,375) persons. Contributions expected to be paid during year 2020 are EUR 3 million.

Fair value of plan assets

EUR million	2019	2018
Equity instruments	152	129
Debt instruments	174	173
Cash and cash equivalents	47	51
Real estate ¹⁾	14	12
Investment funds	2	1
Company's own ordinary shares	0	5
Other assets	16	16
Total	406	386

1) Of which EUR 1 million (2018: 1) occupied by the Group.

When the pension plan has been financed through an insurance company, a specification of the plan assets has not been available. In these cases the fair value of plan assets has been included in other assets.

The actual return on plan assets in Finland, Sweden and Norway totalled EUR 32 million (2018: 5).

Amounts recognised on the balance sheet by country 2019

EUR million	Finland	Sweden	Norway	Other countries	Total
Present value of funded obligations	283	180	61	0	524
Fair value of plan assets	-244	-104	-57	0	-406
Deficit(+)/surplus(-)	39	76	4	0	119
Present value of unfunded obligations	-	-	-	5	5
Net asset(-)/liability(+) on the balance sheet	39	76	4	5	123
Pension asset included in non-current assets	0	0	1	0	2
BS Pension obligations on the balance sheet	39	76	5	5	125

Amounts recognised on the balance sheet by country 2018

EUR million	Finland	Sweden	Norway	Other countries	Total
Present value of funded obligations	269	147	64	0	480
Fair value of plan assets	-233	-102	-52	0	-386
Deficit(+)/surplus(-)	37	45	12	0	94
Present value of unfunded obligations	-	-	-	3	3
Net asset(-)/liability(+) on the balance sheet	37	45	12	3	97
Pension asset included in non-current assets	0	0	1	0	1
BS Pension obligations on the balance sheet	37	45	13	3	98

The principal actuarial assumptions used

%	2019			2018		
	Finland	Sweden	Norway	Finland	Sweden	Norway
Discount rate	0.80	1.20	2.20	1.60	2.30	2.60
Future salary increases	1.60	2.80	2.25	1.70	2.90	2.75
Future pension increases	1.60	1.80	1.24	1.80	1.90	1.33
Rate of inflation	1.30	1.80	1.50	1.50	1.90	1.50

The discount rate in Finland is based on high quality European corporate bonds with maturity that best reflects the estimated term of the defined benefit pension plans. The discount rate in Sweden is based on yields on Swedish covered bonds with maturity that best reflects the estimated term of the defined benefit pension plans. The covered bonds in Sweden are considered high quality bonds as they are secured with assets. The discount rate in Norway is based on high-quality corporate bonds (covered bonds - OMF).

The life expectancy is the expected number of years of life remaining at a given age

Longevity at age 65	Finland	Sweden	Norway
45 – male	22	23	23
45 – female	27	25	27
65 – male	21	22	21
65 – female	25	24	24

The discount, inflation and salary growth rates used are the key assumptions used when calculating defined benefit obligations. Effects of 0.5 percentage point change in the rates to the defined benefit obligation on 31 December 2019, holding all other assumptions stable, are presented in the table below.

Sensitivity of defined benefit obligation to changes in assumptions

Change in the assumption	Impact to the pension obligation increase(+)/decrease(-)		
	Finland	Sweden	Norway
0.5% increase in discount rate	-7%	-11%	-8%
0.5% decrease in discount rate	8%	12%	10%
0.5% increase in benefit	7%	10%	7%
0.5% decrease in benefit	-6%	-9%	-6%
0.5% increase in salary growth rate	1%	2%	3%
0.5% decrease in salary growth rate	-1%	-2%	-3%

The methods used in preparing the sensitivity analysis did not change compared to the previous period. Change in mortality basis so that life expectancy increases by one year would increase the net liability in Finland, Sweden and Norway with EUR 20 million (17%).

Maturity profile of the undiscounted defined benefit obligation for Finland, Sweden and Norway as of 31 December 2019

EUR million	Future benefit payments
Maturity under 1 year	17
Maturity between 1 and 5 years	74
Maturity between 5 and 10 years	87
Maturity between 10 and 20 years	159
Maturity between 20 and 30 years	114
Maturity over 30 years	74

The weighted average duration of defined benefit obligation in Finland, Sweden and Norway at the end of year 2019 is 17 years.

32 Other non-current liabilities

EUR million	2019	2018
Connection fees	85	109
Other non-current liabilities	82	73
BS Total	167	182

Connection fees include refundable fees paid by the customer when connected to district heating network in Finland. Connection fees were refundable until 2013.

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33 Trade and other payables

EUR million	2019	2018
Trade payables	316	334
Accrued expenses and deferred income		
Accrued personnel expenses	97	103
Accrued interest expenses	80	98
Contract liabilities	31	40
Other accrued expenses and deferred income	42	80
Other liabilities		
VAT liability	54	34
Current tax liability	64	30
Advances received	78	110
Current provisions ¹⁾	13	14
Other liabilities	168	214
BS Total	943	1,058

1) See [Note 30](#) Other provisions.

Contract liabilities comprise mainly of project and waste management services that are invoiced but not delivered at the reporting date.

The management considers that the amount of trade and other payables approximates fair value.

34 Leases

ACCOUNTING POLICIES

The Group leases mainly office buildings and land areas. Until 31 December 2018, the Group's leases were classified as operating leases under the previous accounting standard, IAS 17 Leases; from 1 January 2019, the Group recognises all leases, with the exception of short-term (i.e. lease term less than 12 months) and low value leases, in line with IFRS 16 Leases as right-of-use assets with a corresponding lease liability at the date at which the leased asset is available for use by the Group. See [Note 1](#) Significant accounting policies for information on the change in lease accounting policy.

A contract is, or contains a lease if the Group has the right to control the use of an identified asset for a period of time in exchange for consideration. When determining the lease term, the Group assesses the probability of exercising extension and termination options over the non-cancellable period by considering all relevant facts and circumstances.

Right-of-use assets and lease liabilities are initially recognised on the consolidated balance sheet at future fixed lease payments over the lease term. Lease payments are discounted to present value using an effective interest rate. Right-of-use assets are depreciated on a straight-line basis over the lease term, and reviewed periodically for indication of impairment.

When the future lease payments are revised due to changes in index-linked considerations or the lease term changes, the right-of-use asset and the corresponding lease liability is remeasured. Any differences arising on reassessments are recognised in the consolidated income statement.

Interest expense on lease liabilities is presented within Interest expense in the consolidated income statement. In the consolidated cash flow statement, the principal portion of the lease payment is presented under Payments of long-term liabilities, and the interest portion as Interest paid under Funds from operations. Variable lease payments, as well as costs for leases not capitalised due to exemptions in the standard, are presented in Other expenses.

Amounts recognised in consolidated financial statements

EUR million	2019
In consolidated Income Statement	
Depreciation	-18
Interest expense on lease liabilities	-3
On consolidated balance sheet	
Additions to right-of-use assets	38
Of which land	8
Of which buildings, plants and structures	27
Of which machinery and equipment	4
Carrying amount of right-of-use assets	114
Of which land	33
Of which buildings, plants and structures	70
Of which machinery and equipment	11
Lease liabilities	108
In consolidated cash flow statement	
Cash outflow for leases	-18

Lease commitments

The Group has EUR 22 million off-balance sheet future commitments for leases that have not commenced on 31 December 2019.

See [► Note 1](#) Significant accounting policies, [► Note 4](#) Financial risk management, [► Note 18](#) Property, plant and equipment and right-of-use assets, and [► Note 27](#) Interest-bearing liabilities for more information.

35 Capital and other commitments

Capital commitments

EUR million	2019	2018
Property, plant and equipment	260	322

Capital commitments are off-balance sheet capital expenditures contracted for at the balance sheet date.

Other commitments

On 8 October 2019, Fortum entered into agreements to acquire all the shares in Uniper SE held by funds managed by Elliott Management Corporation and its affiliates (Elliott) and Knight Vinke Energy Advisors Limited and its affiliates (Knight Vinke), a total shareholding in excess of 20.5%. The transaction will be financed with existing cash resources and committed credit facilities underwritten by Barclays Bank PLC. In the said agreements Fortum has committed to paying the acquisition price of EUR 2.3–2.6 billion depending on the amount of shares acquired.

Fortum has committed to provide a maximum of EUR 85 million to Voimaosakeyhtiö SF, for its participation in the Fennovoima nuclear power project in Finland. Furthermore, Fortum's remaining direct commitment regarding the construction of a waste-to-energy combined heat and power plant (CHP) in Kaunas, Lithuania is EUR 7 million at maximum. The investment is made through Kauno Kogeneracinė Jėgainė (KKJ), a joint venture owned together with Lietuvos Energija.

Fortum has also committed to provide a maximum of EUR 7 million to a joint venture with Numaligarh Refinery Limited (NRL) and Chempolis to build and operate a biorefinery in Assam, India.

Teollisuuden Voima Oyj (TVO) is building Olkiluoto 3, the nuclear power plant, which is funded through external loans, share issues and shareholder loans according to shareholders' agreement between the owners of TVO. At end of December 2019, Fortum had EUR 170 million (2018: 170) outstanding receivables regarding Olkiluoto 3 and is additionally committed to provide at maximum EUR 63 million. TVO shareholder loan is classified as participation in joint ventures.

In June 2018, the Swedish Government approved the legislation regarding Sweden's national strategy for implementation of the EU's Water Framework Directive. The largest hydro industry companies will create a common hydro-power fund to finance large parts of the environmental actions needed. The fund will have a total financial cap of SEK 10 billion to be paid over a 20-year period, and the largest operators will contribute to the fund proportionately based on their respective market share of hydro-power production. Fortum's share is 23% of the funds' total financing.

36 Pledged assets and contingent liabilities

ACCOUNTING POLICIES

CONTINGENT LIABILITIES

A contingent liability is disclosed when there is a possible obligation that arises from past events and whose existence is only confirmed by one or more doubtful future events; or when there is an obligation that is not recognised as a liability or provision because it is not probable that an outflow of resources will be required, or the amount of the obligation cannot be reliably estimated.

EUR million	2019	2018
Pledged assets on own behalf		
For debt		
Pledges	288	288
Real estate mortgages	137	137
For other commitments		
Pledges	309	346
Real estate mortgages	2	21
Pledged assets on behalf of others		
Pledges	33	31
Contingent liabilities on own behalf		
Other contingent liabilities	25	167
On behalf of associates and joint ventures		
Guarantees	875	622

36.1 Pledged assets for debt

Participants in the Finnish State Nuclear Waste Management Fund are allowed to borrow from the Fund. Fortum has pledged shares in Kemijoki Oy as a security. The value of the pledged shares amounts to EUR 269 million (2018: 269).

Fortum Tartu in Estonia (60% owned by Fortum) has given real estate mortgages for a value of EUR 96 million (2018: 96) as a security for an external loan. Real estate mortgages have also been given for loan from Fortum's pension fund for EUR 41 million (2018: 41).

See [Note 27](#) Interest-bearing liabilities for related interest-bearing liabilities.

36.2 Pledged assets for other commitments

Pledges include restricted cash of EUR 21 million (2018: 346) and securities of EUR 281 million (2018: 0) for trading of electricity, gas and CO₂ emission allowances in Nasdaq Commodities, Intercontinental Exchange (ICE), European Energy Exchange (EEX) and Polish Power Exchange (TGE). See [Note 21](#) Interest-bearing receivables.

Fortum has given real estate mortgages in power plants in Finland, total value of EUR 2 million (2018: 21), as a security to the Finnish State Nuclear Waste Management Fund for the uncovered part of the legal liability and unexpected events relating to future costs for decommissioning and disposal of spent fuel in Loviisa nuclear power plant. According to the Nuclear Energy Act, Fortum is obligated to contribute the funds in full to the State Nuclear Waste Management Fund to cover the legal liability. Any uncovered legal liability relates to periodising of the payments to the fund. The size of the securities given is updated yearly in the second quarter based on the decisions regarding the legal liabilities and the funding target which are determined at the end of the previous year. See [Note 29](#) Nuclear related assets and liabilities.

36.3 Pledged assets on behalf of others

Pledged assets on behalf of others consist of restricted cash of EUR 33 million (2018: 31) posted as collateral toward Nasdaq Clearing AB covering Fortum's required contribution to the Commodity Market Default Fund (default fund). The default fund is a mutualized fund whereby all participants on the Nordic power exchange (OMX Nasdaq Commodities) post collateral in relation to their exposure on the market in order to cover potential defaults by members which may cause losses exceeding the members' own collateral. See [Note 21](#) Interest-bearing receivables.

36.4 Contingent liabilities on own behalf

On 1 January 2019, Fortum acquired all remaining C-shares of TVO entitling to the power production of the Meri-Pori coal condensing power plant. Fortum is now entitled to 100% of the power production of the plant. The guarantee amounted to EUR 125 million in December 2018 until the guarantee was released on 1 January 2019. The Meri-Pori power plant is mainly used in Fingrid's capacity reserve and as back-up capacity.

36.5 Guarantees on behalf of associates and joint ventures

Guarantees on behalf of associated companies and joint ventures mainly consist of guarantees relating to Fortum's associated nuclear companies (Teollisuuden Voima Oyj, Forsmarks Kraftgrupp AB and OKG AB). Guarantees have been given on behalf of Forsmarks Kraftgrupp AB and OKG AB amounting to SEK 8,239 million (EUR 789 million) (2018: 526). There are two types of guarantees given. The Financing Amount is given to cover Fortum's share of the uncovered part in the Nuclear Waste Fund, assuming no further production and that no further nuclear waste

fees are paid in. The uncovered amount is calculated by the authorities and is based on the difference between the expected costs and the funds to cover these costs at the time of the calculation. The Supplementary Amount constitutes a guarantee for deficits that can arise as a result of unplanned events. The amounts for the guarantees are updated every third year by governmental decision. The Financing Amount given by Fortum on behalf of Forsmarks Kraftgrupp AB and OKG AB is SEK 5,695 million (EUR 545 million) and the Supplementary Amount is SEK 2,544 million (EUR 244 million).

The guarantee given on behalf of Teollisuuden Voima Oyj to the Finnish State Nuclear Waste Management Fund amounts to EUR 21 million (2018: 36). The guarantee covers the unpaid legal liability due to periodisation as well as risks for unexpected future costs.

