



Join the  
change

Sustainability

2017



## Highlights 2017

**61%**

of our electricity  
production was CO<sub>2</sub>-free

We reached our energy  
efficiency improvement  
target (1,400 GWh/a  
by 2020) in advance

**205 MW**

of new solar power in India and  
Russia and 32 MW of new wind  
power in Norway in operation



Our circular economy  
business expanded and  
we gained 1.2 million new  
customers, increasing our  
Nordic customer base to

**2.5**  
million

**100%**

of employees  
completed our Safety  
& Security eLearning

A fish trap and  
transport facility  
for the Montta  
hydropower plant  
commissioned in  
the River Oulujoki,  
Finland

Our support to society  
increased to

**EUR 4.9**

million, including a donation  
of EUR 1 million to Finnish  
universities



Energise Your Day  
wellbeing programme  
expanded to nine  
operating countries

# Sustainability 2017

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Online Annual Review



CEO Letter



Financials



Governance



Remuneration



Tax Footprint



Sustainability

# Sustainability approach



The entire energy sector is undergoing a transformation. Four megatrends are shaping this change: Climate change and resource efficiency, urbanisation, digitalisation and new technologies, and active customers. These megatrends have a major impact on how energy is produced, sold and used.

Our role is to accelerate this change by reshaping the energy system, improving resource efficiency and providing smart solutions. This way we deliver excellent shareholder value. Our values – curiosity, responsibility, integrity and respect – form the foundation for all our activities.

Sustainability is an integral part of Fortum's strategy. Business and responsibility are tightly linked, underlining the role of sustainable solutions as a competitive advantage. In our operations, we give balanced consideration to economic, social and environmental responsibility.

► FORTUM'S VISION, MISSION AND STRATEGY

► FORTUM'S VALUES

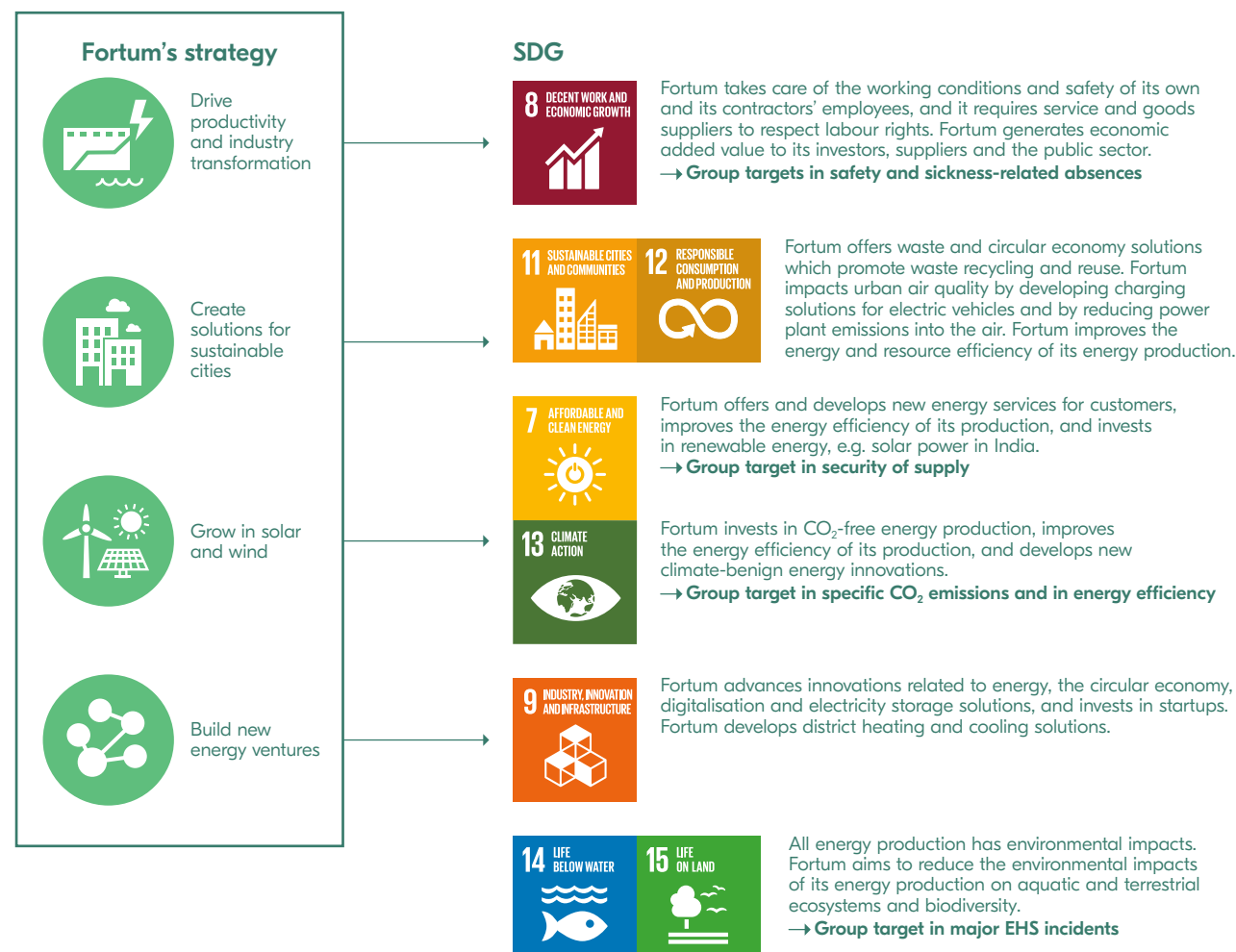
Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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## Our contribution to the Sustainable Development Goals

The Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 define international sustainable development focus areas and goals to 2030. We want to do our part to promote the achievement of the goals in our value chain by increasing our positive impacts and decreasing our negative impacts. The Sustainable Development Goals offer business opportunities as well as the opportunity to create value for our stakeholder groups.

As a producer of energy and circular economy solutions, Fortum impacts most of the Sustainable Development Goals and their specific targets. In line with our strategy, we are driving the change towards a cleaner world. Those SDGs for which we have the biggest contribution to their achievement as well as our most important ways to contribute and our related Group sustainability targets are presented in the graphic.

### Our contribution to the Sustainable Development Goals (SDG)



Fortum supports the Sustainable Development Goals.



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## Examples of measures we implemented in 2017 that promote the achievement of the Sustainable Development Goals

Sustainable Development Goal (SDG)	Measure
7. Ensure access to affordable, reliable, sustainable and modern energy for all	<ul style="list-style-type: none"> <li>▶ <b>We invested in renewable energy production:</b> solar, wind and hydropower</li> <li>We commissioned two new solar power plants (total 170 MW) in India, and we acquired three solar power plants (total 35 MW) in Russia</li> <li>We invested in wind power in Sweden, Norway and Russia</li> <li>We invested in energy efficiency, e.g. at the Loviisa nuclear power plant in Finland and at hydropower plants in Sweden and Finland</li> <li>We made a Society's Commitment to Sustainable Development for ▶ <b>carbon-free district heating in Espoo by 2030</b> and implemented measures reducing emissions</li> <li>We expanded our HorsePower manure bedding service from Finland to Sweden</li> <li>Our ▶ <b>energy efficiency investments</b> totalled 131 GWh</li> <li>We strive to realise a carbon capture and storage project in Oslo in co-operation with the City of Oslo. If the project is realised, waste incineration in Oslo will become virtually CO<sub>2</sub>-free.</li> <li>We started working with Futurice to develop a ▶ <b>solution</b> to provide easier access to solar power in developing countries</li> </ul>
13. Take urgent action to combat climate change and its impacts	
8. Promote inclusive and sustainable economic growth, employment, and decent work for all	<ul style="list-style-type: none"> <li>We conducted 11 supplier audits covering work conditions and other issues</li> <li>Our entire personnel completed the new online training for occupational safety</li> <li>We renewed the Group's EHS minimum requirements</li> </ul>
9. Build resilient infrastructure, promote sustainable industrialisation and foster innovation	<ul style="list-style-type: none"> <li>We started offering private customers a virtual power plant service that balances electricity demand</li> <li>We commissioned ▶ <b>the Nordic countries' biggest electricity storage</b> in Järvenpää, Finland</li> <li>We commissioned new district cooling in Tartu, Estonia</li> <li>We engaged in collaboration with universities in our operating countries, and Fortum Foundation awarded nearly EUR 700,000 in grants</li> <li>We used EUR 53 million for research and development</li> </ul>
11. Make cities and human settlements inclusive, safe, resilient and sustainable	<ul style="list-style-type: none"> <li>We participate in the City of Oslo's waste incineration in Norway through ▶ <b>the restructuring of Hafslund</b></li> <li>We started the development of charging systems for EVs in India and Great Britain, and expanded our charging network in the Nordic countries</li> </ul>
12. Ensure sustainable consumption and production patterns	<ul style="list-style-type: none"> <li>With our company cars, we are shifting to EVs and chargeable hybrids in Finland</li> <li>We supplied emissions-reducing combustion solutions to customers in Poland and Sweden</li> </ul>
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	<ul style="list-style-type: none"> <li>We implemented hydropower environmental projects valued at EUR 3.7 million</li> <li>▶ <b>A trap and transport facility</b> was commissioned at the Montta hydropower plant in Oulujoki, Finland</li> <li>We tore down the Acksjön dam in Sweden, removing a barrier to migrating fish and improving a valuable river habitat</li> </ul>
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	<ul style="list-style-type: none"> <li>We made preparations for the Chain of Custody certification of wood-based biomass purchases that we aim to acquire in 2018</li> </ul>

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## Key sustainability topics



We have defined our most important sustainability focus areas in the areas of economic, social and environmental responsibility.

Our focus areas are based on Fortum's and our stakeholders' views of the significance of the impacts on the company and its ability to create value for its stakeholders and on the environment. Our understanding of stakeholder views is based on the results of the extensive stakeholder survey conducted annually as well as on information gained through other stakeholder collaboration.

In 2015, a total of 2,133 stakeholder representatives, more than 60% of them representing personnel, participated in our latest separate sustainability survey. In that sustainability survey, decision makers, organisations, employees and the general public

put special emphasis on the significance of security of supply of heat and electricity, management of sustainability-related risks, and sustainable ways of operating. Our personnel emphasised the safety of operations. The general public considered the use of renewable energy sources as important. Our goal is to conduct our separate sustainability survey again during 2018.

### Sustainability targets affect every Fortum employee

Sustainability targets affect every Fortum employee and safety-related targets are part of Fortum's short-term incentive scheme. In addition to the Group-level targets, divisions have their own targets. Fortum's Board of Directors annually decides on the

sustainability targets to be included in the incentive scheme. The injury frequency for Fortum employees and for contractors was included in the incentive scheme in 2017.

The 2018 incentive scheme remains unchanged in terms of safety targets (the injury frequency rate for personnel and contractors), but the Board can, if it wants, take into consideration in the result also other safety-related incidents and especially the number of severe occupational accidents. The target for severe occupational accidents is zero. The weight of the sustainability target in the incentive scheme is 10% (2017: 10%).

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## Group sustainability targets and performance in 2017

	Target for the year 2017	Status at the end of 2017	Status at the end of 2016
Reputation index, based on One Fortum Survey	70.7 *	72.3	72.5
Customer satisfaction index (CSI), based on One Fortum Survey	CSI divisional scores at level "good" (70–74)	64–76	67–79
<b>Environmental responsibility</b>			
<b>Specific CO<sub>2</sub> emissions</b>			
Total energy production, gCO <sub>2</sub> /kWh, 5-year average	<200	188	188
<b>Energy efficiency</b>			
Energy efficiency improvement by year 2020, base line year 2012, GWh/a	>1,400 **	1,502	1,372
Major EHS incidents <sup>1)</sup>	≤21	20	22
<b>Social responsibility</b>			
<b>Security of supply</b>			
CHP plant energy availability, %	>95.0	96.1	97.4
<b>Occupational safety</b>			
Total recordable injury frequency (TRIF) <sup>2)</sup> , own personnel	≤2.5	1.8	1.9
Lost workday injury frequency (LWIF) <sup>3)</sup> , own personnel	≤1.0	1.2	1.0
Lost workday injury frequency (LWIF) <sup>3)</sup> , contractors	≤3.5	4.2	3.0
Quality of investigation process of injuries, serious EHS incidents, and near misses	Level 1.0	Level 0.75	-
Number of severe occupational accidents <sup>4)</sup>	≤5	1	5
<b>Employee wellbeing</b>			
Sickness related absences, %	≤2.3	2.2 ***	2.3 ***

1) Fires, leaks, explosions, INES events exceeding level 0, dam safety incidents, environmental non-compliances. INES = International Nuclear Event Scale

2) TRIF = Total recordable injury frequency, injuries per million working hours

3) LWIF = Lost workday injury frequency, injuries per million working hours

4) Accidents leading to a fatality or permanent disability and accidents that could have caused serious consequences

\* The target is not comparable with the status of year 2016, because the target group is different.

\*\* By the year 2020

\*\*\* Excluding DUON and Hafslund

## Successes and development needs:

- Our reputation is strong particularly among public administration, opinion makers, non-governmental organisations and Fortum's personnel.
- The target for customer satisfaction was achieved in all business areas, but not in retail electricity sales.
- We achieved our target in specific carbon dioxide emissions. In 2017, specific emissions from total energy production were 184 gCO<sub>2</sub>/kWh.
- By the end of 2017, we exceeded the Group energy efficiency target (>1,400 GWh/a) at the annual level by about 100 GWh.
- We strive to be a safe workplace for own and our contractors' employees. In 2017, one severe occupational accident occurred. There were no accidents leading to a fatality.
- Mergers and acquisitions implemented as part of our growth strategy weakened Fortum's occupational safety level that had been at a rather good level before. During 2018 we will focus on establishing Fortum's safety practices in our new operations.
- In 2017, the focus of our auditing was on solar module suppliers in particular. We conducted 11 supplier audits in six countries.



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### Our targets for 2018

Our sustainability targets are based on continuous operational improvement. We achieved our Group target for energy efficiency in 2017, and for that reason we raised the target by 500 GWh. Our new target for energy efficiency improvement is >1,900 GWh/a by 2020 compared to 2012.

We also renewed our occupational safety targets. At the Group level we are focusing on monitoring the number of severe occupational accidents and the combined own personnel and contractor Lost workday injury frequency (LWIF) per million working hours. The indicator is the same as in the short-term incentive scheme. The target level for the combined LWIF is on ≤2.1. The target is very challenging because the realised combined LWIF was 2.4. In terms of severe occupational accidents, we had a target of 0 accidents by 2020. However, in the 2018 target setting, Fortum's Board tightened the target to zero already by 2018.

As a new indicator in 2018 we will monitor the GAP index measuring how well the Group's EHS minimum requirements are realised at the power plant level. The target is that the minimum requirements will be realised in practice and that there will be no serious deviations detected in terms of their compliance (target level 3.0).

### Group-level sustainability targets in 2018

	Target 2018	Target 2020
Reputation index, based on One Fortum Survey	73.0	Not defined
Customer satisfaction index, based on multiple measurements as defined in business plans	Multiple targets	Not defined
<b>Environmental responsibility</b>		
<b>Specific CO<sub>2</sub> emissions</b>		
Total energy production, gCO <sub>2</sub> /kWh, 5-year average	<200	<200
<b>Energy efficiency</b>		
Energy efficiency improvement by year 2020, base line year 2012, GWh/a	Target only for year 2020	>1,900
Major EHS incidents <sup>1)</sup>	≤20	≤15
<b>Social responsibility</b>		
<b>Security of supply</b>		
CHP plant energy availability, %	>95.0	>95.0
<b>Occupational safety</b>		
Lost workday injury frequency (LWIF) <sup>2)</sup> , own personnel and contractors	≤2.1	Not defined
Quality of investigation process of injuries, serious EHS incidents, and near misses	Level 3.0	Level 4.0
GAP index, quality of implementation of EHS minimum requirements	Level 3.0	Level 4.0
Number of severe occupational accidents <sup>3)</sup>	0	0
<b>Employee wellbeing</b>		
Sickness related absences, %	≤2.2	≤2.2

1) Fires, leaks, explosions, INES events exceeding level 0, dam safety incidents, environmental non-compliances. INES = International Nuclear Event Scale

2) LWIF = Lost workday injury frequency, injuries per million working hours

3) Accidents leading to a fatality or permanent disability and accidents that could have caused serious consequences

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## Governance and management

Sustainability management at Fortum is strategy-driven and is based on the company's values, the ▶ **Code of Conduct**, the ▶ **Supplier Code of Conduct**, the ▶ **Sustainability Policy** and other policies and their specifying instructions defined at the Group level. We comply with laws and regulations. All of our operations are guided by good governance, effective risk management, adequate controls and the internal audit principles supporting them.

Fortum's goal is a high level of environmental and safety management in all business activities. Calculated in terms of sales, 99.8% of Fortum's electricity and heat production operations at the end of 2017 were ISO 14001 certified and 98.4% were OHSAS 18001 certified. The level of certification slightly dropped due to acquisitions and investments. The divisions and sites develop their operations with internal and external audits required by environmental, occupational safety and quality management systems.

### Responsibilities

Sustainability is an integral part of Fortum's strategy, so the highest decision-making authority in these issues is with the Board of Directors, which has joint responsibility in matters related to sustainability. For this reason, Fortum has not designated a Sustainability Committee for decision-making on economic, environmental and social issues. The Audit and Risk Committee, members of the Fortum Executive Management, and other senior executives support the Board of Directors in the decision-making in these matters, when necessary.

The Fortum Executive Management decides on the sustainability approach and Group-level sustainability targets that guide annual planning. The targets are ultimately approved by Fortum's Board of Directors. Fortum Executive Management monitors the achievement of the targets in its monthly meetings and in quarterly performance reviews. The achievement of the targets is regularly reported also to Fortum's Board of Directors.

Fortum's line management is responsible for the implementation of the Group's policies and instructions and for day-to-day sustainability management. Realisation of the safety targets is a part of Fortum's short-term incentive system. Fortum's Corporate Sustainability unit is responsible for coordination and development of sustainability at the Group level and for maintaining an adequate situation awareness and oversight regarding sustainability.

### Sustainability management by topic

Sustainability management in the areas of economic responsibility, environmental responsibility and social responsibility is described in more detail in ▶ **Appendix 1**. Additionally, more detailed information about the management of different aspects and impacts is presented by topic in this Sustainability Report.

▶ **CORPORATE GOVERNANCE STATEMENT 2017**

▶ **REMUNERATION STATEMENT 2017**



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## Policies and commitments

Fortum is a participant of the UN Global Compact initiative and the UN Caring for Climate initiative. We support and respect the international initiatives and commitments, and national and international guidelines listed in the table, and they guide our operations in the areas of economic, environmental and social responsibility.

Fortum's EHS minimum requirements were updated in 2017. We focused particularly on updating contractor management practices to improve contractor safety. We believe that our requirements are now clearer and more comprehensible to our collaboration partners and that will help us to achieve better contractor safety results, and it offers a good foundation for continuous improvement.

We report on the training related to the updated instructions in the sections ▶ **Business ethics and compliance**, ▶ **Sustainable supply chain** and ▶ **Occupational and operational safety**.

The company's Group-level policies are approved by Fortum's Board of Directors. The Group-level instructions are approved by either the President and CEO or Fortum Executive Management.

Fortum's main internal policies and instructions guiding sustainability are listed in the table in ▶ **Appendix 2**.

### International and national initiatives, commitments and guidelines

	Economic responsibility	Environmental responsibility	Social responsibility		
			Social and personnel issues	Human rights	Anti-corruption and bribery
UN Universal Declaration of Human Rights			x	x	
International Covenant on Economic, Social and Cultural Rights	x		x	x	
International Covenant on Civil and Political Rights			x	x	
UN Convention on the Rights of the Child			x	x	
Core conventions of the International Labour Organisation			x	x	
UN Global Compact initiative	x	x	x	x	x
UN Caring for Climate initiative		x			
UN Guiding Principles on Business and Human Rights			x	x	
OECD Guidelines for Multinational Enterprises	x	x	x	x	x
International Chamber of Commerce's anti-bribery and anti-corruption guidelines	x				x
Bettercoal initiative's Code on responsible coal mining	x	x	x	x	x
Responsible advertising and marketing guidelines			x		
Environmental marketing guidelines			x		



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## Business ethics and compliance

We believe there is a clear connection between high standards of ethical business practices and excellent financial results. As an industry leader, we obey the law, we embrace the spirit of integrity, and we uphold ethical business conduct wherever we operate.

### Code of Conduct sets the basic requirements

The Fortum Code of Conduct and Fortum Supplier Code of Conduct define how we treat others, engage in business, safeguard our corporate assets, and how we expect our suppliers and business partners to operate.

Fortum's Board of Directors is responsible for the company's mission and values and has approved the Fortum Code of Conduct. The online training on the Code of Conduct is part of the induction programme for new employees. The Supplier Code of Conduct is based on the ten principles of the UN Global Compact and has been approved by the Head of Procurement in collaboration with the purchasing steering group.

About 95% of Fortum's total purchasing volume, excluding purchases by DUON, is purchased from suppliers with a purchasing volume of EUR 50,000 or more. Geographically they target mainly suppliers in Russia, Finland, Sweden and Poland. The Supplier Code of Conduct is part of purchase agreements with a contract value of EUR 50,000 or more.

In line with the Code of Conduct, Fortum has zero tolerance for corruption and fraud and does not award donations to political parties or political activities, religious organisations, authorities, municipalities or local administrations.

### Compliance risks

The compliance risks related to our business operations include the potential risk of bribery or corruption, fraud and embezzlement, non-compliance with legislation or company rules, conflicts of interest, improper use of company assets, and working under the influence of alcohol or drugs. Compliance risk management is an integrated part of business operations, and key compliance

risks, including action plans, are identified, assessed and reported annually. This applies also to the management of risks related to sustainability.

### Training

Fortum has a Total Compliance programme covering key areas of regulatory compliance and business ethics. It is managed with a risk-based prioritisation.

Training is a fundamental part of the Total Compliance programme. In 2017, training was provided to employees working in the Recycling and Waste Solutions business area in Finland, Sweden and Denmark. Training for employees of Fortum Oslo Varme and Hafslund Markets also was started. Fortum's Code of Conduct booklet was updated due to the brand renewal, and all Fortum employees received the booklet electronically.

Training on the Market Abuse Regulation and insider regulations was provided for those management teams that had not received the training earlier. Targeted training on internal controls and focusing on the process-level improvement of controls was also arranged for selected management teams and experts. Training on competition law issues was provided for the functions responsible for sales and for the selected individuals joining Fortum through acquisitions. Additionally, Anti-Money Laundering training for key stakeholders was arranged.

The supplier qualification process was renewed in 2016 and the majority of the personnel received training back then. Training events held in 2017 targeted Fortum's personnel in the Baltic countries and Poland, as well as Recycling and Waste Solutions personnel in Finland, Sweden and Denmark.

### Reporting misconduct

In addition to internal reporting channels, Fortum has an external ► "Raise a concern" channel. The same mechanism is used for reporting any suspected misconduct relating to the environment, labour practices or human rights violations, and it is available to all

stakeholders. In Russia, Fortum has a separate compliance organisation in place and employees there are encouraged to use the channels provided by the compliance organisation. They may, however, also use the "Raise a concern" channel should they so wish.

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

### Suspected cases of misconduct

A total of 178 reports of suspected misconduct were made in 2017. By year-end, 167 cases had been closed. About one third of the investigated cases were related to non-compliance with laws and regulations or with company rules, which constituted the majority of the cases. In these cases, corrective action was taken by reviewing and developing existing processes and instructions and by providing training for employees.

Fortum has zero tolerance towards alcohol and drug use. About 40% of the cases were related to alcohol abuse by either Fortum's or contractors' employees during working hours. As a result of the investigations, five employment contracts were terminated either by immediate dismissal or by mutual agreement, and 12 written warnings were given. There were 14 cases of misconduct reported to the police. There was no cause for action to be taken in 18 of the cases investigated.

No cases of suspected corruption or bribery related to Fortum's operations were reported in 2017.

Fortum also requires its goods and service suppliers as well as its business partners to comply with a zero tolerance policy towards corruption and bribery. As part of supply chain management, we requested a report from the goods and service suppliers we had knowledge of possible cases of misconduct. We requested the reports to include information about e.g. the corrective measures taken related to the supplier's own operations. The reports

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were considered sufficient and didn't lead to the termination of a contract.

We deal with potential cases of corruption in a professional manner, in accordance with the defined compliance investigation process, in line with applicable laws and with respect to the rights and personal integrity of all parties involved.

### Restricting competition

There were three ongoing investigation cases in Russia in 2017. Two of these cases had been initiated in the previous year. During the year Fortum was not subject to any significant monetary fines for competition law violations.

### Other significant fines

In Norway, Fortum Oslo Varme was ordered to pay a fine of NOK 150,000 (EUR 16,043) for a district heating pipe leakage that caused burns to a third party. In Denmark, Fortum Waste Solutions OW A/S was ordered to pay a fine of DKK 60,000 (EUR 8,066) for a work-related accident that took place in 2016. The handling of another work-related accident originating in 2015 in Fortum Waste Solutions OW A/S was on-going.

- FORTUM CODE OF CONDUCT
- FORTUM SUPPLIER CODE OF CONDUCT
- ENVIRONMENTAL GRIEVANCES
- LABOUR PRACTICES AND HUMAN RIGHTS GRIEVANCES
- INCIDENTS OF DISCRIMINATION
- FINES RELATED TO ENVIRONMENTAL NON-COMPLIANCES



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## Stakeholders

Our way of operating responsibly includes continuously identifying the views of our stakeholders and finding a balance between the different expectations our stakeholders have. Dialogue, feedback and good collaboration are the key ways to promote a mutual understanding with our stakeholders.

### Stakeholder collaboration

Collaboration with different stakeholder groups helps Fortum to assess and meet the expectations that stakeholder groups have towards the company. We engage in an active dialogue with the different stakeholders associated with our operations. We conduct annual stakeholder surveys. We monitor and assess the public dialogue in the countries where we operate, and we have increased the dialogue with our stakeholders also through social media channels. Feedback from customers drives the development of our products and services. Additionally, our activities in national and international organisations help to deepen our understanding of global sustainability issues and their connections to our business.

Management of stakeholder collaboration at Fortum is assigned particularly to communications, public affairs, group sustainability, the functions responsible for electricity and heat sales and energy production, as well as many of our experts. Responsibilities for managing stakeholder collaboration are primarily determined by stakeholder group or interaction theme. Key interaction areas, e.g. public affairs, and corporate communications, have annual plans that guide the activities.

Fortum has an informal Advisory Council consisting of representatives of Fortum's key stakeholder groups as invited by the Board of Directors. The Advisory Council aims to increase the dialogue and the exchange of views between the company and its stakeholders.

### Information through surveys

In collaboration with third parties, we annually conduct surveys regarding stakeholder collaboration.

The aim of these surveys is to help Fortum assess and respond to the important stakeholder groups' expectations of the company. The surveys also measure the success of our stakeholder collaboration. Additionally, the surveys provide information about emerging sustainability trends and risks we should acknowledge. We use the survey results in business planning and development and in identifying material aspects in corporate responsibility.

