

Join the
change

 **fortum**



CEO Letter 2016

Join the change

Dear stakeholders,

2016 was a fascinating year of learning for one who came from outside the energy industry. Ten years in telecom and a little more in technology and machine building gave me valuable tools that are useful in the ongoing energy transition. However, a significant part of the utility business logic will continue to be industry specific.

Fortum has in the past few years made several important strategic decisions. The divestment of the distribution business was, without a doubt, the most significant one. In February 2016, we published a high-level strategy framework describing our way forward. During the Capital Markets Day in November our priorities, growth drivers and planned capital allocation were expanded in more depth.

Fortum's strategy

CO₂-free power generation and deep knowledge about how to operate generation assets is in the very core of Fortum's DNA. It is complemented by our thorough understanding of power markets and trading as well as our deep expertise in combined heat and power production. This is the solid foundation that we build our future on.

There are four growth areas in our strategy and they have a clear priority order. Growth engine number one and our first priority is to drive productivity and industry transformation. Growth engine number two and our second priority is solutions for sustainable cities. Growth engines three and four – growing in solar and wind and building new energy ventures – are targeting to secure our long-term competitiveness in the future energy system.

The timing of our growth efforts and the redeployment of cash will take place in two phases, and a significant part of the redeployment is expected to take place during 2017. Our objective is to maximise our cash flow, while targeting a net debt to EBITDA ratio of 2.5. We believe that the European power generation industry will consolidate and we want to have a significant role in driving the change. Broadening the scope of our City Solutions business will also offer growth opportunities.

We will utilise the competencies we have today in our combined heat and power production and in the acquired Ekokem business, and build on these combined strengths. The acquisition of Ekokem, was therefore an essential step in implementing our strategy. The cash flow generated as a result of phase one will be used for 1) securing a competitive dividend; and 2) investments into phase two.

Phase two comprises growth engines three and four as described above. We have already started investments in solar and wind, in the Nordics, Russia and India. They are lower in priority when it comes to capital allocation, but we have a clear target to accumulate a gigawatt-scale portfolio in the coming years.

The final priority is New Ventures, in which we will allocate approximately EUR 100-200 million into new innovations and start-ups with disruptive potential. This is very important for our long-term competitiveness, since many parts of the energy system of the future will be significantly different from the one known today. Here, too, we have already acted by investing in companies like Info24, Chempolis and Exeger, which are small investments, but have good potential for the future and are a good fit with Fortum's business.

Vision and Mission

We updated our vision and mission during the autumn of 2016. Our updated vision – 'For a cleaner world' – goes beyond just clean energy production, it expresses our commitment to fuel and resource efficiency and how we enable our stakeholders, customers and society to make sustainable choices. Also here our acquisition of Ekokem plays an important role. We wanted to create a vision that clearly incorporates also the circular economy aspects, including its connections to the energy system. It's not only about energy production, it's also the wider added value potential of fuels like biomass and waste. Our new strategy clearly pronounces our commitment and the continuous alignment of our actions with the principles of the UN Global Compact and Caring for Climate initiatives.

In our mission we state that "we engage our customers and society to drive the change towards a cleaner world." In saying



so, we invite all our stakeholders – society, our employees, our shareholders and our partners – to join us in the change. Still today approximately 80% of the world's primary energy demand is based on fossil fuels, so decarbonisation needs to be a process. Our role is to accelerate the change by reshaping the energy system, improving resource efficiency and providing smart solutions for the future. More and more of this will be digitally-enabled. And naturally we believe that we can do this in a way that delivers excellent shareholder value.

Megatrends

The global megatrends affecting our industry are quite well-known and impact many other businesses as well: climate change, urbanisation, digitalisation and active customers. Climate change and the need for decarbonisation and resource efficiency is the one changing our industry in a profound way.

The Paris Agreement sets a target to limit global warming below 2°C above pre-industrial levels while pursuing efforts to limit the increase to 1.5°C. The International Energy Agency has estimated that in order to fulfil the targets of the Paris Agreement, approximately USD 16,500 billion will have to be invested in the world's energy system. It's obvious that that money will not come from government budgets alone. We strongly believe that the only way forward will be market mechanisms that remunerate private investments. We continue to advocate for market-based, technology-neutral solutions and efficient carbon pricing as tools for decarbonisation.