Fortum has minority shares in legal companies owning nuclear power plants in Finland and Sweden. Fortum consolidates these companies according to the equity method meaning that Fortum's share of the assets and liabilities are netted to the balance sheet. For information regarding nuclear related assets and liabilities of Loviisa nuclear power plant as well as Swedish and Finnish nuclear production companies where Fortum has a minority shareholding see [▶ Note 29 Nuclear related assets and liabilities](#).

The guarantees given to the Russian Wind fund have been relased during Q4 2019 (2018: EUR 48 million).

36.6 Other contingent liabilities

Fortum's 100% owned subsidiary Fortum Heat and Gas Oy has a contingent liability, based on the Finnish Companies Act's (734/1978) Chapter 14a Paragraph 6, with Neste Oyj following the demerger of Fortum Oil and Gas Oy in 2004.

37 Legal actions and official proceedings

37.1 Group companies

Tax cases in Finland

No tax cases with material impact in Finland.

Tax cases in Sweden

Cases relating to Swedish interest deductions

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

Cases relating to the Swedish hydro real estate tax

Fortum Sverige AB has through an appeal process in Swedish courts claimed that the property tax rate for hydropower plants shall be lowered to the normal 0,5 percent of the tax assessment value. The case concerns the years 2009–2014 and includes several legal arguments for the claim including state aid arguments. Fortum Sverige AB did not receive a permission to appeal from the Supreme Administrative Court in this matter. As the Administrative Court, the Administrative Court of Appeal in Stockholm and the Supreme Administrative Court have handled only the arguments concerning state aid, the case has now been transferred back to the Administrative Court concerning the other legal arguments. The disputed amount, excluding interest for the time period, totals approximately SEK 510 million (approximately EUR 49 million).

Moreover, Swedish Fortum companies have appeals for 2011–2016 pending before the Administrative Court relating to the property tax rate for their hydropower plants referring to the same legal grounds. Fortum has paid the real estate tax in accordance with the legislation. If the final court decision would be unfavourable to Fortum, this would not have any result impact for Fortum.

Fortum Sverige AB has in December 2018 filed a complaint to the EU commission regarding the Swedish property tax for hydropower plants regarding 2017 and prior years. Fortum has asked the commission to investigate whether the Swedish legislation regarding the property tax for hydropower plants and the Swedish court decisions are in line with EU state aid rules.

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Tax cases in Belgium

Fortum has received income tax assessments in Belgium for the years 2008, 2009, 2010, 2011 and 2012. The tax authorities disagree with the tax treatment of Fortum EIF NV which was later merged into Fortum Project Finance NV. Fortum finds the tax authorities interpretation not to be based on the local regulation and has appealed the decisions. In June 2014, the court of First instance in Antwerp rejected Fortum's appeal for the years 2008 and 2009. Fortum found the decision unjustifiable and appealed to the Court of Appeal.

In January 2016, Fortum received a favourable decision from the Court of Appeal in Antwerp in which the Court disagreed with the tax authorities' interpretation and the tax assessment for 2008 was nullified. The tax authorities disagreed with the decision and filed an appeal to the Supreme Court (Hof van Cassatie) in March 2016. In April 2019, the Advocate General at the Supreme Court issued his opinion which was in favour of Fortum Project Finance. He dismissed the arguments made by the Belgian State and confirmed the judgment of the Court of Appeal of Antwerp.

In May 2019, the Supreme Court, however, annulled the decision of the Court of Appeal of Antwerp and referred the case back to the Court of Appeal of Ghent for full retrial. Fortum's appeals concerning 2009–2012 are still pending and Fortum expects the remaining years to follow the final decision for 2008. Fortum has made an assessment supported by legal opinions not to recognise a provision. The amount of additional tax claimed is approximately EUR 36 million for the year 2008, approximately EUR 27 million for the year 2009, approximately EUR 15 million for the year 2010, approximately EUR 21 million for the year 2011 and approximately EUR 15 million for the year 2012. The tax has already been paid.

For critical accounting estimates regarding uncertain tax positions, see ▶ **Note 28** Income taxes on the balance sheet. See also ▶ **Note 13** Income tax expense.

Other legal actions and official proceedings

In addition to the litigations described above, some Group companies are involved in other routine tax and other disputes incidental to their normal conduct of business. Based on the information currently available, management does not consider the liabilities arising out of such litigations likely to be material to the Group's financial position.

37.2 Associated companies

In Finland, Fortum is participating in the country's fifth nuclear power plant unit, Olkiluoto 3 (OL3), through the shareholding in Teollisuuden Voima Oyj (TVO) with an approximately 25% share representing some 400 MW in capacity.

OL3 was procured as a fixed-price turnkey project from a consortium (Supplier) formed by AREVA GmbH, AREVA NP SAS and Siemens AG. As stipulated in the plant contract, the consortium companies have joint and several liability for the contractual obligations. In accordance with the Supplier's schedule updated in November 2018, regular electricity generation at the plant unit will commence in January 2020. According to the Supplier, nuclear fuel will be loaded into the reactor in June 2019 and the first connection to the grid takes place in October

2019. According to the Supplier's plant ramp-up program the unit will produce 2–4 TWh of electricity, at varying power levels, during the period of time between the first connection to the grid and the start of regular electricity production.

According to the comprehensive settlement agreement signed in March 2018, TVO and the Supplier jointly withdrew the pending arbitration proceedings under the International Chamber of Commerce (ICC) rules with respect to costs and losses incurred in relation to delays in the construction of the OL3 EPR project. In June 2018, the ICC tribunal confirmed the arbitration settlement by a consent award, and the arbitration proceedings were terminated. The parties also withdrew the pending appeals in the General Court of the European Union.

The settlement agreement between TVO and the plant supplier consortium companies Areva NP, Areva GmbH and Siemens AG as well as with Areva Group parent company Areva SA, a company wholly owned by the French State, concerning the completion of the OL3 EPR project and related disputes entered into force late March 2018.

The settlement agreement stipulates that:

- In order to provide and maintain adequate and competent technical and human resources for the completion of the OL3 EPR project, Areva will source the necessary additional resources from Framatome S.A.S., whose majority owner is Electricité de France (EDF). The supplier consortium companies undertake that the funds dedicated to the completion of the OL3 EPR project will be adequate and will cover all applicable guarantee periods, including setting up a trust mechanism funded by Areva companies to secure the financing of the costs of completion of the OL3 EPR project.
- The turnkey principle of the OL3 EPR plant contract and the joint and several liability of the supplier consortium companies remain in full force. The agreement also noted the plant supplier's schedule at the time the agreement was signed, according to which regular electricity production in the unit will commence in May 2019. The ICC arbitration concerning the costs and losses caused by the delay of the OL3 EPR project is settled by financial compensation of EUR 450 million to be paid to TVO in two installments by the supplier consortium companies.
- In the event that the supplier consortium companies fail to complete the OL3 EPR project by the end of 2019, they will pay a penalty to TVO for such delay in an amount which will depend on the actual time of completion of the OL3 EPR project and may not exceed EUR 400 million.

TVO received the first payment of EUR 328 million of the settlement amount in March 2018 at the entry into force of the settlement agreement. In December 2019, the Supplier paid the second installment of financial compensation amounting to EUR 122 million. The amount corresponding to the total settlement amount has been entered as property, plant and equipment in the TVO Group balance sheet.

In December 2019, TVO received an updated schedule for the commissioning of the OL3 EPR plant unit from the Supplier. According to the received information, nuclear fuel will be loaded into the reactor in June 2020, the first connection to the grid will take place in November 2020, and the start of regular electricity production of the OL3 EPR nuclear power plant unit will take place in March 2021.

38 Related party transactions

38.1 The Finnish State and companies owned by the Finnish State

At the end of 2019, the Finnish State owned 50.76% of the Company's shares (2018: 50.76%). The Finnish Parliament has authorised the Government to reduce the Finnish State's holding in Fortum Corporation to no less than 50.1% of the share capital and voting rights.

All transactions between Fortum and other companies owned by the Finnish State are on arm's length basis.

38.2 Board of Directors and Fortum Executive Management

The key management personnel of the Fortum Group are the members of Fortum Executive Management and the Board of Directors. Fortum has not been involved in any material transactions with members of the Board of Directors or Fortum Executive Management. No loans exist to any member of the Board of Directors or Fortum Executive Management at 31 December 2019. The total compensation (including pension benefits and social costs) for the key management personnel for 2019 was EUR 12 million (2018: 9).

See [► Note 11](#) Employee benefits and Board remuneration for further information on the Board of Directors and Fortum Executive Management remuneration and shareholdings.

38.3 Associated companies and joint ventures

In the ordinary course of business, Fortum engages in transactions with associated companies, joint ventures and other related parties. These transactions are on the same commercial terms as they would be with third parties, except for some associates and joint ventures, as noted below.

Fortum owns shareholdings in associated companies and joint ventures which own hydro and nuclear power plants. Under consortium agreements, each owner is entitled to electricity in proportion to its share of ownership, or based on other agreement. In turn, each owner is liable for an equivalent portion of costs, regardless of output. These associated companies and joint ventures are not profit making since the owners purchase electricity at production cost, including interest costs and production taxes.

For further information on transactions and balances with associated companies and joint ventures, see [► Note 19](#) Participations in associated companies and joint ventures.

38.4 Pension funds

The Fortum pension funds in Finland, Sweden and Norway are stand-alone legal entities which manage pension assets related to part of the pension coverage in these countries. Fortum has not paid contributions to the pension funds in 2019. In 2018, Fortum paid a capital contribution of EUR 3 million to the newly established pension fund in Norway. The assets in the pension fund in Finland include Fortum shares representing 0.04% (2018: 0.04%) of the company's outstanding shares. Real estate mortgages have been given for a loan from Fortum's Finnish pension fund for EUR 41 million (2018: 41).

39 Events after the balance sheet date

Disposal of district heating business, Joensuu, Finland

On 10 January 2020, Fortum concluded the sale of its district heating business in Joensuu, Finland, to Savon Voima Oyj, as announced on 20 December 2019. The total consideration of the sale on a debt- and cash-free basis was approximately EUR 530 million and the cash was received at the completion of the divestment on 10 January 2020. Fortum will record a tax-exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results.

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40 Subsidiaries by segment on 31 December 2019

C = City Solutions 1) New company
CS = Consumer Solutions 2) Shares held by the parent company
G = Generation
R = Russia
O = Other Operations

Company name	Domicile	Segment	Group holding, %
Böle Vindkraft Ab/Oy	Finland	G	100.0
Ekopartnerit Turku Oy	Finland	C	51.0
Fincumet Oy	Finland	C	100.0
Fortum Asiakaspalvelu Oy ²⁾	Finland	CS	100.0
Fortum Assets Oy	Finland	O	100.0
Fortum Growth Oy	Finland	C	100.0
Fortum Heat and Gas Oy ²⁾	Finland	C,O	100.0
Fortum Heat Estonia Oy ¹⁾	Finland	C	100.0
Fortum Joensuu Oy ^{1),2)}	Finland	C	100.0
Fortum Markets Oy ²⁾	Finland	CS	100.0
Fortum Norm Oy ²⁾	Finland	O	100.0
Fortum Power and Heat Holding Oy	Finland	G	100.0
Fortum Power and Heat Oy ²⁾	Finland	CS,C,G,O,R	100.0
Fortum Real Estate Oy ²⁾	Finland	O	100.0
Fortum Recharge Oy ¹⁾	Finland	O	100.0
Fortum Waste Solutions Oy ²⁾	Finland	C	100.0
Kalax Vindkraft Ab/Oy	Finland	G	100.0
Koillis-Pohjan Energiantuotanto Oy	Finland	G	100.0
Kotimaan Energia Oy	Finland	CS	100.0
Kristinestad-Tjock Vindpark Ab ¹⁾	Finland	G	100.0
Molpe Vindkraft Ab/Oy	Finland	G	100.0
Närpes Vindkraft Ab/Oy	Finland	G	100.0
Niemen Romukauppa Oy	Finland	C	100.0
Nordic Wind Oy ¹⁾	Finland	G	100.0
Oy Pauken Ab	Finland	O	100.0
Oy Tersil Ab	Finland	O	100.0
Oy Tertrade Ab	Finland	O	100.0
Pjelax Vindkraft Ab/Oy	Finland	G	100.0
Poikel Vindkraft Ab/Oy	Finland	G	100.0
Barry Danmark ApS	Denmark	O	100.0
Fortum Energi A/S	Denmark	CS	100.0

Company name	Domicile	Segment	Group holding, %
Fortum Waste Solutions A/S	Denmark	C	100.0
Fortum Waste Solutions OW A/S	Denmark	C	100.0
AS Anne Soojus	Estonia	C	100.0
AS Fortum Tartu	Estonia	C	60.0
AS Tartu Joujaam	Estonia	C	100.0
AS Tartu Keskkatlamaja	Estonia	C	100.0
Fortum CFS Eesti OU	Estonia	O	100.0
Fortum Eesti AS	Estonia	C	100.0
Fortum France S.A.S	France	G	100.0
Fortum Deutschland SE	Germany	O	100.0
Fortum Service Deutschland GmbH	Germany	C	100.0
Plugsurfing GmbH	Germany	O	100.0
Fortum Carlisle Limited	Great Britain	C	100.0
Fortum Energy Ltd	Great Britain	O	100.0
Fortum Glasgow Limited	Great Britain	C	100.0
Fortum O&M(UK) Limited	Great Britain	C	100.0
IVO Energy Limited	Great Britain	G	100.0
Fortum Insurance Ltd	Guernsey	O	100.0
Fortum Charge & Drive India Private Limited ¹⁾	India	O	100.0
Fortum India Private Limited ²⁾	India	C	100.0
Fortum Solar India Private Limited	India	C	100.0
Fortum Solar Plus Private Limited	India	C	100.0
PT Fortum Energy Solution ¹⁾	Indonesia	C	95.0
Fortum Finance Ireland Designated Activity Company ²⁾	Ireland	O	100.0
Fortum Global Finance Designated Activity Company ¹⁾	Ireland	O	100.0
Fortum P&H Ireland Limited	Ireland	O	100.0
Fortum Participation Ltd	Ireland	O	100.0
Fortum Jelgava, SIA	Latvia	C	100.0
Fortum Latvia SIA	Latvia	C	100.0
SIA Fortum Daugavpils	Latvia	C	100.0
SIA Lake Development	Latvia	C	100.0
UAB Fortum Heat Lietuva	Lithuania	C	100.0
UAB Fortum Klaipeda	Lithuania	C	100.0
UAB Joniskio energija	Lithuania	C	66.2
UAB Svencioniu energija	Lithuania	C	50.0
Ånstadblåheia Vindpark AS	Norway	G	100.0
Fortum Consumer Solutions AS	Norway	CS	100.0

