

# Fossil-free living within one generation

Sustainability presentation, London

17 May 2019



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# Introduction



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# This is Vattenfall

## Basic facts

- One of Europe's largest producers of electricity and heat
- 100% owned by the Swedish state
- Main products: electricity, heat, gas and energy services
- Main markets: Sweden, Germany, Netherlands, Denmark and the UK
- About 20,000 employees

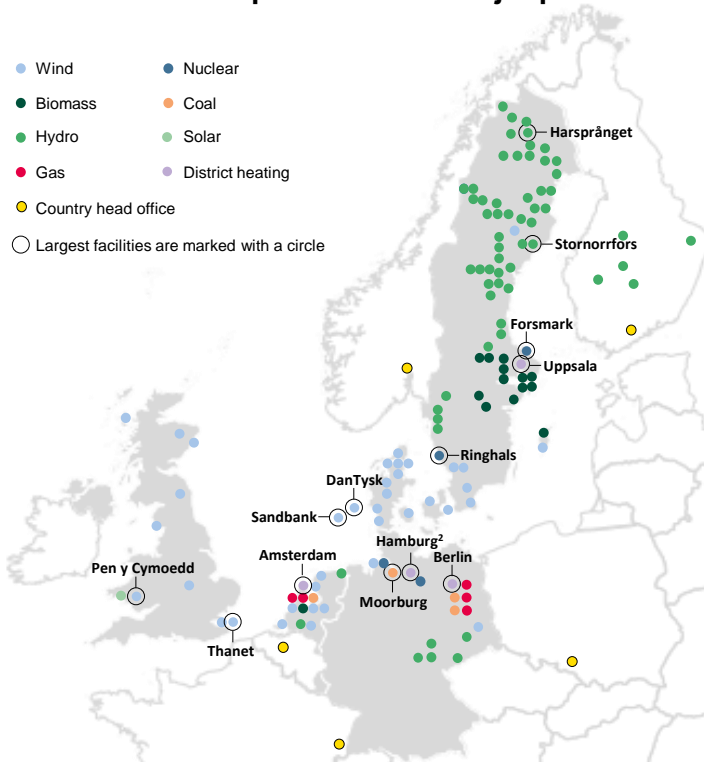
## Key data

SEK bn	FY 2018	FY 2017
Net sales	156.8	135.1
Underlying operating profit <sup>1</sup>	19.9	23.2
Operating profit (EBIT)	17.6	18.5
Profit for the period	12.0	9.5
Return on capital employed, %	7.0	7.7
Return on capital employed excl. items affecting comp., %	7.9	9.6
Funds from operations/adjusted net debt, %	20.7	21.4
TWh	FY 2018	FY 2017
Electricity generation	130.3	127.3
Customer sales, electricity	119.2	109.8
Customer sales, heat	18.3	18.8
Customer sales, gas	57.2	56.4

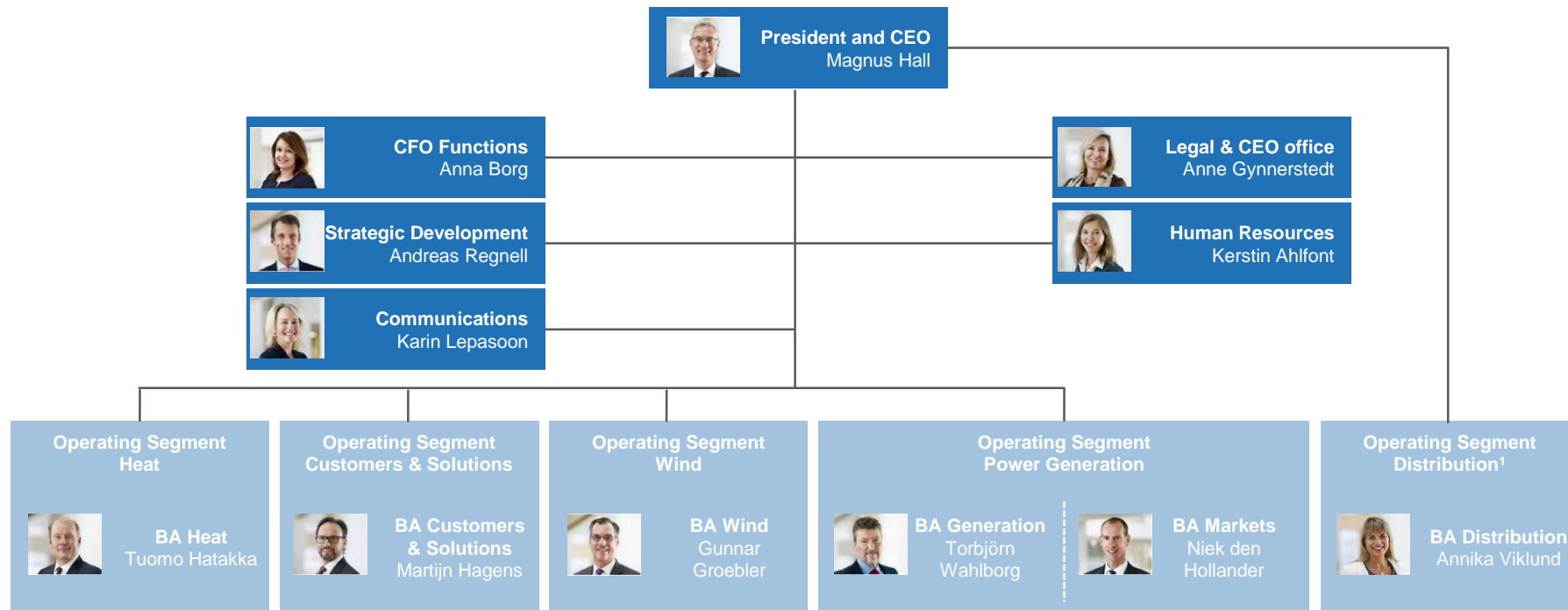
<sup>1</sup> Operating profit excluding items affecting comparability