The progress in renewable energy technology is very encouraging. The investment cost of new renewables is declining rapidly and is causing fundamental changes in the energy system. The cost of solar has dropped approximately 80% in five years, and we have seen recent drops in the levelised cost of electricity for on-shore wind.

In addition, recycling and the circular economy create opportunities for companies like Fortum. The amount of waste the world is producing is roughly expected to double between 2015 and 2025. In the growing megacities of Asia, waste is a massive and rapidly growing problem that will create additional opportunities. Also, in the EU alone, about 30% of municipal waste today goes to landfills, which will be restricted in the future.

A third very big shift will be the role of active customers and, in particular, the role of the retail electricity business model. Digitalisation enables new scalable services to consumers, and the growth of decentralised generation means that many consumers will become "prosumers" with their own production as well as consumption. Consumers will also play an important role in balancing the increasingly intermittent energy system.

Our operating market in 2016

2016 was a challenging year in many respects. The beginning of the year was characterised by increased commodity market volatility; especially coal and oil prices were very low. Nordic water reservoirs were clearly above the long-term average, creating pressure on electricity prices, and the British EU exit vote also created uncertainty.

From the second quarter onward, the power market started showing positive signs, mainly driven by the improving commodity market prices. Commodity prices increased throughout the year and are now clearly higher than at the end of 2015. In the Nordic system the role of hydro-power is very important. Typically, the annual hydro-power production is around 200 terawatt hours (TWh), but it can vary by 40 TWh in either direction between wet and dry years. These changes have been quite fast. At the beginning of 2016 Nordic water reservoirs were 15 TWh above the long-term average, and by the end of 2016 they had dropped 23 TWh to 8 TWh below the long-term average. There is a direct correlation to how much we can produce. In 2016, our hydro production was almost 20% lower than the year before. The varying hydrological situation in combination with the changes in commodity prices caused very high volatility in power forwards, especially for 2017.

Our comparable operating profit for continuing operations was EUR 644 million, down 20% from 2015. The decline was mainly due to significantly lower hydro-power production and the lower achieved power price.

Operationally, the year met our expectations, as availability in our plants was good and ongoing projects progressed as planned. We completed our extensive investment programme in Russia in spring 2016, and the new capacity has been the key driver for the earnings growth in the Russia division.

Also positive was the Swedish political agreement on energy policy in June and the government's budget proposal in September. The budget proposal included the timetable for lowering the real-estate tax on hydro assets and for phasing out the nuclear capacity tax over the coming years. We are very pleased with the swift decision and the finalisation of the timetable, which gives regulatory stability to operate the plants and plan the necessary safety investments. This is completely in line with what we have been advocating for: a regulation and taxation policy where the different forms of CO₂-free production are treated more equally.

Going forward

The number one priority for Fortum going forward is to ensure a controlled transition towards a low-carbon energy system. Accordingly, our CO₂-free production should increase. It is important to recognise that the development is not necessary linear. Sometimes it may seem that we are taking one step back before taking two steps forward.

To the extent we have fossil production, our goal and strategy is, of course, to make it as efficient as possible. Our specific CO₂ emissions from power generation, measured as grams of CO₂ per kilowatt hour produced (gCO₂/kWh), puts us among the lowest emitters of all utilities in Europe. In 2016, 96% of our power generation in the European Union was CO₂-free. Including the Russian power generation, which is mainly gas-based, and our Indian solar power, 62% is still CO₂-free, and our specific CO₂ emissions of 173 gCO₂/kWh puts us in the category of one of the cleanest utilities in Europe.

The energy sector is among the key sectors that can contribute to this mitigation, but the focus should not be solely on electricity generation. We at Fortum have decided to take an active role in mitigating climate change also by creating solutions for sustainable cities, by developing new products and services to help our customers mitigate their carbon footprint, and by building new energy ventures that we believe will play an important role in the future sustainable energy system.

We do this because it is the right thing to do for society, for our customers and for our shareholders. By being at the forefront of creating the new sustainable energy system, I am confident we will create value, stronger earnings per share, and a good platform for producing stable, sustainable and over time increasing dividends.

I would like to thank all our employees and partners for their excellent work in 2016. Thank you also to our customers and shareholders for your continued trust in us. I look forward to continuing to work together with all of you for a cleaner world.

Pekka Lundmark
President and CEO

Megatrends and the energy industry

The world we live in is changing at an ever-increasing pace. Staying competitive requires companies to be very aware of the underlying megatrends and to take an active role in driving the change for a better future.