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Company name	Domicile	Segment	Group holding, %
Fortum Fiber AS ¹⁾	Norway	C	60.0
Fortum Forvaltning AS	Norway	O	100.0
Fortum Hedging AS	Norway	G	100.0
Fortum Kundesenter AS	Norway	CS	100.0
Fortum Markets AS	Norway	CS	100.0
Fortum Oslo Varme AS	Norway	C	50.0
Fortum Recharge AS ¹⁾	Norway	O	100.0
Fortum Tellier AS	Norway	CS	100.0
Fortum Waste Solutions Norway AS	Norway	C	100.0
Fredrikstad EnergiSalg AS	Norway	CS	100.0
Hafslund Strøm AS	Norway	CS	100.0
Hallingkraft AS	Norway	CS	100.0
Nordic Wind Norway AS ¹⁾	Norway	G	100.0
NorgesEnergi AS	Norway	CS	100.0
Nygårdsfjellet Vindpark AS	Norway	G	100.0
Oslo Energi AS	Norway	CS	100.0
Solvencia AS	Norway	CS	100.0
Sørfjord Vindpark AS	Norway	G	100.0
AMB Energia Sprzedaż Sp. z o.o.	Poland	CS	100.0
Fortum Customer Services Polska Sp. z o.o.	Poland	CS	100.0
Fortum Marketing and Sales Polska S.A.	Poland	CS	100.0
Fortum Markets Polska S.A.	Poland	CS	100.0
Fortum Network Częstochowa Sp. z o.o.	Poland	C	100.0
Fortum Network Płock Sp. z o.o.	Poland	C	100.0
Fortum Network Wrocław Sp. z o.o.	Poland	C	100.0
Fortum Power and Heat Polska Sp. z o.o.	Poland	C,CS	100.0
Fortum Silesia SA	Poland	C	100.0
Fortum Sprzedaż Sp. z o.o.	Poland	CS	100.0
Rejonowa Spółka Ciepłownicza Sp. z o.o.	Poland	C	100.0
Joint Stock Company Chelyabenergomont	Russia	R	100.0
Fortum-New Generation 2 Limited Liability Company ¹⁾	Russia	R	100.0
Fortum-New Generation 4 Limited Liability Company ¹⁾	Russia	R	100.0
Fortum-New Generation 5 Limited Liability Company ¹⁾	Russia	R	100.0
LLC Bugulchanskaya Solar power station	Russia	R	100.0
PAO Fortum	Russia	R	98.2
Ural Heat Networks Company Joint Stock Company	Russia	R	100.0
HQ Services Limited	Rwanda	C	49.0
Escandinava de Electricidad S.L.U	Spain	CS	100.0
Blybergs Kraftaktiebolag	Sweden	G	66.7
Brännälven Kraft AB	Sweden	G	67.0
Bullerforsens Kraft Aktiebolag	Sweden	G	88.0

Company name	Domicile	Segment	Group holding, %
Energibolaget i Sverige Holding AB	Sweden	CS	100.0
Energikundservice Sverige AB	Sweden	CS	100.0
Fortum 1 AB	Sweden	R	100.0
Fortum Energy AB	Sweden	CS	100.0
Fortum Fastigheter AB	Sweden	O	100.0
Fortum Markets AB	Sweden	CS	100.0
Fortum Produktionsnät AB	Sweden	G	100.0
Fortum Recharge AB ¹⁾	Sweden	O	100.0
Fortum Sverige AB	Sweden	C,G,O	100.0
Fortum Sweden AB ²⁾	Sweden	O	100.0
Fortum Vind Norr AB	Sweden	G	100.0
Fortum Waste Solutions AB	Sweden	C	100.0
Fortum Waste Solutions Holding AB	Sweden	C	100.0
Göta Energi AB	Sweden	CS	100.0
Mellansvensk Kraftgrupp Aktiebolag	Sweden	G	86.9
Nord Wind Sweden AB ¹⁾	Sweden	G	100.0
Nordgroup Waste Management AB	Sweden	C	100.0
Oreälvens Kraftaktiebolag	Sweden	G	65.0
Sävar Vindkraft AB	Sweden	G	100.0
Solberg Vindkraft AB	Sweden	G	100.0
Uddeholm Kraft Aktiebolag	Sweden	G	100.0
Värmlandskraft-OKG-delägarna Aktiebolag	Sweden	G	73.3
VG Power Tools AB	Sweden	C	100.0
VG Power Turbo AB	Sweden	C	100.0
FB Generation Services B.V.	The Netherlands	O	100.0
Fortum 2 B.V.	The Netherlands	O	100.0
Fortum 3 B.V.	The Netherlands	G	100.0
Fortum Charge & Drive B.V.	The Netherlands	O	100.0
Fortum Finance B.V.	The Netherlands	O	100.0
Fortum H&C B.V. ¹⁾	The Netherlands	O	100.0
Fortum Holding B.V. ²⁾	The Netherlands	C,G,O,CS	100.0
Fortum Hydro B.V.	The Netherlands	O	100.0
Fortum India B.V.	The Netherlands	C	100.0
Fortum Power Holding B.V.	The Netherlands	O	100.0
Fortum Russia B.V.	The Netherlands	R	100.0
Fortum Russia Holding B.V.	The Netherlands	O	100.0
Fortum SAR B.V.	The Netherlands	O	100.0
Fortum Star B.V.	The Netherlands	O	100.0
Nordic Wind B.V. ¹⁾	The Netherlands	G	100.0
PolarSolar B.V.	The Netherlands	C	100.0
Valo Ventures I LP Fund	USA	O	99.0

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Financial key figures

Fortum has adopted the IFRS 16 standard from 1 January 2019 onwards. Fortum has applied the transition relief for not restating the comparative figures from 2018. See additional information in [▶ Note 1 Significant accounting policies](#).

For information of Alternative Performance Measures used by Fortum, see [▶ Definitions of key figures](#) and [▶ Note 1 Significant accounting policies](#).

EUR million or as indicated	2019	2018	Change 19/18%
Income statement			
Sales	5,447	5,242	4
EBITDA ¹⁾	1,685	1,674	1
Comparable EBITDA	1,766	1,523	16
Operating profit	1,110	1,138	-2
- of sales %	20.4	21.7	
Comparable operating profit	1,191	987	21
Share of profit of associates and joint ventures	744	38	1,858
Profit before income tax	1,728	1,040	66
- of sales %	31.7	19.8	
Profit for the period	1,507	858	76
- of which attributable to owners of the parent	1,482	843	76
Financial position and cash flow			
Capital employed	19,929	18,170	10
Interest-bearing net debt	5,260	5,509	-5
Capital expenditure and gross investments in shares	819	4,672	-82
- of sales %	15.0	89.1	
Capital expenditure	713	584	22
Net cash from operating activities	2,015	804	151

EUR million or as indicated	2019	2018	Change 19/18%
Key ratios			
Return on capital employed, %	10.0	6.7	
Return on shareholders' equity, %	11.9	6.8	
Interest coverage	8.0	10.0	
Interest coverage including capitalised borrowing costs	7.5	9.2	
Funds from operations/interest-bearing net debt, %	32.2	26.8	
Gearing, %	40	46	
Comparable net debt/EBITDA	3.0	3.6	
Equity-to-assets ratio, %	57	54	
Other data			
Dividends	977 ²⁾	977	0
Research and development expenditure	67	56	20
- of sales %	1.2	1.1	
Average number of employees	8,248	8,767	

1) EBITDA is defined as Operating profit + Depreciation and amortisation.

2) Board of Directors' proposal for the planned Annual General Meeting on 17 March 2020.

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

Share key figures

EUR million or as indicated	2019	2018	Change 19/18%
Data per share			
Earnings per share	1.67	0.95	76
Cash flow per share	2.27	0.91	149
Equity per share	14.61	13.33	10
Dividend per share	1.10 ¹⁾	1.10	0
Payout ratio, %	65.9 ¹⁾	115.8	
Dividend yield, %	5.0 ¹⁾	5.8	
Price/earnings ratio (P/E)	13.2	20.1	
Share prices			
At the end of the period	22.00	19.10	
Average	20.06	19.10	
Lowest	18.09	16.43	
Highest	22.50	22.91	
Other data			
Market capitalisation at the end of the period, EUR million	19,542	16,966	
Trading volumes ²⁾			
Number of shares, 1,000 shares	372,272	474,705	
In relation to weighted average number of shares, %	41.9	53.4	
Number of shares, 1,000 shares	888,294	888,294	
Number of shares excluding own shares, 1,000 shares	N/A	N/A	
Average number of shares, 1,000 shares	888,294	888,312	
Diluted adjusted average number of shares, 1,000 shares	888,294	888,312	

1) Board of Directors' proposal for the Annual General Meeting on 17 March 2020.

2) Trading volumes in the table represent volumes traded on Nasdaq Helsinki. In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market as well. During 2019, approximately 73% (2018: 68%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

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

Segment key figures

Sales by segment, EUR million	2019	2018
Generation	2,141	1,842
- of which internal	259	-2
City Solutions	1,200	1,110
- of which internal	45	37
Consumer Solutions	1,835	1,759
- of which internal	-3	11
Russia	1,071	1,069
- of which internal	0	0
Other Operations	115	103
- of which internal	86	79
Eliminations and Netting of Nord Pool transactions	-916	-641
Total	5,447	5,242

Comparable operating profit by segment, EUR million	2019	2018
Generation	794	628
City Solutions	121	135
Consumer Solutions	79	53
Russia	316	271
Other Operations	-119	-99
Comparable operating profit	1,191	987
Impairment charges	-8	-4
Capital gains and other	7	102
Changes in fair values of derivatives hedging future cash flow	-72	98
Nuclear fund adjustment	-9	-45
Operating profit	1,110	1,138

Comparable EBITDA by segment, EUR million	2019	2018
Generation	939	763
City Solutions	309	310
Consumer Solutions	141	110
Russia	469	417
Other Operations	-91	-78
Total	1,766	1,523

Depreciation and amortisation by segment, EUR million	2019	2018
Generation	145	135
City Solutions	188	175
Consumer Solutions	62	57
Russia	153	147
Other Operations	28	22
Total	575	536

Share of profit of associates and joint ventures by segment, EUR million	2019	2018
Generation	10	-72
City Solutions	37	74
Russia	59	36
Other Operations	638	0
Total	744	38

Capital expenditure by segment, EUR million	2019	2018
Generation	247	248
City Solutions	313	209
Consumer Solutions	55	47
Russia	67	54
Other Operations	31	26
Total	713	584

Gross investments in shares by segment, EUR million	2019	2018
Generation	13	14
City Solutions	9	33
Consumer Solutions	0	0
Russia	66	63
Other Operations	18	3,977
Total	106	4,088

Gross divestments of shares by segment, EUR million

	2019	2018
Generation	12	160
City Solutions	2	147
Consumer Solutions	0	0
Russia	0	0
Other Operations	16	0
Total	30	306

Comparable net assets by segment, EUR million

	2019	2018
Generation	6,147	6,485
City Solutions	3,892	3,794
Consumer Solutions	640	648
Russia	3,205	2,789
Other Operations	4,356	4,023
Total	18,239	17,739

Comparable return on net assets by segment, %

	2019	2018
Generation	12.8	10.8
City Solutions	4.7	5.5
Consumer Solutions	13.2	7.8
Russia	12.3	10.3
Other Operations	1.4	-5.8

Average number of employees by segment

	2019	2018
Generation	1,122	1,107
City Solutions	1,979	1,994
Consumer Solutions	1,379	1,473
Russia	2,942	3,378
Other Operations	825	814
Total	8,248	8,767

Definitions of key figures

Alternative performance measures

Business performance	Definition	Reason to use the measure	Reference to reconciliation	Business performance	Definition	Reason to use the measure	Reference to reconciliation
Comparable EBITDA	Operating profit + depreciations and amortisations - items affecting comparability	Comparable EBITDA is representing the underlying cash flow generated by the total Group and segments. Used as a component in the capital structure target of Comparable net debt /EBITDA.	► Note 5 Capital risk management	Changes in fair values of derivatives hedging future cash flow	Effects from financial derivatives hedging future cash-flows where hedge accounting is not applied or own use exemption cannot be used according to IFRS 9, which are adjusted from other income or to sales and materials and services respectively when calculating Fortum's alternative performance measures.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement
Comparable operating profit	Operating profit - items affecting comparability	Comparable operating profit is used in financial target setting and forecasting, management's follow up of financial performance and allocation of resources in the group's performance management process.	Income statement	Nuclear fund adjustment	Effects from the accounting of Fortum's part of the Finnish Nuclear Waste Fund where the asset on the balance sheet cannot exceed the related liabilities according to IFRIC interpretation 5, which are adjusted from materials and services. In addition adjustments are made for accounting effects from valuation according to IFRS.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement
Items affecting comparability	Impairment charges + capital gains and other + changes in fair values of derivatives hedging future cash flow + nuclear fund adjustment	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement	Comparable return on net assets, %	$\frac{\text{Comparable operating profit + share of profit (loss) in associated companies and joint ventures + adjustment for share of profit of associated companies and joint ventures}}{\text{Comparable net assets average}} \times 100$	Comparable return on net assets is used in financial target setting and forecasting, management's follow up of financial performance and allocation of resources in the group's performance management process.	► Note 6 Segment reporting
Impairment charges	Impairment charges and related provisions (mainly dismantling), which are adjusted from depreciation and amortisation.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement	Adjustment for Share of profit of associated companies and joint ventures	Adjustment for material items affecting comparability.	Share of profit of associates and joint ventures is included in profit component in the comparable RONA calculation and the adjustments are done based on similar components as in Items affecting comparability.	► Note 6 Segment reporting
Capital gains and other	Capital gains and transaction costs from acquisitions, which are adjusted from other income and other expenses, respectively. Profits from the capital recycling business model are presented in comparable operating profit because the business results are realised through divesting the shareholding, either partially or totally.	Component used in calculating comparable operating profit and comparable EBITDA.	Income statement	Comparable net assets	Non-interest bearing assets + interest-bearing assets related to the Nuclear Waste Fund - non-interest bearing liabilities - provisions (non-interest bearing assets and liabilities do not include finance related items, tax and deferred tax and assets and liabilities from fair valuations of derivatives used for hedging future cash flows).	Comparable net assets is a component in Comparable return on net assets calculation where return on capital allocated directly to the businesses is measured.	► Note 6 Segment reporting