The One Fortum survey and its results in terms of customer satisfaction and reputation are presented in the section **► Customer satisfaction and reputation**. As part of the One Fortum survey, we regularly survey what our stakeholders consider to be the **► most important areas of sustainability**.

### Our stakeholder surveys

Survey	Target groups	Target countries	Frequency
One Fortum Survey	Customers General public Public administration Capital markets NGOs Opinion leaders Personnel Media	Finland, Sweden, Norway, Poland, Baltic countries, Russia, India	Customer satisfaction is measured semi-annually Reputation is measured annually
Media tracking	Media	All operating countries	Daily
Brand tracking	General public and customers	Finland, Sweden, Norway, Poland, Baltic countries	Continuously in Finland and Sweden, annually in other countries
Pulse survey	Own personnel	All operating countries	Semi-annually



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## Most important expectations stakeholders have towards Fortum, and Fortum's actions in response to them

	Stakeholder expectations	Fortum's actions
Lenders and shareholders	<ul style="list-style-type: none"> <li>Long-term value creation</li> <li>High-yield share</li> <li>Responsible operations</li> </ul>	<ul style="list-style-type: none"> <li>In 2017 we continued our strategy implementation: We published <a href="#">an offer for Uniper shares</a></li> <li>We are committed to achieving our financial targets</li> <li>Our goal is to pay a stable, sustainable and over time increasing dividend of 50–80% of earnings per share excluding one-off items</li> <li>Economic, social and environmental responsibility play a key role in our business</li> </ul>
Customers	<ul style="list-style-type: none"> <li>Competitively priced products</li> <li>Useful additional services and advice</li> <li>Reliability</li> <li>Ensuring data protection</li> </ul>	<ul style="list-style-type: none"> <li>With efficient operations and high-quality products, we ensure that we are competitive and our customers feel they get their money's worth</li> <li>In collaboration with customers, we develop new products and services, especially new digital solutions for customers</li> <li>We deliver what we promise to our customers, and we offer constantly better customer service through different channels</li> <li>We interviewed over 4,600 customers and 3,100 other stakeholders for our One Fortum survey in 2017</li> <li>In 2017 we launched a data protection programme in order to develop personal information processing</li> </ul>
Personnel	<ul style="list-style-type: none"> <li>Equal treatment and open interaction</li> <li>Job security and incentivising compensation</li> <li>Opportunities for professional development</li> <li>Occupational safety and work wellbeing</li> </ul>	<ul style="list-style-type: none"> <li>We operate in line with Fortum's Code of Conduct, and our Values updated in 2017</li> <li>In 2017 we launched our Open Leadership concept and Leadership Principles based on positive psychology</li> <li>Our employee compensation is based on standardised principles</li> <li>We conducted training for employees and managers to support changes in the <a href="#">Ways of Working</a></li> <li>We improve safety and wellbeing: In 2017 Safety and Security eLearning and expansion of <a href="#">Energise Your Day Programme</a> to new Fortum countries</li> </ul>
Service and goods suppliers	<ul style="list-style-type: none"> <li>Good financial position and the ability to take care of the agreed obligations</li> <li>Fair and equal treatment of suppliers</li> <li>Long-term business relations and development of business and products/services</li> <li>Responsible operations</li> </ul>	<ul style="list-style-type: none"> <li>We comply with the Fortum Code of Conduct, agreements and legislation</li> <li>We conduct a supplier qualification process</li> <li>In 2017 we updated the <a href="#">Contractor management procedures</a> in order to address challenges with contractor safety</li> </ul>
Authorities and decision makers	<ul style="list-style-type: none"> <li>Compliance</li> <li>Integration of sustainability with strategy and business, risk management</li> <li>Transparency and reliable reporting</li> <li>Maintaining dialogue</li> <li>Being a constructive partner in policy developments</li> </ul>	<ul style="list-style-type: none"> <li>We comply with laws, regulations and permits</li> <li>We develop our business and the management of environmental and safety risks</li> <li>We communicate openly and we actively engage in a dialogue with authorities and decision makers about energy issues: e.g. in 2017 we called for <a href="#">enforced Nordic regional cooperation</a> in energy and climate policies</li> <li>We provide authorities with constructive suggestions on legislative proposals: In 2017 we contributed e.g. to the preparation of the EU Governance Regulation by providing a proposal to assess and mitigate the impact of <a href="#">overlapping policies on the EU ETS</a></li> </ul>
Media	<ul style="list-style-type: none"> <li>Relevant, reliable and transparent communication</li> </ul>	<ul style="list-style-type: none"> <li>In line with our <a href="#">Disclosure Policy</a>, we communicate proactively and openly. In 2017 we had a special focus on communicating Fortum's strategy and on international media work.</li> <li>We communicate about issues of topical and media interest through multiple channels and we are easily accessible</li> <li>We meet regularly with media representatives</li> <li>We continuously improve our crisis communication preparedness</li> </ul>
Energy sector organisations	<ul style="list-style-type: none"> <li>Advocating on behalf of shared interests</li> <li>Dialogue and expertise</li> </ul>	<ul style="list-style-type: none"> <li>We advocate our shareholders' and the sector's shared interests and actively participate in organisational activities in our sector</li> <li>We publish position papers and views on energy-sector and policy development, and we actively communicate them in multiple media: In 2017, we published three <a href="#">Fortum Energy Reviews</a>.</li> <li>In addition to sector organisations, Fortum has joined several joint business initiatives promoting market-driven energy and climate policy: UN Caring for Climate initiative, World Bank's Carbon Pricing Leadership Coalition and Climate Leadership Council</li> </ul>
Non-governmental organisations	<ul style="list-style-type: none"> <li>Responsibility for operations and risk management</li> <li>Promoting renewable energy production</li> <li>Reliable and open reporting</li> </ul>	<ul style="list-style-type: none"> <li>We develop environmental and safety risk management</li> <li>We invest in renewable energy: in 2017, a total of EUR 291 million in hydro, wind and solar power and bioenergy</li> <li>We collaborate with Finnish and Swedish nature conservation associations regarding our environmentally benign electricity products</li> <li>We communicate actively and we report openly</li> </ul>
Local communities	<ul style="list-style-type: none"> <li>Operational safety</li> <li>Developing employment, infrastructure and recreational use</li> <li>Reducing emissions, noise and other inconveniences</li> </ul>	<ul style="list-style-type: none"> <li>We invest in infrastructure and plant safety. In 2017 we arranged an emergency preparedness exercise for hydropower in Finland</li> <li>We collaborate with local communities in all our operating countries: <a href="#">Examples of our activities in 2017</a></li> <li>We reduce emissions and local environmental impacts</li> </ul>

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices	
Our contribution to the SDGs	Key sustainability topics	Governance and management	Policies and commitments	Business ethics and compliance	Stakeholders	Sustainability indexes
<p><b>Fortum's bid for Uniper raised stakeholder interest</b></p> <p>Fortum announced ▶ <b>a voluntary public takeover offer</b> for all shares in Uniper towards the end of 2017. By investing in Uniper, Fortum continues the capital redeployment to enable a more efficient use of its balance sheet and delivers on its strategic goal to drive productivity and industry transformation in Europe. The offer period commenced in November and in early January E.ON tendered its 46.65% shareholding to Fortum. At the end of the acceptance period in early February 2018 altogether 47.12% of Uniper's shares were tendered to Fortum. The offer is still subject to competition and regulatory approvals. Fortum expects to finalise the transaction in mid-2018.</p> <p>Fortum's bid for Uniper is one of the biggest in the history of Finnish economy and it has gained a lot of attention both nationally and internationally. Also many stakeholders such as SRI investors and non-governmental organisations have contacted Fortum to discuss the bid. The main concern raised by the various stakeholders has been the strategic fit of Uniper's fossil-based production with Fortum low-carbon assets and, consequently, the potential increase of Fortum's carbon footprint. Our anticipated role as Uniper's biggest shareholder has also been connected with the discussions around the Nord Stream 2.</p> <p><b>A powerful combination to drive the European energy transition</b></p> <p>Together Fortum and Uniper have the strategic mix of assets – both clean and secure – as well as the expertise required to successfully and affordably drive Europe's transition towards a low carbon energy system. Fortum's power production is divided roughly in three equal parts consisting of hydropower and other renewables, nuclear power and gas-fired production. Also Uniper is much more than a coal company. Approximately 70% of the company's power generation is based on low-carbon gas-fired generation and CO<sub>2</sub> free hydro and nuclear power. The share of the company's CO<sub>2</sub> free production is about 20%. Fortum's investment in Uniper does not increase the total CO<sub>2</sub> emissions in Europe.</p> <p>Conventional energy production continues to play an important role in ensuring affordable and secure supply of energy during</p>		<p>the transition. Furthermore, gas-fired generation, in particular, can respond to the increasing intermittent renewable production, providing the flexibility needed in geographies where sufficient hydropower resources are not available. Fortum expects its investment in Uniper to deliver an attractive return that will further support us in accelerating the development and implementation of sustainable energy technologies.</p> <p>Fortum continues to be fully committed to its strategy and sustainability targets – this has not changed. Fortum's carbon exposure (gCO<sub>2</sub>/kWh) is already one of the lowest within the European power generation industry and we have a proven track-record on driving transition to a low-CO<sub>2</sub> direction. This is something that we consider our core competence and competitive advantage.</p> <p><b>Towards a low carbon energy system with efficient policies</b></p> <p>Fortum is of the opinion that phasing out coal-fired generation to mitigate climate change is absolutely necessary, but it must be executed in a controlled and affordable manner. It is the role of political decision makers to agree on the conditions and set up the frameworks that make this transition possible. Fortum respects these decisions, but argues that decision-makers should provide a level playing field for companies operating in the integrating European energy market.</p> <p>Over the year, several European countries have been discussing specific measures to forbid the use of coal in energy production to advance the transition. However, in Fortum's opinion, the best tool to phase out coal is the EU Emissions Trading Scheme (ETS). If allowed to work properly, the ETS will drive emissions down in an economically efficient manner as it is neutral to the technology and location. Should individual member states, nevertheless, decide to issue a coal ban, it is important that the decision-makers do respective changes in the ETS, so that their action lead to true emission reduction and not shift emissions from one country or sector to another.</p>		<p><b>Ensuring a responsible supply chain for coal</b></p> <p>Fortum also acknowledges that not only the use of coal, but also the origin of coal is a source of concern to some stakeholders. Fortum can only comment its own supply chain. However, both Fortum and Uniper are members of the Bettercoal initiative, which drives for sustainable coal supply chain. Bettercoal companies are committed to use Bettercoal tools in their coal purchasing. The Bettercoal Code sets out the ethical, social and environmental principles and provisions that members of Bettercoal expect organizations producing coal in their supply chain to align with. What comes to Fortum's power plants, the ▶ <b>coal</b> Fortum uses in Finland and Sweden originates from Russia. The coal used in Poland originates mainly from Poland. Fortum's power plants in Russia use coal originating from Russia and Kazakhstan.</p>		

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
Our contribution to the SDGs	Key sustainability topics	Governance and management	Policies and commitments	Business ethics and compliance	Stakeholders
					Sustainability indexes



In December 2017 the 100-MW Pavagada solar plant was connected to the grid in India. Thousands of migrant workers from diverse backgrounds around the country, with different religions, cultures, ethnicities, language, food habits and social rituals were involved in the construction phase.

Parivartan, a grassroots-level NGO was brought in to help Fortum to draw synergy from this diversity and to ensure functionality between the workers. The Parivartan team members became a part of the community. They shared the same living conditions at the workers' housing accommodations throughout the construction period. They started with small steps by first encouraging the workers to use good hygiene practices and gradually stepped up their efforts by sharing their knowledge about worker's rights, the value of safety, respect for women workers, and how to use and share all the wellbeing facilities provided by the company.

Parivartan employed many ingenious ways of communicating. They organized Saturday movies, and when the house was full they would take a break and talk about one of the topics. Separate events were also organised for female workers to discuss topics important to them. Parivartan trained workers to volunteer as, for example, hygiene inspectors, safety stewards and day care attendants for children. All aligned behaviours were rewarded. Parivartan also brought fun and games to their pitch and communicated through street dramas. This approach ensured better recall and implementation of good practices at the workplace and better personal and group wellbeing.

The results were impressive: the rate of absenteeism dropped, safety compliance increased, and the use of alcohol or other misconduct became nonexistent.

Fortum's activities have also been appreciated by the governmental health officials. Our well maintained housing accommodations and the high standards achieved in preventing diseases common in the area have been showcased as a benchmark for other solar developers.



Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
Our contribution to the SDGs	Key sustainability topics	Governance and management	Policies and commitments	Business ethics and compliance	Stakeholders
					Sustainability indexes

## Sustainability indexes



Fortum was ranked in category A- (scale from D- to A, A being the highest score) and one of the top companies in the utilities sector in the annual CDP (formerly Carbon Disclosure Project) rating 2017. The rating means that the company represents best practices in environmental stewardship, understands risks and opportunities related to climate change, and implements strategies and approaches to mitigate and accommodate these risks and opportunities. CDP is an international, not-for-profit organisation, which represents 827 institutional investors.



Fortum is included in the ECPI® Indices. These indices are used for benchmarking, thematic investments, risk management purposes and to create index-tracking investment strategies or ETF's (Exchange-traded funds). ECPI is a leading rating and index company dedicated to ESG Research (Environmental, Social and Governance) since 1997.



Fortum is included in the STOXX Global ESG Leaders indices which list global leaders in terms of environmental, social and governance (ESG) criteria. The family of indices is made up of three specialised indexes for the categories mentioned and one broad index which sums up the specialized indexes.



German oekom research AG has awarded Fortum a Prime Status (B-) rating. Prime Status means that Fortum is among the best companies in its sector and fulfils industry-specific best-in-class requirements. Oekom research AG annually assesses about 3,800 companies.



Fortum has been integrated into the Euronext Vigeo Eurozone 120 index as of December 2016. This index distinguishes the 120 companies in the Eurozone region achieving the most advanced environmental, social and governance performances. The assessment is based on a review of up to 330 indicators.



Fortum has been included in the NASDAQ OMX and GES Investment Service's OMX GES Sustainability Finland index. It provides investors with reliable and objective information about company performance in sustainability. GES Investment Services compares leading companies listed on NASDAQ OMX Helsinki and their responsibility in environmental, social and governance issues. The 40 top-ranking companies in the assessment are included in the index.

# Economic responsibility



For Fortum, economic responsibility means competitiveness, performance excellence and market-driven production that create long-term value for our stakeholders and enable sustainable growth. Satisfied customers are key to our success and active consumers will have a crucial role in the future energy system.

Fortum has indirect responsibility for its supply chain. We conduct business with viable companies that act responsibly and comply with the Fortum Code of Conduct and the Supplier Code of Conduct.

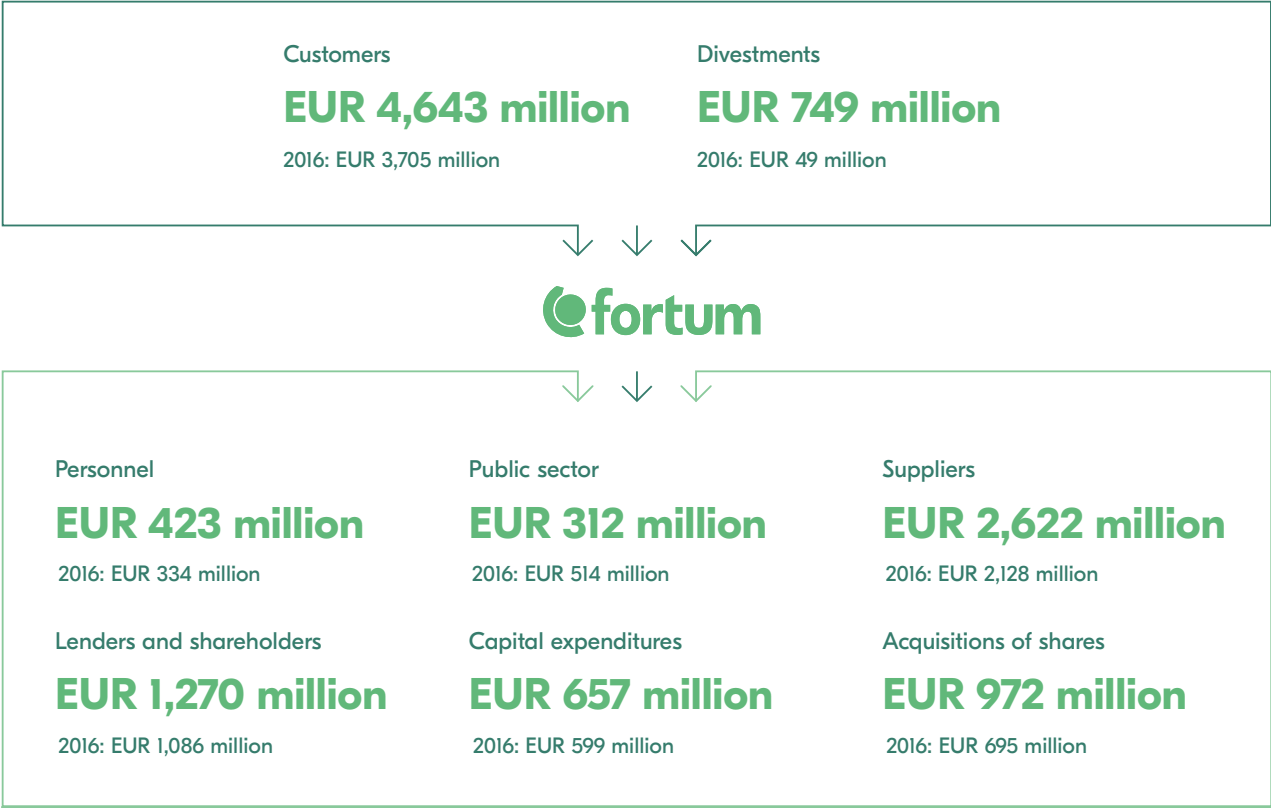
# Economic impacts

Fortum is a significant economic actor in Finland, Sweden, Russia, Poland, Norway and the Baltic countries. We continuously monitor the impact and wellbeing generated by our operations to our stakeholders. The key stakeholders include lenders and shareholders, customers, personnel, suppliers of goods and services, and the public sector.

The most significant direct monetary flows of Fortum’s operations come from revenue from customers, procurements of goods and services from suppliers, compensation to lenders, dividends to shareholders, growth and maintenance investments, employee wages and salaries, and taxes paid.

Our operations also have indirect economic impacts. The Finnish State owns 50.8% of Fortum’s shares, and we contribute to a functioning society by, among other things, paying taxes and dividends. These secure society’s basic functions and build wellbeing. Investments and the procurement of goods and services provide employment both locally and outside our operating areas. New investment proposals are assessed against sustainability criteria. In terms of suppliers of goods and services, we also assess the global impacts, paying particular attention to suppliers of goods and services operating in risk countries. The wages and taxes paid have a positive impact on local communities.

## Distribution of added value





Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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Economic impacts

Customer satisfaction and reputation

Supply chain management



### Monetary flows by stakeholder group in 2015–2017 (GRI 201-1)

EUR million		2017	2016	2015
<b>Generation of added value</b>				
Income from customers	Income from customers on the basis of products and services sold and financial income	4,643	3,705	3,517
Divestments	Income from divestment of shares, business activities or plants	749 *	49	55
Purchases from suppliers	Payments to suppliers of raw materials, goods and services	-2,622	-2,128	-1,623
Fortum produced added value		2,770	1,627	1,950
<b>Distribution of added value</b>				
Employees compensation	Wages, salaries and remunerations and other indirect employee costs	-423	-334	-351
Lenders and shareholders compensations	Dividends paid to investors, interest, realised foreign exchange gains and losses and other financial expenses	-1,270	-1,086	-1,119
Public sector	Income and production taxes paid, support for society and donations	-312	-514	-351
Distributed to stakeholders, total		-2,004	-1,934	-1,821
<b>Surplus/deficit cash</b>		<b>765</b>	<b>-307</b>	<b>128</b>
Capital expenditures		-657	-599	-527
Acquisitions of shares		-972 *	-695	-43
Discontinued operations <sup>1)</sup>				6,457
<b>Surplus/deficit including investments and discontinued operations</b>		<b>-864</b>	<b>-1,601</b>	<b>6,015</b>

1) Includes the electricity distribution business divested in 2015.

\* Divestments and acquisitions of shares are mainly related to the restructuring of the ownership in Hafslund. Further information in Financial Statements Note 38 Acquisitions and disposals.

In 2017, the difference between added value generated and distributed to stakeholders was EUR 765 (2016: -307) million for the development of own operations.

The distribution of the economic added value generated by our operations to the most significant operating areas is reported in the following parts of the annual reporting:

- **SALES BY MARKET AREA BASED ON CUSTOMER LOCATION: FINANCIAL STATEMENTS, NOTE 5**
- **EMPLOYEE COSTS BY COUNTRY**
- **TAX FOOTPRINT**

We have included investments in our own assessment of economic impacts, as their annual volume and impact on the society is significant. In 2017 we invested EUR 375 (2016: 270) million in

CO<sub>2</sub> free energy production. Capital expenditure by country and by production type is presented in the Financial Statements, Note 17.2 Capital Expenditure.

Provisions related to nuclear power are covered in the Financial statements, Note 28 Nuclear related assets and liabilities. Financial implications and other risks and opportunities due to climate change, as well as emissions trading are reported in the section ► **Climate change mitigation**. Our pension arrangements conform to the local regulations and practices in each operating country; the arrangements are discussed in the Financial Statements, Note 30 Pension obligations.

In 2017 we received financial support from the public sector in the form of investments, R&D and other significant grants totalling EUR 1.7 (2016: 3.8) million. The figure excludes free emission allowances and electricity certificates as well as electricity and heat price related subsidies.

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
Economic impacts	Customer satisfaction and reputation	Supply chain management			

## Customer satisfaction and reputation

For Fortum, customer satisfaction and reputation are a top priority in implementing the company's strategy and in growing the business. We have set Group-wide targets for customer satisfaction and for our reputation.

### Customer in the centre

The Group-wide Customer in the centre development programme, which was launched in 2015 with the aim of promoting a customer-centric culture in our company, continued in 2017. One of our five must-win battle (MWB) development programmes is "Put the customer in the centre". The programme contains specific projects to improve the customer experience and our offering, e.g., by utilising the opportunities brought by digitalisation. As an expanding company, it is also important to ensure that our new customers are satisfied with our services. In 2017 we expanded in Norway, where Fortum acquired 100% of Hafslund's Markets business area, which consists of several electricity retail brands. In conjunction with that, Fortum gained 1.1 million new customers, increasing our Nordic customer base to 2.5 million.

### One Fortum survey provides information about all stakeholder groups

We use the extensive One Fortum survey to annually measure customer satisfaction and our reputation and the factors that impact them. The survey is conducted yearly in spring and it covers customers, decision makers, capital markets, non-governmental organisations and opinion influencers as well as Fortum's personnel. In Finland and Sweden, we also survey the views of the general public and media. During autumn we also conduct a follow-up survey among our electricity sales customers.

We conducted the One Fortum survey in 2017 in Finland, Sweden, Norway, Poland, the Baltic countries, Russia and India. Over 4,600 customers and nearly 3,100 other stakeholders were interviewed. We also monitor other publicly available research

sources, but up to year-end 2017 we have defined Group targets and our identified development areas on the basis of the One Fortum survey results. As of 2018 we will use multiple monitoring data to best accommodate the multiple electricity retail brands Fortum now owns after the Hafslund acquisition.

### Customer satisfaction

In the annual One Fortum Survey in spring, our district heating customers' satisfaction remained overall fairly unchanged and in most countries on a good level. Among our retail electricity sales customers, the satisfaction decreased somewhat in Norway and in Poland, whereas in Finland and Sweden the results were stable. Our Power Solutions customers ranked us a bit lower this year compared to last year, but the satisfaction is still on a very good level. The Recycling and Waste Solutions unit was not part of the One Fortum survey in spring 2017. In the autumn 2017 One Fortum follow-up survey, the results were stable among the electricity retail customers in Finland and Norway compared to autumn 2016, while in Sweden we improved a bit. We saw a slight decrease in the satisfaction in Poland.

In the autumn 2017 measurement we also included new Fortum units in the survey scope. Several of the acquired Hafslund Markets brands were measured as well as our Recycling and Waste Solutions unit, which had the highest customer satisfaction level of all measured Fortum units in the One Fortum Survey.

Our Group-level target for all business areas in 2017 was to achieve a customer satisfaction rating of "good", i.e. 70–74 on a scale 0–100, in the One Fortum survey. The target was achieved among all business areas, but not in retail electricity sales.

### Other public customer satisfaction results

The international and independent EPSI Rating annually surveys the level of satisfaction of electricity retail company customers in Finland, Sweden and Norway.

### Customer satisfaction <sup>1)</sup> in 2015–2017

	2017	2016	2015
<b>Finland</b>			
Fortum	75.6	73.3	74.7
<b>Sweden</b>			
Fortum	56.1	53.4	64.4
Göta Energi <sup>2)</sup>	64.7	62.9	64.4
SverigesEnergi <sup>2)</sup>	60.5	61.0	68.8
<b>Norway</b>			
Fortum	71.1	72.7	75.6
Hafslund Strøm <sup>2)</sup>	68.2	70.3	66.6
NorgesEnergi <sup>2)</sup>	71.9	71.3	71.4

1) EPSI Rating in Finland and Norway; Svenskt Kvalitetsindex in Sweden

2) Brands acquired through the Hafslund acquisition



Economic impacts

Customer satisfaction and reputation

Supply chain management

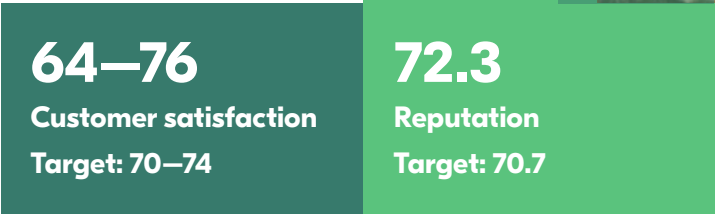
Reputation

Our reputation is strongest amongst opinion influencers and non-governmental organisations, followed by decision makers and our own personnel. The biggest change compared to the previous year was among capital markets, where the result recovered significantly from the drop in the previous year. Our reputation continues to be weakest among the general public. Based on the survey results, we should continue our efforts to improve social responsibility and customer centricity and to maintain our good operational expertise.

The Group-level target for our reputation in 2017 was a rating of 70.7 in the One Fortum survey, measured as the average rating given by all stakeholders included in the One Fortum Survey, apart from customers. Rankings given by customers are not included in the reputation index calculation because we treat customer satisfaction as a separate entity. In 2017, we achieved an average rating of 72.3 among these stakeholder groups. The target set for 2018 (73.0) includes the same stakeholder groups as in 2017.

Brand

We also monitor brand development, i.e. what impression the general public has about our brand. The survey includes the measurement of, e.g., brand awareness, preference and brand attributes.



## Supply chain management

Fortum is a significant purchaser of goods and services. We actively strive to reduce the environmental impacts caused by our operations and to improve economic and social wellbeing. We also manage risks related to our supply chain. The aim is that open and efficient collaboration creates value for both parties.