This is especially true for the energy industry, as decarbonisation of the energy system plays an essential role in meeting the environmental targets of society. Only by working actively to decarbonise the energy system, significantly expand the share of renewable energy in the energy markets, reduce the emissions, increase the efficiency of older assets, and increase the amount of flexibility in the system can we mitigate climate change.

There are four megatrends that shape the energy sector: Climate change and resource efficiency, Urbanisation, Digitalisation & new technologies, and Active customers. These megatrends will bring profound changes not only to how energy is produced and sold to customers, but also to how it is consumed. The megatrends will also push to maximise the value of resources, such as waste and biomass.

Climate change and resource efficiency

Climate change and global warming is one of the largest challenges facing mankind. The problem is global, and global efforts and commitment are required in order to solve it. Discussions about climate change have been ongoing for decades, but actions have not been sufficient, due to lack of commitment, although positive developments have been seen in some regions.

With the adoption of the Paris Agreement in December 2015, mitigation of climate change rose to the top of the agenda all over the world. The commitment to mitigate climate change in order to limit global warming is now so widely spread that it affects every industry. The effects can be seen everywhere, e.g. the increase in low- or zero-emission housing, better fuel efficiency, the increase in the number of electric vehicles, the rapid growth in solar and wind power production, fuel switches to more environmentally friendly fuels, increased resource efficiency and waste recycling.

The whole energy industry is very heavily affected by this megatrend. This can be seen in the transition to low-carbon and renewable generation, which increases the share of intermittent

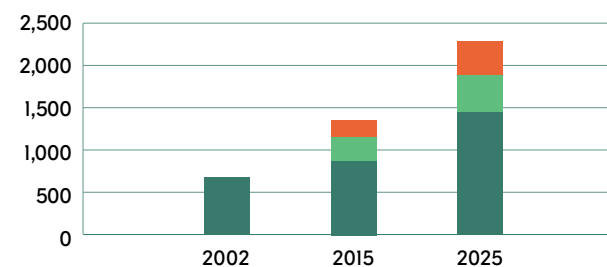
power production and the need for demand response and flexible generation capacity. The increased need for resource efficiency paves the way for circular economy solutions.

Urbanisation

The second megatrend is urbanisation. Over the last decades an ever-increasing share of the world's population has moved to urban areas and the trend is continuing. This megatrend is very evident in the emerging markets of Asia, where an increasing share of the global GDP growth comes from the growing urban areas.

For many people in developing countries urbanisation might also mean electrification as 1.2 billion people still lack access to electricity. Increased urbanisation creates a demand for sustainable, efficient and reliable utility services. In many areas of the world the current heating, cooling and energy production is based on old technologies with high emissions and low efficiency. The increasing urbanisation creates a demand for utilities with efficient solutions for heating, cooling and electricity production.

Global Municipal Solid Waste Development (MSW), mtpa



■ Landfilling/other
■ Waste to Energy
■ Recycling

Source: World Bank Global Review of Solid Waste Management, March 2012; Fortum view



2/3 of global emissions are from the production and use of energy

Source: World Energy Outlook Special Report on Energy and Climate Change, IEA, June 2015



**2/3 of the world's population
will live in urban areas by 2050**

Source: World Urbanization Prospects by United Nations,
Department of Economic and Social Affairs, Population Division, 2014

New solutions are also needed for transportation and waste management. The amount of waste is expected to nearly double between 2015 and 2025. Even with the increase in recycling and waste-to-energy solutions, the global municipal solid waste going to landfills is projected to grow over the coming years.

Digitalisation & new technologies

Technology development has always been a driver for change. Digitalisation as a megatrend is further fuelled by the accelerated pace of commercialisation and adoption of new technologies. The processing power of devices is increasing and the amount of connected devices is growing exponentially. This in combination with an ever-increasing amount of data readily available for consumers and businesses creates the perfect breeding ground for innovation.

This megatrend affects all companies and businesses. One example of how technological innovations can quickly transform industries is Uber and its impact on the taxi business. Rapid technological development and high adoption rates quickly drive down the costs for new technologies.

In the energy sector the cost of wind and solar power is decreasing. In the next 25 years the amount of solar power is expected to grow 12-fold and wind power more than 3-fold. This development leads to an increasing share of intermittent power production and fewer running hours for traditional baseload power. This challenges the way the energy system has been functioning, where production has been able to adapt to the changing power demand of customers.