Capital structure	Definition	Reason to use the measure	Reconciliation
Comparable net debt / EBITDA	$\frac{\text{Interest-bearing net debt}}{\text{Comparable EBITDA}}$	Financial targets give guidance on Fortum's view of the company's long-term value creation potential, its growth strategy and business activities. Comparable net debt to EBITDA is one of the Fortum's long-term over-the-cycle financial targets measuring the capital structure of the Group.	► Note 5 Capital risk management
Interest-bearing net debt	Interest-bearing liabilities - liquid funds	Interest-bearing net debt is used in the follow-up of the indebtedness of the group i.e. capital structure especially as a component in the long-term over-the-cycle financial target of Comparable net debt / EBITDA in the Group.	► Note 27 Interest-bearing liabilities
Return on capital employed (ROCE), %	$\frac{\text{Profit before taxes + interest and other financial expenses}}{\text{Capital employed average}} \times 100$	Return on capital employed (ROCE) is a long-term over the cycle financial ratio measuring the profitability and how efficiently invested capital is used. It gives guidance on company's long-term value creation potential, its growth strategy and business activities.	► Note 5 Capital risk management
Capital employed	Total assets - total non-interest bearing liabilities	Capital employed is the book value of the invested capital and it is used as a component when calculating the Return of capital employed in the group.	► Note 5 Capital risk management

Other key figures

Share based key figures

Earnings per share (EPS)	$\frac{\text{Profit for the period - non-controlling interests}}{\text{Average number of shares during the period}}$
Cash flow per share	$\frac{\text{Net cash from operating activities}}{\text{Average number of shares during the period}}$
Equity per share	$\frac{\text{Shareholders' equity}}{\text{Number of shares at the end of the period}}$
Payout ratio, %	$\frac{\text{Dividend per share}}{\text{Earnings per share}} \times 100$
Dividend yield, %	$\frac{\text{Dividend per share}}{\text{Share price at the end of the period}} \times 100$
Price/earnings (P/E) ratio	$\frac{\text{Share price at the end of the period}}{\text{Earnings per share}}$
Average share price	$\frac{\text{Amount traded in euros during the period}}{\text{Number of shares traded during the period}}$
Market capitalisation	Number of shares at the end of the period x share price at the end of the period
Trading volumes	Number of shares traded during the period in relation to the weighted average number of shares during the period

Other key figures

Funds from operations (FFO)	Net cash from operating activities before change in working capital
Capital expenditure	Capitalised investments in property, plant and equipment and intangible assets including maintenance, productivity, growth and investments required by legislation including borrowing costs capitalised during the construction period. Maintenance investments expand the lifetime of an existing asset, maintain usage/availability and/or maintains reliability. Productivity investments improve productivity in an existing asset. Growth investments' purpose is to build new assets and/or to increase customer base within existing businesses. Legislation investments are done at a certain point of time due to legal requirements.
Gross investments in shares	Investments in subsidiary shares, shares in associated companies and joint ventures and other investments. Investments in subsidiary shares are net of cash and grossed with interest-bearing liabilities in the acquired company.
Return on shareholders' equity (ROE), %	$\frac{\text{Profit for the year}}{\text{Total equity average}} \times 100$
Gearing, %	$\frac{\text{Interest-bearing net debt}}{\text{Total equity including non-controlling interests}} \times 100$
Equity-to-assets ratio, %	$\frac{\text{Total equity including non-controlling interests}}{\text{Total assets}} \times 100$
Interest coverage	$\frac{\text{Operating profit}}{\text{Net interest expenses}}$
Interest coverage including capitalised borrowing costs	$\frac{\text{Operating profit}}{\text{Net interest expenses - capitalised borrowing costs}}$
Average number of employees	Based on monthly average for the whole period

Definitions for tax figures

Effective income tax rate, %	=	$\frac{\text{Income tax expense}}{\text{Profit before income tax}} \times 100$
Comparable effective income tax rate, %	=	$\frac{\text{Income tax expense - effects from tax rate changes and major one time income tax effects}}{\text{Profit before income tax decreased by profits from associated companies and joint ventures as well as tax exempt capital gains or losses}} \times 100$
Weighted average applicable income tax rate	=	Sum of the proportionately weighted share of profits before taxes of each group operating country multiplied with an applicable nominal tax rate of the respective countries.

Parent company financial statements, Finnish GAAP (FAS)

Income statement

EUR million	Note	2019	2018
Sales	2	82	82
Other income	3	7	8
Employee benefits	4	-37	-36
Depreciation, amortisation and write-downs	8	-8	-8
Other expenses		-84	-78
Operating loss		-40	-33
Financial income and expenses	6	4	751
Loss/profit before appropriations		-35	719
Group contributions received ¹⁾		286	85
Profit before income tax		251	803
Income tax expense	7	-37	-5
Profit for the year		213	798

1) Taxable profits transferred from Finnish subsidiaries.

Balance sheet

EUR million	Note	31 Dec 2019	31 Dec 2018
ASSETS			
Non-current assets			
Intangible assets	8	24	23
Property, plant and equipment	8	12	10
Shares in Group companies	8	16,702	16,725
Interest-bearing receivables from Group companies	8	2,952	2,954
Interest-bearing receivables from associated companies	8	1	1
Other non-current assets	8	0	0
Derivative financial instruments	13, 14	160	157
Deferred tax assets		5	1
Total non-current assets		19,857	19,870
Current assets			
Other current receivables from Group companies	9	314	99
Other current receivables from associated companies	9	0	0
Derivative financial instruments	13, 14	126	167

EUR million	Note	31 Dec 2019	31 Dec 2018
Other current receivables	9	10	10
Deposits and securities (maturity over three months)		70	27
Cash and cash equivalents		1,095	132
Liquid funds		1,165	159
Total current assets		1,614	435
Total assets		21,471	20,305

EQUITY

	Note	31 Dec 2019	31 Dec 2018
Shareholders' equity	10		
Share capital		3,046	3,046
Share premium		2,822	2,822
Hedging reserve		-20	-11
Retained earnings		4,025	4,205
Profit for the year		213	798
Total equity		10,087	10,859

Provisions for liabilities and charges

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LIABILITIES

Non-current liabilities

External interest-bearing liabilities	11, 13, 14	5,414	4,386
Interest-bearing liabilities to Group companies		5,240	3,400
Interest-bearing liabilities to associated companies		293	293
Derivative financial instruments	13, 14	78	51
Other non-current liabilities		23	35
Total non-current liabilities		11,048	8,165

Current liabilities

External interest-bearing liabilities	11	136	1,074
Trade and other payables to Group companies	12	10	13
Trade and other payables to associated companies	12	9	2
Derivative financial instruments	13, 14	63	103
Trade and other payables	12	118	88
Total current liabilities		336	1,281
Total liabilities		11,384	9,446
Total equity and liabilities		21,471	20,305

Cash flow statement

EUR million	2019	2018
Cash flow from operating activities		
Profit for the year	213	798
Adjustments:		
Income tax expense	37	5
Group contributions	-286	-85
Finance costs - net	-4	-751
Depreciation, amortisation and write-downs	8	8
Operating profit before depreciation (EBITDA)	-32	-24
Non-cash flow items	0	0
Interest and other financial income received	26	18
Interest and other financial expenses paid	-97	-104
Dividends received	87	796
Group contributions received	85	157
Realised foreign exchange gains and losses	37	16
Income taxes paid	-3	-6
Funds from operations	102	853
Other short-term receivables increase(-)/decrease(+)	-12	9
Other short-term payables increase(+)/decrease(-)	-1	-4
Change in working capital	-13	4
Net cash from operating activities	90	857
Cash flow from investing activities		
Capital expenditures	-8	-16
Acquisition of shares and capital contributions in subsidiaries	0	0
Capital returns	0	0
Proceeds from sales of fixed assets	0	0
Change in interest-bearing receivables and other non-current assets	-2	-2,744
Net cash used in investing activities	-11	-2,760
Cash flow before financing activities	79	-1,903

EUR million	2019	2018
Cash flow from financing activities		
Proceeds from long-term liabilities	2,808	1,762
Payment of long-term liabilities	-2,540	-530
Change in cashpool liabilities	1,838	110
Change in short-term liabilities	-201	-1,810
Dividends paid	-977	-977
Net cash from/used in financing activities	927	-1,444
Net increase(+)/decrease(-) in liquid funds	1,006	-3,347
Liquid funds at the beginning of the year	159	3,506
Liquid funds at the end of the year	1,165	159

Notes to the Parent Company Financial Statements, FAS

1 Accounting policies and principles

The financial statements of Fortum Oyj for the year ended 31 December 2019 are prepared in accordance with Finnish Accounting Standards (FAS).

1.1 Sales

Sales include sales revenue from actual operations and exchange rate differences on trade receivables, less discounts and indirect taxes such as value added tax.

1.2 Other income

Other income includes gains on the sales of property, plant and equipment and shareholdings, as well as all other operating income not related to the sales of products or services, such as rents.

1.3 Foreign currency items and derivative instruments

Transactions denominated in foreign currencies have been valued using the exchange rate at the date of the transaction. Receivables and liabilities denominated in foreign currencies outstanding on the balance sheet date have been valued using the exchange rate quoted on the balance sheet date. Exchange rate differences have been entered in the financial net in the income statement.

Fortum Oyj enters into derivative contracts mainly for hedging foreign exchange and interest rate exposures in Fortum Group.

Finnish Accounting Board issued new requirements for accounting of financial derivatives on 13 December 2016 (KILA 1963/2016), whereby Fortum Oyj chose to apply IAS 39 standard in statutory financial statements. Fortum Oyj applied IFRS 9 Financial Instruments standard from 1 Jan 2018 for derivative instruments and hedge accounting.

Accounting principles of financial derivatives, see ▶ **Note 4** Financial risk management, ▶ **Note 15** Financial assets and liabilities by categories and ▶ **Note 16** Financial assets and liabilities by fair value hierarchy in the Consolidated financial statements.

1.4 Income taxes

Income taxes presented in the income statement consist of accrued taxes for the financial year and tax adjustments for prior years.

1.5 Shares in group companies

The balance sheet value of shares in group companies consists of historical costs less write-downs. If the estimated future cash flows generated by a non-current asset are expected to be permanently lower than the balance of the carrying amount, an adjustment to the value must be made to write-down the difference as an expense. If the basis for the write-down can no longer be justified at the balance sheet date, it must be reversed.

1.6 Intangible assets and Property, plant and equipment

The balance sheet value of intangible assets and property, plant and equipment consists of historical costs less depreciation and possible impairments. Intangible assets and Property, plant and equipment are depreciated using straight-line depreciation based on the expected useful life of the asset.

The depreciation is based on the following expected useful lives:

Buildings and structures	15–40 years
Machinery and equipment	3–15 years
Intangible assets	5–10 years

1.7 Pension expenses

Statutory pension obligations are covered through a compulsory pension insurance policy or Group's own pension fund. Costs for pension fund are recorded in the income statement based on contributions paid pursuant to the Finnish pension laws and regulations.

1.8 Long-term incentive schemes

Costs related to the Fortum long-term incentive plans are accrued over the earnings period and the related liability is booked to the balance sheet.

1.9 Provisions

Foreseeable future expenses and losses that have no corresponding revenue to which Fortum is committed or obliged to settle, and whose monetary value can be reasonably assessed, are entered as expenses in the income statement and included as provisions on the balance sheet.

2 Sales by market area

EUR million	2019	2018
Finland	53	52
Other countries	29	30
Total	82	82

3 Other income

EUR million	2019	2018
Rental and other income	7	8
Total	7	8

4 Employee benefits

EUR million	2019	2018
Personnel expenses		
Wages, salaries and remunerations	29	26
Indirect employee costs		
Pension costs	5	6
Other indirect employee costs	1	1
Other personnel expenses	3	3
Total	37	36

EUR thousand	2019	2018
Compensation for the President and CEO	Pekka Lundmark, President and CEO	Pekka Lundmark, President and CEO
Salaries and fringe benefits	1,057	1,048
Performance bonuses ¹⁾	200	228
Share-based incentives ^{1) 2)}	898	297
Pensions (statutory)	207	250
Pensions (voluntary)	265	252
Social security expenses	39	36
Total	2,666	2,112

1) Based on estimated amounts

2) Share-based incentives increased in 2019 mainly due to the higher earnings outcome from settled plans.

EUR thousand	2019	2018
Compensation for the Board of Directors	529	483

The compensation above is presented on accrual basis. Paid salaries and remunerations for the President and CEO Pekka Lundmark were EUR 2,213 thousand (2018: 1,594).

For the President and CEO Pekka Lundmark the retirement age of old-age pension is 63. The pension obligations are covered through insurance company.

Board members are not in an employment relationship or service contract with Fortum, and they are not given the opportunity to participate in Fortum's STI or LTI programme, nor does Fortum have a pension plan that they can opt to take part in. The compensation of the board members is not tied to the sustainability performance of the Group.

See [Note 11](#) Employee benefits and Board remuneration and [Note 31](#) Pension obligations in the Consolidated financial statements.

	2019	2018
Average number of employees	268	265

5 Auditor's fees

EUR thousand	2019	2018
Audit fees	614	364
Audit-related assignments	73	58
Tax assignments	3	0
Total	690	422

Deloitte Oy is the appointed auditor until the next Annual General Meeting, to be held in 2020. Audit fees include fees for the audit of the consolidated financial statements, review of the interim reports as well as the fees for the audit of Fortum Oyj. Audit related assignments include fees for assurance of sustainability reporting and other assurance and associated services related to the audit. Tax assignments include fees for tax advice services.