### Electricity purchases increased significantly

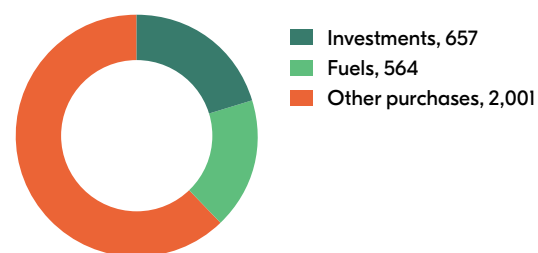
Fortum's purchasing volume in 2017 was EUR 3.2 (2016: 2.5) billion. Electricity purchased from the Nordic wholesale electricity market for retail sales, investments, and fuel purchases accounted for the majority of Fortum's purchases. The number of electricity customers increased with the acquisition of Hafslund, which also increased electricity purchases from the wholesale markets by 40% compared to 2016.

Of our purchases, EUR 657 (2016: 599) million targeted various investments. The biggest investments, EUR 173 million, were made in Finland. A large share of the investments is contracted out in full with materials, installation and other service as well as contractor work included in the total purchase.

Fortum's fuel purchases in 2017 totalled EUR 564 (2016: 524) million. We purchase fuels from international and local suppliers. Our fossil fuel purchases totalled about EUR 498 (2016: 448) million, biomass fuels about EUR 48 (2016: 44) million, and nuclear fuel about EUR 35 (2016: 38) million.

The rest of our purchases, EUR 2.0 (2016: 1.4) billion, consist of other goods and services. The figure includes electricity purchased from the Nordic wholesale electricity market for retail sales. The other goods and services purchases were related to, for example, operation and maintenance as well as to other functions, such as IT solutions, marketing and travel.

### Purchases, EUR million



### Half of purchases from Europe

Half, i.e. 50%, of the purchasing volume was purchased from suppliers operating in Europe, mostly in Finland, Sweden and Poland. This does not include electricity purchases from the Nordic wholesale market. 47% of Fortum's purchases were from risk countries. The majority of these purchases were from Russia.

Violations related to work conditions and human rights are more likely in risk countries than in non-risk countries. Fortum's risk-country classification is based on the ILO's Decent Work Agenda, the UN's Human Development index and Transparency International's Corruption Perceptions index.

In 2017, we had about 16,000 (2016: 15,000) suppliers of goods and services. About 1,500 of the suppliers were in risk countries. Excluding the Russia Division's local suppliers, there were about 260 suppliers in risk countries.

### Purchases <sup>1)</sup> excluding investments, 2015–2017

EUR million	2017	2016	2015
Nordic countries	1,548	1,106	935
Russia	586	505	546
Poland	375	279	138
Other countries	56	53	58
<b>Total</b>	<b>2,565</b>	<b>1,943</b>	<b>1,677</b>

1) Includes purchases of fuel, power and other materials and services

### Sustainable fuel purchasing

The most significant environmental impacts of our supply chain are related mainly to fuels, particularly to coal and biomasses. There are significant environmental aspects associated with open-pit coal mining, including natural resource efficiency, emissions to air, water and soil, and impacts on biodiversity. Significant occupational health and safety risks can be related to working in underground mines. The sustainability aspects of biomass sourcing are related primarily to biodiversity, but risks particularly outside the EU can also include, for instance, illegal logging or human rights violations.

In fuel purchasing, special attention is paid to the origin of the fuel and to responsible production. In 2017 we had about 150 suppliers in our fuel supply chain, 6% of them operated in risk countries.



Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices														
Economic impacts	Customer satisfaction and reputation	Supply chain management																	
<h3>Natural gas</h3> <p>The natural gas used in Russia, the Baltic countries and Finland originated from several different suppliers in Russia. The natural gas used in Poland originated from Poland and the natural gas used in Norway originated from Norway.</p>		<p>Chain of Custody certification for our wood-based fuel purchases during 2018.</p> <p>The bio-oil plant integrated with Fortum’s Joensuu power plant has a sustainability system approved by The Finnish Energy Authority. The system is used to prove compliance with nationally legislated sustainability criteria for bio-oil.</p>		<h3>Origin of fuels used at Fortum in 2017 <sup>1)</sup></h3> <table><tr><th>Fuel</th><th>Country of origin</th></tr><tr><td>Biomass</td><td>Finland, Poland, Russia, Norway, Baltic countries</td></tr><tr><td>Coal</td><td>Russia, Kazakhstan, Poland</td></tr><tr><td>Natural gas</td><td>Russia, Poland, Norway</td></tr><tr><td>Uranium</td><td>Russia</td></tr><tr><td>Oil</td><td>Russia</td></tr><tr><td>Peat</td><td>Finland, Estonia</td></tr></table> <p>1) Biggest countries of origin by purchase volume in 2017</p>	Fuel	Country of origin	Biomass	Finland, Poland, Russia, Norway, Baltic countries	Coal	Russia, Kazakhstan, Poland	Natural gas	Russia, Poland, Norway	Uranium	Russia	Oil	Russia	Peat	Finland, Estonia	
Fuel	Country of origin																		
Biomass	Finland, Poland, Russia, Norway, Baltic countries																		
Coal	Russia, Kazakhstan, Poland																		
Natural gas	Russia, Poland, Norway																		
Uranium	Russia																		
Oil	Russia																		
Peat	Finland, Estonia																		
<h3>Coal</h3> <p>The coal used in Finland originated from Russia. The coal used in Poland originated mainly from Poland. The power plants in Russia used coal originating from Russia and Kazakhstan.</p> <p>Fortum is a member of the <b>Bettercoal initiative</b>, and uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain.</p>		<h3>Uranium</h3> <p>The fuel assemblies used at the Loviisa power plant in Finland are completely of Russian origin. The fuel supplier acquires the uranium used in the fuel assemblies from Russian mines in accordance with Fortum’s agreement. In 2017, the uranium originated from the Krasnokamensk, Khiagda and Dalur mines.</p> <p>Both ARMZ Uranium Holding Co., a uranium producer, and TVEL, which is responsible for refining and manufacturing uranium, have environmental and occupational safety systems in place in all their plants. All three uranium mines have ISO 14001 environmental certification. The Khiagda mine has also an OHSAS 18001 certified occupational health and safety management system. The zirconium material manufacturing plant and the plant responsible for manufacturing uranium oxide pellets and fuel assemblies have ISO 14001 environmental management system certification and OHSAS 18001 occupational health and safety management system certification.</p> <p>We regularly assess the quality, environmental, and occupational health and safety management systems of our nuclear fuel suppliers and the manufacturing of nuclear fuel assemblies. In summer 2017, Fortum’s representatives assessed the operations of Fortum’s Russian fuel supplier’s uranium mine. The plant was in good condition technically, and its quality and environmental management systems were certified.</p>		<h3>FUEL CONSUMPTION</h3> <h3>Sustainable supply chain</h3> <p>We expect our business partners to act responsibly and to comply with the Fortum Code of Conduct and the Supplier Code of Conduct. Fortum’s key tools in supply chain management are country and counterparty risk assessments, supplier qualification and supplier audits.</p> <h3>Codes of conduct cover basic requirements</h3> <p>The Fortum Code of Conduct forms the foundation for ethical business conduct and defines how we treat others, engage in business, and safeguard our corporate assets.</p> <p>The Supplier Code of Conduct includes the sustainability requirements for suppliers of services and goods. The Supplier Code of Conduct is based on the principles of the United Nations Global Compact initiative and is divided into four sections: anti-corruption, human rights, labour standards, and the environment. The country and counterparty risk assessment follows the same structure.</p> <p>The Supplier Code of Conduct is used in all our countries of operation and is included in all purchase agreements with a contract value of EUR 50,000 or more. Training related to the Supplier Code of Conduct were arranged in 2017 for Fortum’s Baltic functions and for the Recycling and Waste Solutions personnel in Finland and Sweden.</p>															

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Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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## Economic impacts

## Customer satisfaction and reputation

## Supply chain management

### Supplier qualification

We assess the level of operations of our business partners through supplier qualification and supplier audits. The supplier qualification is made when the purchase volume is EUR 50,000 or more. In the qualification process, suppliers respond to a survey that we use to help determine, among other things, the supplier's possible operations in risk countries, certified management systems, and the occupational safety level of the contractors. We pay special attention also to anti-corruption practices.

If potential risks in the supplier's operations are identified through the questionnaire, a more extensive self-assessment questionnaire may be sent or a supplier audit is conducted. The extensive self-assessment questionnaire is always sent to fuel suppliers and the suppliers of Fortum India.

The supplier qualification process was renewed in 2016, and the majority of the personnel received training in the new practices. Training events were held in 2017 for Fortum's personnel in the Baltic countries and Poland, and Recycling and Waste Solutions personnel in Finland, Sweden and Denmark.

The Russia Division uses its own supplier qualification process that is based on Russian procurement law. In the Russian operations, we set supplier requirements for business principles, ethics, environmental management, and occupational health and safety practices.

### Supplier audits support assessments

In supplier audits, we assess the supplier's compliance with the requirements in Fortum's Supplier Code of Conduct. Audits are always done on-site, and they include production inspections, employee interviews, and reviews of documents. If non-compliances are found, the supplier makes a plan for corrective actions and we monitor the implementation of them.

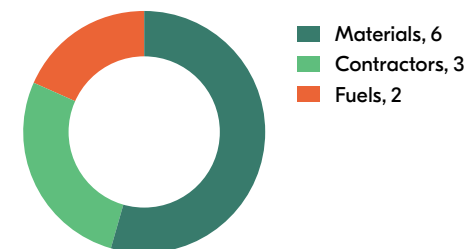
Fortum uses an international service provider for conducting audits, especially in risk countries. In Fortum's own operating countries, the audits are performed mainly by own personnel.

In 2017, we conducted a total of 11 (2016: 13) supplier audits for a total of ten suppliers in China, India, Russia, Slovenia, Estonia and Finland.

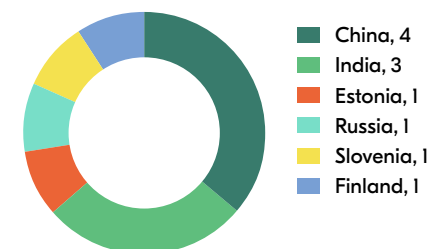
Most of the non-compliances identified in the audits in 2017 were related to occupational safety, overtime hours and remuneration. The audits conducted did not reveal non-compliances related to freedom of association, discrimination, or child or forced labour, but we issued a recommendation to two Chinese suppliers to strengthen their practices to prevent the potential use of child labour.

Fortum uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain. Bettercoal audits are always conducted by a third, accredited party. The Bettercoal Assessment Programme was renewed in 2017. In the renewed programme, coal suppliers commit already in the initial phase to the Bettercoal Assessment by signing a Letter of Commitment. In 2017, one of Fortum's Russian coal suppliers and one Kazakhstan coal supplier signed the Letter of Commitment. One of Fortum's Russian coal suppliers was audited in February 2018. Additionally, two of Fortum's coal suppliers have been audited in previous years.

### Supplier audits by supplier type



### Supplier audits by country



# Environmental responsibility



Fortum's aim is to provide our customers with environmentally benign products and services. We strive to continuously reduce the environmental impacts of our operations by using best available practices and technologies. We emphasise a circular economy, resource and energy efficiency, the use of waste and biomass, and climate change mitigation in environmental responsibility.

Our company's know-how in carbon dioxide-free hydro and nuclear power production and in energy-efficient combined heat and power production, investments in solar and wind power, as well as solutions for sustainable cities play a key role in environmental responsibility.

### Environmental impacts

Some of the environmental impacts of energy production are global or wide-reaching, some are regional or local. In terms of Fortum's operations, the key environmental aspects include:

- Climate change
- Use of renewable energy sources
- Circular economy
- Flue-gas emissions
- Hydropower's environmental impacts and biodiversity
- Fuel procurement

We manage our environmental impacts with environmental management systems. 99.8% of our electricity and heat production is ISO 14001 certified.

### Climate change mitigation

We can reduce our greenhouse gas emissions by increasing carbon dioxide-free energy production and the use of renewable energy sources, and improving energy efficiency of production. 61% of the total electricity we produced in 2017 was carbon dioxide-free. We made several investments and investment decisions that will significantly grow our wind and solar power production in the years ahead.

### Circular economy boosts resource efficiency

We recycle significant amounts of waste and energy production by-products generated in our operations. Additionally, our circular economy services separate from municipal waste streams substances that can be utilised as materials and for energy production.

The continuous improvement of resource and energy efficiency is important in terms of the sufficiency of natural resources and climate change mitigation. In improving the energy efficiency of our own production, we have gained expertise that we have put to use in providing energy-efficiency services to other energy companies.

### Advanced combustion technology

Fuel use generates sulphur dioxide, nitrogen oxide and particle emissions that degrade air quality and cause acidification of soil and water systems. These emissions can be effectively reduced with various flue-gas cleaning technologies. Special expertise in combustion technology is one of Fortum's strengths, and we have supplied our own power plants and many other energy companies with combustion technology solutions to reduce nitrogen oxides.

### Mitigation of hydropower's environmental impacts

Damming rivers and regulating water systems change the natural water levels and discharges and cause changes in aquatic habitats. We actively take part in research activities in the sector and implement voluntary and permit-based measures to develop the biodiversity, fish populations and the multi-use of water systems where we produce hydro power.

#### ► ENVIRONMENTAL IMPACTS BY PRODUCTION FORM





Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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## Environmental key figures

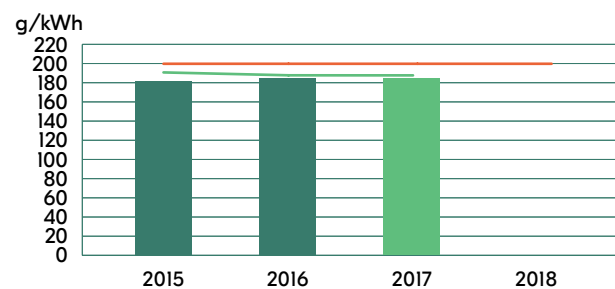
The table and graphs present our key targets and figures for environmental responsibility.

## Key figures for environmental responsibility

	2017	2016	2015
Carbon dioxide emissions (Scope 1), million tonnes	18.3	18.6	19.2
Sulphur dioxide emissions, 1000 tonnes	18.8	22.5	19.9
Nitrogen oxide emissions, 1000 tonnes	27.5	26.0	26.8
Particle emissions, 1000 tonnes	15.8	16.8	17.8
Specific CO <sub>2</sub> emissions of power generation, g/kWh	173	173	166
Specific CO <sub>2</sub> emissions of power generation in the EU, g/kWh	28	28	21
Specific CO <sub>2</sub> emissions of total energy production, g/kWh	184	184	181
5-year average, g/kWh	188	188	191
Share of CO <sub>2</sub> -free energy in power generation, %	61	62	64
Share of renewable energy in power generation, %	30	30	34
Share of renewable energy in heat production, %	9	7	8
Energy efficiency improvement, GWh/a	131	245	479 *
Utilisation of gypsum originated from energy production, %	100	100	100
Utilisation of ash originated from energy production, %	47	37	33
Material recovery rate of waste received from customers, %	57	-	-
Water withdrawal in production operations, million m <sup>3</sup>	2,120	2,140 *	2,138
of which cooling water, million m <sup>3</sup>	1,994	2,035 *	2,060
Major EHS incidents, no.	20	22	18
of which environmental permit violations, no.	2	11	14
ISO 14001-certified operations in power and heat production, % of sales	99.8	99.9	99.9

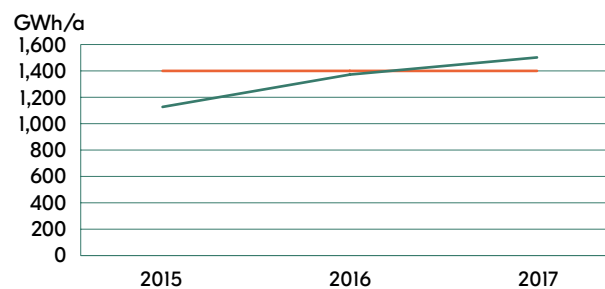
\* Figure revised

## Specific carbon dioxide emissions of total energy production in 2015–2017



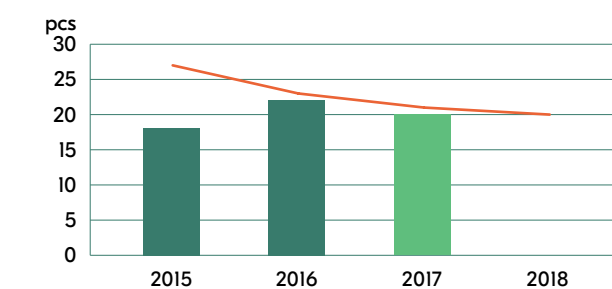
■ Annual specific emissions  
— Specific emissions (5-year average)  
— Target (5-year average)

## Annual energy savings achieved in 2015–2017



— Cumulative energy savings from 2012  
— Target (year 2020)  
New target is 1,900 GWh/a by 2020.

## Number of major EHS incidents in 2015–2017



■ Number of major EHS incidents  
— Target

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Sustainable energy production

Our energy production is based primarily on carbon dioxide-free hydro and nuclear power and on energy-efficient combined heat and power production. In line with our strategy, we are targeting a gigawatt-scale solar and wind portfolio.

Fortum's power generation in 2017 was 73.2 (2016: 73.1) TWh and heat production 28.6 (2016: 27.8) TWh. 61% (2016: 62%) of our power generation was carbon dioxide-free and 30% (2016: 30%) was produced from renewable energy sources. About 9% (2016: 7%) of our heat production was produced from renewable, carbon-free energy sources.

Power generation and heat production by energy source are presented in the accompanying tables. The figures include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners on cost basis.

### More renewable energy

We commissioned two new solar power plants in India in 2017, in addition to the previous 15-MW solar power capacity. The new solar power plants are the 70-MW Bhadla solar power plant and the 100-MW Pavagada solar power plant. At the end of 2017, we acquired the 10-MW Pleshanskaya and 10-MW Grachevskaya solar power plants, and the 15-MW Bugulchanskaya solar power plant in Russia.

Fortum has actively invested also in wind power. At the beginning of 2017, we acquired Nygårdssjøllet's 32-MW wind power park and the licensed Ånstadblåheia (about 50 MW) and Sørfjord (about 90 MW) wind power projects in Norway. Additionally, there were under construction the 35-MW Ulyanovsk wind power park in Russia, and in Sweden the Solberg 75-MW wind power park, of which Fortum's share of ownership is 50%. Ulyanovsk, Solberg and Ånstadblåheia wind power parks are estimated to start production in 2018.

In 2017, Fortum and RUSNANO established a 50/50-owned wind investment fund that was awarded the right to build 1,000 MW of wind power in Russia in 2018–2022 in the RES capacity selection auction. The wind investment fund made a decision on

construction of the first 50-MW wind farm in Russia. The wind farm is expected to start production in 2019.

In 2017, the refurbishments of Fortum's own hydropower plants in Sweden and Finland introduced 8 MW of new, renewable electricity production capacity.

### New, energy-efficient production capacity

Replacement of a high-pressure turbine was carried out at the Loviisa nuclear power plant's unit 1 during the annual outage. This replacement increased the plant unit's nominal output by 5 MW.

In Russia, the third new CHP unit at the Chelyabinsk GRES power plant was completed at the end of 2017. The plant is fuelled by natural gas, and its electricity production capacity is 248 MW and heat production capacity 174 MW. The first power plant unit of the same size was completed in late 2015 and the second in spring 2016.

Construction of the new CHP plant in Zabrze, Poland, continued; the plant is scheduled for completion in 2018. The power plant has a maximum production capacity of 75 MW electricity and 145 MW heat, and the plant replaces the old coal-fired plants units in Zabrze and Bytom. The plant is primarily fuelled by refuse-derived fuel (RDF) and coal. The Russia and Poland investments improve the efficiency of energy production and reduce carbon dioxide and other emissions into the environment in relation to produced energy.

### Energy production from waste and biomass fuels

In early August 2017, Fortum concluded the restructuring of its ownership in Hafslund together with the City of Oslo. In the arrangement, Hafslund's district heat business operations and the City of Oslo's waste-to-energy company Klemetsrudanlegget AS (KEA) were combined into one company, and Fortum acquired 50% of the combined company. Fortum has operational responsibility for the joint venture.

The total heat production capacity of Fortum Oslo Varme is 1,111 MW. The Klemetsrud waste-to-energy plant incinerates

mainly municipal waste, and the plant's production capacity is 148 MW heat and 19 MW electricity. Haraldrud's heat power plant has a 56-MW bioboiler, a 30-MW waste boiler, a 25-MW electricity boiler and two 50-MW gas boilers. In addition to the Haraldrud heat plant, there are nine other heat plants in the Oslo region.

### ► ENERGY PRODUCTION FORMS

#### Power generation by energy source in 2015–2017 (GRI 302-I)

TWh	2017	2016	2015
Hydropower	20.7	20.7	25.0
Nuclear power	23.0	24.1	22.7
Natural gas	25.3	24.3	24.1
Coal	2.6	2.8	2.9
Biofuels	0.8	0.8	0.8
Waste-derived fuels	0.3	0.2	0.1
Wind, solar	0.5	0.1	0.1
Other <sup>1)</sup>	0.1	0.1	0.1
<b>Total</b>	<b>73.2</b>	<b>73.1</b>	<b>75.9</b>

1) Peat, other

#### Heat production by energy source in 2015–2017 (GRI 302-I)

TWh	2017	2016	2015
Natural gas	18.6	19.7	24.2
Coal	4.8	4.7	5.0
Biomass fuels	1.9	1.9	2.0
Waste-derived fuel	2.3	0.8	0.4
Heat pumps, electricity	0.6	0.3	0.3
Peat	0.4	0.4	0.3
Other <sup>1)</sup>	0.0	0.0	0.1
<b>Total</b>	<b>28.6</b>	<b>27.8</b>	<b>32.2</b>

1) Fuel oil, other

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Case | Society's Commitment: Carbon-free district heating in Espoo by 2030



The City of Espoo and Fortum made a commitment in 2017 to make Espoo's district heating system carbon-free and CO<sub>2</sub>-neutral by 2030. Our joint pledge to Society's Commitment to Sustainable Development has been published on the Finnish National Commission on Sustainable Development's [commitment2050.fi](#) website. We are also participating in the national implementation of the global Agenda2030 for Sustainable Development.

The goal will be achieved by, among other things, developing and investing in new energy production solutions that aim to utilise waste heat flows, biomass and recycled fuels, as well as geothermal energy when possible. Additionally, we are developing new solutions and services for customers and thereby enabling sustainable, efficient and smart energy use. In city planning, extensive energy analyses at the master and town planning level are being compiled and energy-planning expertise is being utilised to meet climate targets. Land-use planning supports low-emission lifestyles.

Over the past four years, heat production in Espoo has already integrated a heat pump plant in Suomenoja utilising heat from treated wastewater, a conversion to wood pellets at the Kivenlahti heat plant, the combustion of bio-oil at the Vermo heat plant, and a thermal energy storage in Suomenoja. Additionally, we have implemented various waste heat projects, like heat recovery at Ericsson's data centre in Kirkkonummi and heat recovery at the Espoo Hospital. In just a short period of time, these measures have increased the share of waste heat and biomass fuels in heat production from close to zero to more than 25%.

In 2017, we advanced the realisation of the new Kivenlahti biomass fuelled heat plant by submitting an environmental permit application. Our goal is to start construction of the new heat plant during 2018. Additionally, we have advanced other new plant investments that will make it possible to stop using coal in Espoo's district heat production in the 2020s.

We made significant investments in 2016–2017 to expand the district cooling system in the southern region of Espoo. Based on CO<sub>2</sub>-free and environmentally friendly free cooling, the expanded district cooling system will be fully deployed in 2018. In the district cooling system the thermal energy generated in the cooling of buildings is recycled back into the district heating network.

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Climate change mitigation

Our vision – **For a cleaner world** – defines our ambition to move towards a low-emission energy system and optimal resource efficiency. Our main tools in climate change mitigation are increasing renewable energy production, improving energy efficiency and providing smart energy solutions for our customers.

### Risks and opportunities associated with climate change

We believe that our know-how in carbon dioxide-free hydro, nuclear, wind and solar energy and in energy-efficient combined heat and power (CHP) production is a competitive advantage. We expect the concern about climate change to increase the demand for low-carbon and energy-efficient energy products and solutions. Our developing circular economy services also meet this demand, as the use of non-recyclable and non-recoverable waste in energy production replaces fossil fuel and reduces the formation of greenhouse gases generated from biodegradable waste at landfills.

Our operations are exposed to physical risks caused by climate change, including changes in weather patterns that could alter energy demand and energy production volumes. Higher precipitation, flooding and extreme temperatures may affect, for instance, hydropower production, dam safety, and bioenergy supply and availability. Hydrological conditions and temperature also affect the short-term electricity price in the Nordic power market.

Potential strategic risks are related to regulation and to the future energy and climate policy, which impacts decision making on, for example, the technology used at production plants and the fuel selections, such as the use of biomass fuels. In addition to climate change mitigation, we also aim to adapt our operations to the changing climate, and we take climate change into consideration in, among other things, production planning and the assessment of growth projects.

### Towards low-emissions production

In Europe, we produce carbon dioxide-free electricity with hydro, nuclear and wind power and at CHP plants that utilise biomass and waste-derived fuels. In the EU area, 96% (2016: 96%) of our electricity production was carbon-free in 2017. The rest of the electricity was produced mainly with coal. We produce solar power in India.

Our electricity production in Russia is based on fossil fuels, mainly on natural gas. Our new plant units in Russia are based on gas turbine technology, which represents the best available technology in natural gas combustion. 61% (2016: 62%) of our total electricity production was carbon dioxide-free.

The following investments and projects, among others, directly or indirectly reducing carbon dioxide emissions were completed in 2017:

- Bhadla and Pavagada solar power plants in India
  - District heating and district cooling construction project in Tartu, Estonia
  - Heat recovery at a data centre to Espoo district heating network in Finland
  - Replacement of the high-pressure turbine in unit 1 at the Loviisa nuclear power plant in Finland
  - Refurbishments of hydropower plants in Sweden and Finland
- We have estimated that these projects will reduce annual carbon dioxide emissions by about 162,000 tonnes.

Projects under construction and decisions on new investments are described in more detail in the

► **Sustainable energy production** section.



### Climate-benign products and services

We offer our customers a range of energy products and ► **energy services** to help them improve their energy efficiency and reduce their carbon footprint:

- Carbon dioxide-free electricity products and carbon-neutral heat products
- Solar panel solutions
- Electric vehicle charging systems
- Real-time monitoring and optimisation of energy consumption

The growth of renewable energy increases the need for regulating power to balance the energy system and the need for new storage solutions in the energy system. In a service based on demand flexibility, customers participate with Fortum to maintain the power balance. Household water heaters or house batteries can be used to reduce the need to start up fossil-fuel-based reserve power plants and support the use of renewable energy by balancing peak consumption in the electricity network.

We are expanding our offering also by investing in startups that are developing new technologies.



Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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Sustainable energy production

Climate change mitigation

Improving energy efficiency

Circular economy

Biodiversity

Emissions into air

Water use

Environmental non-compliances and incidents

## Innovative fuels

► **Fortum HorsePower** is a service concept in which Fortum delivers bedding to horse stables and picks up the bedding-manure mixture for combustion. In 2017, bedding-manure mixture was collected from more than 200 horse stables in Finland. Fortum combusts the bedding-manure mixture at the Järvenpää CHP plant, and it was delivered also to other energy companies. The service was rolled out also in Sweden in 2017.

The Joensuu bio-oil plant produced about 11,200 tonnes of bio-oil, the majority of which was used at a heat plant in the Joensuu power plant area and at the Vermo heat plant in Espoo, Finland.

## Emissions trading

Over 79% of carbon dioxide emissions from our energy production in the Nordic countries, the Baltic countries and Poland are within the sphere of the EU's emissions trading scheme. We had a total of 50 (2016: 45) plants in six member countries within the EU's emissions trading scheme in 2017. Fortum was granted free emission allowances corresponding to 1.0 (2016: 1.0) million tonnes. Our carbon dioxide emissions within the EU's emissions trading scheme were 2.3 (2016: 2.7) million tonnes. In terms of the emissions allowances, we had a deficit and had to purchase the shortfall of emissions allowances from the markets.

Fortum's view is that emissions trading is the most cost-efficient way to achieve emissions targets. In late 2017, a consensus was reached between the Commission and the Parliament regarding the revision of the EU's emissions trading directive for 2021–2030; national adoption of it will start in member states in 2018. Fortum expects the revision to make emissions trading more efficient and to strengthen its steering effect. We are of the opinion that the proposed EU governance model should eliminate national and EU-level policy measures that overlap with emissions trading.

We also want to promote the establishment of a global carbon pricing and carbon market. Fortum has signed the Carbon Price Communiqué, an international business statement for setting a price on carbon emissions. We also participate in several international business initiatives promoting the role of business in

climate change mitigation. These include the UN Global Compact's Caring for Climate initiative and the World Bank's Carbon Pricing Leadership Coalition initiative. In Finland, Fortum is a member of the Climate Leadership Council.

## Carbon funds

Fortum is a participant in the international Prototype Carbon Fund (PCF) climate fund. In 2017, we received a total of about 12,000 CER emission reduction units from this fund. So far, we have received a total of 2,760,000 emission reduction units, and we estimate that we will still receive about 120,000 units during the PCF's operating period.

## ► FORTUM'S POSITION ON THE DEVELOPMENT OF THE EU CLIMATE POLICY

## Greenhouse gas emissions

Our greenhouse gas emissions in 2017 totalled 23.3 (2016: 23.6) million tonnes. Scope 1 emissions were 18.4 million tonnes, Scope 2 emissions 0.1 million tonnes, and Scope 3 emissions 4.8 million tonnes. Greenhouse gas emissions are reported on a pro forma basis and the figures of the comparison years have not been adjusted because of partially insufficient data. The effect of the Hafslund business acquisition is estimated to be less than 2% of our greenhouse gas emissions.

## Direct greenhouse gas emissions – Scope 1

The majority of our greenhouse gas emissions are generated from the use of fossil fuels in electricity and heat production. A small amount of emissions is generated from the use of company vehicles and leaks related to the natural gas distribution. Our direct greenhouse gas emissions were 18.4 (2016: 18.8) million CO<sub>2</sub>-equivalent tonnes. The share of carbon dioxide from our direct greenhouse gas emissions was 99%. The share of Scope 1 greenhouse gas emissions from our total greenhouse gas emissions was 79%.

## Direct greenhouse gas emissions in 2015–2017 (GRI 305-I)

Mt CO <sub>2</sub> -eq	2017	2016	2015
CO <sub>2</sub>	18.3	18.6	19.2
CH <sub>4</sub>	0.01	0.01	0.01
N <sub>2</sub> O	0.09	0.17	0.14
HFCs	0.00	0.00	0.00
SF <sub>6</sub>	0.00	0.00	0.00
<b>Total</b>	<b>18.4</b>	<b>18.8</b>	<b>19.3</b>

## Direct carbon dioxide emissions by country in 2015–2017 (GRI 305-I)

million tonnes	2017	2016	2015
Finland	1.7	2.0	1.3
Russia	15.4	15.5	17.0
Poland	0.7	0.8	0.8
Other countries	0.5	0.3	0.1
<b>Total</b>	<b>18.3</b>	<b>18.6</b>	<b>19.2</b>

Of the direct carbon dioxide emissions, 84% (2016: 83%) originated from the Russian operations and 9% (2016: 10%) from Finland. Carbon dioxide emissions decreased from the previous year by about 260,000 million tonnes primarily because of the decreased condensing power production. Fortum's direct biogenic carbon dioxide emissions were 1.2 (2016: 1.3) million tonnes.

The calculation of greenhouse gas emissions covers carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), fluorinated hydrocarbons (HFCs) and sulphur hexafluoride (SF<sub>6</sub>). Carbon dioxide emissions as well as methane and nitrous oxide emissions have been calculated on the basis of plant-specific fuel data. The amounts of HFC compounds and SF<sub>6</sub> are reported on the basis of the amounts of gas added to the equipment. Specific emission factors of gases are based on IPCC publications.

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

### Indirect greenhouse gas emissions — Scope 2

Greenhouse gas emissions from the production of electricity purchased for our own use were 102,700 (2016: 95,500) tonnes of carbon dioxide-equivalent. Carbon dioxide emissions accounted for 99.6% of this. The share of Scope 2 greenhouse gas emissions of our total greenhouse gas emissions was 0.4%.

69% of Scope 2 greenhouse gas emissions have been estimated on the basis of information received from electricity suppliers. The rest, including Scope 2 greenhouse gas emissions in Russia, has been estimated on the basis of country-specific breakdown of electricity production.

#### Indirect greenhouse gas emissions (Scope 2) in 2015–2017 (GRI 305-2)

t CO <sub>2</sub> -eq	2017	2017 (Location-based)	2016	2015
CO <sub>2</sub>	102,300	109,900	95,000	85,003
CH <sub>4</sub>	75	100	76	52
N <sub>2</sub> O	370	600	375	344
<b>Total</b>	<b>102,700</b>	<b>110,600</b>	<b>95,500</b>	<b>85,400</b>

### Other indirect greenhouse gas emissions — Scope 3

The majority of our Scope 3 greenhouse gas emissions are caused by the purchases of goods and services, investments and the production and transportation of fuels. The transportation of waste received from customers also creates greenhouse gas emissions in our circular economy business. Other activities (e.g. employee travel and waste management) account for less than 1% of Scope 3 greenhouse gas emissions.

Our Scope 3 greenhouse gas emissions in 2017 were an estimated 4.8 (2016: 4.7) million tonnes. The share of Scope 3 emissions was 21% of our total greenhouse gas emissions. We estimate that all our Scope 3 emissions come from fossil energy sources.

#### Indirect greenhouse gas emissions (Scope 3) in 2015–2017 (GRI 305-3)

t CO <sub>2</sub> -eq	2017	2016	2015
Fuel procurement	4,225,800	4,347,900	4,557,000
Purchased goods and services	371,700	233,700	83,000
Capital goods	229,400	142,700	50,000
Other activities	17,600	17,500	18,000
<b>Total</b>	<b>4,844,500</b>	<b>4,741,800</b>	<b>4,708,000</b>

We report Scope 3 greenhouse gas emissions in accordance with the requirements of the Corporate Value Chain (Scope 3) Accounting and Reporting standard. The volumes describing the scope of the various activities have been obtained from our monitoring and reporting systems.

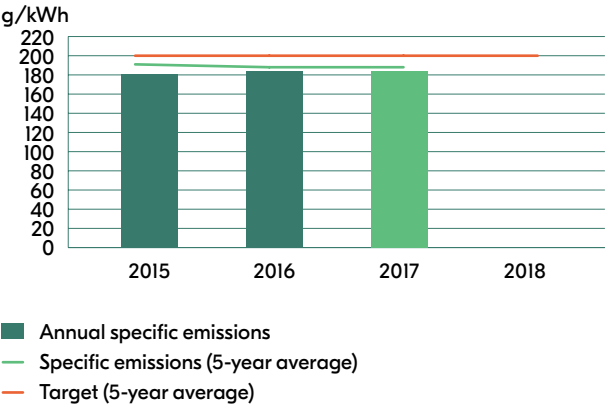
About 18% (2016: 20%) of the purchases were excluded from the purchasing categories defined by Fortum's Procurement function, due to insufficient reporting. The emissions for these are estimated with the average emissions factor of the specified purchasing categories. The specific emission factors used in calculating the greenhouse gas emissions are based on different literature sources.

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

Specific carbon dioxide emissions

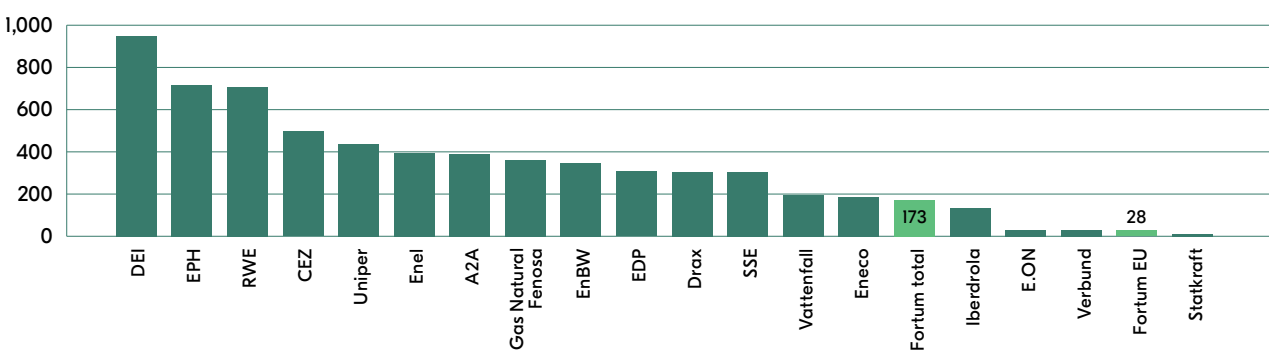
Our specific carbon dioxide emissions (Scope 1) from total energy production in 2017 remained at the same level and were 184 (2016: 184) g/kWh. The five-year average, including 2017, was 188 (2016: 188) g/kWh, which is below the target of 200 g/kWh.

Specific carbon dioxide emissions of total energy production in 2015–2017 (GRI 305-4)



Our specific carbon dioxide emissions from total electricity production (Scope 1) in 2017 were 173 (2016: 173) g/kWh. Our specific carbon dioxide emissions from power production in the EU area were 28 (2016: 28) g/kWh. The specific carbon dioxide emissions from our electricity production, measured as g CO<sub>2</sub>/kWh, are low compared to other European electricity producers. Our specific emissions in 2016 were one of the smallest among European major electricity utilities. European reference data for 2017 is not yet available.

Specific CO<sub>2</sub> emissions of major utilities in Europe, g CO<sub>2</sub>/kWh electricity, 2016



Note: All figures, except "Fortum total", include only European power generation. Fortum's specific emissions of the power generation in 2017 in the EU were 28 g/kWh and in total 173 g/kWh, same as in the previous year. Source: PwC, December 2017, Climate Change and Electricity (including companies with power generation only), Fortum

The boundary for specific carbon dioxide emissions generated from electricity production differs from other environmental reporting. The figures include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners on cost basis. This electricity production is based on hydro, wind and nuclear power, and the production doesn't cause direct carbon dioxide emissions.

In the calculation of electricity production's specific emissions, CHP plant emissions have been allocated for electricity and heat using the efficiency method presented in the Greenhouse Gas Protocol guidelines, with heat production efficiency of 90% and electricity production efficiency of 40%.

**188 g/kWh**

Specific CO<sub>2</sub>-emissions, 5-year average

Target: <200 g/kWh

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Improving energy efficiency

Energy efficiency is a key factor in energy production – from both an economic and environmental perspective. Improving energy efficiency at power plants refers to measures we implement to increase the efficiency of production processes or reduce the energy consumption of plants or equipment. This enables us to produce more electricity or heat for our customers without increasing fuel consumption.

The energy efficiency of power plants can be increased through investments and technical improvements, preventive maintenance, and by training personnel in the optimal operation of the plant and in monitoring the plant's operating economy. Improving power plant availability also increases energy efficiency, as unplanned plant start-ups are reduced.

### Energy-efficiency investments

In fuel-based energy production, we aim to utilise the fuel's energy as efficiently as possible. Our most important means to improve the energy efficiency of fuel use is to increase combined heat and power (CHP) production. In CHP production, up to 90% of the energy content of the fuels can be utilised. Separate electricity production's efficiency is about 40–60%.

A high-pressure turbine was replaced at the Loviisa nuclear power plant's unit 1 in 2017. The replacement increased the unit's

nominal output by 5 MW, which means that in an average year it can produce 40 GWh more electric energy. The Loviisa plant's unit 2 will undergo the same replacement during the 2018 annual outage.

In addition, other projects to improve energy efficiency were completed in 2017:

- Refurbishments of hydropower plants in Sweden and Finland, 27 GWh
- Heat recovery from a data centre to Espoo's district heating network in Finland, 17 GWh
- Construction of a district cooling plant in Tartu, Estonia, 12 GWh
- Installation of a preheater at the Bytom Miechowice CHP plant in Poland, 9 GWh

The energy-efficiency improvement projects are calculated to yield an annual energy savings of about 131 GWh.

### Target was achieved

Fortum's target has been to achieve an annual energy savings of more than 1,400 GWh by 2020 compared to 2012. By the end of 2017, the annual cumulative energy savings achieved was 1,502 GWh, which exceeded the set target by about 100 GWh. The target was increased by 500 GWh/a, and the new target is to achieve annual energy savings of 1,900 GWh by 2020 compared to 2012.

### Energy-efficiency services for homes

Fortum has introduced energy-efficiency services for private customers in Finland and Sweden. Fortum's customers can, for instance, control and optimise the heating of their homes based on electricity price and demand or they can monitor energy consumption with an in-home display.

### Energy-efficiency services for businesses

Fortum's operation and maintenance services have been improving the energy-efficiency of our customers' power plants already for decades. We have expanded our energy-efficiency services: in addition to an individual power plant, we can review the development of a broader urban area and the profitability and environmental impacts of investments related to them. In addition to production, the review takes into consideration the energy distribution to customers and the changes in energy consumption. Energy-efficiency services were delivered to Finland and Eastern Europe in 2017.

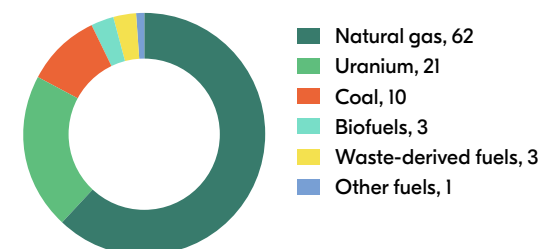
#### ► ENERGY-EFFICIENCY SERVICES FOR HOMES

#### ► ENERGY-EFFICIENCY SERVICES FOR BUSINESSES

### Fuel consumption

The most significant fuel used in our energy production was natural gas, and the next highest fuel use was uranium and coal. Our goal in the future is to produce increasingly more added value from biomass fuels and waste-derived fuels. The share of waste-derived fuels used in energy production in 2017 increased due to the growth of our circular economy business.

### Fuel consumption in energy production, %





Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

### Fuel use in 2015–2017, energy (GRI 302-I)

petajoules	2017	2016	2015
Natural gas	246.1	247.6	272.0
Nuclear fuel	83.8	91.1	90.5
Coal	39.0	40.6	38.8
Waste-derived fuel, fossil	7.6	3.6	1.0
Peat	1.9	1.8	1.4
Other fossil fuels	0.3	0.6	0.8
<b>Non-renewable fuels total</b>	<b>378.8</b>	<b>385.4</b>	<b>404.4</b>
Biofuels	11.2	10.2	11.4
Waste-derived fuel, renewable	4.4	2.5	1.7
<b>Renewable fuels total</b>	<b>15.6</b>	<b>12.7</b>	<b>13.1</b>
<b>Fuels total</b>	<b>394.4</b>	<b>398.1</b>	<b>417.5</b>

### Fuel use in 2015–2017, mass/volume (GRI 301-I)

	2017	2016	2015
<b>Non-renewable fuels</b>			
Natural gas, million m <sup>3</sup>	7,151	6,710	8,023
Coal, 1,000 t	1,999	2,208	2,062
Waste-derived fuel, fossil, 1,000 t	751	344	97
Peat, 1,000 t	190	178	135
Fuel oil, 1,000 t	10	21	20
Nuclear fuel, t	23	20	22
<b>Renewable fuels</b>			
Biomass fuels, 1,000 t	1,142	1,041	1,126
Biogas, million m <sup>3</sup>	3	3	1
Waste-derived fuel, renewable, 1,000 t	428	225	198

### Fuel use by country in 2017 (GRI 301-I)

	Finland	Russia	Poland	Estonia	Denmark	Other countries	Total
<b>Non-renewable fuels</b>							
Natural gas, million m <sup>3</sup>	66	7,068	1	4		12	7,151
Coal, 1,000 t	490	1,176	333				1,999
Waste-derived fuel, fossil, 1,000 t	200				189	363	751
Peat, 1,000 t	132			58			190
Fuel oil, 1,000 t	6	1			1	1	10
Nuclear fuel, t	23						23
<b>Renewable fuels</b>							
Biofuels, 1,000 t	371		101	486		184	1,142
Biogas, million m <sup>3</sup>	3						3
Waste-derived fuel, renewable, 1,000 t	197					231	428

The energy-specific fuel consumption has been calculated based on the usage volumes and fuel-specific caloric values measured at the power plants. Uranium consumption has been calculated as the thermal heat generation in the reactors. Russia's share of the total fuel consumption in 2017 was about 67%. Russia accounted for 99% of our use of natural gas and 51% of our use of coal.

### Energy intensity

In 2017, our fuel consumption in electricity and heat production was 110 (2016: 111) TWh, or 394 (2016: 398) PJ. Additionally, we acquired 479 (2016: 460) GWh of electricity from external electricity suppliers. With these energy resources, we produced 53,900 GWh of electricity, 27,900 GWh of heat, 30 GWh of cooling, and 53 GWh of bio-oil. The total energy consumption, calculated as the difference between the procured energy resources and net production, was 45,000 (2016: 47,900) GWh, or 162 (2016: 172) PJ.

In combustion-based energy production, we aim to utilise the fuel as efficiently as possible. In 2017, our average fuel use efficiency was 59% (2016: 64%). The decline in fuel use efficiency was due to the increased use of waste-derived fuels. The efficiency has been calculated by dividing the electricity and heat energy produced with the fuel by the energy content of the fuel used in the production.

The energy intensity of our own production was 1.7 (2016: 1.4). The intensity figure has been calculated by dividing the amount of used energy resources by the total net production of energy products, including also hydropower, wind power and solar power.

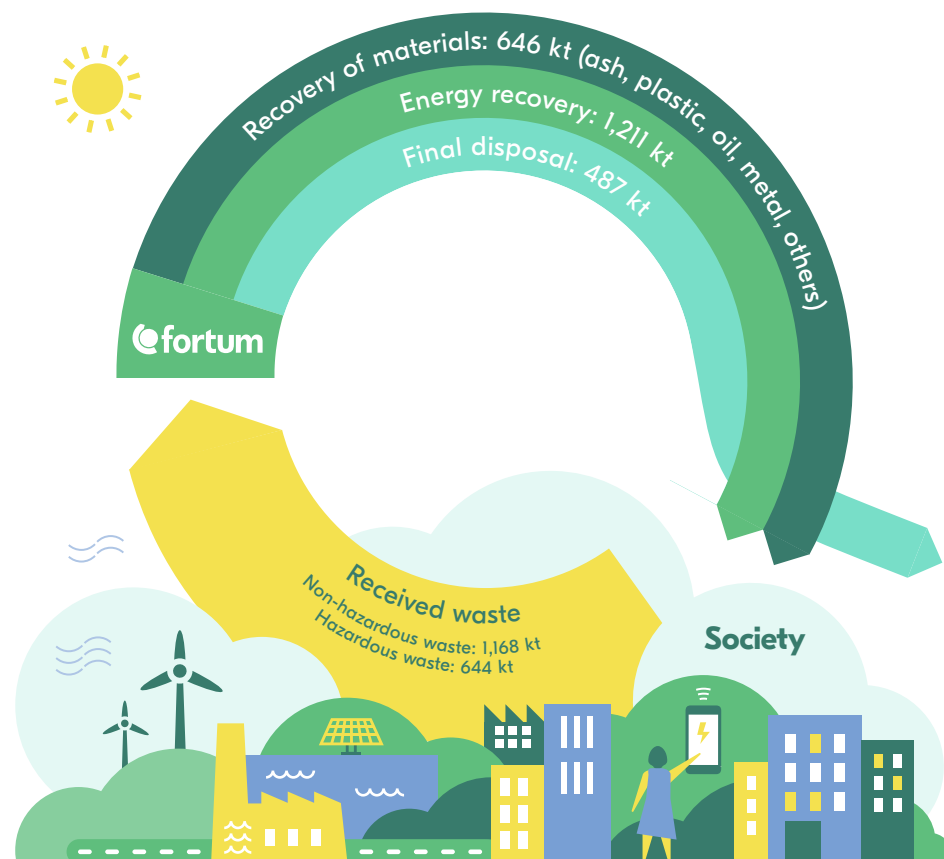
### ► ORIGIN OF OUR FUELS

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Circular economy

Challenges for rapidly growing major cities and growth centres include not only the management of emissions but also growth in waste volumes. Fortum's goal is to offer expert solutions and sustainable circular economy services for cities.

### Received and processed waste from customers in 2017



By circular economy we mean that materials are utilised as efficiently as possible and hazardous materials are removed from circulation. We also recover by-products and wastes generated in energy production whenever possible.

Our circular economy business has grown in the Nordic countries. We acquired Turebergs Recycling AB at the end of 2016. The business receives and processes ash and slag and recovers purified materials for use in infrastructure construction materials. An important part of the business is the separation of metals for reuse. The operation is concentrated mainly in the Stockholm area.

We completed the restructuring of the Hafslund business ownership at the beginning of August 2017. The City of Oslo's waste-to-energy plant Klemetsrud, which is the largest energy recovery plant in Norway, and the Haraldrud heat plant, which also has a waste incineration boiler, were transferred to Fortum's ownership through the transaction.

### Waste management services

Reliable waste management and resource efficiency are important in a society based on sustainability. Fortum's aim is to promote the transition towards a more extensive circular economy. We offer waste management services for customers in the Nordic countries and Lithuania.


In 2017, we received a total of approximately 1.2 million tonnes of non-hazardous waste from our customers; contaminated soil accounted for 212,000 tonnes of that amount and ash 301,000 tonnes. We also received about 640,000 tonnes of hazardous waste from our customers; contaminated soil accounted for 88,000 tonnes of that amount and ash 88,000 tonnes. 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 our waste-to-energy plants. This reduces the use of virgin fossil or renewable fuels in electricity and heat production. Waste that is unsuitable for recovery is disposed of at landfilling sites.

### Received and processed waste from customers in 2017 <sup>1)</sup>

kilotonnes, 1,000 t	Finland	Sweden	Denmark	Norway	Lithuania	Total
<b>Received waste from customers</b>						
Non-hazardous waste	350	383		155	280	1,168
Hazardous waste	185	222	237			644
<b>Recovery and disposal</b>						
Recovery of materials <sup>2)</sup>	252	335	33	23	4	646
Energy recovery (waste incineration)	401	172	202	155	280	1,211
Final disposal <sup>2)</sup>	240	126	11	28	82	487

1) Fortum Oslo Varme's (formerly Hafslund's) operations in Norway are included in all figures from 1 August 2017.

2) Includes received waste from customers and also ash from waste incineration

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents
<div><div><h3>Recovery of materials</h3><p>Various types of waste can be reused as raw materials. Of the waste received from our customers in 2017, we recovered as materials about 650,000 tonnes; environmental construction materials accounted for about 362,000 tonnes of that amount, recoverable ash accounted for about 159,000 tonnes, and processed raw materials and products about 80,000 tonnes. The material recovery rate of the waste was 57%. In addition, about 226,000 tonnes of recoverable materials originated at Fortum's own power and heat plants.</p><p>We are continuously developing activities that increase the proportion of waste materials kept in circulation:</p><ul style="list-style-type: none"><li>• We refine new plastic out of waste plastic received from customers.</li><li>• We pick up and process our customers' waste oils to be refined and reused as industrial lubricants.</li><li>• We recycle scrap metals generated in the maintenance activities of our power plants and other facilities. We also recover and separate metals from customers' municipal waste and boiler slag.</li><li>• We process ash and slag, sand, sludge, dredging masses and slurries from energy production and other industries for reuse in various types of environmental construction and earthwork.</li></ul></div><div><h3>Hazardous waste treatment</h3><p>We take hazardous waste out of circulation in a sustainable manner and we clean the hazardous substances from materials that end up in recycling by offering solutions to treat hazardous waste while also producing clean energy and ensuring a safe final disposal. High-temperature incineration ensures the best available solution for the destruction of hazardous substances.</p><p>We have three high-temperature incineration plants: in Riihimäki, Finland; Kumla, Sweden; and Nyborg, Denmark. At these facilities, 353,000 tonnes of hazardous waste and 390,000 tonnes of non-hazardous waste were incinerated in 2017, producing electricity and district heating for the surrounding areas.</p><h3>Contaminated soil</h3><p>In 2017, we received and treated about 300,000 tonnes of contaminated soil from our customers. We directed metal, rocks, concrete and wood, sieved from the soil for reuse as raw materials. Soil that is suitable for environmental construction is used at our own construction sites and industrial waste reception centres. In addition, we treated about 140,000 tonnes of contaminated soil at customer sites.</p><p>► SUSTAINABLE ENERGY PRODUCTION</p></div><div><h3>Waste and by-products</h3><p>Ash is a by-product of the use of fuels in power and heat production, and gypsum and other desulphurisation products are by-products of flue-gas desulphurisation. Ash and desulphurisation products account for a more than 90% share, on average, of the by-products and waste from our energy production.</p><p>The maintenance of power and heat plants generates scrap metal and other conventional industrial waste and, to a smaller extent, waste oil and other hazardous waste. We aim for the highest possible utilisation and recovery of by-products and waste. The waste management service providers we use are properly licensed and reliable waste management companies.</p><p>In addition to conventional industrial waste, the Loviisa nuclear power plant also generates radioactive waste, which we treat in accordance with the requirements of Finnish nuclear energy legislation. The volume of radioactive waste generated is small, but special solutions are needed in their treatment and final disposal.</p><p>The total volume of by-products and waste generated at Fortum's power and heat plants in 2017 was about 850,000 (2016: 735,000) tonnes. Of this volume, 45% was recycled or reused. Alongside the growth of our circular economy business, the use of waste-derived fuels has increased and, consequently, the volume of by-products.</p></div></div> <div><div><h3>The Sustainable Development Forum of Finnish Energy selected Fortum's Circular Economy Village project as the Climate Deed of the 2017. Municipal waste is recycled at the Circular Economy Village in Riihimäki.</h3></div></div>							

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

### Ash and gypsum

Ash is created in the combustion of all solid fuels. About 70% of the ash from our plants operating in Europe is utilised as a raw material, e.g. for the construction industry, road construction and soil improvement, and as backfill. Ash from the power plants in Russia is stored in ash basins, because there is no demand for wet ash sludge in Russia.