Digitalisation opens up for new storage and demand-response solutions, which could change the way the customer interacts with the market. There will be new ways to produce, market, sell and deliver products and services offered by utilities, start-ups and new market entrants. Through these services, customers can take an active part in balancing a future power system that is heavily dependent on intermittent power production.

Active customers

As new technologies are creating a market for new products, there is another megatrend driving the change: Active customers. Customers are becoming more conscious about their choices and how they affect society. Customers are more willing to participate in the energy markets, they are aware of what the new technologies enable, and they are demanding services and solutions for that, e.g. home automation, electrical vehicles with smart charging solutions, local power production and storage as well as demand-response solutions.

The market for prosumers (consumers who produce some of their own energy) is growing rapidly. They require solutions for storage and two-way power flows to/from their house, as they act both as consumers and producers of energy. This challenges how the energy markets traditionally have worked and offers great potential for innovation and growth.

The large majority of customers are not yet demanding these types of services; but as the services emerge, they can be expanded to the masses on a large scale, which will have profound effects on the whole market.

**Twenty years ago, less than 3 percent of the
world's population had a mobile phone;
now two-thirds of the world's population
has one, and one-third of all humans are
able to communicate on the Internet.**

Source: The four global forces breaking all the trends,
McKinsey Global Institute, April 2015

Market Development

In early 2016, many commodity prices reached long-term low price levels. This marked the bottom of a downward trend that had continued for many years. In February, coal prices¹ were as low as USD 36.50 per tonne. Since the price of coal is one of the main drivers for European power prices, this also heavily impacted Nordic power prices with the Nasdaq OMX forward price for 2017 dropping to as low as EUR 16.30 per MWh.

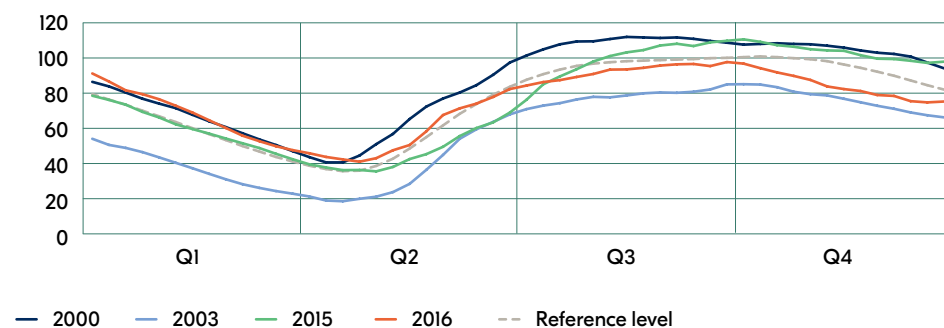
From February to December the markets were characterised mainly by increasing prices and high volatility, as markets peaked in early November. Coal prices almost doubled (USD 70.25 per tonne at year end), resulting in increasing power prices. At the same time, prices for CO₂ emission allowances (EUA) fluctuated between EUR 4 and 6 per tonne for most of 2016 and ended at EUR 6.5 per tonne at the end of the year, down from EUR 8.1 per tonne at the beginning of 2016. This added to the price volatility on the Nordic power market.

The hydrological situation changed to the drier during 2016 due to low precipitation in the Nordic area and high hydropower production mainly in Norway. Precipitation in Sweden was low