6 Financial income and expenses

EUR million	2019	2018
Dividend income from group companies	87	796
Dividend income from associated companies and other companies	0	0
Interest and other financial income from group companies	32	16
Write-downs of participations in group companies	-22	0
Write-downs of participations in associated companies	0	-2
Write-downs of loan receivables	0	-17
Interest and other financial income	0	0
Exchange rate differences	1	37
Changes in fair values of derivatives	-7	1
Interest and other financial expenses to group companies	-6	-2
Interest and other financial expenses	-80	-78
Total	4	751
Interest income	27	17
Interest expenses	-75	-75
Interest costs - net	-48	-58

7 Income tax expense

EUR million	2019	2018
Taxes on regular business operations	-20	-12
Taxes on group contributions	57	17
Total	37	5
Current taxes for the year	36	5
Current taxes for prior periods	0	0
Changes in deferred tax	1	0
Total	37	5

8 Non-current assets

Intangible assets

EUR million	Total
Cost 1 January 2019	48
Additions	38
Disposals	-38
Cost 31 December 2019	48
Accumulated depreciation 1 January 2019	25
Disposals	-6
Depreciation for the year	6
Accumulated depreciation 31 December 2019	24
Carrying amount 31 December 2019	24
Carrying amount 31 December 2018	23

Property, plant and equipment

EUR million	Buildings and structures	Machinery and equipment	Advances paid and construction in progress	Total
Cost 1 January 2019	0	10	4	14
Additions and transfers between categories	0	1	3	4
Disposals	0	-1	0	-2
Cost 31 December 2019	0	10	7	16
Accumulated depreciation 1 January 2019	0	4	0	4
Disposals	0	-1	-	-1
Depreciation for the year	0	2	-	2
Accumulated depreciation 31 December 2019	0	5	0	5
Carrying amount 31 December 2019	0	5	7	12
Carrying amount 31 December 2018	0	5	4	10

Investments

EUR million	Shares in Group companies	Participation in associated companies	Receivables from Group companies	Receivables from associated companies	Other non-current assets	Total
Cost 1 January 2019	17,847	6	2,954	17	8	20,831
Additions ¹⁾	0	0	58	0	0	59
Disposals	0	-	-60	-	-	-60
Cost 31 December 2019	17,847	6	2,952	17	8	20,830
Accumulated write-downs 1 January 2019	1,123	6	0	15	8	1,152
Impairment charges	22	0	-	0	0	22
Accumulated write-downs 31 December 2019	1,145	6	0	15	8	1,174
Carrying amount 31 December 2019	16,702	0	2,952	1	0	19,656
Carrying amount 31 December 2018	16,725	0	2,954	1	0	19,680

1) Additions regarding shares comprise acquisitions of shares and capital contributions and reclassification between other non-current assets and shares in Group companies.

9 Other current receivables

EUR million	2019	2018
Other current receivables from group companies		
Trade receivables	9	10
Group contribution and other receivables	286	85
Accrued income and prepaid expenses	18	5
Total	314	99
Other current receivables		
Trade receivables	0	0
Other receivables	4	0
Accrued income and prepaid expenses	6	10
Total	10	10

See [Note 4.5](#) Liquidity and refinancing risk in the Consolidated financial statements.

10 Changes in shareholders' equity

EUR million	Share capital	Share premium	Hedging reserve	Retained earnings	Total
1 January 2019	3,046	2,822	-11	5,002	10,859
Cash dividend	-	-	-	-977	-977
Change in hedging reserve	-	-	-9	-	-9
Profit for the year	-	-	-	213	213
31 December 2019	3,046	2,822	-20	4,239	10,087
1 January 2018	3,046	2,822	-11	5,182	11,038
Cash dividend	-	-	-	-977	-977
Change in hedging reserve	-	-	1	-	1
Profit for the year	-	-	-	798	798
31 December 2018	3,046	2,822	-11	5,002	10,859

EUR million	2019	2018
Distributable funds		
Retained earnings 31 December	4,239	5,002
Hedging reserve	-20	-11
Total	4,219	4,991

11 Interest-bearing liabilities

EUR million	2019	2018
External interest-bearing liabilities		
Bonds	4,251	1,746
Loans from financial institutions	311	1,775
Other long-term interest-bearing debt	852	865
Total long-term interest-bearing debt	5,414	4,386
Current portion of long-term bonds	0	750
Current portion of loans from financial institutions	26	42
Current portion of other long-term interest-bearing debt	34	0
Other short-term interest-bearing debt	76	283
Total short-term interest-bearing debt	136	1,074
Total ¹⁾	5,550	5,460

Maturity of external interest-bearing liabilities

EUR million	2019
2020	136
2021	520
2022	1,033
2023	1,093
2024	300
2025 and later	2,468
Total ¹⁾	5,550

See [► Note 4.5](#) Liquidity and refinancing risk and [► Note 27](#) Interest-bearing liabilities in the Consolidated financial statements.

EUR million	2019	2018
External interest-bearing liabilities due after five years		
Bonds	1,616	97
Other long-term liabilities	852	865
Total ¹⁾	2,468	962

EUR million	2019	2018
Other interest-bearing liabilities due after five years		
Interest-bearing liabilities to associated companies	293	293
Total	293	293

1) Excludes liabilities to Group and associated companies.

Non-discounted cash flows of interest-bearing liabilities and their maturities, see [► Note 13](#) Financial derivatives.

12 Trade and other payables

EUR million	2019	2018
Trade and other payables to group companies		
Trade payables	1	3
Deposits from group companies and other liabilities	9	10
Accruals and deferred income	0	0
Total	10	13
Trade and other payables to associated companies		
Accruals and deferred income	9	2
Total	9	2
Trade and other payables		
Trade payables	14	11
Other liabilities	35	5
Accruals and deferred income	69	73
Total	118	88

13 Financial derivatives

Interest rate and currency derivatives by instrument 2019

EUR million	Notional amount Remaining lifetimes			Total	Fair value		
	Under 1 year	1–5 years	Over 5 years		Positive	Negative	Net
Forward foreign exchange contracts	10,489	716	0	11,205	125	70	56
Interest rate swaps	0	2,715	1,525	4,240	153	53	100
Interest rate and currency swaps	104	263		367	8	17	-10
Total	10,592	3,694	1,525	15,811	286	140	146
Of which long-term					160	78	82
Short-term					126	63	63

Interest rate and currency derivatives by instrument 2018

EUR million	Notional amount Remaining lifetimes				Fair value		
	Under 1 year	1–5 years	Over 5 years	Total	Positive	Negative	Net
Forward foreign exchange contracts	8,523	786		9,309	99	83	15
Interest rate swaps	1,515	2,242	225	3,982	159	70	88
Interest rate and currency swaps	383	265		648	66	0	66
Total	10,420	3,293	225	13,938	324	154	170
Of which long-term					157	51	106
Short-term					167	103	64

Maturity analysis of interest-bearing liabilities and derivatives

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

EUR million	2019				2018			
	Under 1 year	1–5 years	Over 5 years	Total	Under 1 year	1–5 years	Over 5 years	Total
Interest-bearing liabilities	269	3,151	2,995	6,415	1,192	3,582	1,437	6,211
Interest rate and currency derivatives liabilities	10,734	1,169	90	11,994	8,946	1,159	16	10,121
Interest rate and currency derivatives receivables	-10,818	-1,186	-100	-12,103	-9,037	-1,203	-21	-10,260
Total	185	3,135	2,986	6,306	1,101	3,538	1,433	6,072

Interest-bearing liabilities include loans from the State Nuclear Waste Management Fund and Teollisuuden Voima Oyj with balance value of EUR 1,185 million (2018: 1,158). These loans are renewed yearly and the related interest payments are calculated for ten years in the table above.

14 Derivatives and liabilities by fair value hierarchy

Fair value measurements are classified using a fair value hierarchy i.e. Level 1, Level 2 and Level 3 that reflects the significance of the inputs used in making the measurements. For further information look accounting principles in Fortum consolidated accounts ▶ **Note 16** Financial assets and liabilities by fair value hierarchy.

Derivatives in financial assets

EUR million	Level 1		Level 2		Level 3		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
In non-current assets								
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			155	149			155	149
Non-hedge accounting			5	8			5	8
In current assets								
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			13	21			13	21
Non-hedge accounting			113	146			113	146
Total			286	324			286	324

Derivatives and liabilities at fair value in financial liabilities

EUR million	Level 1		Level 2		Level 3		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
In non-current liabilities								
Interest-bearing liabilities ¹⁾			2,293	930			2,293	930
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			73	43			73	43
Non-hedge accounting			5	8			5	8
In current liabilities								
Derivative financial instruments								
Interest rate and currency derivatives								
Hedge accounting			5	5			5	5
Non-hedge accounting			58	98			58	98
Total			2,434	1,083			2,434	1,083

1) Fair valued part of bond in the fair value hedge relationship.

Net fair value amount of interest rate and currency derivatives is EUR 146 million (2018: 170), including assets EUR 286 million (2018: 324) and liabilities EUR 140 million (2018: 154). Fortum Corporation has cash collaterals based on Credit Support Annex agreements with some counterparties. At the end of December 2019 Fortum Corporation had received EUR 65 million (2018: 75) from Credit Support Annex agreements. The received cash has been booked as a short-term interest-bearing liability.

15 Contingent liabilities and other commitments

EUR million	2019	2018
On own behalf		
Other contingent liabilities	1	2
On behalf of group companies		
Guarantees ¹⁾	566	113
On behalf of associated companies		
Guarantees on behalf of Swedish associated companies	819	532
Total	1,385	647

1) Excludes parent company guarantee to acquire Uniper shares. See Guarantees on behalf of group companies below.

Guarantees on behalf of group companies

On 8 October 2019, Fortum entered into agreements to acquire all the shares in Uniper SE held by funds managed by Elliott Management Corporation and its affiliates (Elliott) and Knight Vinke Energy Advisors Limited and its affiliates (Knight Vinke), a total shareholding in excess of 20.5%. The transaction will be financed with existing cash resources and committed credit facilities underwritten by Barclays Bank PLC. In the said agreements Fortum has committed to paying the acquisition price of EUR 2.3–2.6 billion (depending on the number of shares acquired), for which Fortum Oyj has provided a parent company guarantee. See [▶ Note 3](#) Acquisitions, disposals and assets held for sale in the Consolidated financial statements.

Operating lease commitments

EUR million	2019	2018
Operating lease commitments		
Due within a year	7	8
Due after one year and within five years	17	28
Due after 5 years	9	14
Total	33	49

16 Related party transactions

See [▶ Note 38](#) Related party transactions in the Consolidated financial statements.

Investments in group companies, associated companies and other holdings

		No. of shares units	Holding %
Investments in group companies			
Fortum Waste Solutions Oy	Finland	3,520,800	100.00
Fortum Asiakaspalvelu Oy	Finland	10,010	100.00
Fortum Heat and Gas Oy	Finland	2,000,000	100.00
Fortum Heat Estonia Oy	Finland	91,197,543	100.00
Fortum Joensuu Oy	Finland	91,197,543	100.00
Fortum Markets Oy	Finland	24,039	100.00
Fortum Norm Oy	Finland	250	100.00
Fortum Power and Heat Oy	Finland	91,197,543	100.00
Fortum Real Estate Oy	Finland	2,000,000	100.00
Fortum India Private Ltd	India	1	0.10
Fortum Finance Ireland Designated Activity Company	Ireland	25,000	100.00
Fortum Sweden AB	Sweden	1,000	100.00
Fortum Holding B.V.	The Netherlands	61,062	100.00
Investments in associated companies			
Wello Oy	Finland	1,100,000	18.60
Other holdings			
AW-Energy Oy	Finland	2,854,688	3.43
Clic Innovation Oy	Finland	100	3.80
East Office of Finnish Industries Oy	Finland	1	5.88
Prototype Carbon Fund	USA	N/A	

17 Events after the balance sheet date

On 10 January 2020, Fortum concluded the sale of its district heating business in Joensuu, Finland, to Savon Voima Oyj, as announced on 20 December 2019. The total consideration of the sale on a debt- and cash-free basis was approximately EUR 530 million and the cash was received at the completion of the divestment on 10 January 2020.

Proposal for the use of the profit shown on the balance sheet

The distributable funds of Fortum Corporation as at 31 December 2019 amounted to EUR 4,219,128,198.51 including the profit of the financial period 2019 of EUR 213,409,797.80. The company's liquidity is good and the dividend proposed by the Board of Directors will not compromise the company's liquidity.

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

The Board of Directors proposes to the Annual General Meeting that a dividend of EUR 1.10 per share be paid for 2019.

Signatures for the operating and financial review and financial statements

Espoo, 5 February 2020

Matti Lievonen

Klaus-Dieter Maubach

Eva Hamilton

Kim Ignatius

Essimari Kairisto

Anja McAlister

Veli-Matti Reinikkala

Philipp Rösler

Pekka Lundmark
President and CEO

Auditor's report

To the Annual General Meeting of Fortum Oyj

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of Fortum Oyj (business identity code 1463611-4) for the year ended 31 December, 2019. The financial statements comprise the consolidated income statement, consolidated statement of comprehensive income, consolidated balance sheet, consolidated statement of changes in total equity, consolidated cash flow statement and notes to the consolidated financial statements, including a summary of significant accounting policies, as well as the parent company's income statement, balance sheet, cash flow statement and notes to the financial statements.

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position, financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU,
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report submitted to the Audit Committee.

Basis for Opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

In our best knowledge and understanding, the non-audit services that we have provided to the parent company and group companies are in compliance with laws and regulations applicable in Finland regarding these services, and we have not provided any prohibited non-audit services referred to in Article 5(1) of regulation (EU) 537/2014. The non-audit services that we have provided have been disclosed in note 9 to the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We have also addressed the risk of management override of internal controls. This includes consideration of whether there was evidence of management bias that represented a risk of material misstatement due to fraud.

Key audit matter

Uniper investment

Refer to notes 2, 3 and 19.

- On 26 June 2018, Fortum closed the Uniper SE (Uniper) offer and became the company's largest shareholder. Fortum holds 49.99% of the shares as of 31 December 2019.
- Fortum consolidates Uniper as an associated company from 30 June 2018. The total Uniper investment, approximately EUR 4.0 billion, is reported in the 'Participations in associated companies and joint ventures'.
- Purchase price allocation was finalised during Q2/2019.
- In Uniper transaction the purchase price allocation has been based on publicly available information since Uniper is a listed company and a competitor of Fortum. Due to the unique circumstances, preparing the purchase price allocation has required management judgement.
- Due to the size, Fortum's investment in Uniper may have significant effect on Fortum's financial reporting.

How our audit addressed the key audit matter

- We have assessed management's approach according to which the purchase price allocation has been accounted in the financial statements as well as the management judgement applied in preparing the purchase price allocation in line with IFRS.
- We have reviewed the management procedures and methodology in determining the fair value of the net assets acquired and preparing the purchase price allocation. We have challenged the management judgement relating to the key assumptions used in the valuation applied together with our valuation specialist.
- We have tested the application of the valuation model used as well as the mathematical accuracy of the cash flow projections on a sample basis.
- We have assessed the accounting treatment of the purchase price allocation in line with IFRS supported by our IFRS specialists and we have evaluated the accounting principles of the purchase price allocation. We assessed the adequacy of related disclosures in the financial statements.