Coal-fired power plants generate either a wet or semi-dry desulphurisation by-product. Gypsum created as a by-product in the wet desulphurisation process at the Meri-Pori power plant in Finland is suitable for use as raw material for the construction industry. In 2017, 100% (2016: 100%) of the gypsum was utilised. The desulphurisation product created at the Suomenoja power plant is not suitable for utilisation.

In 2017, about 810,000 (2016: 695,000) tonnes of ash, 4,000 (2016: 8,500) tonnes of gypsum, and 12,800 (2016: 12,700) tonnes of the other desulphurisation product were generated. The increase in the volume of ash was due to the increased use of waste-derived fuels. The decrease in the volume of gypsum was due to the reduction in condensing power production in Finland. About 40% of the ash was generated at Russian plants, 21% in Poland and 10% in Finland. The ash recycling rate was 47% (2016: 37%)

By-products that cannot be utilised are transported to the appropriate final disposal at landfilling sites. In 2017, about 446,000 (2016: 453,000) tonnes of by-products were transported for landfilling, or in Russia for ash basins.

The reported volumes of ash and gypsum from our European power plants are based on the weighing of the truckloads. Ash volumes at our Russian power plants are calculated on the basis of the ash content of the coal.

### Ash and gypsum handling in 2015–2017 (GRI 306-2)

t	2017	2016	2015
Ash utilisation	377,000	255,000	189,000
Ash disposal	433,000	440,000	381,000
Gypsum utilisation	4,000	8,500	2,300
Gypsum disposal	0	0	0

### Radioactive waste

At the Loviisa nuclear power plant, low-level radioactive maintenance waste is disposed in Loviisa's repository. In 2017, 19.0 (2016: 13.9) tonnes of low-level radioactive waste went into final disposal. Intermediate-level radioactive liquid is generated mainly from spent ion exchange resins and wastewater from the controlled area. Liquid waste is processed into solid form at the solidification plant for liquid radioactive waste before final disposal in Loviisa's repository.

High-level spent nuclear fuel is stored in an interim storage at the Loviisa power plant site. In 2017, 23.4 (2016: 19.6) tonnes of spent nuclear fuel was removed from Loviisa power plant's reactors. 2.9 (2016: 2.5) g/MWh of spent fuel was generated per produced energy unit. Fortum and Teollisuuden Voima have established Posiva Oy to handle the technical implementation of the final disposal of the spent fuel, and final disposal is scheduled to begin at Olkiluoto in Eurajoki in the first half of the 2020s.

### Other waste

Other, conventional waste generated during the operation and maintenance of power and heat plants is sorted, and waste that can be recycled, such as metal, is sent for further processing. Hazardous waste is delivered to licensed hazardous waste treatment facilities.

The power and heat plants generated a total of about 34,200 (2016: 29,400) tonnes of other waste, approximately 3,200 (2016: 2,700) tonnes of which was hazardous waste. In addition, about 500 tonnes of contaminated soil was removed for disposal in Finland. The reported volumes of other waste are based mainly on the information provided by the waste management companies.

### Waste handling in energy production plants in 2015–2017 (GRI 306-2)

t	2017	2016	2015
Material recovery of non-hazardous waste	3,100	5,500 *	8,000
Energy recovery of non-hazardous waste	300	300	-
Final disposal of non-hazardous waste	27,500	20,900	17,400
Material recovery of hazardous waste	200	200	90
Energy recovery of hazardous waste	800	300	-
Disposal of hazardous waste	2,200	2,300	1,700
<b>Total</b>	<b>34,200</b>	<b>29,400 *</b>	<b>27,200</b>

\* Figure revised

### Material recovery from demolition project of the power plant

Fortum decided on the demolition of the Inkoo condensation power plant in the end of 2016, and the demolition work started in spring 2017. The Inkoo demolition project is one of the biggest demolition projects in Finnish industrial history. Fortum's recycling and waste solutions is responsible for the demolition work. In 2017, a total of about 9,200 tonnes of waste was generated in the demolition project of the Inkoo power plant, and about 1,000 tonnes of it was hazardous waste. About 90% of the dismantled waste was recovered. In addition, about 200 tonnes of contaminated soil was removed.

#### ► NUCLEAR WASTE MANAGEMENT

#### ► FINAL DISPOSAL OF SPENT NUCLEAR FUEL



Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Biodiversity

The degradation of biodiversity is one of the biggest environmental problems globally. We need to know our impacts and dependencies on biodiversity and ecosystem services to be able to assess the related risks and opportunities.

### Our impacts on biodiversity

Fortum's impacts on biodiversity are primarily related to our hydropower production operations in Finland and Sweden. Hydropower construction and the related water regulation alter the conditions in water systems and thus impact the diversity of the aquatic habitat and, in particular, the fish population. Emissions from fossil fuel-based energy production may decrease local biodiversity, especially in Russia. Indirect impacts may be caused by, for example, large-scale procurement of biomass and other fuels. However, our production of CO<sub>2</sub>-free energy replaces fossil fuel-based energy production and thus mitigates climate change, which is globally one of the greatest threats to biodiversity.

### Fortum's biodiversity engagement

In 2017 we updated [Fortum's Biodiversity Manual](#), which defines Fortum's approach in biodiversity management. According to the manual, biodiversity issues are systematically considered as part of our environmental management processes and our operations throughout Fortum. The manual contains specific instructions for biodiversity issues in current operations, new projects, the supply chain as well as for reporting and communication.

Sustainable use of biomass fuels has been actively debated in recent years. Fortum's position is that EU-wide, harmonised and binding sustainability criteria for all bioenergy is needed. The EU Commission's proposal to extend the existing sustainability criteria for bioliquids to cover also solid biomass and biogas is in line with Fortum's position. The proposal is included in the EU Commission's legislative "Smart and Clean Energy Package" published on 30 November 2016. Legislation is expected to be finalised in 2018.

Fortum is a member of the Bettercoal initiative and uses the Bettercoal Code and tools in assessing the sustainability of the coal supply chain. Biodiversity aspects related to coal mining are covered in Bettercoal assessments.

We aim to improve biodiversity in connection with our operations, carry out biodiversity-related projects and cooperate with stakeholders in projects. We assess the impacts of our new projects. We offset and reduce the impacts of hydropower production on biodiversity. We carried out obligatory fish care measures valued at EUR 1.9 million and several types of voluntary environmental projects valued at EUR 1.5 million.

### Habitat restoration and other projects

Most of our habitat restorations and other projects improving biodiversity are related to hydropower production. Additional information about our hydropower-related projects supporting biodiversity is available [on our website](#).

### River strategies focus on environmentally effective solutions

Based on the earlier mapping of valuable riverine biodiversity areas in 2015, by the end of 2017 we finalised our river strategies for all of the rivers where we operate hydropower plants. The aim of these river-tailored strategies is to balance the increasing need for flexible hydropower and the needed case-by-case selected environmental improvements by focusing environmental actions on valuable species and habitats in the most important areas environmentally. We started implementing the strategies in 2017 with the licensing of the first projects.

### Restoring river stretches by tearing down dams

In Sweden, we tore down the Acksjön dam in a tributary of the River Klarälven. The operation was successfully carried out in cooperation with local stakeholders. The tearing down resulted in a new 100 m long stretch of river and the removal of a migration

barrier that will benefit biodiversity. A similar case is the Kolsjön dam. An application for removal of the Kolsjön dam has been submitted to the environmental court.

In Sweden, we have mapped out and prioritised old dams that have low value for hydropower production, but have environmental impacts on riverine ecosystems. The aim is to restore habitats and river continuum in places with biodiversity benefits.

### Restoring fish habitat

At the River Dalälven in Sweden, we restored a 180 m-long river stretch in 2017. The aim was to increase possibilities for sea trout to spawn in the River Dalälven. Gravel and boulders were added to the river. We carried out the restoration in cooperation with the local fishing organisation in Älvskarleby. The restoration was part of the "Biodiversity in lower Dalälven" project, with the goal to enhance fish spawning of migratory fish in the River Dalälven. The project, a cooperative effort between regional authorities and another hydropower company, was finalised in 2017.

Monitoring of the River Vuoksi in Finland gave positive results regarding fish abundance at previously restored riverine habitats upstream of the Imatra hydropower plant. Together with our cooperation partners, the City of Imatra and regional environmental authorities, the restored areas were further amended by morphological modifications in November 2017.

### Protection of red listed species

We improved the habitat of Myrstarr (*Carex heleonastes*), a rare aquatic plant species growing downstream of the Laforsen dam in the River Ljusnan in Sweden. The plant habitat was cleared from bushes and other vegetation that would suppress the Carex plants. The conditions need to be maintained to safeguard the plant at the site.

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

### Biomass fuels actions

Forest certification schemes will continue to play a strong role in verifying the sustainability of wood-based biomass. Certified wood-based biomass fuel originates from sustainably managed forests in which special attention is paid to biodiversity. We annually collect data on the volume of certified wood-based biomass fuel used in our power plants in Finland, Sweden, Poland and the Baltics. Our goal is that 80% of all wood-based biomass fuel we use is verified by a third party by the end of 2020. We aim to obtain a Chain of Custody certificate for our wood-based biomass fuel purchasing by the end of 2018.

### ► ENVIRONMENTAL IMPACTS OF HYDROPOWER PRODUCTION

**We established a private nature conservation area in Muhos as a 100th anniversary gift to Finland.**

## Case | Fish trap and transport facility for Montta power plant in the River Oulujoki, Finland



A trap and transport facility for fish was completed in late August in conjunction with the Montta hydropower plant on the River Oulujoki. We use the trap and transfer facility to capture salmon and trout as they migrate upstream; it enables the fish to be efficiently and safely transported around the migration barriers. The facility correspond to the lower portion of a fishway. The fish swimming into the facility can be transferred into a tanker truck and transported across several power plant dams to tributaries upstream for spawning. Based on experiences gained elsewhere, this results in significantly more broodfish in the spawning areas than if all the necessary fishways between the sea and the spawning areas were built. Fortum has good experiences with transporting landlocked salmon in Sweden on the River Klarälven, which is harnessed for hydropower production.

From the new trap and transport facility, fish can also be transferred into reservoirs for fishing, or their roe that has gone through natural selection can be taken to the Montta fish farm where Fortum produces salmon and sea trout for stocking in the River Oulujoki.

The trap and transport facility is a joint project by Fortum, the Muhos, Utajärvi and Vaala municipalities, the North Ostrobothnia ELY Centre, and the Ministry of Agriculture and Forestry to revitalise salmon and trout in the River Oulujoki. The facility has special national significance because it will gain experiences for use in migrating fish projects on other constructed rivers.

The trap and transport facility is part of the overall conservation of the fish population in the River Oulujoki. Fish conservation is based on the stocking of migrating fish, strengthening the natural life cycle, and developing the quality of the stock fish. In recent years, Fortum has invested over EUR 5.5 million in the modernisation of the Montta fish farm and the construction of the trap and transport facility.

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Emissions into air

Fortum's activities cause various emissions into air. Greenhouse gases that accelerate global climate change are generated primarily from the use of fossil fuels and the combustion of waste of a fossil origin.

Flue-gas emissions causing local environmental and health effects are generated from all incineration. Nitrogen oxides are generated from the nitrogen contained in the fuel and in the combustion air. Sulphur dioxide, in turn, is generated from the sulphur that is an impurity in, e.g., coal, peat and oil. Particle emissions are fine-grained ash generated primarily in the combustion of solid fuels and waste. Depending on the origin of the fuel and waste, the particles contain various heavy metals.

### Improving air quality

It is possible to decrease nitrogen oxide, sulphur dioxide and particle emissions through fuel selections, combustion technology, and various flue-gas cleaning technologies. Fortum has world-class know-how in combustion technology, and we have delivered combustion technology solutions to reduce nitrogen oxide emissions to many other power utilities. In 2017, we implemented nitrogen oxides reduction projects in Poland, and bio-oil burner modification projects in Sweden.

Our Meri-Pori and Suomenoja power plants are equipped with a desulphurisation plant. Our waste incineration plants located in Riihimäki, Finland; Kumla, Sweden; Nyborg, Denmark; and Oslo, Norway, are equipped with efficient flue-gas cleaning systems. Harmful emissions to air are minimised with various filters and scrubbers selected on the basis of the waste to be incinerated.

### Stricter standards

The EU has set very strict limits for flue-gas emissions; meeting the requirements necessitates the use of best available technology (BAT). Our nitrogen oxide, sulphur dioxide and particle emissions have, in fact, decreased significantly in our European production

over the past decades. Emissions limits became even stricter when the Industrial Emissions Directive came into force in 2016.

All Fortum power plants operate in compliance with the terms of their environmental permits, and the plants meet the new emissions requirements, for the most part. Investments in flue-gas cleaning process and systems will be made in 2018–2019 at the Suomenoja power plant in Finland and the Rejtana heat plant in Poland.

At Russian power plants, emissions are limited in accordance with Russian legislation. The new legislation currently being drafted in Russia will bring stricter emissions standards in the future.

### Flue-gas emissions

Our sulphur dioxide (SO<sub>2</sub>) emissions were 18,800 (2016: 22,500) tonnes, nitrogen oxide (NO<sub>x</sub>) emissions 27,500 (2016: 26,000) tonnes and particle emissions 15,800 (2016: 16,800) tonnes. 77% (2016: 81%) of sulphur dioxide, 81% (2016: 82%) of nitrogen oxide and 98% (2016: 98%) of particle emissions originated from Russian operations. In 2017, the most significant source of particle emissions, 9,200 (2016: 9,100) tonnes, was the Argayash CHP power plant in Russia.

The reporting of sulphur dioxide, nitrogen oxide and particle emissions from our European power plants is based on continuous measurement. Other flue-gas emissions data is based on discontinuous measurements or are calculated using fuel consumption data and specific emission factors. Specific emission factors are based on measurements taken at regular intervals, on information from the equipment supplier, or on regulatory norms.

Carbon dioxide emissions are reported in the section

► **Greenhouse gas emissions.**

### Flue-gas emissions in 2015–2017 (GRI 305-7)

	2017	2016	2015
SO <sub>2</sub> , t	18,800	22,500	19,900
NO <sub>x</sub> , t	27,500	26,000	26,800
Particles, t	15,800	16,800	17,800
HCl, t	960	1,180	
Lead, kg	3,990	4,140	
Mercury, kg	118	150	105
Cadmium, kg	96	116	
Dioxins, mg	430	504	

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Water use

Fortum uses large volumes of water at various types of power plants and in district heating networks.

### Risks and opportunities related to water use

Risks related to Fortum's water availability are relatively small and local, according to our assessments. The majority of our water withdrawal volume is seawater for the cooling of power plants. In most cases we don't consume water; it is returned into the same water system from which it was taken. India is the only country, where we operate in areas of high or extremely high water risk; our water use in India is low. Within the policy framework, we identify the implementation of the EU Water Framework Directive in Sweden as a potential risk to hydropower production.

The Argayash CHP power plant in Russia takes water from a nearby lake, the level of which is regulated by pumping water from another lake. The amount of additional water pumped was insufficient until 2017, and the water surface level was reduced significantly. New permit limits, effective in 2017 and 2018, should ensure water adequacy. Fortum also has an ongoing investment project to increase the recycling of water. When the investment is completed part of the purified water can be returned to the production cycle. This will allow to take less water from the lake.

There are currently temporary water loading permit limits in force at the Russian Chelyabinsk CHP-2 and CHP-3 and the Argayash CHP power plants. These power plants have agreed with the authorities on action plan that aims to reduce the load on waterways.

Improving the efficiency of water use and reducing leaks in the district heating network generate cost savings for us. We monitor the water use of our power plants, and we implement measures that improve water use efficiency when needed. With good water use management in hydropower production, we can optimize our production and control the impacts to the environment and to stakeholders, impacts like flooding and droughts.

### Water withdrawal in production operations in 2015–2017 (GRI 303-I)

million m <sup>3</sup>	2017	2016	2015
Seawater	1,519	1,533	1,487
Fresh surface water	598	605 *	643 **
of which at fish farms	43	33	-
Tap water	2	2	4
Groundwater	0.1	0.1	0.2
Other source	0.3	0.2	4.4
<b>Total</b>	<b>2,120</b>	<b>2,140 *</b>	<b>2,138 **</b>

\* Figure revised

\*\* Excluding water volumes used for fish farming

In our operations we are preparing for changes in water availability in the future as the climate changes. The preparation is related to, for example, production planning, dam safety, investment projects, the rise in the cooling water temperature, and flood protection. In hydropower production planning we are preparing for climate change by taking into consideration changes in precipitation and temperature and extreme weather phenomena. We are also monitoring the need for adjustments to regulation permits with changes in seasonal variation; one permit change is currently under way in preparation for autumn flooding.

The Loviisa nuclear power plant is prepared for nature's extreme phenomena and possible oil spill due to an accident at sea with a seawater-independent back-up cooling system including air-cooled cooling towers.

### Our forms of water use

The majority of Fortum's power and heat production capacity is located in the Nordic countries, Russia and Poland. The Baltic Sea and local fresh water systems are the most important water sources for our plants. Municipal tap water is used mainly at CHP plants in major cities.

We withdrew 2,120 (2016: 2,140) million m<sup>3</sup> of water in 2017. Seawater accounted for about 72% of this amount. Our water

### Water use in production operations in 2015–2017 (GRI 303-I)

million m <sup>3</sup>	2017	2016	2015
Cooling water	1,994	2,035 *	2,060
Process and auxiliary water	115	93 *	64 **
of which at fish farms	43	33	-
Make-up water for district heat network	11	12	14
Water recycling	13	13	12

\* Figure revised

\*\* Excluding water volumes used for fish farming

withdrawal includes 8 million m<sup>3</sup> of water delivered to customers. The reported water withdrawal and water use volumes are based on measurements and on calculations of water consumption.

### Cooling water

Condensing power production requires large volumes of cooling water. Cooling water accounts over 90% of our water withdrawal.

Fortum has two condensing power plants in Finland: the Loviisa nuclear power plant and the Meri-Pori power plant. Both are located in coastal areas and use direct seawater cooling. The Loviisa nuclear power plant withdrew and discharged back into the sea 1,372 million m<sup>3</sup> of cooling water in 2017. No water is consumed in the process and the water withdrawn is discharged back into the sea. The only change is an approximately 10 °C increase in the temperature of the cooling water. Additionally, in Russia, Fortum has the Nyagan condensing power plant, which uses river water for cooling.

Condensing power is occasionally produced also at our CHP plants. In most cases, the cooling water is withdrawn from a local water system, such as a river or lake. In Russia and Poland, cooling towers are used, so some of the cooling water evaporates into the atmosphere.



Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices																														
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents																												
<div><div><div><h3>District heating network</h3><p>Fortum is a major supplier of district heating in Finland, Norway, Poland, Russia and the Baltic countries. Fortum has a total of about 3,400 kilometres of district heat pipes in these countries. Water is used as the heat transfer media in district heating. Some water is lost through leaks that occur in the pipes, so occasionally water must be added to the district heating network.</p><h3>Process water</h3><p>A thermal power plant needs water in the water-steam cycle when electricity is generated with a steam turbine. Because of leaks in the pipes, occasionally water must be added to the water-steam cycle. Water is also needed in power plant auxiliary processes, for example in flue-gas cleaning with wet scrubber technology, and in radioactive waste handling and storage at nuclear power plants.</p><h3>Hydropower production and fish farming</h3><p>We produce hydropower from water flowing in rivers in Finland and Sweden. The power plants are typically located in big rivers that have no problems with regards to water supply. Water is not consumed in our hydropower production, it is not typically directed to another water system, and the water properties are not altered. However, the water system is often regulated for hydropower production, and the regulation changes the water flow and level patterns compared to their natural state.</p><p>We have precise knowledge of the water situation in those waterways where we use hydropower, and we use real-time hydrological forecasts in production planning. We don't report river discharges as a hydropower-related water withdrawal.</p><p>We farm and stock fish to offset the impacts of hydropower production. The majority of the fresh water withdrawn for fish farming is returned into the bodies of water with only a slight change in its properties. We have included water use at the fish farms in water volumes since 2016.</p><h3>Our water use in water risk areas</h3><p>According to the WRI Aqueduct Water Risk Atlas, the solar power plants in India are the only of our power plants located</p></div><div><p>in high to extremely high risk (level 3–5) areas in terms of water risk. The Amrit (5 MW) and the Kapeli (10 MW) power plants use groundwater we have purchased, and the Bhadla (70 MW) plant uses surface water. Water for the Bhadla plant is withdrawn from the channel shared by several actors in the solar park area. Fortum gets a fixed amount of its water discharge. The Pavagada (100 MW) plant completed at the end of 2017 has not yet used water in 2017.</p><p>Water is used to clean the solar panels at our solar power plants in India. India's share of our water use in 2017 was about 6,000 (2016: 4,000) m³, i.e. only 0.0003% of our total water withdrawal. While the water volumes are small, we aim to increase the efficiency of our water use in India. We have set a target in the Indian solar power production environmental management system to discontinue the use of water for cleaning panels at our current solar power plants by 2020. At the Amrit solar power plant, we have built an absorption basin to collect and absorb rainwater. By improving the efficiency of the cleaning processes, water use at the Amrit and Kapeli power plants decreased by 11% in 2017. We are also developing waterless cleaning methods for solar panels. We will start a waterless cleaning pilot project in the first part of 2018.</p><h3>Wastewater</h3><p>Wastewater generated at our power plants is either treated at the power plant's own wastewater treatment plant and discharged into a water system or it is piped to a municipal wastewater system for further processing. In Russia, the wet method is used to pump ash from power plants into ash ponds. Part of the water from the ponds is recycled back to the power plant and part is released into a water system after sedimentation.</p><p>Wastewater contains solids and nutrients, like nitrogen and phosphor, and heavy metals. Wastewater effluents can impact local water quality as well as the nutrient and oxygen balance of the water system. Our plants generated a total of 64 (2016: 56) million m³ of wastewater, of which 97% was released into the environment after being treated and 3% was piped to municipal wastewater treatment plants.</p><p>About 66% of the wastewater is discharged water from fish farms. Discharged water is purified and its nutrient content</p></div><div><h3>Wastewater emissions by recipient in 2015–2017 (GRI 306-1)</h3><table><tr><th>million m³</th><th>2017</th><th>2016</th><th>2015</th></tr><tr><td>Sea</td><td>0.7</td><td>0.7 *</td><td>0.4 **</td></tr><tr><td>Fresh surface water</td><td>62</td><td>54 *</td><td>23 **</td></tr><tr><td>of which from fish farms</td><td>43</td><td>33</td><td>-</td></tr><tr><td>Municipal sewage</td><td>1.7</td><td>1.3</td><td>1.3</td></tr><tr><td>Other recipient</td><td>0.1</td><td>0.1</td><td>0.5</td></tr><tr><td>Total</td><td>64</td><td>56 *</td><td>25 **</td></tr></table><p>* Figure revised ** Excluding water volumes used for fish farming</p><p>is monitored in line with permit conditions. The sludge water separated from the process water at the Montta fish farm in Finland has been piped to a municipal wastewater treatment plant since 2016, which has reduced the nutrient load on the water system.</p><p>About 1.0 (2016: 1.3) tonnes of oil was released into water systems through wastewater.</p><p>The thermal load discharged into water systems with cooling water was 17 (2016: 17) TWh. The Loviisa nuclear power plant's share of this was 16 TWh. Temperature measurements indicate that the cooling water has increased the temperature of surface water by 1–2 °C within a 1–2 kilometre radius from the discharge point. The reported wastewater is based on measurements and calculations.</p><h3>NURES products for purifying radioactive waters</h3><p>Initially developed for the needs of the Loviisa nuclear power plant, the NURES products are a unique solution for purifying radioactive waters. A selective ion exchange material purifies liquid waste more efficiently than any other alternative on the market. In 2017, we continued product deliveries globally, and, in addition to ion exchange materials, we supplied a radioactive liquid purification system to customers in Finland and Germany.</p></div></div></div>								million m³	2017	2016	2015	Sea	0.7	0.7 *	0.4 **	Fresh surface water	62	54 *	23 **	of which from fish farms	43	33	-	Municipal sewage	1.7	1.3	1.3	Other recipient	0.1	0.1	0.5	Total	64	56 *	25 **
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Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices		
Sustainable energy production	Climate change mitigation	Improving energy efficiency	Circular economy	Biodiversity	Emissions into air	Water use	Environmental non-compliances and incidents

## Environmental non-compliances and incidents

At the Group level, we monitor the number of major EHS incidents, which, in part, reflects the quality of environmental management. In 2017, there were 20 (2016: 22) major EHS incidents, and 10 (2016: 12) of these were significant environmental incidents. Significant environmental incidents include spills of over 100 litres into the environment, significant environmental permit violations, and other environmental non-compliances that have a significant impact on environment.

### Spills and leaks into the environment

In 2017, there were 8 (2016: 1) spills and leaks of more than 100 litres into the environment, all in the Nordic countries. In Finland, there were four incidents of refrigerant leakage at the Suomenoja heat pump plant. Also in Finland, there was leakage from a container of chemical waste to be transport to Riihimäki and a spill involving a tank of lubrication oil used at the waste-to-energy plant. In Sweden, a chemical leak occurred at the waste-to-energy plant in conjunction with the emptying of the scrubber. Additionally, a diesel spill took place during a transport related to the hydropower production investment project in Sweden. The incidents have been investigated to find corrective measures. The incidents did not have significant environmental impacts.

### Significant environmental permit violations

There were two (2016: 11) environmental permit violations in 2017, one of them in Russia and the other in Denmark. At the Nyagan GRES power plant in Russia, the permit limit for the sanitary wastewater emissions was exceeded. The process wastewater limit was exceeded at the waste-to-energy plant in Denmark. The incidents have been investigated to find corrective measures.

### Environmental enquiries and grievances

Power plants receive environmental enquiries and other contacts every year, and they are mainly handled locally. The aim is to communicate in advance about upcoming measures that have



possible environmental impacts, for example, through local media and at public events.

Fortum's website also has a grievance channel that our stakeholders can use to report problems possibly caused by our operations. No new environment-related grievances were reported to us through this channel in 2017.

### Fines

In 2017, Fortum paid fines totalling RUB 8,000 (EUR 121) for permit violations involving exceeding the sanitary wastewater emission limits.

- BUSINESS ETHICS AND COMPLIANCE
- OCCUPATIONAL AND OPERATIONAL SAFETY

# Social responsibility



Fortum impacts the daily lives of millions of people through its businesses. Fortum's social responsibility emphasises operational and occupational safety, employee wellbeing, the secure energy supply for customers, creating sustainable solutions for cities, as well as ethical business operations and compliance with regulations. We engage in an active dialogue with different stakeholder groups and we strive to find a balance between their various expectations.