<sup>2</sup> Operations to be sold to the City of Hamburg. Closing of the transaction is expected in 2019.

## Location of our operations and major plants



# Vattenfall Group executives



<sup>1</sup> The electricity distribution operations are regulated by the Swedish Electricity Act (Ellagen) and the German Energy Industry Act (Energiewirtschaftsgesetz), and are unbundled from Vattenfall's other operations.

# Vattenfall's value chain



## Production

Production from

- Hydro
- Nuclear
- Coal
- Natural gas
- Wind
- Solar
- Biomass
- Waste

Actively phasing out fossil-based production

## Electricity distribution

- Guarantees secure supply via well-functioning distribution networks and smart network solutions
- Enables customers to feed self-generated electricity into the grid ("prosumers")

## Sales of electricity, heat and gas

- Sells electricity, heat and gas to consumers and business customers
- Focuses on various price and service models, and gives customers the opportunity to reduce their environmental impact

## District heating

- Drives the transformation towards fossil-free heating and cooling solutions together with cities and regions
- One of Europe's largest producers and distributors of district heating

## Energy services & decentralised generation

Offers energy services

- Heat pumps
- Solar panels
- Charging solutions for electric vehicles
- Battery storage
- Network services
- Smart meters

Provides marketplaces and access to marketplaces where customers can buy and sell electricity

# Market trends

1

**Customer centricity and sustainability are key** to attracting customers, talent and investors

2

**Further electrification** is a key enabler for reduced CO<sub>2</sub> emissions

3

The future energy system will consist of **both central and decentralised** energy solutions