Key audit matter

Valuation of fixed assets and goodwill

Refer to Notes 2, 17 and 18.

- The consolidated balance sheet includes property, plant and equipment amounting to EUR 10 123 million and goodwill amounting to EUR 612 million.
- The main assumptions used in the valuation of energy production property, plant and equipment and goodwill relate to the estimated future operating cash flows and the discount rates that are used in calculating the present value.
- Estimates are also made in an acquisition when determining the fair values and remaining useful lives of acquired intangible and tangible assets.
- The potential indicators for impairment are among other things changes in electricity and fuel prices, regulatory/political changes relating to energy taxes and price regulations.
- The assumptions used in the valuation of the balances in question require management judgment.
- This matter is a significant risk of material misstatement referred to in EU Regulation No 537/2014, point (c) of Article 10(2).

How our audit addressed the key audit matter

- We have evaluated the process how management has assessed the indicators for potential impairment. We have performed audit procedures on impairment models relating to material cash generating units.
- We have obtained entity's impairment testing documentation for goodwill and energy production assets and tested and evaluated the rationale of key assumptions applied by management on a sample basis, including commodity price forecasts, profit and cash flow forecasts, terminal values, foreign exchange rates and the selection of discount rates.
- We have compared, that the forecasts used in the impairment testing calculations are based on long term forecast approved by management.
- We challenged management's assumptions and judgments with reference to historical data and, where applicable, external benchmarks.
- We assessed the models used in the impairment testing and carried out our testing for the sensitivity calculations.
- We assessed the adequacy of related disclosures in the financial statements.

Key audit matter

Fair value measurement of derivatives and hedge accounting

Refer to Notes 4, 7, 8, 15 and 16.

- In Fortum's consolidated financial statements total derivative assets amounts to EUR 311 million and total derivative liabilities amounts to EUR 389 million. The net effect of changes in fair values of derivatives hedging future cash flow amounts to EUR -72 million in items affecting comparability in the consolidated income statement and the cash flow hedges in other equity components amount to EUR -70 million.
- The fair value and changes in fair values of derivative financial instruments may have significant impacts on Fortum's financial statements. Fortum's business is exposed to fluctuations in prices and volume of commodities used in the production and sales of energy products. The main exposure is toward energy prices. Electricity price risk is hedged by entering into electricity derivative contracts. Fortum uses derivative instruments to reduce the effect of electricity price volatility.

How our audit addressed the key audit matter

- Our audit procedures included an assessment of internal controls over the hedge accounting documentation and effectiveness testing, measurement of fair value measures, and evaluating the methodologies, inputs, judgments made and assumptions used by management in determining fair values.
- For Fortum's fair valuation models, we evaluated rationale of the models and accounting treatment applied. We have compared the assumptions used by management in valuation against externally available market data.
- We have assessed the existence and completeness of outstanding derivative contracts as of 31 December 2019 by requesting confirmations from the counterparties.
- We have assessed that financial instruments included in hedge relationships are accounted for in accordance with IFRS 9.
- We have assessed the adequacy of the presentation for derivative financial instruments and hedge accounting applied in the financial statements.

Key audit matter

Nuclear related assets and liabilities

Refer to Notes 2 and 29.

- Nuclear related provisions and Fortum's share of the Finnish Nuclear Waste Management Fund in Fortum's balance sheet amount to EUR 813 million.
- Fortum's nuclear related provisions and the related part of the Finnish State Nuclear Waste Management Fund are both presented separately in the balance sheet as disclosed in note 29.
- Fortum's share in the Finnish State Nuclear Waste Management Fund is accounted for according to IFRIC 5 which states that the fund assets are measured at the lower of fair value or the value of the related liabilities.
- Due to complexity and materiality, the accounting treatment for nuclear decommissioning is complex and requires application of special accounting practice and management judgment when forming estimates for the basis of accounting such as technical plans, timing, cost estimates and discount rate.

How our audit addressed the key audit matter

- We have assessed Fortum's accounting manual and principles for Nuclear Decommissioning Accounting, whether they are in line with IFRS accounting principles.
- We have assessed the assumptions and judgments made and adopted by the management in the accounting for the nuclear waste provisions and share in state nuclear waste management fund which have been based on current legislation and decisions set by Finnish State Nuclear Waste Management Fund.
- We assessed the adequacy of related disclosures in the financial statements.

Responsibilities of the Board of Directors and the President and CEO for the Financial Statements

The Board of Directors and the President and CEO are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the President and CEO are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the President and CEO are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or cease operations, or there is no realistic alternative but to do so.

Auditor's responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the President and CEO use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to

events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Other Reporting Requirements

Information on our audit engagement

We were first appointed as auditors by the Annual General Meeting on 16.3.2006, and our appointment represents a total period of uninterrupted engagement of 13 years.

Other information

The Board of Directors and the President and CEO are responsible for the other information. The other information comprises the Operating and Financial Review and the information included in the Financials but does not include

the financial statements and our auditor's report thereon. We have obtained the Operating and Financial Review prior to the date of this auditor's report, and the Financials is expected to be made available to us after that date.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to the Operating and Financial Review, our responsibility also includes considering whether the Operating and Financial Review has been prepared in accordance with the applicable laws and regulations.

In our opinion, the information in the Operating and Financial Review is consistent with the information in the financial statements and the Operating and Financial Review has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Other opinions

We support that the financial statements should be adopted. The proposal by the Board of Directors regarding the use of the profit shown on the balance sheet is in compliance with the Limited Liability Companies Act. We support that the Board of Directors of the parent company and the President and CEO should be discharged from liability for the financial period audited by us.

Espoo, 5 February 2020

Deloitte Oy
Audit Firm

Reeta Virolainen
Authorised Public Accountant (KHT)

Financial key figures

Comparability of information presented in tables

Fortum announced the sale of Swedish Distribution business in March 2015. After the divestment of the Swedish Distribution business Fortum has no electricity distribution operations and therefore Distribution segment was treated as discontinued operations in 2015, with restatement of year 2014, according to IFRS 5 Non-current Assets Held for Sale and Discontinued Operations.

Information in the tables and graphs presented for year 2012 or earlier is not restated due to the adoption of IFRS 10 and IFRS 11. Adoption of standards influences treatment of Fortum's holding in Stockholm Exergi AB (Exergi), (previously AB Fortum Värme samägt med Stockholms stad), in the consolidated financial statements. From 1 January 2014 onwards Exergi is treated as a joint venture and thus consolidated with equity method. Before the change the company was consolidated as a subsidiary with 50% minority interest.

Fortum adopted IFRS 16 on 1 January 2019, and IFRS 9 and IFRS 15 on 1 January 2018. Fortum applied the transition relief for not restating the comparatives of 2018 and 2017, respectively.

In 2019, Fortum classified certain assets as held for sale. These assets and the related liabilities are included in segment assets and liabilities at 31 December 2019.

For information of Alternative Performance Measures used by Fortum, see [► Definitions of key figures](#) and [► Note 1](#) Significant accounting policies.

EUR million or as indicated	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change 19/18%
Income statement											
Sales total Fortum	6,296	6,161	6,159	5,309	4,751	3,702	3,632	4,520	5,242	5,447	4
Sales continuing operations					4,088	3,459	3,632	4,520	5,242	5,447	4
EBITDA total Fortum ¹⁾	2,271	3,008	2,538	2,129	3,954	4,640	1,006	1,623	1,674	1,685	1
EBITDA continuing operations					1,673	196	1,006	1,623	1,674	1,685	1
Comparable EBITDA total Fortum	2,396	2,374	2,416	1,975	1,873	1,265	1,015	1,275	1,523	1,766	16
Comparable EBITDA continuing operations					1,457	1,102	1,015	1,275	1,523	1,766	16
Operating profit total Fortum	1,708	2,402	1,874	1,508	3,428	4,245	633	1,158	1,138	1,110	-2
- of sales %	27.1	39.0	30.4	28.4	72.2	114.7	17.4	25.6	21.7	20.4	
Operating profit continuing operations					1,296	-150	633	1,158	1,138	1,110	-2
- of sales %					31.7	-4.3	17.4	25.6	21.7	20.4	
Comparable operating profit total Fortum	1,833	1,802	1,752	1,403	1,351	922	644	811	987	1,191	21
Comparable operating profit continuing operations					1,085	808	644	811	987	1,191	21
Share of profit/loss of associates and joint ventures total Fortum	62	91	23	178	149	20	131	148	38	744	1,858
Profit before income tax total Fortum	1,615	2,228	1,586	1,398	3,360	4,088	595	1,111	1,040	1,728	66
- of sales %	25.7	36.2	25.8	26.3	70.7	110.4	16.4	24.6	19.8	31.7	
Profit before income tax continuing operations					1,232	-305	595	1,111	1,040	1,728	66
- of sales %					30.1	-8.8	16.4	24.6	19.8	31.7	
Profit for the period total Fortum	1,354	1,862	1,512	1,212	3,161	4,142	504	882	858	1,507	76
- of which attributable to owners of the parent	1,300	1,769	1,416	1,204	3,154	4,138	496	866	843	1,482	76
Profit for the period continuing operations					1,089	-228	504	882	858	1,507	76
- of which attributable to owners of the parent					1,081	-231	496	866	843	1,482	76

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EUR million or as indicated	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change 19/18%
Financial position and cash flow											
Capital employed total Fortum	16,124	17,931	19,420	19,183	17,918	19,870	18,649	18,172	18,170	19,929	10
Interest-bearing net debt	6,826	7,023	7,814	7,793	4,217	-2,195	-48	988	5,509	5,260	-5
Interest-bearing net debt without Exergi financing				6,658	3,664	N/A	N/A	N/A	N/A	N/A	
Capital expenditure and gross investments in shares total Fortum	1,249	1,482	1,574	1,020	843	669	1,435	1,815	4,672	819	-82
- of sales %	19.8	24.1	25.6	19.2	17.7	18.1	39.5	40.2	89.1	15.0	
Capital expenditure and gross investments in shares continuing operations					695	625	1,435	1,815	4,672	819	-82
Capital expenditure total Fortum	1,222	1,408	1,558	1,005	774	626	591	690	584	713	22
Capital expenditure continuing operations					626	582	591	690	584	713	22
Net cash from operating activities total Fortum	1,437	1,613	1,382	1,548	1,762	1,381	621	993	804	2,015	151
Net cash from operating activities continuing operations					1,406	1,228	621	993	804	2,015	151
Key ratios											
Return on capital employed total Fortum, %	11.6	14.8	10.2	9.0	19.5	22.7	4.0	7.1	6.7	10.0	
Return on shareholders' equity total Fortum, %	15.7	19.7	14.6	12.0	30.0	33.4	3.7	6.6	6.8	11.9	
Interest coverage total Fortum	13.7	10.5	7.6	6.7	19.9	27.6	4.6	8.7	10.0	8.0	
Interest coverage including capitalised borrowing costs total Fortum	10.0	8.5	5.7	5.3	15.7	21.5	4.1	7.8	9.2	7.5	
Funds from operations/interest-bearing net debt total Fortum, %	20.5	21.5	19.9	18.8	42.9	-59.7	-1,503.4	83.9	26.8	32.2	
Funds from operations/interest-bearing net debt without Exergi financing total Fortum, %				22.1	49.3	N/A	N/A	N/A	N/A	N/A	
Gearing, %	78	69	73	77	39	-16	0	7	46	40	
Comparable net debt/EBITDA total Fortum	2.8	3.0	3.2	3.9	2.3	-1.7	0.0	0.8	3.6	3.0	
Comparable net debt/EBITDA without Exergi financing				3.4	2.0	N/A	N/A	N/A	N/A	N/A	
Equity-to-assets ratio, %	40	44	43	43	51	61	62	61	54	57	
Other data											
Dividends	888	888	888	977	1,155	977	977	977	977	977 ²⁾	0
Research and development expenditure	30	38	41	49	41	47	52	53	56	67	20
- of sales %	0.5	0.6	0.7	0.9	1.0	1.4	1.4	1.2	1.1	1.1	
Average number of employees total Fortum	11,156	11,010	10,600	9,532	8,821	8,193	7,994	8,507	8,767	8,248	
Average number of employees continuing operations					8,329	8,009	7,994	8,507	8,767	8,248	

1) EBITDA is defined as Operating profit + Depreciation and amortisation.

2) Board of Directors' proposal for the planned Annual General Meeting on 17 March 2020.

See [Definitions of key figures](#).

Share key figures

EUR or as indicated	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change 19/18%
Data per share											
Earnings per share total Fortum	1.46	1.99	1.59	1.36	3.55	4.66	0.56	0.98	0.95	1.67	76
Earnings per share continuing operations					1.22	-0.26	0.56	0.98	0.95	1.67	76
Earnings per share discontinued operations	-	-	-	-	2.33	4.92	-	-	-	-	
Diluted earnings per share total Fortum	1.46	1.99	1.59	1.36	3.55	4.66	0.56	0.98	0.95	1.67	76
Diluted earnings per share continuing operations					1.22	-0.26	0.56	0.98	0.95	1.67	76
Diluted earnings per share discontinued operations	-	-	-	-	2.33	4.92	-	-	-	-	
Cash flow per share total Fortum	1.62	1.82	1.56	1.74	1.98	1.55	0.70	1.12	0.91	2.27	149
Cash flow per share continuing operations					1.38	1.38	0.70	1.12	0.91	2.27	149
Equity per share	9.24	10.84	11.30	11.28	12.23	15.53	15.15	14.69	13.33	14.61	10
Dividend per share	1.00	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10	1.10 ¹⁾	0
Extra dividend					0.20	-	-	-	-	-	
Payout ratio, %	68.5	50.3	62.9	80.9	36.6	23.6	196.4	112.2	115.8	65.9 ¹⁾	
Dividend yield, %	4.4	6.1	7.1	6.6	7.2	7.9	7.5	6.7	5.8	5.0 ¹⁾	
Price/earnings ratio (P/E)	15.4	8.3	8.9	12.2	5.1	3.0	26.1	16.8	20.1	13.2	
Share prices											
At the end of the period	22.53	16.49	14.15	16.63	17.97	13.92	14.57	16.50	19.10	22.00	
Average	19.05	19.77	15.66	15.11	17.89	16.29	13.56	15.28	19.10	20.06	
Lowest	17.18	15.53	12.81	13.10	15.13	12.92	10.99	12.69	16.43	18.09	
Highest	22.69	24.09	19.36	18.18	20.32	21.59	15.74	18.94	22.91	22.50	
Other data											
Market capitalisation at the end of the period, EUR million	20,015	14,649	12,570	14,774	15,964	12,366	12,944	14,658	16,966	19,542	
Trading volumes ²⁾											
Number of shares, 1,000 shares	493,375	524,858	494,765	465,004	454,796	541,858	611,572	582,873	474,705	372,272	
In relation to weighted average number of shares, %	55.5	59.1	55.7	52.3	51.2	61.0	68.8	65.6	53.4	41.9	
Number of shares, 1,000 shares	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,294	888,294	
Number of shares excluding own shares, 1,000 shares	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Average number of shares, 1,000 shares	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,312	888,294	
Diluted adjusted average number of shares, 1,000 shares	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,367	888,312	888,294	

1) Board of Directors' proposal for the planned Annual General Meeting on 17 March 2020.