## Social impacts

We want to offer a safe workplace for our employees and for the contractors and service providers who work at our power plants. We promote operational and occupational safety and wellbeing in the work community, which are prerequisites for efficient and interruption-free production. Our innovations and the secure supply of power and heat for customers support the development of society and increase wellbeing. We offer sustainable city solutions that promote a circular economy.

Ethical business practices and respecting internationally recognised human rights are the foundation of Fortum's Code of Conduct. We want to support responsible operations in Fortum's supply chain and in all our business relationships. Fortum's sustainability approach also includes being a good corporate citizen and taking care of the surrounding communities.

## Key figures for social responsibility

Our key figures for social responsibility are presented in the table and graphs.

### ► BUSINESS ETHICS AND COMPLIANCE

## Key figures for social responsibility

	2017	2016	2015
CHP plant energy availability, %	96.1	97.4	96.4
Average number of employees	8,507	7,994	8,009
Number of employees, 31 December	8,785	8,108	7,835
Departure turnover, %	10.5	13.0	8.6
Female employees, %	32	29	29
Females in management, %	29	25	33
Sickness-related absences, %	2.2 *	2.3 *	2.4
Total recordable injury frequency (TRIF) <sup>1)</sup> , own personnel	1.8	1.9	1.6
Lost workday injury frequency (LWIF) <sup>2)</sup> , own personnel	1.2	1.0	1.1
Lost workday injury frequency (LWIF) <sup>2)</sup> , contractors	4.2	3.0	2.7
Severe occupational accidents <sup>3)</sup>	1	5	-
Fatalities	0	0	0
OHSAS 18001 -certified operations in power and heat production, % of sales	98.4	99.9	99.9
Supplier audits, number	11	13	9
Support for society, EUR million	4.9	2.9	2.9

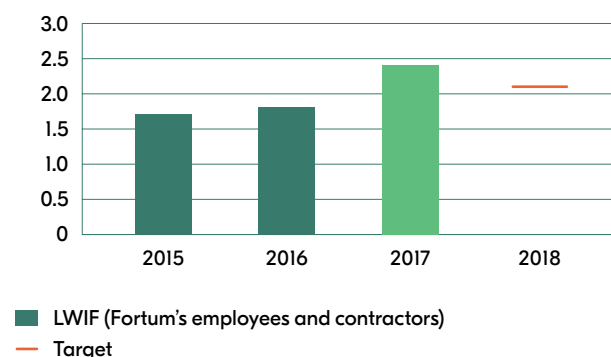
1) TRIF = Total recordable injury frequency, injuries per million working hours

2) LWIF = Lost workday injury frequency, injuries per million working hours

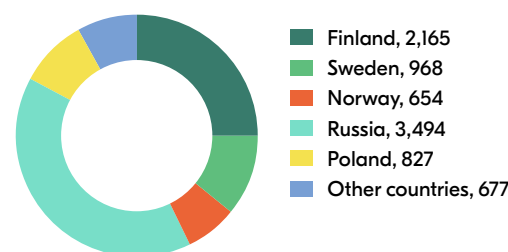
3) Fatality or an accident leading to permanent disability and an accident that could have caused serious consequences

\* Excluding DUON, Hafslund

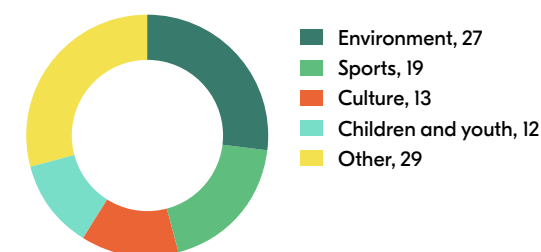
## Combined injury frequency (LWIF), Fortum's employees and contractors



## Number of employees by country, 31 December 2017



## Fortum's support to society by target, %





## Security of supply

A functional society requires an uninterrupted and reliable supply of energy. Fortum is committed to working for cleaner energy production. Implementing our vision – For a cleaner world – requires a reliable supply of economically priced energy delivered to customers as we transition towards a low-carbon energy system.

Hydropower balances the growing, but weather-dependent, fluctuating production of other renewable energy forms like solar and wind. The flexibility of hydropower is needed to secure the functionality of the energy system and the power grid and to balance fluctuations in the price of electricity.

If a sufficient supply of hydropower is not available, then adjustable natural gas power production can be used to balance fluctuations in renewable energy production and to secure the supply of electricity. With planned preventive maintenance and condition monitoring, we ensure that our power plants operate reliably to produce the electricity and heat customers need.

### Power plant availability at a good level

We measure the availability of our CHP and hydropower plants with an energy availability indicator. Energy availability is calculated by dividing the power plant's actual production in the period under review by the theoretical maximum production. Planned maintenance outages are not included in the calculation. If the outage at a CHP plant is longer than planned, it is considered a production interruption, which decreases the energy availability. The energy availability of our CHP plants in 2017 was, on average, 96.1% (2016: 97.4%); the target level was over 95.0%.

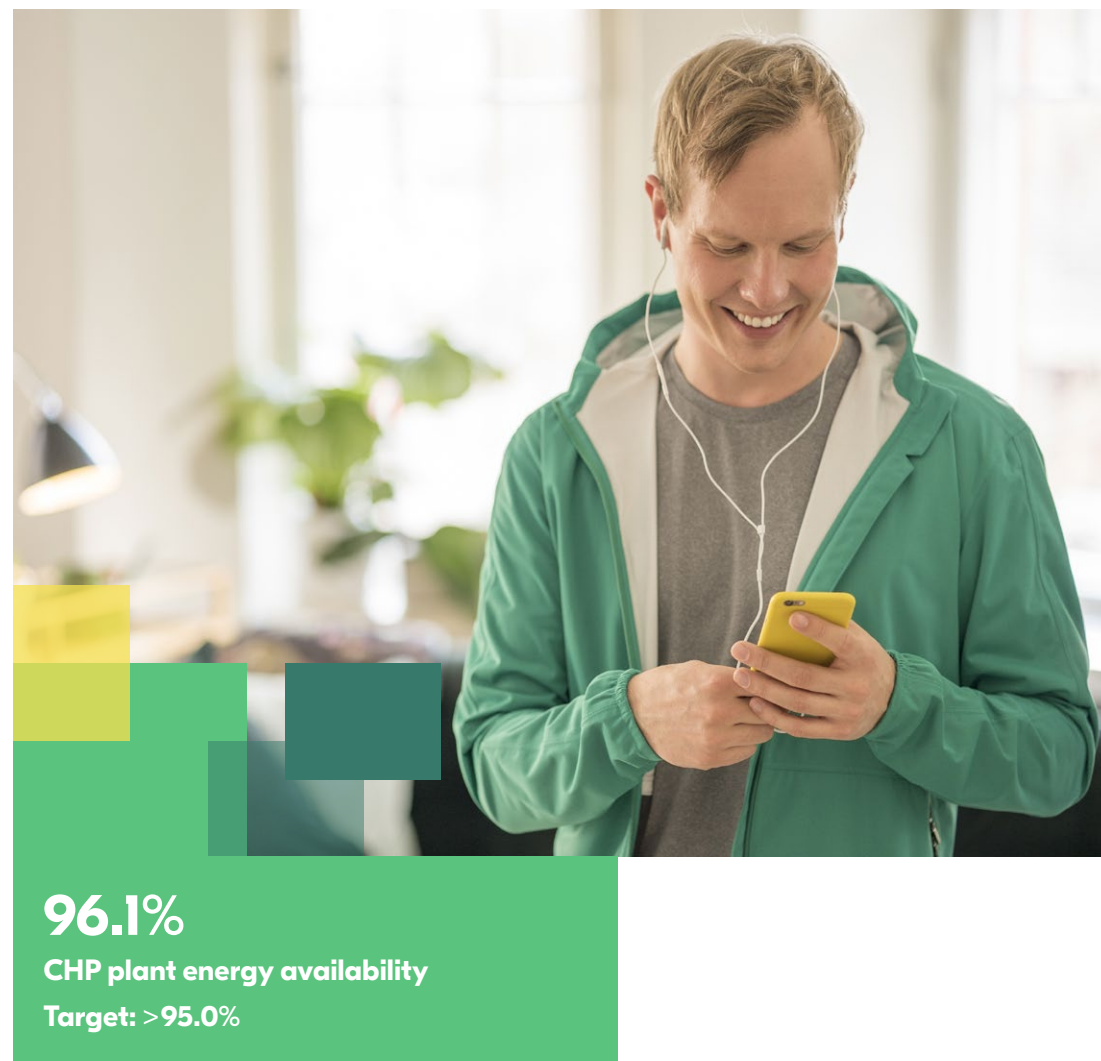
For hydropower plants, outages due to a failure and unplanned or prolonged outages decrease the availability factor only if they lead to spillage. The energy availability of our hydropower plants was 98.2% (2016: 98.7%).

The load factor describing the availability of the Loviisa nuclear power plant is among the best in the world for pressurised water reactor power plants. The Loviisa nuclear power plant's load factor in 2017 was 92.7% (2016: 91.1%).

### Interruptions in heat distribution

Fortum has about 3,400 km of district heating networks in Finland, Norway, Poland, Russia and the Baltic countries. The aim is to keep interruptions in district heat distribution as short as possible by carrying out planned and preventive refurbishment and maintenance activities.

Fortum sold the Polish gas distribution company DUON Dystrybucja S.A. in summer 2017, because gas distribution is outside Fortum's core strategy.



Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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Security of supply

Employees

Safety and security

Corporate citizenship

Human rights

Product responsibility

## Employees

In 2017, an average of 8,507 (2016: 7,994) employees worked at Fortum. The highest number of employees was in Russia, 3,710 (2016: 3,814) on average. The average and the year-end total personnel figures include 200 employees who are not included in the other figures and tables presented in this report. These individuals include the civil contractors working in the Consumer Solutions division in Poland, Sweden and Norway.

Permanent employees accounted for 95.2% (2016: 96.1%) of the personnel. Of these, the share of full-time employees was 98.1% (2016: 98.5%).

During the year 734 (2016: 476) new employees joined Fortum, and 855 (2016: 968) employment relationships were terminated, 206 of which by the employer. The number of employment relationships terminated due to production and financial reasons was 77. Departure turnover in 2017 was 10.5% (2016: 13.0%). Voluntary departure turnover was 5.4% (2016: 5.6%).

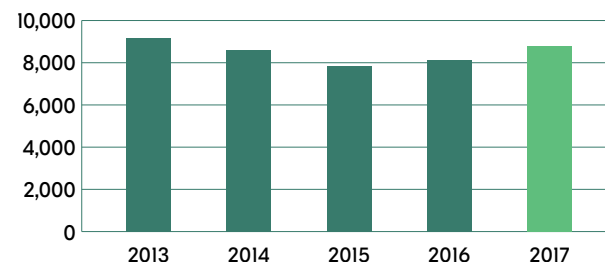
With the acquisition of Hafslund, 722 new employees joined Fortum. Other acquisitions and outsourcings decreased the number of personnel by a total of 185 (2016: 248) people.

Contractor employees worked at Fortum sites for a total of approximately 1,249,000 (2016: 1,113,000) days during the year. The figure is based on contractors' hourly logs and on estimates made on the basis of job costs and average hourly rates. The figure has been calculated on the basis of an 8-hour work day.

### Personnel statistics from 2017, by country of operation

	Finland	Sweden	Norway	Russia	Poland	Other countries	Total
Personnel at year-end	2,165	968	654	3,494	827	677	8,785
Male	1,525	558	381	2,517	490	467	5,938
Female	640	410	273	977	337	210	2,847
Personnel, average	2,147	834	282	3,710	863	672	8,507
Personnel expenses, 1,000 euros	183,533	75,311	30,658	79,339	20,429	33,361	422,632
Personnel expenses per person, 1,000 euros	85.5	90.3	108.5	21.4	23.7	49.6	50.0

### Number of employees, 31 December



### Workforce by employment contract and employment type, broken down by region and gender (GRI 102-8)

	Finland		Sweden		Norway		Russia		Poland		Other countries		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
<b>Employment contract</b>	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
Permanent	1,461	601	542	358	369	249	2,465	910	341	220	461	195	5,639	2,533
Fixed-term	64	39	31	36	11	12	52	67	23	65	5	8	186	227
<b>Employment type (permanently employed)</b>	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
Full-time	1,453	577	529	326	353	210	2,461	909	338	217	457	189	5,591	2,428
Part-time	8	24	13	32	16	39	4	1	3	3	4	6	48	105

## Diversity and equal opportunity

We promote equal treatment and opportunities in the recruiting, remuneration, development and career advancement of personnel, regardless of the employee's race, religion, political views, gender, age, nationality, language, sexual orientation, marital status or disabilities.

Fortum is a Top 200 company included in 2017 Equileap Gender Equality Global Ranking. The assessment criteria are related to personnel's gender division, equal pay, work-life balance and family leave, and principles supporting gender equality in e.g. recruiting and career development.

The average age of our permanent employees was 43.6 (2016: 44.2) years. The share of employees over 50 years old was 29% (2016: 32%). Females accounted for 32% (2016: 29%) of our total personnel. Females accounted for 29% (2016: 25%) of the Group- and division-level management. At the end of 2017, the Board of Directors comprised seven members, three of them, including the Chairman, were women.

Any form of harassment is forbidden and addressed immediately. In Finland, Sweden, and India, for example, there are separate guidelines in place for workplace harassment and discrimination. There were no incidents of discrimination reported in 2017.



## Total number and rate of new employee hires and employee turnover (GRI 401-I)

New employee hires	Finland		Sweden		Norway		Russia		Poland		Other countries	
	M	F	M	F	M	F	M	F	M	F	M	F
age group	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
below 30	30	7	28	16	12	10	70	35	1	11	9	5
30–50	84	31	42	19	14	8	123	75	8	9	14	10
over 50	9	4	7	4	0	0	13	20	0	0	4	2
New recruits, %	8.4	7.0	14.2	10.9	7.0	7.2	8.4	14.3	2.6	9.1	5.9	8.7

Employees leaving	Finland		Sweden		Norway		Russia		Poland		Other countries	
	M	F	M	F	M	F	M	F	M	F	M	F
age group	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
below 30	11	4	14	17	1	1	54	15	4	9	2	2
30–50	40	25	17	28	2	8	215	68	7	5	14	12
over 50	14	8	8	7	0	0	163	67	1	1	10	1
Departure turnover, %	4.4	6.2	7.2	14.5	0.8	3.6	17.5	16.5	3.5	6.8	5.6	7.7

Employees leaving, employee's initiative	Finland		Sweden		Norway		Russia		Poland		Other countries	
	M	F	M	F	M	F	M	F	M	F	M	F
age group	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
below 30	10	4	12	17	1	1	24	6	4	9	2	2
30–50	40	21	15	22	2	8	85	34	7	5	9	12
over 50	10	4	5	3	0	0	50	14	1	0	3	0
Voluntary departure turnover, %	4.1	4.8	5.9	11.7	0.8	3.6	6.5	5.9	3.5	6.4	3.0	7.2

## Service years of the permanent employees in 2015–2017, %

	2017	2016	2015
0–5 y.	37	33	32
6–10 y.	20	21	23
11–15 y.	10	10	9
16–20 y.	10	10	9
21–26 y.	8	9	10
27–30 y.	7	8	9
31+	7	8	8

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## Personnel age distribution of permanent employees by age group, gender and personnel group (GRI 405-I)

Age group	Finland				Sweden				Norway				Russia				Poland				Other countries				Total			
	Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female	
	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w	b	w
under 30	34	84	2	50	3	93	1	74	4	67	0	42	234	73	13	88	0	16	0	64	22	15	0	20	297	348	16	338
30–50	177	701	8	350	25	244	1	188	28	194	2	163	817	657	137	423	62	117	1	118	124	118	9	106	1,233	2,031	158	1,348
over 50	121	344	3	188	25	152	2	92	14	62	0	42	432	252	113	136	76	70	2	35	113	69	11	49	781	949	131	542

b = blue-collar, w = white-collar

## Group and division-level management, by age and gender, persons (GRI 405-I)

Age group	Male	Female
under 30	0	0
30–50	32	7
over 50	19	14

## Equal remuneration

Salary levels at Fortum are compliant with established industry practices in each country, local legislation and labour market agreements. We remunerate personnel for achievement of the strategic business targets and successful implementation of changes. Remuneration is based on job grade levels, job performance and local job market practices.

In the incentive scheme, the maximum amount of the short-term variable remuneration is based on the individual's job, and the amount of the final incentive pay is based on the job-based salary level and the achievement of the goals of the business unit and the individual. For the reasons mentioned above, a male/female comparison of the short-term incentive pay is not expedient.

However, the global human resources data system and the harmonised job grade classification system enable the examination and reporting of pay equality for the base salary in all our operating countries. Besides the centralised HR data management system, a separate, local, data system is also used in Russia, and therefore the data on Russia's pay equality is reported separately. With the corporate acquisitions made in 2017, the companies merged with Fortum – and for which the job grade classification and the

integration of the personnel system has just started – are not included in the figures.

Our reporting covers all personnel groups except individuals working in blue-collar positions. A male/female comparison in this group is not done because of the small group sizes. Blue-collar workers accounted for about 32% of Fortum's personnel. In countries where the number of personnel is small, we have reported these countries collectively under "Other countries" so that the data are not identifiable. The figures presented are not comparable with last year's figures because the method of calculation has been changed.

In our operating countries, total number of personnel included in the comparison was 3,091, of which 1,124 (36%) were female.

The base salaries of female employees in 2017 were, on average, 18% lower than the male base salaries. When examining the differences by employee group and by country, the differences ranged between -1% to -16%.

In Russia, the difference between female and male salaries was -19% on average. The total number of personnel included in the comparison was 2,202.

## Basic salary and service years of women compared to men (GRI 405-2) <sup>1)</sup>

Country	Difference between basic salaries				Difference between service years
	All roles, %	Operational specialists and managers, %	Broad operational professionals and managers, %	Tactical and strategic leaders and middle management, %	Average service years, %
Finland	-3	-3	-3	-4	0
Sweden	-2	-4	-3	-1	0
Poland	-7	-16	-4	N/A	-5
Other countries <sup>2)</sup>	-14	+8	-24	N/A	+1

1) Excluding Hafslund

2) Excluding Russia



### Employee-employer relations

Fortum’s business operations are developed and strengthened in good collaboration with employees. We believe that the successful management of business is built on relationships of trust between management and employees and on the free flow of information. Fortum respects employees’ freedom of association and the right to collective bargaining.

In our operating countries, freedom of association and collective bargaining are guaranteed by law. The exception to this is India, which has not ratified the International Labour Organisation’s (ILO) Convention on the right to freedom of association and collective bargaining. In India, we comply with the same practices as in other countries of operation, and we do not limit or prohibit the right to freedom of association.

We apply local collective bargaining agreements in compliance with the scope of each respective agreement in all our operating countries. Collective bargaining agreements cover nearly 85% of Fortum’s employees in our biggest operating countries and range from 6% coverage in Latvia to about 100% in Finland, Sweden and Russia. There are no collective bargaining agreements in Lithuania, Poland and India. Employment contracts are based on local legislation and on the company’s human resources policy.



Nearly 4,700 Fortum employees responded to the wellbeing survey. Based on the results, we offered physical fitness, recovery, stress management and other support to personnel.

### Fortum European Council

Fortum European Council (FEC) is Fortum’s Europe-level cooperation function in which personnel and employer representatives meet. FEC convenes, as a rule, once a year. In 2017, the Fortum European Council (FEC) held a meeting in Poland, and personnel representatives from Finland, Sweden, Poland, Estonia and Denmark participated. The Council’s meeting focused on, among other topics, Fortum’s strategy, corporate culture, leadership, wellbeing and safety. In addition to Fortum European Council meetings, local level meetings are held several times a year in different countries based on need.

### Restructuring situations

In situations of organisational restructuring, we negotiate with personnel representatives in compliance with each country’s local legislation and contractual procedures. In situations involving personnel reductions, we want to primarily support the reemployment of the personnel.

In restructuring situations, the length of the obligatory negotiation period depends on the scale of upcoming changes and varies in Fortum’s different operating countries. The shortest period for obligatory negotiations is three weeks (Finland) and the longest is 90 days (India). There is no statutory obligatory negotiation period in Sweden, Norway and Lithuania.

The minimum notice period is based on local legislation, collective agreements or employment contracts, which are in harmony with the local legislation and agreements.

In situations involving personnel reductions, we offer outplacement services on a per case and per country basis, and, in cooperation with local unemployment authorities or service providers, we investigate the possibilities to arrange vocational or

other training enhancing employability. Retraining for employees who continue working is arranged based on organisational and individual needs. In situations involving personnel reductions, the content of the support package that we offer is decided based on local needs. The financial compensation of the package is usually based on the years of employment at Fortum.

### Employee wellbeing

Our operating environment is constantly changing, and we want to support our personnel in the change by paying special attention to work wellbeing. In line with our new leadership principles, the development of work wellbeing supports the work environment and corporate culture, which helps our employees to succeed.

### Energise Your Day wellbeing programme expanded to new operating countries

The goal of the work wellbeing model, ForCare, is to promote the health and occupational safety of our employees and the functionality of the work community. Operating under the ForCare model since 2016, the Energise Your Day wellbeing programme aims to support and encourage all Fortum employees to maintain and improve their overall wellbeing.

In 2017 the Energise Your Day programme was expanded, and is now under way in nine of our operating countries. The Energise Your Day programme starts with a self-assessment-based wellbeing survey; close to 4,700 Fortum employees have responded to the survey. The response rate is 73%. Based on the responses, the most sought after support and tools are for recovery and stress management.

Based on the wellbeing survey results, employees are offered various wellbeing services, such as lectures, coaching clinics, campaigns and other wellbeing activities. Self-management, stress management, recovery, nutrition and physical activity are among the themes.

We promote wellbeing at the workplace also through what is called an early-support model. We increase open communication between employees and supervisors by discussing and mapping the reasons for absences.

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**Occupational safety and health care**

Occupational safety and health care are organised in our operating countries in line with local legislative requirements. The occupational safety committees represent all personnel groups, and they regularly address issues related to occupational safety and workplace wellbeing.

All our employees are within the sphere of occupational health care. We emphasise the significance of preventive activities in promoting wellbeing in the company. The occupational health care costs per person in Finland, before the share reimbursed by Kela (The Social Insurance Institution of Finland), were EUR 533 (2016: 460).

Fortum conducts regular examinations of its personnel in accordance with local laws. Employees who in their work are exposed to e.g. noise, dust, radiation or who perform shift work are within the sphere of the examinations. Occupational health care also participates in various discussions and assessments in the work community. The occupational health care professionals support supervisors by providing information on preventive actions as well as alternatives when the ability to work decreases. Occupational health care also offers methods and tools for these situations.

In 2017, the percentage of sickness-related absences (excluding DUON and Hafslund) was 2.2 (2016: 2.3), which is better than the target level of ≤2.3. For males, the percentage of sickness-related absences was 1.9 (2016: 2.1) and for females 2.9 (2016: 3.0). The sickness absence rate is calculated based on the reported working hours of the permanent employees. The percentage of sickness-related absences for Hafslund was 3.0. In addition to expansion of the Energise Your Day occupational wellbeing programme, the management of sickness-related absences was one of our focus areas in 2017.

There was one (2016: 8) case of suspected occupational disease in Finland. The case was related to noise and involved a male employee. The case was determined to be non-occupational.

An indication of the good management level of working capacity and workplace wellbeing at Fortum is the average retirement age, which was 62 (2016: 62) years. In 2016, the average effective retirement age in the earnings-related pension scheme in Finland was 61.1 years (Source: Finnish Centre for Pensions).

**Employee development**

Our goal is to be a forerunner in the future energy system. This means that our corporate culture must evolve to be more flexible and agile. That is why we have drafted new Leadership Principles and have updated our company's Values.

Our Open Leadership framework is based on views and input received from the Fortum Sound employee survey, Fortum Summit, Fortum European Council (FEC), and Must-Win-Battle development programmes, among others. This input emphasised the need for more collaboration between units as well as an environment fostering innovation and smart risk-taking. Based on feedback we received, there is a need within the teams to better understand how the daily work advances the implementation of our company's strategy. Open Leadership aims to address these issues.

**FORTUM'S LEADERSHIP PRINCIPLES****BELIEVE THE BEST IN OUR PEOPLE**

We believe in our people, which empowers them to believe in themselves, grow and exceed their own expectations.

**WANT THE BEST FOR OUR PEOPLE**

We create a work environment and company culture that help our people thrive.

**EXPECT THE BEST FROM OUR PEOPLE**

As we believe in our people and provide them with a good work environment, we can expect them to deliver results. We are confident they will even exceed our expectations.

Our Leadership Principles promote openness and curiosity towards the world, our customers, the industry, and each other.

**2.2%****Sickness-related absences****Target: ≤ 2.3%****Sickness absence rate of permanent employees in 2015–2017 (GRI 403-2)<sup>1)</sup>, %**

	2017		2016		2015	
	Male	Female	Male	Female	Male	Female
Finland	2.2	2.6	2.4	3.5	2.3	3.5
Sweden	2.8	8.0	2.6	6.3	3.1	5.3
Russia	1.5	1.5	1.8	1.6	1.7	2.0
Poland	2.7	3.1	2.6	3.8	4.1	6.5
Other countries	2.5	2.3	2.2	3.5	1.8	3.2

1) Excluding: DUON, Hafslund

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Our Values form the foundation for our corporate culture and guide our decision-making. Fortum's Values have withstood the test of time, and that is why we updated only some elements of our Values so that they are in even better alignment with our strategic context and our situation. Our updated Values are:

### CURIOSITY

We question the status quo and have the courage to explore.

### RESPONSIBILITY

We have a strong sense of responsibility.

### INTEGRITY

We believe in transparency.

### RESPECT

We greatly value each other and all our stakeholders.

Our Leadership Principles and our Values have already been introduced and discussed in various management meetings and in other unit and team meetings. Leadership Principles have also been a central part of seminars and training events that have been arranged in conjunction with the Ways of Working project.

The change in our working culture and the move of the headquarters into a new multi-space office require learning on the part of the personnel and the ability to renew ways of working. The purpose of the Ways of Working change management trainings, launched in late 2017, is to offer tools to support better collaboration and self-leadership. The target group of the training includes all the employees and their managers who are moving to the new premises.

The total number of all training hours in 2017 was 62,189 (2016: 39,129). The Safety and Security eLearning aimed at all Group personnel contributed to the increase in the number of training hours. Training costs in 2017 totalled EUR 3.6 (2016: 3.1) million.

### Performance and development discussions support the achievement of targets and professional growth

We support employee development through the annual performance and development discussions; all employees are within the scope of the annual discussions.

The main target of the performance and development discussion is to ensure that the employee has clear targets that align with the business as well as the competencies supporting the achievement of the targets and professional growth.

The achievement of the targets forms the basis for payment of incentives. All employees who have a minimum of three months

of employment in Fortum are within the scope of Fortum's incentive plan.

### Faster feedback from personnel

In 2017 we adopted a new, quick pulse survey tool. By asking ten questions we can measure personnel engagement and satisfaction. The tool replaces the previously used Fortum Sound employee survey, and it will be conducted every six months. The employees and supervisors see the survey results immediately after the feedback is given.