4

The complete energy value chain will be **digitalised**

5

**New competencies,** speed in learning and **diverse and inclusive** teams are critical in the energy transition

6

**Cost efficiency** is a prerequisite for value creation and growth in an increasingly competitive market

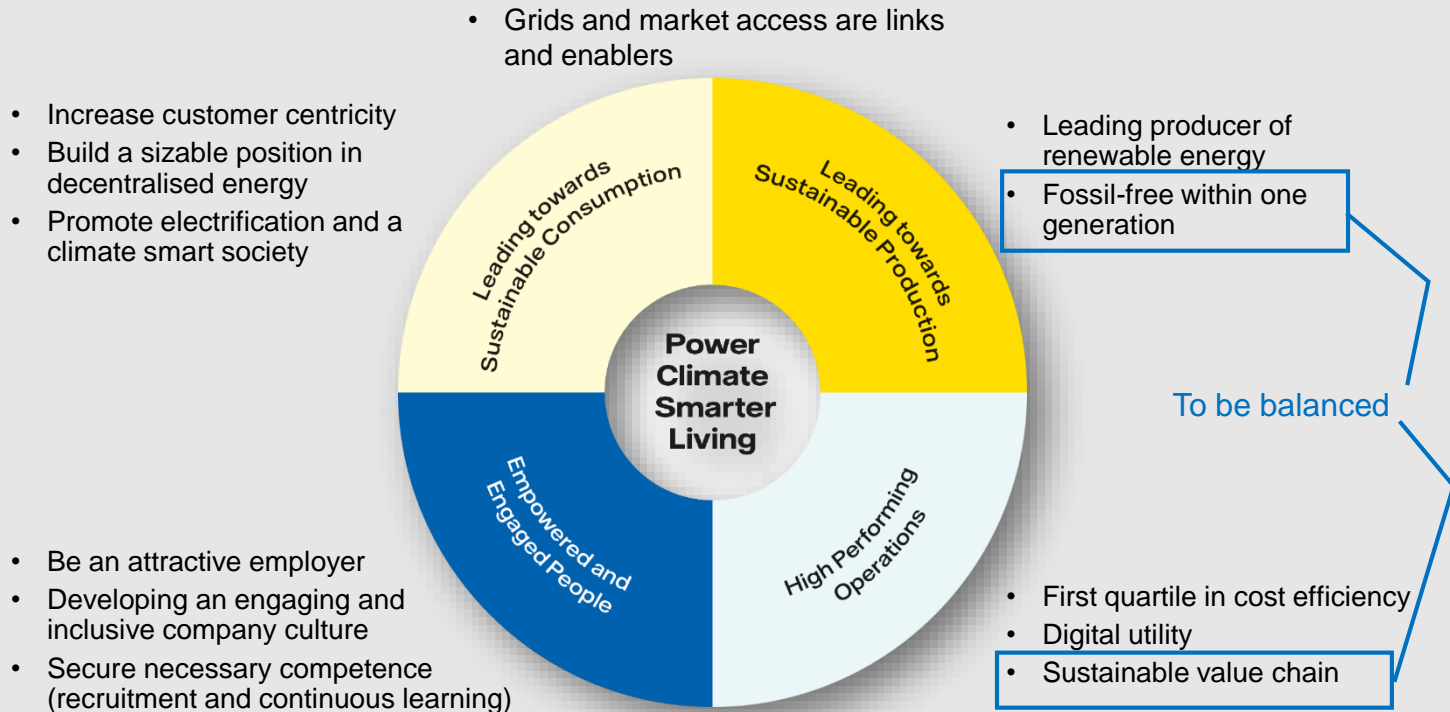
# Strategy and Sustainability



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# Sustainability is the key driver for Vattenfall's strategic direction



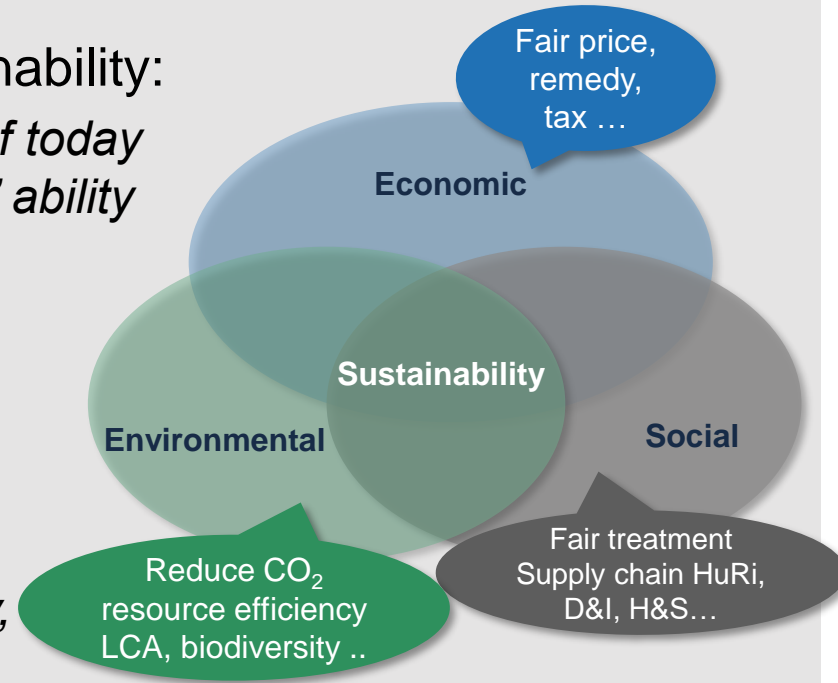
# For us sustainability means taking responsibility for coming generations

The **Ownership Policy** defines sustainability:

*“a development that meets the needs of today without jeopardising future generations’ ability to meet their needs”*

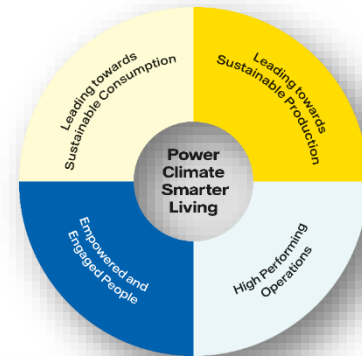
**Vattenfall Sustainability Policy\*:**

*“For Vattenfall, sustainability means taking responsibility for coming generations by contributing to sustainable development: economically, environmentally and socially.”*



# Outcome of our strategic targets for 2018

Strategic targets to 2020	FY 2018	Comments
Customer engagement, Net Promoter Score relative (relative customer satisfaction): <b>+2</b>	<b>+1</b>	Continued improvement at lower pace
Commissioned new renewables capacity 2016-2020: <b>≥2,300 MW</b>	<b>752 MW</b>	Commissioning of Aberdeen Bay (97 MW), Horns Rev 3 (407 MW) delayed
Absolute CO <sub>2</sub> emissions, pro rata: <b>≤21 Mtonnes</b>	<b>22.0 MT</b>	Lower CO <sub>2</sub> emissions
Return On Capital Employed (ROCE): <b>≥8%</b>	<b>7.0%</b>	Lower operating profit
Lost Time Injury Frequency (LTIF): <b>≤1.25</b>	<b>1.9</b>	Tragic fatalities in 2018, increased focus needed
Employee Engagement Index: <b>≥70%</b>	<b>64%</b>	Stable development, improvement needed



# Vattenfall has identified six SDGs that are most relevant for us

Vattenfall's activities contribute to the UN's Global Sustainable Development Goals, and we understand that businesses and industries will play a decisive role in the extent to which the SDGs are achieved. Though we impact all goals either directly or indirectly through our supply chain, we have identified the six SDGs that are most relevant for Vattenfall and where we can have the greatest global impact.