2) Trading volumes in the table represent volumes traded on Nasdaq Helsinki. In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market as well. In 2019, approximately 73% (2018: 68%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

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

Segment key figures

Fortum renewed its business structure as of 1 March 2014. The reorganisation led to a change in Fortum's external financial reporting structure as previously separately reported segments Heat and Electricity Sales were combined into one segment: Heat, Electricity Sales and Solutions.

Fortum has applied new IFRS 10 Consolidated financial statements and IFRS 11 Joint arrangements from 1 January 2014. The effect of applying the new standards to Fortum Group financial information relates to Stockholm Exergi AB (publ) (previously AB Fortum Värme samägt med Stockholm Stad), that is treated as a joint venture and thus consolidated with equity method from 1 January 2014 onwards. Before the change the company was consolidated as a subsidiary with 50% minority interest.

Fortum announced the sale of Swedish Distribution business in March 2015. After the divestment of the Swedish Distribution business Fortum does not have any distribution operations and therefore Distribution segment has been treated as discontinued operations in 2015 with restatement of year 2014, according to IFRS 5 Non-current Assets Held for Sale and Discontinued Operations.

Fortum reorganised its operating structure as of 1 April 2016. The business divisions are: Generation (mainly the former Power and Technology); City Solutions (mainly the former Heat, Electricity Sales and Solutions) and Russia. Because of the minor financial impact, the comparable segment information for 2015 was not restated.

As of 1 March 2017, the City Solutions division was divided into two divisions: City Solutions and Consumer Solutions, both reported as separate reporting segments. Fortum has restated its 2016 comparison segment reporting figures in accordance with the new organisation structure.

In November 2018, Fortum announced that the solar and wind businesses were reorganised and the wind operations became a business area within the Generation segment and the solar operations within the City Solutions segment. Previously these were included in Other Operations. The Russian wind and solar operations continue as a part of the Russia segment. Fortum has restated its 2018 comparative segment reporting figures in accordance with the new organisation structure.

See more information in [▶ Note 6](#) Segment reporting.

Sales by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	2,702	2,481	2,415	2,252	2,156	1,722	1,657	1,677	1,842	2,141
- of which internal	-281	-24	296	69	85	83	15	15	-2	259
City Solutions				1,516	1,332	1,187	782	1,015	1,110	1,200
- of which internal				87	34	-13	1	19	37	45
Heat	1,770	1,737	1,628							
- of which internal	-8	8	18							
Consumer Solutions							668	1,097	1,759	1,835
- of which internal							2	3	11	-3
Electricity Sales	1,798	900	722							
- of which internal	158	95	55							
Russia	804	920	1,030	1,119	1,055	893	896	1,101	1,069	1,071
- of which internal	-	-	-	-	0	0	0	0	0	0
Other Operations	51	108	137	63	58	114	92	102	103	115
- of which internal	169	115	-66	54	44	75	61	67	79	86
Distribution	963	973	1,070	1,064						
- of which internal	18	15	37	19						
Eliminations and Netting of Nord Pool transactions	-1,792	-958	-843	-706	-513	-458	-463	-470	-641	-916
Total for continuing operations	6,296	6,161	6,159	5,309	4,088	3,459	3,632	4,520	5,242	5,447
Discontinued operations					751	274				
Eliminations ¹⁾					-89	-31				
Total					4,751	3,702	3,632	4,520	5,242	5,447

1) Sales to and from discontinued operations.

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Comparable operating profit by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	1,298	1,201	1,146	859	877	561	417	478	628	794
City Solutions				109	104	108	64	98	135	121
Heat	275	278	271							
Consumer Solutions							48	41	53	79
Electricity Sales	11	27	39							
Russia	8	74	68	156	161	201	191	296	271	316
Other Operations	-66	-73	-92	-54	-57	-63	-77	-102	-99	-119
Distribution	307	295	320	332						
Comparable operating profit	1,833	1,802	1,752	1,403	1,085	808	644	811	987	1,191
Impairment charges						-918	27	6	-4	-8
Capital gains and other	93	284	155	61	305	22	38	326	102	7
Changes in fair values of derivatives hedging future cash flow							-65	14	98	-72
Nuclear fund adjustment							-11	1	-45	-9
Other items affecting comparability ¹⁾	-218	316	-33	45	-94	-62				
Operating profit, continuing operations	1,708	2,402	1,874	1,508	1,296	-150	633	1,158	1,138	1,110
Discontinued operations					2,132	4,395				
Operating profit					3,428	4,245	633	1,158	1,138	1,110

1) Other items affecting comparability comprise Changes in fair values of derivatives hedging future cash flow and Nuclear fund adjustment.

Comparable EBITDA by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	1,398	1,310	1,260	1,007	998	680	527	603	763	939
City Solutions				211	204	209	186	262	310	309
Heat	462	471	481							
Consumer Solutions							55	57	110	141
Electricity Sales	13	29	40							
Russia	94	148	189	258	304	267	312	438	417	469
Other Operations	-56	-66	-83	-49	-49	-53	-64	-83	-78	-91
Distribution	485	482	529	548						
Total for continuing operations	2,396	2,374	2,416	1,975	1,457	1,102	1,015	1,275	1,523	1,766
Discontinued operations					416	163				
Total					1,873	1,265	1,015	1,275	1,523	1,766

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Depreciation and amortisation, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	100	109	114	148	121	118	110	125	135	145
City Solutions				102	100	101	121	163	175	188
Heat	187	193	210							
Consumer Solutions							7	16	57	62
Electricity Sales	2	2	1							
Russia	86	108	121	150	147	117	123	142	147	153
Other Operations	10	7	9	5	8	10	13	18	22	28
Distribution	178	187	209	216						
Total for continuing operations	563	606	664	621	377	346	373	464	536	575
Discontinued operations					150	50				
Total					526	395	373	464	536	575

Share of profit of associates and joint ventures by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	-25	3	-12	4	-14	-111	-34	-1	-72	10
City Solutions				91	88	59	76	80	74	37
Heat	31	19	20							
Electricity Sales	1	2	0							
Russia	8	30	27	46	35	32	38	31	36	59
Other Operations	28	23	-20	32	37	40	51	38	0	638
Distribution	19	14	8	4						
Total for continuing operations	62	91	23	178	146	20	131	148	38	744
Discontinued operations					3	0				
Total					149	20	131	148	38	744

Capital expenditure by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	97	131	190	179	197	187	196	174	248	247
City Solutions				123	86	105	109	170	209	313
Heat	304	297	464							
Consumer Solutions							3	7	47	55
Electricity Sales	0	5	1							
Russia	599	670	568	435	340	285	201	152	54	67
Other Operations	9	16	11	12	3	6	83	187	26	31
Distribution	213	289	324	255						
Total for continuing operations	1,222	1,408	1,558	1,005	626	582	591	690	584	713
Discontinued operations					147	44				
Total					774	626	591	690	584	713

Financial key figures

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Gross investments in shares by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	25	17	-	2	2	16	7	90	14	13
City Solutions				11	37	23	698	386	33	9
Heat	1	32	10							
Consumer Solutions							117	486	0	0
Russia	-	24	-	0	27	0	0	125	63	66
Other Operations	1	1	6	2	4	4	22	39	3,977	18
Distribution	0	-	-	0						
Total for continuing operations	27	74	16	15	69	43	844	1,125	4,088	106
Discontinued operations					0	0				
Total					69	43	844	1,125	4,088	106

Gross divestments of shares by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	0	3	102	79	67	0	0	0	160	12
City Solutions				11	446	27	33	0	147	2
Heat	52	203	269							
Consumer Solutions							1	55	0	0
Electricity Sales	-	16	2							
Russia	43	23	-	-	0	0	127	0	0	0
Other Operations	6	0	0	-	2	-	0	687	0	16
Distribution	46	323	37	52						
Total for continuing operations	147	568	410	142	515	27	161	742	306	30
Discontinued operations					2,681	6,369				
Total					3,196	6,395	161	742	306	30

Comparable net assets by segment, EUR million	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation						5,931	5,815	5,672	6,485	6,147
City Solutions						2,182	2,873	3,728	3,794	3,892
Consumer Solutions							154	638	648	640
Russia						2,561	3,284	3,161	2,789	3,205
Other Operations						258	514	276	4,023	4,356
Total for continuing operations						10,932	12,641	13,474	17,739	18,239

Fortum is disclosing Comparable net assets instead of Net assets from 2016 onwards. Net assets until 2015 are disclosed below.

Net assets by segment, EUR million	2010	2011	2012	2013	2014	2015 ¹⁾
Generation	5,806	6,247	6,389	6,355	6,001	5,913
City Solutions				2,295	2,112	2,170
Heat	4,182	4,191	4,286			
Electricity Sales	210	11	51			
Russia	2,817	3,273	3,848	3,846	2,597	2,561
Other Operations	29	208	158	295	496	291
Distribution	3,683	3,589	3,889	3,745		
Total for continuing operations	16,727	17,519	18,621	16,537	11,206	10,934
Net assets related to discontinued operations					2,615	
Total					13,820	10,934

1) Fortum is disclosing Comparable net assets instead of Net assets from 2016 onwards.

Comparable return on net assets by segment, %	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	22.3	19.9	18.5	13.8	14.2	9.5	6.9	8.4	10.8	12.8
City Solutions				8.7	8.7	7.9	5.9	5.5	5.5	4.1
Heat	7.7	7.4	7.0							
Consumer Solutions							44.3	11.7	7.8	13.2
Electricity Sales	9.3	33.5	203.1							
Russia	0.7	3.5	2.7	5.2	5.6	8.2	8.0	10.1	10.3	12.3
Distribution ¹⁾	9.3	8.6	8.8	8.8	9.3					

1) Classified as discontinued operations from 2014 onwards.

Return on net assets by segment, %	2010	2011	2012	2013	2014	2015 ¹⁾
Generation	19.5	24.6	18.7	14.5	13.6	-8.5
City Solutions				9.7	19.1	7.7
Heat	8.4	9.9	8.8			
Electricity Sales	38.4	4.2	152.3			
Russia	2.4	3.5	3.0	5.2	5.6	8.3
Distribution ²⁾	9.7	13.7	9.1	9.3	73.6	

1) Fortum is disclosing Comparable net assets instead of Net assets from 2016 onwards.

2) Classified as discontinued operations from 2014 onwards.

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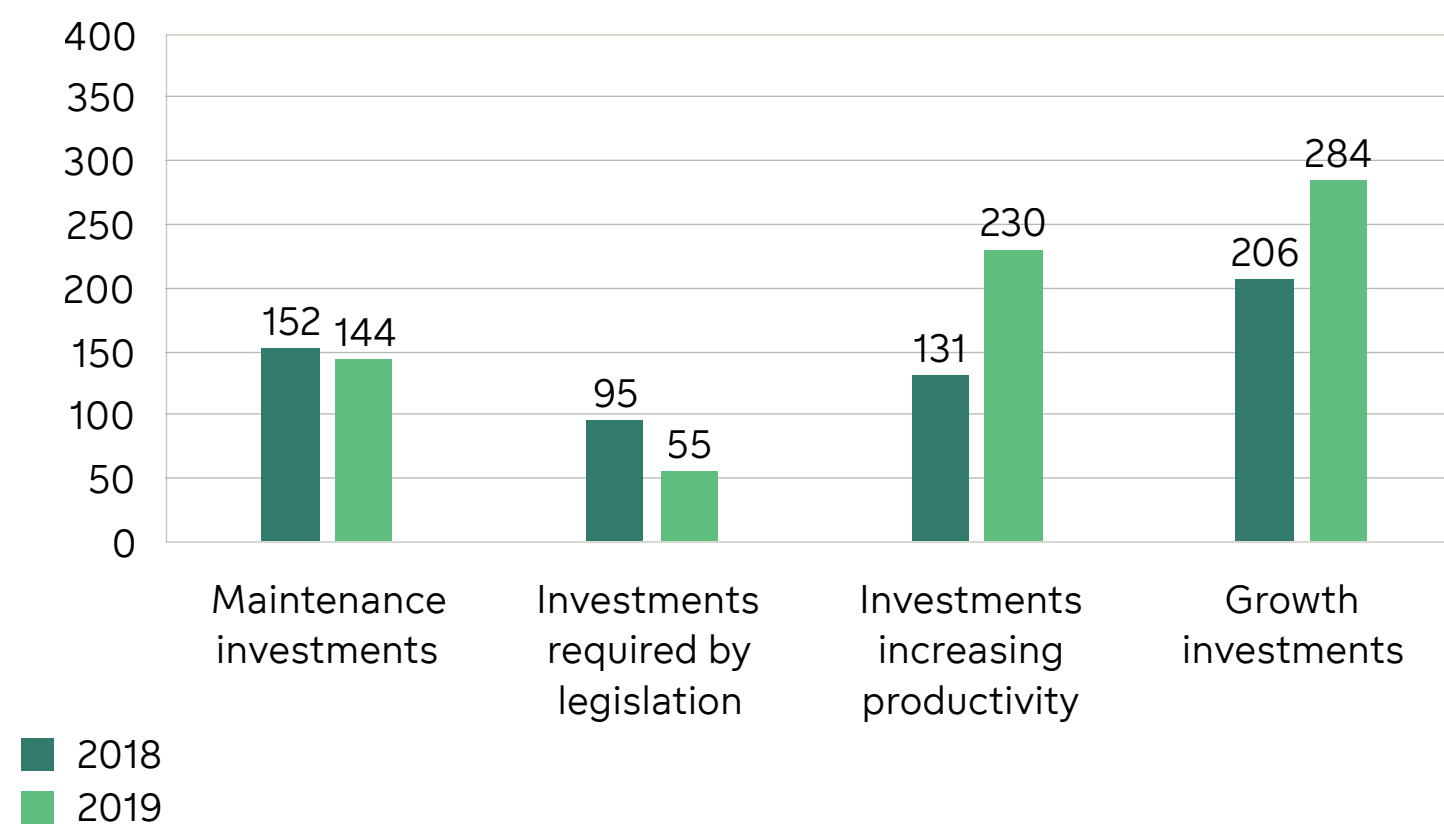
Average number of employees	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	1,891	1,873	1,896	1,900	1,685	1,389	1,064	1,036	1,107	1,122
City Solutions				2,051	1,913	1,458	1,529	1,807	1,994	1,979
Heat	2,482	2,682	2,354							
Consumer Solutions							877	1,180	1,473	1,379
Electricity Sales	538	510	515							
Russia	4,555	4,436	4,301	4,245	4,196	4,180	3,814	3,710	3,378	2,942
Other Operations	592	607	661	550	536	983	711	774	814	825
Distribution	1,098	902	873	786						
Total for continuing operations	11,156	11,010	10,600	9,532	8,329	8,009	7,994	8,507	8,767	8,248
Discontinued operations					492					
Total					8,821					