¹) API 2 Index for year 2017

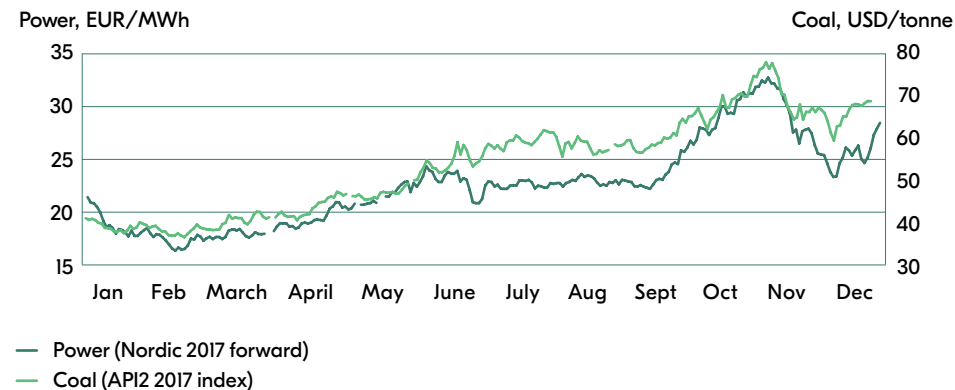


Nordic water reservoirs, energy content, TWh



Source: Nord Pool

Power and coal prices 2016



Source: Bloomberg

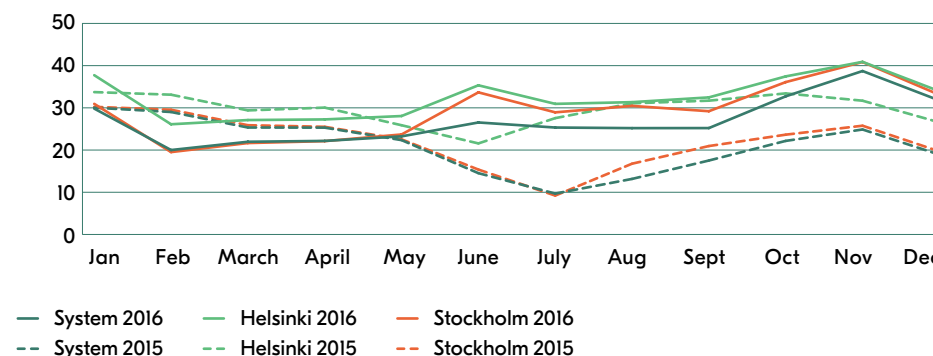
during 2016 resulting in lower hydropower production compared to 2015. At the beginning of 2016, the Nordic water reservoirs were at 98 TWh, which is 15 TWh above the long-term average and 18 TWh higher than a year earlier. By the end of the year, reservoirs were 8 TWh below the long-term average and 23 TWh lower than at the end of 2015.

The Nordic spot power prices at the beginning of 2016 were lower than in 2015. Due to increasing coal prices and the tightening hydrological situation the spot prices increased above the 2015 levels from the middle of the second quarter and stayed above the 2015 levels throughout 2016. The average system spot price during 2016 was EUR 26.9 per MWh, with the area price in Finland at EUR 32.4 per MWh and in Sweden SE3 (Stockholm) at EUR 29.2 per MWh. The increase was especially evident in the third quarter when the system spot price almost doubled from the exceptionally low level in 2015. The very low prices in 2015 were caused by high inflows and late snow melt.

Nordic electricity consumption in 2016 increased by 8 TWh to 390 TWh, mainly due to closer to long-term average temperatures compared to the warmer year in 2015; however, a modest basic demand growth seen in the Nordic countries also contributed to the increase in consumption.



Spot price development 2015 & 2016, EUR/MWh



Source: Nord Pool, Fortum

Strategy

We are ready to take the lead in driving the transformation towards a cleaner world

Our vision “For a cleaner world” reflects our ambition to drive the transformation towards a low-emissions energy system and optimal resource efficiency.

Our mission is to engage our customers and society to drive the change towards a cleaner world. Our role is to accelerate this change by reshaping the energy system, improving resource efficiency and providing smart solutions. This way we deliver excellent shareholder value.

Fortum's strategy

Fortum's strategy has four cornerstones: 1) Drive productivity and industry transformation, 2) Create solutions for sustainable cities, 3) Grow in solar and wind, and 4) Build new energy ventures.

Sustainability is an integral part of our strategy. The tight link between business operations and corporate responsibility underscores the importance of sustainability as a competitive advantage. In our operations, we give balanced consideration to economic, social and environmental responsibility.

Drive productivity and industry transformation

As the entire energy sector is transforming, our first priority is to participate in the consolidation of the generation business in Europe. This includes at least one sizable acquisition targeted to take place during 2017. This will maximise our opportunities for growth and value creation.

To ensure our competitiveness, we will continue to optimise our cost structure and asset portfolio in all businesses. We aim to reduce the fixed cost base according to our earlier announced plan, by EUR 100 million by the end of 2017. The progress so far has been good.

Create solutions for sustainable cities

The scope of our City Solutions has broadened to include efficient resource management within the circular economy. The Ekokem acquisition offers us a good platform for new types of solutions outside the traditional energy sector. Further organic- and/or

Megatrends

Climate change and resource efficiency
Urbanisation
Active customers
Digitalisation, new technologies



acquisition-based growth of City Solutions will also be considered, mainly in Europe.