- Partner to keep welfare recipients from having their electricity or heat service disconnected
- Invest to improve grid stability and reliability while keeping costs down and enabling integration of renewable energy sources
- Invest in technologies and solutions to phase out fossil fuels from heating systems and replace fuel in our plants to reduce CO<sub>2</sub>



- Enable customers to participate in the energy transition via decentralised solutions like solar power, heat pumps, and microgrids
- Enable cities to reduce their environmental impacts by expanding our district heating networks, developing fossil-free decentralised energy solutions, and expanding our e-mobility initiatives



- Facilitate further integration of renewable energy in electricity and heating networks through our investments in grids and infrastructure
- Create opportunities for partners and consumers to electrify processes using fossil-free electricity and thereby reduce their own emissions.



- Strengthen guidelines for responsible purchasing and human rights policies in our supply chain via our Code of Conduct for Suppliers
- Strive to achieve best-in-class efficiency in all our operations, maximising production while minimising fuel consumption and waste
- Our Environmental Product Declarations and Life Cycle Assessments enable customers to make smart choices.



- Commit to enable a fossil-free life within one generation
- Collaborate with the cities in which we operate to use our industry knowledge and co-develop ambitious yet feasible city-specific climate neutrality roadmaps.



- Form partnerships with energy-intensive industries like cement, refineries, and steel manufacturing to reduce CO<sub>2</sub> emissions
- Construction started on HYBRIT's pilot plant for manufacturing fossil-free steel in Luleå, Sweden

# Vattenfall tackle CO<sub>2</sub> emissions throughout the value chain. We start at home.



- Transparency on climate footprint (EPD, CDP)
- Collaboration for requirements on fossil transport

- All Business Areas & Staff Functions identify how to contribute to Fossil free within one generation
- CO<sub>2</sub> roadmap in BA Heat
- Storage (BMW, Northvolt, power-to-heat)
- Travels (EV100, EV policy, climate compensate)

- Products and services with clear climate footprint (EnvProdDeclaration / LCA, Decentralized solutions incl. solar)
- Electrification of industries (Hybrit, Boliden, Preem, Cementa)
- Electrification of transports (InCharge, eRoads, G2V, Volvo)
- Climate targets together with cities

# Our goal is to ensure social responsibility and sustainability throughout the supply chain



**A sustainable supply chain is a competitive advantage**



Reducing risk



Reducing cost



Improving reputation



**Increased credibility leads to more business opportunities**

- Commitment to fossil-free living
- Partnering to decarbonize industry
- Partnering for sustainable supply e.g. WindEurope & Bettercoal
- Increased dialogue with stakeholders e.g. NGO

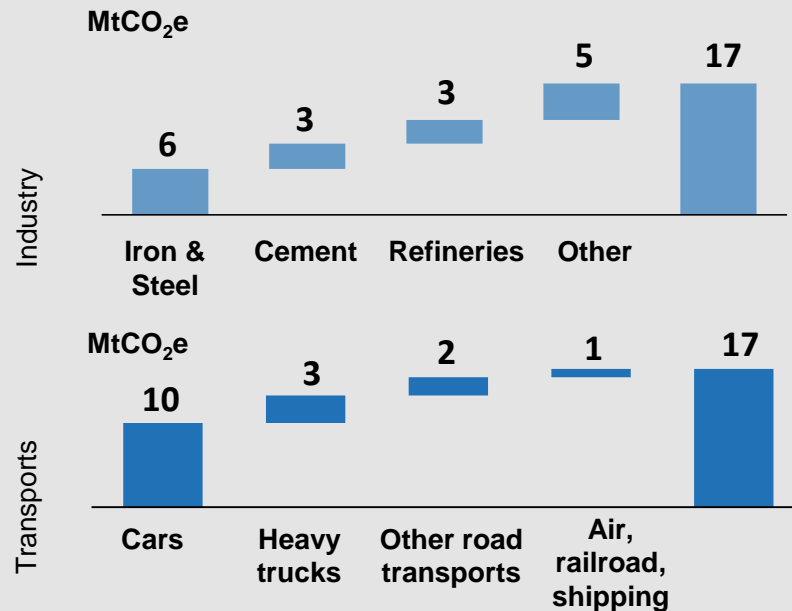
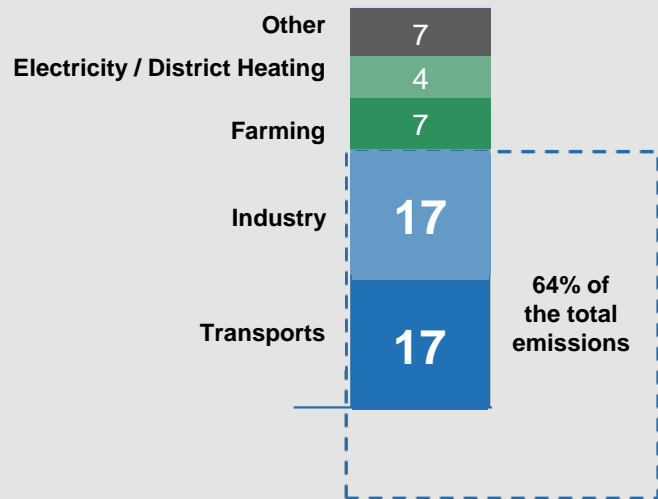