Capital expenditure ¹⁾

EUR million	Finland		Sweden		Russia		Poland		Norway		Other countries		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Generation														
Hydropower	12	20	56	59					0	0			68	79
Nuclear power	57	99		0					0	0			57	99
Windpower	22	2	32	9					56	51			111	62
Fossil-based electricity	7			0					0	0			7	0
Other	4	8	1	1					0	0			5	8
Total Generation	102	128	89	68					56	51			247	248
City Solutions														
Fossil-based heat	2	5		0			5	7	0	0	0	0	7	12
Renewable, of which	39	34	7	6			14	52	9	9	162	24	231	125
waste	19	20	7	6			14	52	9	9	17	5	66	92
biofuels	20	15	0	0			0	0	0	0	2	0	21	15
solar											143	19	143	19
other	1	0	0	0			0	0	0	0			1	0
District heat network	17	14	0	0			16	18	27	16	3	11	63	60
Other	3	7	2	1			2	1	1	0	4	3	12	12
Total City Solutions	62	60	9	6			38	78	36	26	169	38	313	209
Consumer Solutions														
Other	15	9	14	14			9	8	17	16			55	47
Total Consumer Solutions	15	9	14	14			9	8	17	16	0	0	55	47
Russia														
Fossil-based electricity					49	28							49	28
Fossil-based heat					18	22							18	22
Renewable-based electricity, wind					0	5							0	5
Total Russia					67	54							67	54
Other														
Other	20	17	2	1			0	0	5	4	3	4	31	26
Total Other	20	17	2	1			0	0	5	4	3	4	31	26
Total	199	215	114	89	67	54	47	86	115	97	172	115	713	584
Of which investments in CO₂ free production	112	135	88	67	0	5	0	0	0	51	162	99	401	278

1) Includes capital expenditure to both intangible assets and property, plant and equipment.

Fortum classifies investments in four main categories, EUR million



Generation

Fortum invested EUR 111 million (2018: EUR 62 million) into wind power production in the Nordics. The largest wind power investment was EUR 52 million to the Sørkjord wind park in Norway. The wind investments also include the EUR 30 million Solberg fixed asset acquisition that is part of the Blaiken-Solberg wind park ownership swap. In Finland, Fortum invested EUR 57 million (2018: 99) into the Loviisa nuclear power plant. Fortum additionally invested EUR 68 million (2018: 79) into hydro production, mainly maintenance, legislation and productivity investments. Investments in CO₂ free production were EUR 236 million (2018: 240).

City Solutions

The largest investment project in 2019 was EUR 140 million to the Pavagada solar plant in India. Maintenance, legislation and productivity investments totalled EUR 157 million (2018: 89). This amount consists mainly of investments in district heat networks and plants as well as the maintenance of existing CHP plants and measures defined by legal requirements. Investments in CO₂ free production were EUR 165 million (2018: 34).

Consumer Solutions

Investments in Consumer solutions totalled EUR 55 million (2018: 47). The amount consists mainly of sales commissions for customer acquisition that are capitalised starting from the implementation of IFRS 15 in 2018 and new product development costs.

Russia

Investments to the Russia division were EUR 67 million (2018: 54). They consisted mainly of maintenance, legislation and productivity projects. Investments in CO₂ free production were EUR 0 million (2018: 5).

Other

Investments in Other segment were EUR 31 million (2018: 26). They consisted mainly of IT investments and investments into internal ventures. Other operations invested in Charge and Drive EUR 5 million (2018: 9), mainly charging stations in Norway.

[Financial key figures](#)
[Share key figures](#)
[Segment key figures](#)
[Capital expenditure](#)
[Operational key figures](#)

Power generation capacity by segment, MW	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	9,728	9,752	9,702	9,475	9,063	8,046	8,039	7,862	7,867	8,220
Heat	1,600	1,670	1,569							
City Solutions				793	803	743	760	775	788	1,082
Russia	2,785	3,404	3,404	4,250	4,758	4,903	4,482	4,794	4,912	4,928
Other Operations							53	292	157	0
Total	14,113	14,826	14,675	14,518	14,624	13,692	13,334	13,722	13,724	14,230

Heat production capacity by segment, MW	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generation	250	250	250	250	0					
Heat	10,448	10,375	8,785							
City Solutions				4,317	3,936	3,915	3,818	4,671	4,780	4,812
Russia	13,796	14,107	13,396	13,466	13,466	12,696	9,920	10,094	10,229	8,437
Total	24,494	24,732	22,431	18,033	17,402	16,611	13,738	14,765	15,009	13,249

Fortum's power generation capacity by type and area, MW	Finland		Sweden		Russia		Poland		Other		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Hydropower	1,553	1,548	3,124	3,124	0	0	0	0	0	0	4,677	4,672
Nuclear power	1,487	1,485	1,334	1,334	0	0	0	0	0	0	2,821	2,819
Combined heat and power	452	452	9	9	4,858	4,843	233	186	137	139	5,689	5,629
Condensing power	565	376	0	0	0	0	0	0	0	0	565	376
Wind power	0	0	75	75	35	35	0	0	84	84	194	194
Solar power	0	0	0	0	35	35	0	0	250	0	285	35
Total	4,057	3,860	4,542	4,542	4,928	4,912	233	186	471	223	14,230	13,724

Fortum's heat production capacity by area, MW	Finland		Sweden		Russia		Poland		Other		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Heat	2,002	1,993	35	35	8,437	10,229	941	782	1,834	1,971	13,249	15,009

Sales

Fortum's total power and heat sales in EU and Norway, EUR million

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Power sales	3,110	2,868	2,700	2,462	2,344	1,921	1,893	2,244	2,922	3,063
Heat sales	1,309	1,278	1,201	538	468	423	449	524	615	618

Fortum's total power and heat sales in Russia, EUR million

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Power sales	505	590	713	822	758	661	691	837	872	924
Heat sales	287	324	300	290	285	228	199	258	193	145

Fortum's total power sales by area, TWh

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Finland	30.7	24.6	21.6	23.4	21.6	22.3	22.8	22.5	23.1	23.1
Sweden	28.3	29.4	30.1	23.3	28.2	29.8	28.8	30.8	29.7	31.5
Norway							1.5	7.2	15.3	15.0
Russia	18.7	20.2	23.3	25.6	26.5	29.4	29.5	30.5	34.1	33.8
Other countries	3.2	3.6	3.8	4.3	3.8	2.8	2.1	2.9	1.8	2.5
Total	80.9	77.8	78.8	76.6	80.1	84.3	84.7	93.9	104	105.8

Fortum's total heat sales by area, TWh

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Finland	9.6	8.5	5.8	5.5	3.2	3.1	3.6	3.9	3.8	3.8
Russia	26.8	26.7	26.4	24.1	26	25.4	20.7	19.8	20.7	16.9
Sweden	10.9	8.5	8.5	-	-	-	0.1	0.3	0.3	0.3
Poland	4	4.3	4.3	4.1	3.4	3.4	3.6	3.7	3.5	3.3
Other countries	3.6	3.4	2.9	3.1	2.8	1.2	1.4	2.2	3.2	3.3
Total	54.9	51.4	47.9	36.8	35.4	33.2	29.4	29.9	31.5	27.6

Volume of distributed electricity in distribution networks, TWh

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Finland	10	9.5	9.8	9.5	2.8	-	-	-	-	-
Sweden	15.2	14.2	14.4	14.1	13.7	6.4	-	-	-	-
Norway	2.5	2.3	2.4	2.5	1.1	-	-	-	-	-
Estonia	0.2	0.1	0	-	-	-	-	-	-	-
Total	27.9	26.1	26.6	26.1	17.6	6.4	-	-	-	-

Quarterly financial information

Note: Quarterly financial information is unaudited.

Selected data based on quarterly consolidated income statement

EUR million	Q1/2018	Q2/2018	Q3/2018	Q4/2018	2018	Q1/2019	Q2/2019	Q3/2019	Q4/2019	2019
IS Sales	1,585	1,087	971	1,599	5,242	1,690	1,144	1,060	1,553	5,447
Comparable EBITDA	538	282	230	473	1,523	545	372	295	552	1,766
IS Comparable operating profit	405	153	96	333	987	408	232	153	399	1,191
IS Operating profit	482	256	91	309	1,138	358	184	124	444	1,110
IS Share of profit/loss of associates and joint ventures	47	24	12	-44	38	111	461	106	65	744
IS Finance costs - net	-36	-39	-58	-4	-136	-46	7	-32	-55	-125
IS Profit before income tax	493	241	45	261	1,040	424	652	198	455	1,728
IS Income tax expense	-94	-25	1	-64	-181	-65	-45	-25	-88	-221
IS Profit for the period	400	215	46	197	858	359	607	173	367	1,507
IS Non-controlling interests	-16	1	5	-5	-15	-19	0	5	-10	-25
IS Profit for the period, owners of the parent	384	216	51	192	843	341	607	178	356	1,482
Earnings per share for profit attributable to the equity owners of the company (EUR per share)										
Basic	0.43	0.24	0.05	0.22	0.95	0.38	0.69	0.20	0.40	1.67

Quarterly sales by segment

EUR million	Q1/2018	Q2/2018	Q3/2018	Q4/2018	2018	Q1/2019	Q2/2019	Q3/2019	Q4/2019	2019
Generation ¹⁾	498	427	360	557	1,842	601	500	458	583	2,141
City Solutions ¹⁾	381	193	178	359	1,110	405	228	200	366	1,200
Consumer Solutions	547	326	332	555	1,759	669	346	311	510	1,835
Russia	336	228	200	305	1,069	298	239	229	306	1,071
Other Operations ¹⁾	23	24	25	31	103	26	28	29	32	115
Netting of Nord Pool transactions ²⁾	-161	-92	-105	-157	-516	-192	-99	-100	-139	-529
Eliminations	-39	-19	-17	-50	-125	-117	-98	-67	-105	-387
IS Total	1,585	1,087	971	1,599	5,242	1,690	1,144	1,060	1,553	5,447

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

2) Sales and purchases with Nord Pool Spot is netted on Group level on an hourly basis and posted either as revenue or cost depending on if Fortum is a net seller or net buyer during any particular hour.

Quarterly comparable operating profit by segments

EUR million	Q1/2018	Q2/2018	Q3/2018	Q4/2018	2018	Q1/2019	Q2/2019	Q3/2019	Q4/2019	2019
Generation	220	151	69	188	628	223	191	140	239	794
City Solutions	88	-21	4	64	135	92	-15	-36	80	121
Consumer Solutions	17	11	7	17	53	26	19	16	19	79
Russia	104	37	40	89	271	99	69	53	94	316
Other Operations	-24	-26	-24	-26	-99	-32	-32	-21	-34	-119
IS Comparable operating profit	405	153	96	333	987	408	232	153	398	1,191
Impairment charges	0	0	0	-4	-4	-3	0	-6	0	-8
Capital gains and other	26	76	1	-1	102	3	3	3	-2	7
Changes in fair values of derivatives hedging future cash flow	54	49	-8	2	98	-46	-5	-27	5	-72
Nuclear fund adjustment	-4	-22	2	-21	-45	-5	-46	0	42	-9
IS Operating profit	482	256	91	309	1,138	358	184	124	444	1,110

The first and last quarters of the year are usually the strongest quarters for power and heat businesses.

Investor information

Fortum 2019 reporting entity comprises CEO's Business Review, Financials, Corporate Governance Statement and Remuneration Statement, Tax footprint as well as Sustainability.

Annual General Meeting 2020

The Annual General Meeting 2020 of Fortum Corporation will be held on Tuesday, 17 March 2020, starting at 11:00 EET at Finlandia Hall, address: Mannerheimintie 13 e, Helsinki, Finland. The reception of shareholders who have registered for the meeting will commence at 9.30 EET.

Payment of dividends

The Board of Directors proposes to the Annual General Meeting that Fortum Corporation pays a dividend of EUR 1.10 per share for 2019, totalling approximately EUR 977 million based on the registered shares as of 1 February 2020. The possible dividend related dates planned for 2020 are:

- the ex-dividend date 18 March 2020,
- the record date for dividend payment 19 March 2020 and
- the dividend payment date 26 March 2020.

Financial information in 2020

Fortum will publish three interim reports in 2020:

- January–March interim report on 29 April
- January–June half year financial review on 17 July, and
- January–September on 29 October.

The reports are published at approximately 9:00 EET in Finnish and English, and are available on Fortum's website at www.fortum.com/investors

Fortum's management hosts regular press conferences, targeted at analysts and the media. Webcasts of these conferences are available online at www.fortum.com/investors. Management also gives interviews on a one-on-one and group basis. Fortum observes closed and silent period of 30 days prior to publishing its results.

Fortum share basics

Listed on Nasdaq Helsinki

Trading ticker: FORTUM

Number of shares, 5 February 2020: 888,294,465

Sector: Utilities

Fortum's activities in capital markets during 2019

Fortum's Investor Relations activities cover equity and fixed-income markets to ensure full and fair valuation of the Company's shares, access to funding sources and stable bond pricing. The key task of Investor Relations is to provide correct, adequate and up-to-date information regularly and equally to all market participants. By doing this, Investor Relations aims to minimise the investor's risk and reduce the share's volatility. Investors and analysts primarily are met on a regular basis in Europe and North America.

In 2019, Fortum met approximately 230 professional equity investors individually or in group meetings and at investor conferences and maintained regular contact with equity research analysts at investment banks and brokerage firms.