The survey conducted in October 2017 had a response rate of 69%. According to the results, 68% of the personnel feel a commitment to the company. Based on the survey results, the personnel feel that Fortum is an innovative company and pursues new ways to operate. There is a clear connection seen between one's own work duties and the company's targets, and the respondents felt that they can trust management's decisions.

Targets of development included increasing the collaboration between the divisions and units, encouraging smart risk-taking, and decreasing the decision-making hierarchy. Open Leadership aims to have an impact on these issues.

## Training hours in 2017 (GRI 404-I)

	Total number of training hours for employees	Average training hours per employee	Total number of training hours for females	Average training hours per female	Total number of training hours for males	Average training hours per male
Finland	51,027	25	12,608	21	38,419	26
Blue-collar	8,465	25	441	34	8,024	24
White-collar	42,562	25	12,167	21	30,395	27
Other countries <sup>1)</sup>	11,162	5	3,643	5	7,519	6
Blue-collar	2,817	6	110	5	2,707	7
White-collar	8,345	5	3,533	5	4,812	5
Total	62,189	15	16,251	12	45,938	17

1) Excluding: Russia, Hafslund in Norway

## Level of education of the permanent employees in 2015–2017, %

Level of education	2017	2016	2015
Doctorate	1	1	1
University	40	43	41
Lower university	8	7	6
College	19	24	27
Vocational	18	17	21
Compulsory	3	3	4
Not indicated	11	5	0

## Safety and security

For Fortum, excellence in safety is the foundation of our business, and safe performance is a sign of professionalism.

### Occupational and operational safety

We strive to be a safe workplace for our employees and for the contractors and service providers who work for us. We believe that all work injuries are preventable when competence and the right attitude prevails, when potential risks are addressed and when measures are taken to safeguard against them. Good operational safety is an absolute prerequisite for safe and efficient operations in terms of the employees and the environment.

In 2017, we had the following Group-level key safety indicators:

- Injury frequency (TRIF\* and LWIF\*\*) for own employees and (LWIF) for contractors
- Number of severe\*\*\* accidents
- Major environmental, health and safety (EHS) incidents
- Quality of investigation process of occupational accidents, major EHS incidents and near misses

Fortum's Board of Directors has approved the following amendments for 2018: at the Group-level, the LWIF combined (own employees and contractors) will be used as the main safety indicator. Total recordable injury frequency (TRIF) for own employees will be used as a follow-up indicator. In addition, the

GAP index measuring compliance with the Group's minimum requirements for EHS management is a new Group safety indicator.

The safety targets apply to all Fortum employees and are part of the Group's [short-term incentive plan](#).

### Safety improvements needed

2017 was a challenging year in terms of occupational safety. The safety performance of our employees is still at a relatively good level but exceeds the lost workday injury frequency (LWIF) target level of 1.0, and we have not been able to reduce the number of contractor accidents.

The LWIF for both own employees and contractors has increased mainly due to the integration of Recycling and Waste Solutions, where the safety actions implemented on the ground have not yet resulted in an improved safety performance.

As a result, only the total recordable incident frequency (TRIF) for own employees and the number of severe accidents met the set target level. The LWIF for own employees per million working hours was 1.2 (2016: 1.0) and the TRIF was 1.8 (2016: 1.9).

The LWIF for contractors continues to be our main challenge. The LWIF for contractors per million working hours was 4.2 (2016: 3.0), and we did not achieve the target of  $\leq 3.5$ . The same challenge applies to the combined LWIF (own employees and contractors):

the result was 2.4 (2016: 1.8), exceeding the target of 1.9. However, we can be pleased that there have been no accidents leading to a fatality in Fortum's operations in the last three years.

Our target defined in 2017 is to reduce severe accidents to zero by 2020. We had one severe accident in Russia in 2017; our target for the Group was  $\leq 5$ . Consequently, Fortum's Board of Directors amended the target and we are now aiming for zero severe accidents already in 2018.

In reporting accidents, we comply with the principles of the United States Occupational Safety & Health Administration (OSHA) and ILO's Practices on Recording and Notification of Occupational Accidents and Diseases to the extent that they conform with the legislation in Fortum's countries of operation.

# 100%

of the personnel completed the  
Safety and Security eLearning.

\* TRIF: Total recordable injury frequency, injuries per million working hours

\*\* LWIF: Lost workday injury frequency, injuries per million working hours, absence of one or more working days or shifts, excluding the day the accident happened

\*\*\* Severe accident: Fatality or an accident leading to permanent disability and an accident that could have caused serious consequences



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## Key safety figures in 2015–2017 (GRI 403-2)

	Target 2018	Target 2017	2017	2016	2015
Total recordable injury frequency (TRIF) <sup>1)</sup> , own personnel		≤2.5	1.8	1.9	1.6
Lost workday injury frequency (LWIF) <sup>2)</sup> , own personnel and contractors	≤2.1	≤1.9	2.4	1.8	1.7
Lost workday injury frequency (LWIF) <sup>2)</sup> , own personnel		≤1.0	1.2	1.0	1.1
Lost workday injury frequency (LWIF) <sup>2)</sup> , contractors		≤3.5	4.2	3.0	2.7
Lost workday injuries, own personnel			17	14	15
Lost workday injuries, contractors			42	27	29 *
Severe occupational accidents <sup>3)</sup>	0	≤5	1	5	
Fatalities, own personnel			0	0	0
Fatalities, contractors			0	0	0
Major EHS incidents <sup>4)</sup>	≤20	≤21	20	22	18

1) TRIF = Total recordable injury frequency, injuries per million working hours

2) LWIF = Lost workday injury frequency, injuries per million working hours

3) Fatality or an accident leading to permanent disability and an accident that could have caused serious consequences

4) Fires, leaks, explosions, INES events exceeding level 0, dam safety incidents, environmental non-compliances. INES = International Nuclear Event Scale

\* Including contractor injuries of the divested Distribution business

## Occupational accidents, accident frequencies and absence days due to occupational accidents in 2017 by region and gender (GRI 403-2)

	Finland	Sweden	Norway	Russia	Poland	Others
<b>Own personnel</b>						
Occupational accidents causing absence, men	6	0	1	1	3	5
Occupational accidents causing absence, women	0	0	0	1	0	0
LWIF, men	2.2	0.0	3.4	0.2	4.4	5.8
LWIF, women	0.0	0.0	0.0	0.6	0.0	0.0
Absence from work due to occupational accidents for men, days	30	0	1	43	87	62
Absence from work due to occupational accidents for women, days	0	0	0	15	0	0
<b>Contractors</b>						
Occupational accidents causing absence, men	24	6	1	0	5	3
Occupational accidents causing absence, women	1	0	2	0	0	0
LWIF, men and women <sup>1)</sup>	13.2	6.5	24.5	0.0	2.2	1.7
Absence from work due to occupational accidents for men, days	268	98	2	0	76	7
Absence from work due to occupational accidents for women, days	2	0	48	0	0	0

1) Contractor hours not available by gender

## Operational safety

We track major environmental, health and safety (EHS) incidents as a Group target; these incidents cover fires, leaks >100 litres into the environment, explosions, nuclear and dam safety incidents, and environmental non-compliances. There were 20 (2016: 22) EHS incidents in 2017; the target was ≤21. There was one (2016: 0) INES event exceeding level 0 (INES = International Nuclear Event Scale). The incidents did not cause significant harm to people, operations or the environment.

## Common guidelines steer our operations

Fortum has Group-level EHS instructions and minimum requirements that set requirements for all the operations for which we have operative responsibility. The requirements are updated regularly, and the divisions' performance in complying with the revised requirements is assessed yearly.

The two proactive KPIs (Quality of EHS incident investigations and GAP index) introduced in 2017 help ensure compliance with the Group minimum requirements for EHS management and thus reduce the risk of improper work practices. They also ensure a timely investigation of incidents, the sharing of lessons learned, and reduce the risk of repeating the same mistakes again. Both of these proactive KPIs are also internal control points of the EHS processes.

A Safety and Security eLearning programme, compulsory for all personnel, was launched in spring 2017. The training for Fortum Executive Management took place already in January 2017. By year end, all personnel had completed the e-learning. In 2018, Fortum will also introduce external safety training for both the management level and key individuals leading safety work as well as for the most challenging business areas in terms of safety.

A development project addressing contractor safety was carried out during the year. New tools were developed to assess contractor safety performance as part of the supplier qualification process and to evaluate their safety practices in a more systematic manner during work. The project also included benchmarking with leading European companies to assess best practices in contractor management. Key persons were trained on the new tools and implementation of them will continue during 2018.

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### We will continue our efforts to improve safety

Our goal is to continuously improve the safety of our operations. Our target for LWIF combined (own employees and contractors) for 2018 is 2.1 (2017: 1.9). Setting a higher numeric target than in 2017 might seem controversial, but it is challenging considering that the actual result in 2017 was 2.4. Achieving the target of 2.1 requires robust safety improvement actions and implementation of Fortum's EHS minimum requirements.

Excellent occupational safety continues to be a promise we want to keep also in the years ahead. We are committed to achieving the contractor safety level target (LWIF  $\leq 2.0$ ) by 2020.

### Corporate security

Through corporate security, we strive to ensure the uninterrupted continuity of business and the safety of people, information, our assets and processes in normal and exceptional situations. Uninterrupted energy production and distribution is important both for Fortum's business operations and for an energy-dependent society. Our Corporate Security unit is responsible at the Group

level for personnel and operational security; cyber security and data security are also within the scope of the unit's areas of responsibility.

### Securing personnel and business safety

Compliance with the minimum safety requirements improves our operational ability to withstand and recover from disruptions and thus reduces unplanned maintenance outages and improves productivity.

We assess risks related to people, business and information in all geographical areas where Fortum has potential operations and business travel. Risks impacting the company and business operations may be related to political situations, terrorism, crime, conflicts and business partners.

Corporate security is improved also by gaining a deeper understanding of the security situation so that we can anticipate and prevent risks before they materialise.

### Cyber security

Security with the information we handle and with our IT systems ensures that we can meet society's and our customers' expectations. Our cyber security programme is currently divided into data, IT and digital services security and security of automation systems. The aim is to ensure the production and distribution of power and heat and the functioning of new digital services, like Internet of Things applications.

In IT security, we aim to ensure the accessibility, integrity and confidentiality of critical information. We also take seriously our compliance with the regulations related to the protection of personal data. Customer data protection is discussed in the [Product responsibility](#) section.

We actively engage in collaboration with authorities and other stakeholders to understand and prevent new and growing cyber threats. We launch campaigns to increase employee awareness of security risks. We promote ways of operating that take employee information security into consideration by, e.g., providing guidelines and online training.

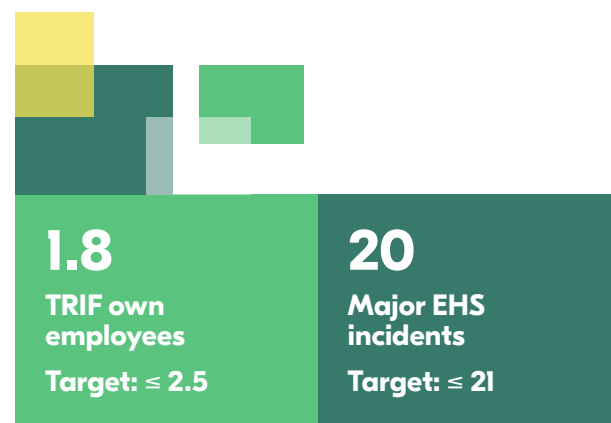
### Contingency planning

The main disaster and emergency situations we prepare for are related to our critical operations, such as power plant and dam safety and securing other operations.

For dam and nuclear safety, emergency preparedness obligations in Finland and Sweden are based on regulatory provisions; likewise, there are terrorism-related preparedness obligations in Russia. Otherwise, emergency preparedness obligations prescribed by authorities are of a general nature. Based on its own risk assessments, Fortum independently defines the crisis and exceptional situations it prepares for and drafts action plans for.

Fortum's crisis and emergency management instructions are prepared for Group, division and site levels. The testing and updating of the crisis management and continuity plans are the responsibility of each division and line organisation. Crises impacting Group operations more broadly are managed at the Group level. Crisis communication instructions have been prepared for e.g. power and heat outages and for the Loviisa nuclear power plant. Corporate Security is responsible for crisis management development, e.g., for organising rehearsals and supporting planning. Group Communications is responsible for crisis communication.

In 2017, an emergency preparedness exercise for hydropower production in Finland was held. The annual emergency preparedness exercise related to a nuclear power accident was held at the Loviisa power plant.



## Corporate citizenship

Social responsibility is a cornerstone of Fortum's operations. Our operations impact the local communities where our power plants are located, and we engage in many kinds of collaboration with local stakeholders.

We support activities promoting the common good in society, including the work of organisations and communities in our operating countries. Fortum's Policy for Sponsoring and Donations was revised in December 2017. According to the policy, Fortum's sponsoring will focus on the wellbeing of children and youth, renewable energy projects, R&D and innovations supporting Fortum's strategy, recycling, recovery and reutilisation. For 2017, we are reporting support for society pursuant to the categorisation based on the previous version of the Sponsoring and Donations Policy. Fortum also engages in significant collaboration with different research and development projects, particularly with Nordic universities.

We actively participate in **national and international organisations**. Public affairs and collaboration with authorities are a priority in the energy sector.

### Local impacts and collaboration with local communities

We are an important employer and significant tax payer in our operating areas. In addition, our investments improve the local infrastructure. Of our energy production forms, hydropower has the most significant **impacts on local communities** and local forms of land use. Hydropower construction and use may alter the fluctuation range and rhythm in the discharge and water level in waterways as well as the fish fauna. These changes impact fishing, recreational use, and boating. We mitigate and compensate the adversities caused by hydropower production through numerous measures, such as stocking fish and building boat launch ramps.

We communicate openly, honestly and proactively, and we engage in a dialogue with the stakeholder groups located in the vicinity of our power plants. We carry out collaboration

projects with local communities. We conduct environmental impact assessments (EIA) for our projects in accordance with legislative requirements. The hearing of stakeholders is part of the EIA process. In addition, relevant stakeholders are heard in all permit procedures.

Examples of our activities with local communities in 2017:

- We arranged open-house events at power plants in different countries of operation; thousands of locals attended the events.
- We continued publishing the Naapurina ydinvoimala (Nuclear power plant as a neighbour) magazine in Loviisa, Finland, and maintained an active dialogue with local residents and representatives of the city of Loviisa.
- In Riihimäki, Finland, an active dialogue with local residents is supported by a cooperation council convening twice a year.
- **Projects** aiming to mitigate the adverse environmental impacts of hydropower were under way in Finland and Sweden in collaboration with municipalities, research facilities, fishermen, universities and environmental organisations. For example, the River Oulujoki restoration and multi-use framework agreement was renewed for 2018-2021 in Finland. Within the agreement, we continue improving environmental conditions and recreational use of the river with local partners. In Sweden, we finalised a multiannual, cooperation research project in on migratory fish in River Klarälven.
- We held the fifth River Clean-Up for sports clubs in Sweden. More than 1,700 children and adults raised money for sports activities by collecting 17.5 tonnes of trash along the banks of four rivers (Dalälven, Klarälven, Ljusnan and Gullspångälven) where Fortum has hydropower plants.
- We continued supporting local communities with several projects in the vicinity of the Kapeli and Amrit solar power plants in India. Among other things, Fortum has improved water and electricity supply in the villages as well as supported local schools by building a new classroom and furnishing the kitchen for providing lunch for the children. In three villages in the

vicinity of the Bhadla power plant, a **community development programme** was started. The programme includes a Self Help Group for local women and provides drinking water through a "Water ATM".

- We support the communities in power plant areas through various donations. In Poland, e.g., we supported workshops and scholarships for talented children raised in difficult conditions and installed solar panels on the rooftop of a kindergarten. In Russia, we supported medical care for children with serious diseases. In Finland, elementary schools in the Hausjärvi and Riihimäki region were supported to join "Vihreä lippu" sustainable development programme.

### Support for society

As part of Finland 100, the centenary of Finland's independence, Fortum made donation of EUR 1 million to four Finnish universities. Fortum Waste Solutions distributed a total of EUR 120,000 in grants to five environmental management research projects. The grant, awarded by the company's environmental scholarship fund, is the largest research grant in the industry to be awarded by a company on an annual basis. In 2017, our support for activities promoting the common good totalled about EUR 4.9 (2016: 2.9) million.

Fortum Foundation supports research, education and development in the natural, technical and economical sciences within the energy industry. Fortum Foundation is not part of Fortum Group. The grants awarded by Fortum Foundation in 2017 were about EUR 696,000 (2016: 675,000).

The goal of the collaboration with universities and colleges is to develop Fortum's business, promote energy-sector research and development, and foster Fortum's recruiting and training opportunities.

Examples of our collaboration with universities and colleges in different operating countries:

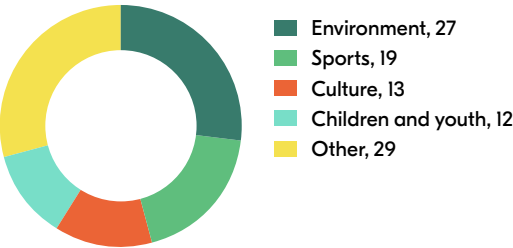
- In Sweden, there is a multi-year project under way that aims to offer sustainability-related training to more than 4,000 educators. Fortum's collaboration partners in the project are Pedagog Värmland, Karlstad municipality, engineering and consulting company ÅF, and Chalmers University of Technology.
- In Estonia and Lithuania, Fortum is a member of the Baltic Innovative Research and Technology Infrastructure (BIRTI), which coordinates collaboration between universities, scientific institutes and entrepreneurs.
- In Latvia, Fortum is taking an active part in the THERMOS (Thermal Energy Resource Modelling and Optimisation System) project. It is an EU Horizon 2020-funded research project that will provide advanced energy system data and models to make heat network planning faster, more efficient, and more cost effective.

### Sponsorship projects

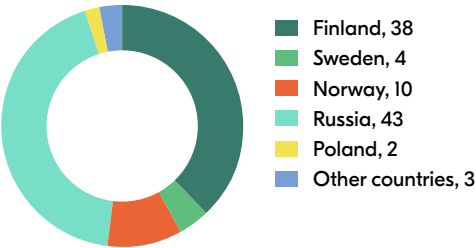
In 2017, we continued sponsoring the coaching of children and youth in football, volleyball, basketball, and track and field. Through the Fortum Tutor programme, we offer tutors to support coaches in their daily work as well as financial support for teams to train new coaches. Fortum Tutor operates in Finland and in the Baltic cities where Fortum has power plants. In 2017, we were the main partner for the world's largest junior volleyball tournament in Finland. Fortum Power Cup attracted thousands of junior players and their coaches for outdoor games.

The Fortum Honorary Energy Donor mobile app has been in use in Poland. It encourages people to engage in physical activity. The distance covered during a physical activity can be converted into energy, for which Fortum makes a financial donation to selected charities.

Fortum's support to society by target, %



Fortum's support to society by country, %



In 2017, more than 1,500 school kids in Tyumen, Chelyabinsk, and other cities in the Chelyabinsk region completed the “AboutEnergy” educational programme sponsored by Fortum. The goal of the programme is to teach children to use resources efficiently and to foster an ecological mindset.

During the school year, 67 classes in 20 schools in the participating cities and the districts took the total of more than 2,000 lessons under this programme. The most active students were invited to a closing event in Chelyabinsk. They passed a final exam on the course they completed and took part in various activities. There was also a Jeka computer game tournament – a game developed by the Housing and Utilities Foundation to teach and promote energy saving skills.

Fortum first launched the “Culture of the new generation: energy saving and efficiency” project in 2015. The “AboutEnergy” programme has been praised by local educators and the Ministry of Education and Science of the Chelyabinsk region. Along with theoretical studies, it includes workshops, excursions, creative competitions and environmental campaigns.

Case | AboutEnergy educational programme in Russia



# Human rights

Fortum supports and respects internationally recognised human rights, which are included in the key human rights agreements. Our own operations have a direct or indirect impact on the realisation of the human rights of our own personnel, those working in the supply chain, and members of local communities.

## Management of human rights issues and personnel training

Our goal is to operate in accordance with the UN Guiding Principles on Business and Human Rights, and to apply these principles in our own operations as well as in country and partner risk assessments and supplier audits. Fortum's approach to the management of human rights issues is described in more detail in [► Appendix 1: Sustainability management by topic, Human rights](#).

Fortum's Corporate Sustainability unit is responsible for coordinating and developing sustainability, including human rights issues, at the Group level.

The online course for Fortum's Code of Conduct includes training in human rights-related issues. The course is part of the induction programme for new employees. The Supplier Code of Conduct includes human rights requirements and they are reviewed as part of the Code of Conduct training. Trainings were arranged in 2017 for Fortum's Baltic functions and for the Recycling and Waste Solutions personnel in Finland and Sweden.

In 2017 Fortum participated in the Ministry of Economic Affairs and Employment and the Ministry for Foreign Affairs' round table discussions about the human rights issues of Finnish companies' operations located in risk countries. Non-governmental and labour market organisations also participated in the discussions. The discussions resulted in a joint [► statement](#) that was published in conjunction with a stakeholder event in March 2018.

## Assessment of human rights impacts

A sustainability assessment is carried out for our investment projects and takes into consideration the environmental, occupational health and safety, and social impacts of the project. The sustainability assessment includes a human rights evaluation, especially in new operating areas. A human rights assessment is also part of the systematic assessment of country and counterparty risks when planning a project.

The process has two parts: a light and a deep assessment. A light assessment is done for all new countries in which one of our business units is planning the sales of products or services, and it is based on publically available sources. In 2017, 14 of these assessments were made. One deep assessment was made.

Fortum's supplier audits cover the most important human rights aspects related to purchases. The supplier audits conducted in 2017 and their results are described in more detail in the section [► Sustainable supply chain](#).

## Identified impacts on human rights, corrective measures and grievances

All forms of child and forced labour are strictly prohibited and in violation of Fortum's Code of Conduct. Of our operating countries, India has not ratified the International Labour Organisation's (ILO) Convention on the minimum age and the worst forms of child labour. Our functions in India require job applicants to be of adult age. We have not identified risks related to the use of forced labour in our own operations. Support of employees' right to freedom of association and collective bargaining are discussed in the section [► Employee-employer relations](#).

Internal reporting channels used for reporting any suspected misconduct relating to labour practices or human rights violations are defined in Fortum's Code of Conduct. In addition to internal reporting channels, Fortum has an external "Raise a concern" channel which is available to all stakeholders.



**Fortum participated in the Ministry of Economic Affairs and Employment and the Ministry for Foreign Affairs' round table discussions about the human rights issues of companies.**

There were no grievances related to human rights, labour rights or discrimination filed through formal grievance channels in 2017, nor were there any grievances carried over from the previous year.

## Product responsibility

Fortum is a clean energy company that provides customers with electricity, heating and cooling as well as smart solutions to improve resource efficiency. Our ambition is to engage our customers and society to drive the change towards a low-carbon energy system and optimal resource efficiency.

Fortum is the third largest power generator and the largest electricity retailer in the Nordic countries. We are one of the world's largest producers of heat. We also offer district cooling, energy efficiency services, recycling and waste solutions, and the largest electric vehicle charging network in the Nordic countries.

### Guarantee-of-origin-labelled and renewable electricity

Hydro and nuclear account for two-thirds of our electricity production, making us one of the Nordic countries' leading sellers of carbon dioxide-free and guarantee-of-origin-labelled electricity. All the electricity we sold to household customers in Finland and Sweden in 2017 was renewable and carbon dioxide-free hydro, wind or solar power. The origin of the electricity was guaranteed with European Guarantees of Origin. A guarantee of origin is proof that the electricity has been produced from renewable energy sources. Some of the electricity we sell is also guaranteed with the pan-European EKOenergy label granted by environmental organisations and, in Sweden, with the Bra Miljöval label.

### Services to customers

In recent years Fortum has introduced many new services that reduce environmental impacts and give customers better opportunities to control their electricity consumption and costs. The sustainable solutions we offer to growing urban areas in energy production, traffic and waste management also support a circular economy. The number of consumers participating in energy production is growing. The solutions offered by Fortum for this area are related to home automation, smart EV charging, local energy production and storage, and flexible demand. Additionally,

we offer diverse expertise services for energy systems, electricity and heat production and for the process industry.

### Marketing communications and customer data protection

Our goal is to present products and services truthfully in all our marketing and communication materials. We strictly follow responsible marketing communication guidelines, and we do not present misleading statements. In statements regarding environmental issues, we follow the regulations for environmental marketing.

In 2017 Fortum received from the Finnish Energy Authority one request of further clarification as regards a marketed product. The Finnish Energy Authority also sent a separate request to add missing information on the Authority's web pages. The requested information was provided within the set timeframe. The Swedish Consumer Agency as well as the Energy Market Inspectorate

in Sweden requested Fortum to implement some changes in its marketing communication. Fortum is in the process of implementing the requested changes. The Energy Market Inspectorate also ordered an injunction in the case, which Fortum has appealed.

Data protection legislation has been amended in recent years. In 2016 the EU published the Data Protection Regulation, which will take effect in May 2018. We have prepared for the regulation to take effect by launching a data protection programme, and several development projects for personal information processing have been started in conjunction with it. In 2017 the Data Protection Ombudsman initiated an enquiry against Fortum Markets A/S in Norway. Due to a software failure, some data classified as personal data were mismanaged. The software functionality has been corrected, but the case was pending at the year end.

- ▶ CUSTOMER SATISFACTION AND REPUTATION
- ▶ PRODUCTS AND SERVICES



# Reporting principles

We report on sustainability in this Sustainability Report and in the Online Annual Review. Non-financial reporting, in line with the Accounting Act, is included in the Operating and Financial Review in the **Financials**. Additionally, we describe sustainability-related governance practices in the Corporate Governance Statement, and strategy and the CEO's view in the CEO Letter. Our reporting entity also includes the Tax Footprint.

In our sustainability reporting, we follow the integrated reporting principles, and we apply specific disclosures of the GRI Sustainability Reporting Standards we have identified as material.

We gain information about our stakeholders' views through the One Fortum survey, the stakeholder sustainability survey and other stakeholder collaboration. Our selection of material topics is based on Fortum's own and our stakeholders' views regarding the materiality of the impacts.

We report sustainability information annually in Finnish and English. In our annual reporting we describe Fortum's operations in 2017 as well as some information from January–February 2018. The previous reporting was published in March 2017, and our next reporting will be published in February/March 2019. In addition to the annual reporting, we report on our sustainability activities in Fortum's interim reports.

## Reporting scope and boundaries

Reporting related to operations and management covers all functions under Fortum's control, including subsidiaries in all countries of operation. The figures for power and heat generation and investments include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners on cost basis. Possible deviations to these principles are reported in conjunction with information applying different boundaries. A list of Fortum's subsidiaries is included in the **Financial Statements** Note 40 Subsidiaries by segment.

Information from previous years is mainly presented as pro forma information, i.e. on the basis of the organisation and

the functions of each year; the impacts of ownership changes in production facilities, for example, have not been updated afterwards in the previous figures.