**Internal and external actions and continued focus needed**

- Increase internal awareness and buy-in
- Conduct enhanced due diligence on targeted, high-risk suppliers
- Establish process for progress and assessment reporting, measurement and follow up

# We put our efforts where we contribute most

Greenhouse gas emissions  
Sweden (2017)  
53 MtCO<sub>2</sub>e



# Vattenfall is an attractive partner in the energy transition

## Examples of partnerships

Research project for a carbon dioxide-free steel industry



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Cooperation in large scale bio-diesel production



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Study on electrified cement production



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Attract industries to Sweden



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Electrification of mines and smelters



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Support of battery production in northern Sweden



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Northern Europe's largest charging network for e-vehicles



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Storage projects at a number of wind parks



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Market place for energy sharing



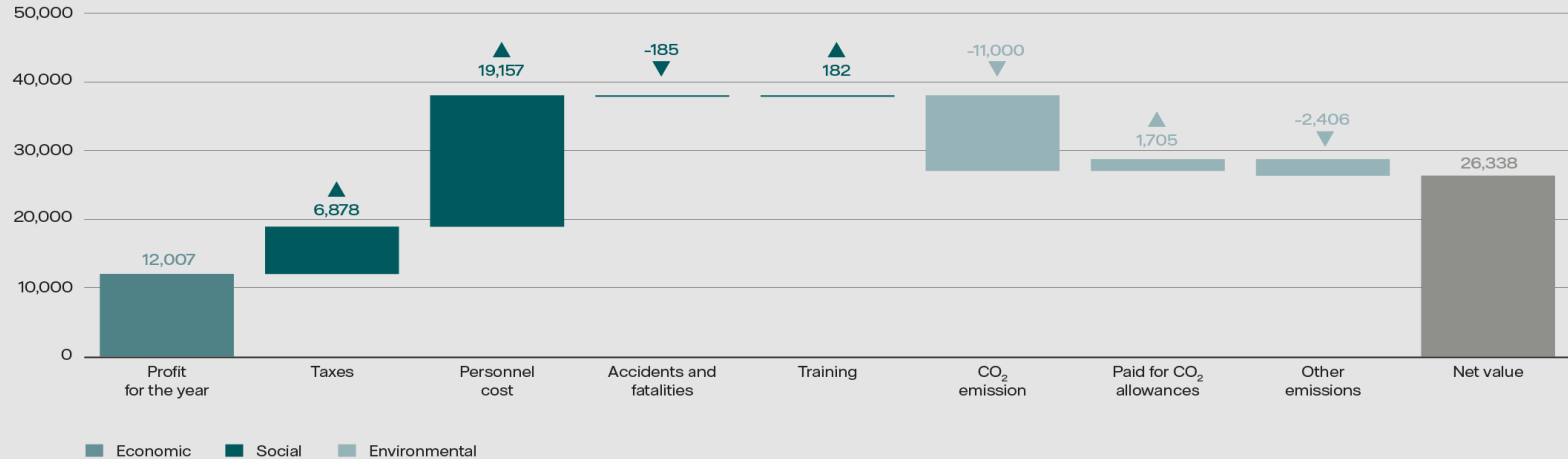
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# Our value creation increased from SEK 25.4 billion in 2017 to SEK 26.3 billion in 2018\*

## Value creation

SEK million



# Materiality



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# Increased creditability - stakeholders say that Vattenfall is at average or better

Stakeholders from Vattenfall's markets\* has rated the most **material\*\*** topics\*\*\*

- = Reduce CO<sub>2</sub> and fossil fuel dependency
- ↑ Provide affordable energy
- = Increase renewable production capacity
- ↑ Protect nature and species
- = Develop sustainable energy services and solutions
- = Minimize non CO<sub>2</sub> emissions
- = Safely dispose of nuclear waste
- ↑ Provide affordable and stable grid infrastructure

In **top 4** of importance for all core markets

Performance is 'average' or 'good'