Growing cities and urban areas are facing multiple challenges, such as high emissions from inefficient heating, cooling and electricity production, increasing amounts of waste, and high traffic pollution and noise. Fortum aims to use its expertise and experience to help cities solve these challenges sustainably and to support the building of a circular economy.

Mission

We engage our customers and society to drive the change towards a cleaner world. Our role is to accelerate this change by reshaping the energy system, improving resource efficiency and providing smart solutions. This way we deliver excellent shareholder value.

Strategy



Drive productivity and industry transformation



Create solutions for sustainable cities



Grow in solar and wind



Build new energy ventures

Must-win-battles

Put the customer in the centre

Establish a culture of speed and agility

Digitalise our business for maximum scalability

Create value from market volatility

Drive competitive markets and fair regulation

Grow in solar and wind

To secure our longer term competitiveness, we will continue to develop the solar and wind business. In wind, we will focus on areas closer to our current home markets in the Nordics and in Russia. In solar, the immediate focus is in India. The next step will focus on system integration, combining solar with other components, such as new consumer solutions, demand response, electric vehicles and storage.

We target a gigawatt-scale solar and wind portfolio. These technologies are rapidly maturing. At the same time, utility



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competences are becoming increasingly important as subsidy schemes are gradually being phased out and renewable energy production is becoming more market-based.

Build new energy ventures

We will acquire and invest in start-ups and funds that focus on energy-related technologies, because technological and digital disruption accelerate energy sector transformation. Start-ups have an increasingly important role in innovating both new technologies and business models in the changing energy industry landscape. Digitalisation will enable productivity improvements in the existing businesses and development of new customer offerings.

Our goal is to be in the forefront of energy technology and application development. To accelerate innovation and commercialisation of new offerings, we will strengthen our in-house focus on innovation and digitalisation, partner with global

leading suppliers, promising technology companies and research institutions, as well as make direct and indirect investments in start-ups with encouraging new innovations.

Our next strategic steps, in two phases

The execution of our strategy and the redeployment of cash will take place in two phases. A significant part of the redeployment is targeted to take place during 2017.

In the first phase, the goal is to maximise cash flow through balance sheet redeployment. Our first priority is to participate in the consolidation of the generation business in Europe. This will include at least one sizable acquisition targeted to take place during 2017. This is the area we know best, and we believe that this move will maximise our opportunities for growth and value creation.

We plan also to invest to broaden the City Solutions business scope, mainly in Europe – organically and/or through acquisitions.

The Ekokem acquisition in 2016 offers us a good platform for new types of circular economy solutions, while maintaining a strong connection to our traditional core, the energy system.

The resulting cash flow will be used to enable a competitive dividend and for investments into longer term competitiveness. In addition, Fortum will continue its cost structure and asset portfolio optimisation in all divisions.

The second phase of strategy implementation will focus on securing Fortum's longer-term competitiveness. This has already started through wind investments in our Nordic and Russian home markets and solar investments in India. The next steps will include solar-enabled system solutions, maximising the added value from waste and biomass, and minimising fossil emissions. In addition, new digital services, active consumers, electric traffic, new storage solutions and other potentially disruptive innovations will be included in Phase 2.

The Fortum Transformation

Sustainability and CO₂-free power generation have been part of Fortum's strategy for several decades. We believe that the energy system needs to transform to a system with substantially lower emissions, higher resource efficiency and a higher share of power generation based on renewables. In implementing our strategy we have worked to increase our CO₂-free power generation. We also have generation capacity based on fossil fuels, located mainly in Russia, and we have worked to increase its efficiency and reduce its specific emissions. We are focusing on increasing our solar and wind power capacity heavily over the coming years, and we are targeting a gigawatt-scale portfolio in solar and wind power.

Long-term focus on increasing CO₂-free power generation

Over the past decades Fortum has been working for a more sustainable world. We have increased our annual CO₂-free power generation from around 15 TWh in 1990 to 46 TWh in 2016. The development has not always been linear, as annual variations in hydropower production have a significant impact.

We have been advocating for market-based solutions to drive the necessary change in the energy system. We were among the early proponents for a market-based price on CO₂. In our own operations we have invested in CO₂-free power generation, and the carbon exposure of our production in Europe is among the lowest in Europe at 28 gCO₂/kWh in 2016. The respective figure for the Fortum overall was 173 gCO₂/kWh in 2016.