The company AB Fortum Värme samägt med Stockholms stad (Fortum Värme, at present Stockholm Exergi) is classified in the Financial Statements as a joint venture and is consolidated with the equity method. Fortum Värme is not included in Fortum's sustainability targets and indicators nor in the descriptions of management practices. Fortum Värme's sustainability information is available in Fortum Värme's sustainability report.

Fortum completed the divestment of its Distribution business on 1 June 2015. In this report, the information for 2017 and 2016 and, as a general rule, also for 2015 does not include the Distribution business.

On 4 August 2017, Fortum concluded the restructuring of its ownership in Hafslund ASA with the City of Oslo. Sustainability information relating to Hafslund Markets' and Fortum Oslo Värme's operations is included in Fortum's reporting as of 1 August 2017.

On 28 July 2017, Fortum concluded the divestment of its 100-per cent shareholding in the Polish gas infrastructure company DUON Dystrybucja S.A, which is included in the sustainability reporting up to 30 June 2017.

Exceptions to the accounting practice are presented in conjunction with each figure.

## Capacity changes

Fortum commissioned unit 3 (248 MW electricity and 174 MW heat) of its Chelyabinsk GRES combined heat and power (CHP) plant in Russia in November 2017. During 2017 Fortum acquired or commissioned 205 MW of solar power capacity in India and Russia and 32 MW of wind power capacity in Norway. Through the Hafslund ASA ownership restructuring, 19 MW of electricity and 1,111 MW of heat production capacity was transferred to Fortum.

The commissioned and acquired capacity during the year is included in the reporting starting from their commissioning.

## Measurement and calculation principles

Data for economic performance indicators is collected from the audited Financial Statements and from financial accounting and consolidation systems.

The environmental information of the report covers the plants for which Fortum is the legal holder of the environmental permit. In such cases, the plant information is reported in its entirety. An exception is the calculation of specific CO<sub>2</sub> emissions and fuel use from the Meri-Pori power plant, where the calculation covers only Fortum's share of production and emissions as specified in the operation agreement between Fortum and Teollisuuden Voima Oy.

Fortum utilises a Group-wide database with instructions for collecting site-level environmental data. Sites are responsible for data input, emissions calculations and the accuracy of the information provided. The Corporate Sustainability unit compiles the data at the Group level and is responsible for the disclosed sustainability information.

Fortum's CO<sub>2</sub> emissions subject to the EU Emissions Trading Scheme are annually verified at the site-level by external verifiers. Direct and indirect greenhouse gas emissions have been reported in accordance with the Greenhouse Gas (GHG) Protocol on the basis of the Greenhouse Gas Analysis performed by an external consultant.

Fortum's human resources (HR) management system is used in all Fortum's operating countries and is the main system for employee-related personal and job data. In Russia, the employee data system covers mainly superiors. In addition, Russian operations have their own, local data system. Other social responsibility data, such as occupational health-related data, originates from various data systems.

Reporting principles

## Reported GRI disclosures

## Assurance report

Designated individuals collect the information and deliver it to the Corporate Sustainability unit primarily in the format recommended by the GRI Standards.

**Assurance**

Deloitte Oy has provided limited assurance for the 1 January 2017 to 31 December 2017 reporting period for emissions calculations (Scope 1–3) based on the GHG protocol according to the requirements published by CDP (Verification of Climate Data).

**Global Compact and Caring for Climate reporting**

Fortum has been a participant of the United Nations Global Compact initiative since 2010. In our sustainability report, in conjunction with the description of environmental responsibility, social responsibility and business ethics, we describe the realisation of the Ten Principles of the Global Compact initiative in our operations in 2017. We use the GRI Sustainability Reporting Standards disclosures to measure compliance with the principles of human rights, labour standards, the environment and anti-corruption.

Fortum joined the UN Caring for Climate initiative in 2013. Fortum meets the reporting requirements of the Caring for Climate initiative by annually participating in the assessment in the CDP's climate change survey and by publishing its response on the CDP website.





Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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Reporting principles

Reported GRI disclosures

Assurance report

## Reported GRI disclosures

This Sustainability Report 2017 references the following Disclosures from the GRI Topic-specific Standards presented in the table.  
All the standards are from the 2016 version.

DISCLOSURE	DESCRIPTION	SECTION
<b>GRI 103: MANAGEMENT APPROACH</b>		
103-1	Explanation of the material topics	▶ Sustainability approach / Key sustainability topics ▶ Appendix 1: Sustainability management by topic Additionally reported by topic
103-2	The management approach and its components	▶ Sustainability approach / Governance and management ▶ Sustainability approach / Policies and commitments ▶ Appendix 1: Sustainability management by topic ▶ Sustainability approach / Business ethics and compliance ▶ Environmental responsibility / Environmental non-compliances and incidents ▶ Social responsibility / Human rights
103-3	Evaluation of the management approach	▶ Appendix 1: Sustainability management by topic Additionally reported by topic

DISCLOSURE	DESCRIPTION	SECTION
<b>ECONOMIC RESPONSIBILITY</b>		
<b>GRI 201: Economic performance</b>		
201-1	Direct economic value generated and distributed	▶ Economic responsibility / Economic impacts
201-2	Financial implications and other risks and opportunities due to climate change	▶ Environmental responsibility / Climate change mitigation ▶ Financials / Operating and financial review / Risk management
201-3	Defined benefit plan obligations and other retirement plans	▶ Financials / Notes to the consolidated financial statements / 30 Pension obligations
201-4	Financial assistance received from government	▶ Economic responsibility / Economic impacts
<b>GRI 205: Anti-corruption</b>		
205-1	Operations assessed for risks related to corruption	▶ Sustainability approach / Business ethics and compliance
205-2	Communication and training about anti-corruption policies and procedures	▶ Sustainability approach / Business ethics and compliance
205-3	Confirmed incidents of corruption and actions taken	▶ Sustainability approach / Business ethics and compliance
<b>GRI 206: Anti-competitive Behavior</b>		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	▶ Sustainability approach / Business ethics and compliance
<b>Nuclear Plant Decommissioning</b>		
103	Management Approach	▶ Financials / Notes to the consolidated financial statements / 28 Nuclear related assets and liabilities
<b>System Efficiency</b>		
EU11	Average generation efficiency of thermal plants	▶ Environmental responsibility / Improving energy efficiency / Energy intensity

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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## Reporting principles

## Reported GRI disclosures

## Assurance report

DISCLOSURE	DESCRIPTION	SECTION
<b>ENVIRONMENTAL RESPONSIBILITY</b>		
<b>GRI 301: Materials</b>		
301-1	Materials used by weight or volume	► Environmental responsibility / Improving energy efficiency / Fuel consumption
301-2	Recycled input materials used	► Environmental responsibility / Improving energy efficiency / Fuel consumption ► Environmental responsibility / Circular economy
<b>GRI 302: Energy</b>		
302-1	Energy consumption within the organisation	► Environmental responsibility / Improving energy efficiency / Fuel consumption ► Environmental responsibility / Sustainable energy production ► Environmental responsibility / Improving energy efficiency / Energy intensity
302-3	Energy intensity	► Environmental responsibility / Improving energy efficiency / Energy intensity
302-4	Reduction of energy consumption	► Environmental responsibility / Improving energy efficiency
<b>GRI 303: Water</b>		
303-1	Water withdrawal by source	► Environmental responsibility / Water use
<b>GRI 304: Biodiversity</b>		
304-3	Habitats protected or restored	► Environmental responsibility / Biodiversity

DISCLOSURE	DESCRIPTION	SECTION
<b>GRI 305: Emissions</b>		
305-1	Direct (Scope 1) GHG emissions	► Environmental responsibility / Climate change mitigation / Greenhouse gas emissions
305-2	Energy indirect (Scope 2) GHG emissions	► Environmental responsibility / Climate change mitigation / Greenhouse gas emissions
305-3	Other indirect (Scope 3) GHG emissions	► Environmental responsibility / Climate change mitigation / Greenhouse gas emissions
305-4	GHG emissions intensity	► Environmental responsibility / Climate change mitigation / Greenhouse gas emissions
305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	► Environmental responsibility / Emissions into air
<b>GRI 306: Effluents and Waste</b>		
306-1	Water discharge by quality and destination	► Environmental responsibility / Water use
306-2	Waste by type and disposal method	► Environmental responsibility / Circular economy / Waste and by-products
306-3	Significant spills	► Environmental responsibility / Environmental non-compliances and incidents
<b>GRI 307: Environmental Compliance</b>		
307-1	Non-compliance with environmental laws and regulations	► Environmental responsibility / Environmental non-compliances and incidents
<b>GRI 308: Supplier Environmental Assessment</b>		
308-2	Negative environmental impacts in the supply chain and actions taken	► Economic responsibility / Supply chain management / Sustainable supply chain

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	Appendices
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## Reporting principles

## Reported GRI disclosures

## Assurance report

DISCLOSURE	DESCRIPTION	SECTION
<b>SOCIAL RESPONSIBILITY</b>		
102-8	Information on employees and other workers	▸ Social responsibility / Employees
102-41	Collective bargaining agreements	▸ Social responsibility / Employees / Employee-employer relations
<b>GRI 401: Employment</b>		
401-1	New employee hires and employee turnover	▸ Social responsibility / Employees
<b>GRI 403: Occupational Health and Safety</b>		
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	▸ Social responsibility / Safety and security / Occupational and operational safety ▸ Social responsibility / Employees / Employee wellbeing
<b>GRI 404: Training and Education</b>		
404-1	Average hours of training per year per employee	▸ Social responsibility / Employees / Employee development
404-2	Programs for upgrading employee skills and transition assistance programs	▸ Social responsibility / Employees / Employee development
404-3	Percentage of employees receiving regular performance and career development reviews	▸ Social responsibility / Employees / Employee development
<b>GRI 405: Diversity and Equal Opportunity</b>		
405-1	Diversity of governance bodies and employees	▸ Social responsibility / Employees / Diversity and equal opportunity ▸ Governance / Corporate governance statement / Board of directors
405-2	Ratio of basic salary and remuneration of women to men	▸ Social responsibility / Employees / Diversity and equal opportunity
<b>GRI 406: Non-discrimination</b>		
406-1	Incidents of discrimination and corrective actions taken	▸ Social responsibility / Employees / Diversity and equal opportunity
<b>GRI 407: Freedom of Association and Collective Bargaining</b>		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	▸ Social responsibility / Employees / Employee-employer relations ▸ Economic responsibility / Supply chain management / Sustainable supply chain
<b>GRI 408: Child Labor</b>		
408-1	Operations and suppliers at significant risk for incidents of child labor	▸ Social responsibility / Human rights

DISCLOSURE	DESCRIPTION	SECTION
<b>GRI 409: Forced or Compulsory Labor</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	▸ Social responsibility / Human rights
<b>GRI 412: Human Rights Assessment</b>		
412-1	Operations that have been subject to human rights reviews or impact assessments	▸ Social responsibility / Human rights
412-2	Employee training on human rights policies or procedures	▸ Social responsibility / Human rights
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	▸ Social responsibility / Human rights
<b>GRI 413: Local Communities</b>		
413-2	Operations with significant actual and potential negative impacts on local communities	▸ Social responsibility / Corporate citizenship
<b>GRI 414: Supplier Social Assessment</b>		
414-2	Negative social impacts in the supply chain and actions taken	▸ Economic responsibility / Supply chain management / Sustainable supply chain
<b>GRI 415: Public Policy</b>		
415-1	Political contributions	▸ Sustainability approach / Business ethics and compliance
<b>GRI 417: Marketing and Labeling</b>		
417-3	Incidents of non-compliance concerning marketing communications	▸ Social responsibility / Product responsibility
<b>GRI 419: Socioeconomic Compliance</b>		
419-1	Non-compliance with laws and regulations in the social and economic area	▸ Sustainability approach / Business ethics and compliance ▸ Social responsibility / Employees / Diversity and equal opportunity ▸ Social responsibility / Human rights ▸ Social responsibility / Product responsibility
<b>Disaster/Emergency Planning and Response</b>		
103	Management Approach	▸ Social responsibility / Safety and security / Corporate security
<b>Access</b>		
EU30	Average plant availability factor	▸ Social responsibility / Security of supply

# Independent limited assurance report on Fortum's Greenhouse Gas Emissions 2017

## To the Management of Fortum Corporation

We have been engaged by Fortum Corporation (hereafter: Fortum) to provide a limited assurance on Fortum's Fossil Greenhouse Gas Emissions (hereafter: GHG Emissions) broken down by scope 1, 2 and 3 for the reporting period of January 1, 2017 to December 31, 2017 (hereafter: GHG Emissions Disclosures). The information subject to the assurance engagement is presented in the section "Greenhouse gas emissions" of Fortum's sustainability reporting 2017 (hereafter: GHG Reporting).

## Management's responsibility

Management is responsible for the preparation of the GHG Reporting in accordance with the reporting criteria as set out in Fortum's reporting principles and the Greenhouse Gas Protocol (hereafter: GHG Protocol). This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of the GHG Reporting that are free from material misstatement, whether due to fraud or error, selecting and applying appropriate criteria and making estimates that are reasonable in the circumstances.

## Assurance provider's responsibility

Our responsibility is to express a limited assurance conclusion on the reported GHG Emissions Disclosures within Fortum's GHG Reporting based on our engagement. Our assurance report is made in accordance with the terms of our engagement with Fortum. We do not accept or assume responsibility to anyone other than Fortum for our work, for this assurance report, or for the conclusions we have reached.

We conducted our assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3410 to provide a limited assurance on performance data. This Standard requires that we comply with ethical requirements and plan and

perform the assurance engagement to obtain a limited assurance whether any matters come to our attention that cause us to believe that the GHG Emissions Disclosures have not been presented, in all material respects, in accordance with the reporting criteria.

We did not perform any assurance procedures on the prospective information, such as targets, expectations and ambitions, disclosed in the GHG Reporting. Consequently, we draw no conclusion on the prospective information.

A limited assurance engagement with respect to the GHG Emissions Disclosures involves performing procedures to obtain evidence about the reported GHG Emissions. The procedures performed depend on the practitioner's judgment, but their nature is different from, and their extent is less than, a reasonable assurance engagement. It does not include detailed testing of source data or the operating effectiveness of processes and internal controls and consequently they do not enable us to obtain the assurance necessary to become aware of all significant matters that might be identified in a reasonable assurance engagement.

Our procedures on this engagement included:

- A review of management systems, reporting and data compilation processes
- Selected interviews of persons conducting scope 1, 2 and 3 analysis and data owners
- Review of assumptions and emission factors used in calculations
- Analytical testing of consolidated data
- Testing of source data on spot check basis

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

## Our independence, quality control and competences

We complied with Deloitte's independence policies which address and, in certain cases, exceed the requirements of the International Federation of Accountants Code of Ethics for Professional

Accountants in their role as independent assurance providers and in particular preclude us from taking financial, commercial, governance and ownership positions which might affect, or be perceived to affect, our independence and impartiality and from any involvement in the preparation of the report. We have maintained our independence and objectivity throughout the year and there were no events or prohibited services provided which could impair our independence and objectivity.

Deloitte Oy applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. This engagement was conducted by a multidisciplinary team including assurance and sustainability expertise with professional qualifications. Our team is experienced in providing sustainability reporting assurance.

## Conclusion

On the basis of the procedures we have performed, nothing has come to our attention that causes us to believe that the information subject to the assurance engagement is not prepared, in all material respects, in accordance with the GHG Protocol or that the GHG Emissions Disclosures are not reliable, in all material respects, with regard to the reporting criteria.

Our assurance statement should be read in conjunction with the inherent limitations of accuracy and completeness of the GHG Reporting.

Helsinki 28 February 2018

Deloitte Oy

Reeta Virolainen  
Authorized Public Accountant

Lasse Ingström  
Authorized Public Accountant



## Appendix I: Sustainability management by topic

Sustainability management in the areas of economic responsibility, environmental responsibility and social responsibility is described in the accompanying tables. Additionally, more detailed information about the management of different topics and impacts as well as about the measures, processes and projects is presented by topic in this report. Fortum's "Raise a concern" channel has been described in the section Business ethics and compliance. The purpose of the sustainability management approach is to ensure our operational compliance and to avoid, mitigate and compensate the adverse impacts from our operations and to increase the positive impacts.

### Management of economic responsibility

	Description
Targets and approach	<p>For Fortum economic responsibility means competitiveness, performance excellence and market-driven production that creates long-term value for our stakeholders and enables sustainable growth. Satisfied customers are key to our success and active consumers will have a crucial role in the future energy system. Fortum has indirect responsibility for its supply chain. We conduct business with companies that act responsibly.</p> <p>Each new research and development project is assessed against the criteria of carbon dioxide emissions reduction and resource efficiency. Likewise, new investment proposals are assessed against sustainability criteria as part of Fortum's investment assessment and approval process. In our investments we seek economically profitable alternatives that provide the opportunity to increase capacity and reduce emissions.</p> <p>We measure financial performance with the return on capital employed (target: at least 10%) and capital structure (target: comparable net debt/EBITDA around 2.5). The realisation of financial targets in 2017 is reported in the Financial performance and position section of the <b>► Financials</b>.</p>
Policies and commitments	<p>The financial management system is based on Group-level policies and their specifying instructions, and on good governance, effective risk management, sufficient controls and the internal audit principles supporting them. Other key elements steering financial management are presented in the section <b>► Policies and commitments</b> and in <b>► Appendix 2</b>.</p>
Responsibilities	<p>The CFO and the Group's Financial unit, division management, and ultimately the CEO and the Board of Directors are responsible for issues related to finances and financial statements and for broader financial responsibility issues.</p> <p>Our sustainability responsibilities are presented in the section <b>► Governance and management</b>.</p>
Monitoring and follow-up	<p>The Board decides on the company's financial targets as a part of the annual business planning process. Realisation of the targets is monitored on monthly basis both at the division level and by Fortum Executive Management. Fortum's management monitors the realisation of financial targets quarterly as part of the business performance assessment, and key indicators are regularly reported to Fortum's Board of Directors. Financial key indicators related to investments are monitored in divisions' investment forums and by Fortum Executive Management. We report regularly on the direct and indirect financial impacts on our most important stakeholder groups. Fortum also uses the GRI Sustainability Reporting Standards indicators to measure economic responsibility.</p>

### Management of environmental responsibility

	Description
Targets and approach	<p>Fortum's aim is to provide its customers with environmentally benign products and services. We strive to continuously reduce the environmental impacts of our operations by using best available practices and technologies. We emphasise a circular economy, resource and energy efficiency, the use of waste and biomass, and climate change mitigation in our environmental responsibility.</p> <p>Our company's know-how in carbon dioxide-free hydro and nuclear power production and in energy-efficient combined heat and power production, investments in solar and wind power, as well as solutions for sustainable cities play a key role in environmental responsibility. We measure the realisation of the environmental responsibility with the following indicators, for which we have set <b>► Group-level targets</b>:</p> <ul style="list-style-type: none"> <li>• Specific CO<sub>2</sub> emissions</li> <li>• Energy efficiency</li> <li>• Major EHS incidents</li> <li>• Quality of investigation process of occupational accidents, major EHS incidents, and near misses</li> <li>• GAP index, quality of implementation of EHS minimum standards (2018)</li> </ul> <p>Additionally, we have a Group-level target for the number of supplier audits.</p>
Policies and commitments	<p>Environmental management is based on Fortum's Sustainability Policy. Other key elements steering environmental management are presented in the section <b>► Policies and commitments</b> and in <b>► Appendix 2</b>.</p> <p>We assess environmental risks as part of the Group's risk assessment process. Risk assessment process is reported in the section Operating and financial review/Risk management of the <b>► Financials</b>.</p>
Responsibilities	<p>Our sustainability responsibilities are presented in the section <b>► Governance and management</b>.</p>
Monitoring and follow-up	<p>The Group's key indicators are reported regularly to Fortum's Board of Directors and are published in Fortum's Interim Reports. Major EHS incidents are reported monthly, specific carbon dioxide emissions and the quality of investigation process are reported quarterly, and energy efficiency improvements as well as the GAP index are reported annually to Fortum Executive Management.</p> <p>The divisions and sites follow and develop their operations with audits required by environmental management systems. Internal and external auditors regularly audit our ISO 14001 standard-compliant management system.</p> <p>The CO<sub>2</sub> emissions of plants within the sphere of the EU's emissions trading scheme are audited annually on a per plant basis by an external verifier accredited by the emissions trading authority. The verification addresses the reliability, credibility and accuracy of the monitoring system and the reported data and information relating to emissions. The plants must annually submit to the authorities a verified emissions report of the previous calendar year's carbon dioxide emissions.</p> <p>Our supply chain monitoring system covers also environmental responsibility and is presented in the section Management of social responsibility: Human rights.</p> <p>We map our stakeholders' views annually with the One Fortum survey and with separate sustainability surveys.</p>

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	<u>Appendices</u>
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## Management of social responsibility: Employees

	Description
Targets and approach	<p>We aspire to be a responsible employer who invests in the development and wellbeing of our employees. We aim to be a safe workplace for our employees and for the contractors and service providers working for us.</p> <p>We measure the realisation of the social responsibility with the following indicators, for which we have set <b>►Group-level targets</b>:</p> <ul style="list-style-type: none"> <li>• Total recordable injury frequency (TRIF), own personnel (2017)</li> <li>• Lost workday injury frequency (LWIF), own personnel (2017)</li> <li>• Lost workday injury frequency (LWIF), contractors (2017)</li> <li>• Lost workday injury frequency (LWIF), own personnel and contractors (2018)</li> <li>• Number of severe occupational accidents</li> <li>• Quality of investigation process of occupational accidents, major EHS incidents, and near misses</li> <li>• GAP index, quality of implementation of EHS minimum standards (2018)</li> <li>• Percentage of sickness-related absences</li> </ul>
Policies and commitments	<p>Safety management is based on Fortum's Sustainability Policy. Other key principles steering labour practices and safety management are presented in the section <b>►Policies and commitments</b> and in <b>►Appendix 2</b>.</p> <p>We assess safety risks as part of the Group's risk assessment process. Everyday safety management is guided with about 20 Group-level Environment, Health and Safety (EHS) instructions.</p>
Responsibilities	<p>Our sustainability responsibilities are presented in the section <b>►Governance and management</b>.</p>
Monitoring and follow-up	<p>Fortum employee and contractor injury frequencies and the number of serious occupational accidents are reported monthly to Fortum Executive Management. The Group's key indicators are reported regularly to Fortum's Board of Directors and are published in Fortum's interim reports. The divisions and sites follow and develop their operations with audits required by safety and quality management systems. Internal and external auditors regularly audit our OHSAS 18001 standard-compliant management system.</p> <p>Work wellbeing, indicated as a percentage of sickness-related absences is reported to the Fortum Executive Management every quarter. In addition, work wellbeing is monitored through other Group-level indicators, such as the ratio between actual retirement age and the statutory start of the retirement pension. Feedback about the personnel's wellbeing and work satisfaction is received also from wellbeing survey as part of the Energise Your Day programme and from employee survey.</p> <p>We map our stakeholders' views annually with the One Fortum survey and with separate sustainability surveys.</p>

## Management of social responsibility: Human rights

	Description
Targets and approach	<p>Fortum supports and respects internationally recognised human rights, which are included in the key human rights agreements. Our goal is to operate in accordance with the UN Guiding Principles on Business and Human Rights.</p> <p>Our social responsibility includes taking care of our own employees and the surrounding communities. We advance responsible operations in our supply chain and more broadly in society.</p> <p>We have set a Group-level target for the number of supplier audits. Targets related to our own personnel are presented in the section Management of social responsibility: Employees.</p>
Policies and commitments	<p>Key elements steering human rights management are presented in the section <b>►Policies and commitments</b> and in <b>►Appendix 2</b>.</p>
Responsibilities	<p>Our sustainability responsibilities are presented in the section <b>►Governance and management</b>.</p>
Monitoring and follow-up	<p>The key tools for monitoring the impacts of human rights are country and partner risk assessments, supplier qualification, and supplier audits. A sustainability assessment is carried out for our investment projects and takes into consideration also human rights. The assessments are presented to Fortum Executive Management and to the Board of Directors when needed.</p> <p>Fortum has set a Group target for the number of audits, and the audits that are conducted are reported in our interim reports. For coal, we use the Bettercoal Code and tools in assessing the sustainability of the supply chain.</p> <p>Monitoring systems related to our own personnel are presented in the section Management of social responsibility: Employees.</p> <p>We map our stakeholders' views annually with the One Fortum survey and with separate sustainability surveys.</p>

Sustainability approach	Economic responsibility	Environmental responsibility	Social responsibility	Reporting principles and assurance	<u>Appendices</u>
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## Management of social responsibility: Business ethics (incl. Anti-corruption and anti-bribery)

	Description
Targets and approach	<p>We believe that an excellent financial result and ethical business are intertwined. We follow good business practices and ethical principles in all our operations. We work within the framework of competition laws and Group competition instructions. We avoid all situations where our own personal interests may conflict with the interests of the Fortum Group. Notably, we never accept or give a bribe or other improper payment for any reason.</p> <p>Our customer relations are based on honesty and trust. We treat our suppliers and subcontractors fairly and equally. We select them based on their merit and we expect them to consistently comply with our requirements and with Fortum's Supplier Code of Conduct.</p>
Policies and commitments	Key elements steering social and compliance management are presented in the section <b>► Policies and commitments</b> and in <b>► Appendix 2</b> .
Responsibilities	Our sustainability responsibilities are presented in the section <b>► Governance and management</b> .
Monitoring and follow-up	<p>Suspected misconduct and measures related to ethical business practices and compliance with regulations are regularly reported to the Fortum Executive Management and to the Board's Audit and Risk Committee.</p> <p>Fortum has a <b>► grievance channel</b> available to all stakeholder groups for the reporting of misconduct.</p> <p>Monitoring systems related to the supply chain are presented in the section Management of social responsibility: Human rights.</p>

## Management of social responsibility: Product responsibility

	Description
Targets and approach	<p>Uninterrupted supply of energy is necessary for a functioning society. We ensure the reliable operation of our power plants with preventive maintenance and continuous monitoring.</p> <p>Our goal is to present products and services truthfully in all our marketing and communication materials. We strictly follow responsible marketing communication guidelines and the regulations for environmental marketing. We assume responsibility for customer data protection and comply with the valid regulations related to the handling of customer data. We have set Group-level targets for the energy availability of CHP plants and for customer satisfaction and reputation indices.</p>
Policies and commitments	Key elements steering product responsibility management are presented in the section <b>► Policies and commitments</b> and in <b>► Appendix 2</b> .
Responsibilities	Our sustainability responsibilities are presented in the section <b>► Governance and management</b> .
Monitoring and follow-up	<p>The Group's key indicators are reported regularly to Fortum's Board of Directors and are published in Fortum's interim reports.</p> <p>Figures related to the availability of power plants are reported monthly to Fortum Executive Management.</p> <p>Customer satisfaction is monitored annually with the One Fortum survey. The results of the survey are presented to Fortum's management and they are used to develop the business.</p>

## Appendix 2: Fortum's main internal policies and instructions guiding sustainability

## Contact information

► SUSTAINABILITY CONTACT INFORMATION ON OUR WEBSITE

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