Change in materiality since last analysis

**2018 Materiality Analysis:**  
>2300 external surveys,  
~350 employee surveys,  
~40 internal & external interviews

\* Denmark, Finland, Germany, Netherlands, Sweden, UK

\*\* A *material topic* is a topic that reflects a reporting organization's significant economic, environmental and social impacts; or that substantively influences the assessments and decisions of stakeholders

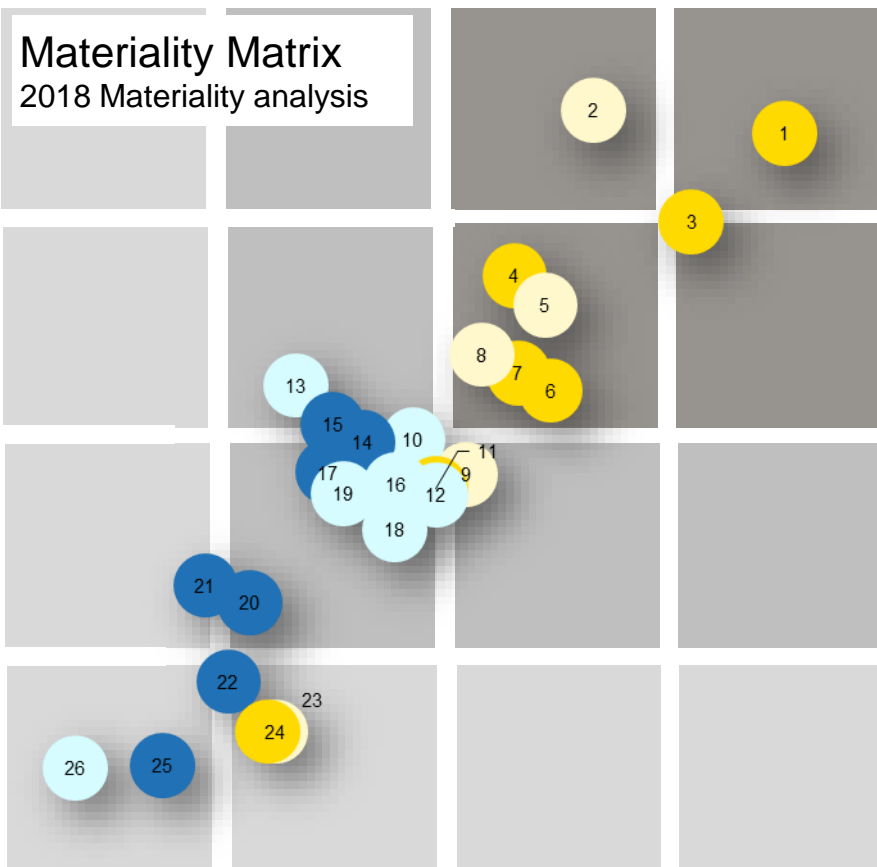
\*\*\* based on **importance** to stakeholders and **significance** of impact on the environment, society, or economy

# Stakeholders' expectations

High

## Materiality Matrix 2018 Materiality analysis

Importance to stakeholders



Significance of impact on society, environment, or economy

High








### Vattenfall's four strategic objectives

- Leading towards Sustainable Production
- High Performing Operations
- Leading towards Sustainable Consumption
- Empowered and Engaged People

1. Reducing CO2 and fossil dependency
2. Providing affordable energy
3. Increasing renewables
4. Protecting nature and species (biodiversity)
5. Developing new, sustainable heat & electricity services and solutions (incl. digitally)
6. Minimising non-CO2 emissions into air, water and land
7. Safe disposal of nuclear waste
8. Providing affordable and stable grid infrastructure
9. Developing decentral solutions (heat pumps, solar installations, battery storage)
10. Responsible procurement and sourcing of fuels (respecting human rights in the value chain)
11. Providing smart and flexible grid infrastructure for future needs
12. Ensuring efficiency in own operations, including energy/fuel and water use
13. Openness and transparency
14. Ensuring decent work and working conditions, including fair pay and working hours
15. Fair and ethical business practices, including anti-corruption and bribery
16. Ensuring sustainable life-cycle of operations
17. Ensuring occupational safety, health and well-being
18. Sustainability in restructuring, investment decisions
19. Efficient waste management
20. Competence development and retention
21. Employee engagement
22. Promoting diversity and gender equality, including to special groups such as disabled, youth, and immigrant
23. Developing solutions in the field of E-mobility
24. Engaging with local communities (i.e., through dialogue)
25. Supporting good causes, including local sponsorships
26. Transparent tax management










# Top materiality topics order differ in our core countries

	Topic			
	Reducing CO <sub>2</sub> and fossil dependency	1	3	2
	Providing affordable energy	2	1	1
	Protecting nature and species (biodiversity)	3		
	Increasing renewables		2	3

Note: Responses from Denmark/ Finland/UK have been incorporated in group statistics, but are not significant at local level due to limited responses