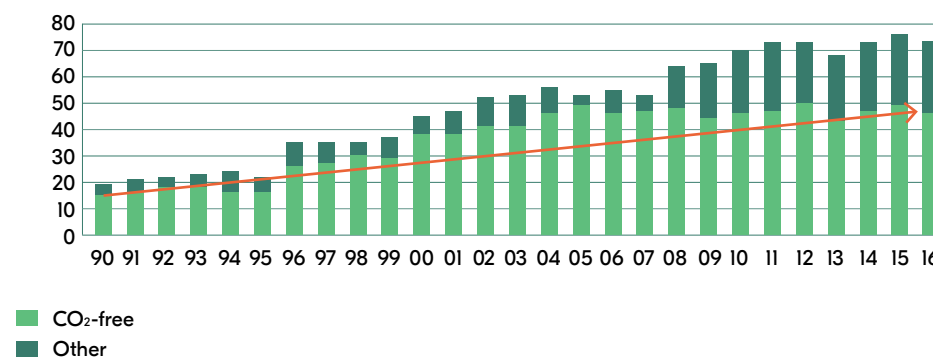
Increase efficiency and reduce specific emissions

In 2016, Fortum finalised the investment programme in Russia. Thereby our Russian power and heat generation capacity has increased substantially. By investing in high-efficiency combined power and heat plants, we have increased the power and heat output and at the same time substantially decreased the specific CO₂ emissions from our Russian power and heat production.

Fortum is now operating a fleet of power and heat plants with efficiency and emissions ranking among the best of our peers in Russia.



Fortum's power generation, TWh



We have increased our annual CO₂-free power generation from around 15 TWh in 1990 to 46 TWh in 2016.

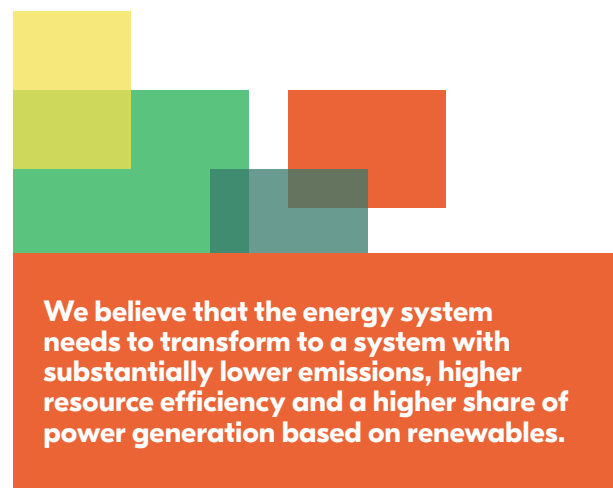
Grow in solar and wind

In addition to CO₂-free hydro and nuclear power production, we believe that solar and wind power will play an essential role in the future. Solar power is becoming one of the most competitive forms of new power generation in many parts of the world, and we are targeting investments of EUR 200-400 million in solar power in India.

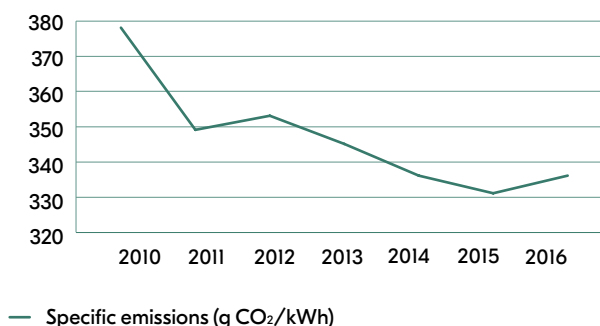
The market conditions in the Nord Pool area and in Russia are more suitable for wind power, and Fortum is increasing its investments heavily. Fortum is currently building the country's largest wind farm in Russia. In Sweden, Fortum is participating in the Blaiken wind park that is already operational and in the Solberg wind farm, that is due to be commissioned in 2018. In Norway, Fortum announced the purchase of one operational wind farm and two wind farm projects to be commissioned in 2018 and 2019, pending final investment decisions.

Our target in wind power is up to 1,000 MW in the Nord Pool area and up to 500 MW in Russia.

The growth target in solar and wind is substantial compared to the current solar and wind capacity of slightly less than 60 MW and would represent a more than 10% increase in Fortum's current total power generation capacity of more than 13,000 MW.



Russian specific CO₂ emissions from power and heat production



Fortum's wind and solar power generation capacity, MW