# Different stakeholders in Sweden stress different materiality topics

	Topic	BtC	BtB	Employees	General public
	Providing affordable energy	1	1		1
	Reduce CO2 and fossil dependency	2	2	1	3
	Protecting nature and species	3			2
	Fair and ethical business practices*		2		
	Competence development and retention			2	
	Ensuring decent work and working conditions			3	
	Responsible sourcing and purchasing*		3		

\* Increasing importance

Note: Displayed stakeholder groups are those with the highest number of respondents and at aggregate level across all markets. Ranking across stakeholder groups can vary at country level. See 'analysis per core country'

# Vattenfall is ranked high externally - 2018 examples

- EcoVadis: "Gold rating"



- Sustainalytics: "Leader"



#FARbästahållbarhet

FAR

- FAR (Swe): "Bästa redovisning av hållbarhet 2017" (Best Sustainability report)

- SBI, B2B (Swe): "Branchbäst inom Energi" (Champion in Energy Industry)



- VVCN (NL): Credit Management of the year



- CDP: Rating A- (leadership level)



- CSR Europe: Ranked as most mature company



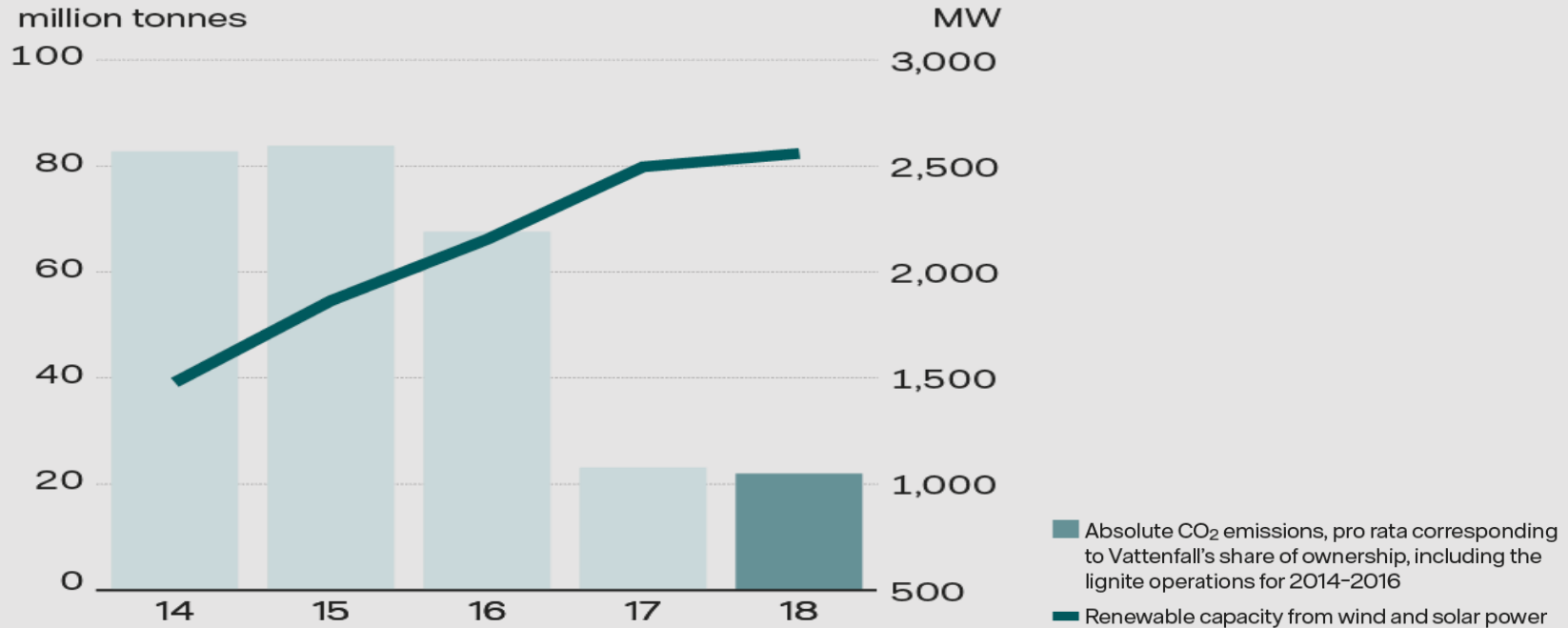
# Footprint



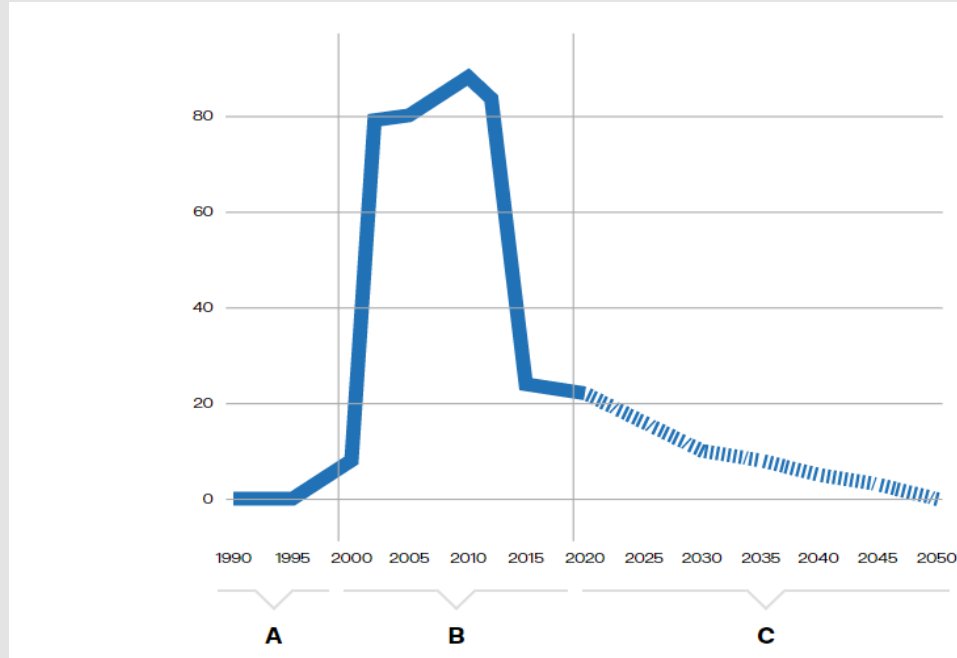
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# Our CO<sub>2</sub> exposure is dropping and installed renewable capacity is increasing



# Our CO<sub>2</sub> emissions will continue to drop



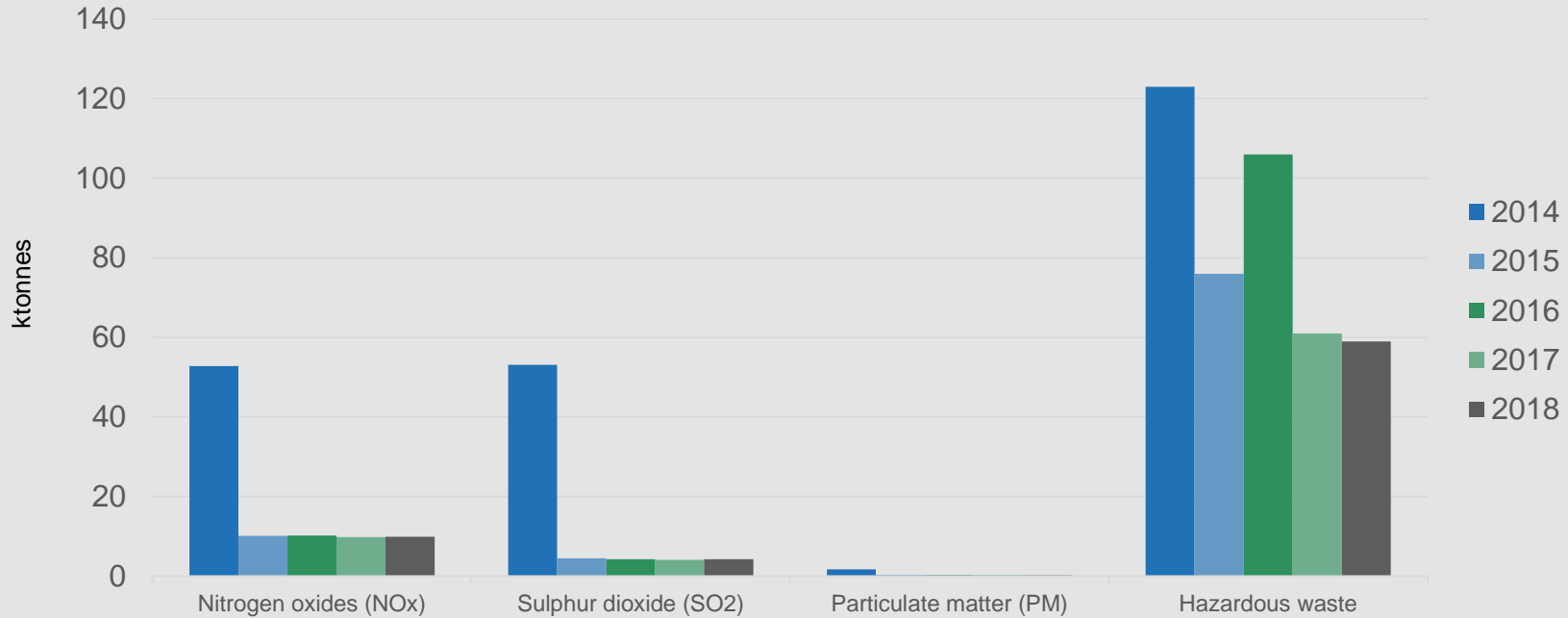
Million tons, 1990-2050 (forecast)

A - Deregulation of Europe's energy markets begins.

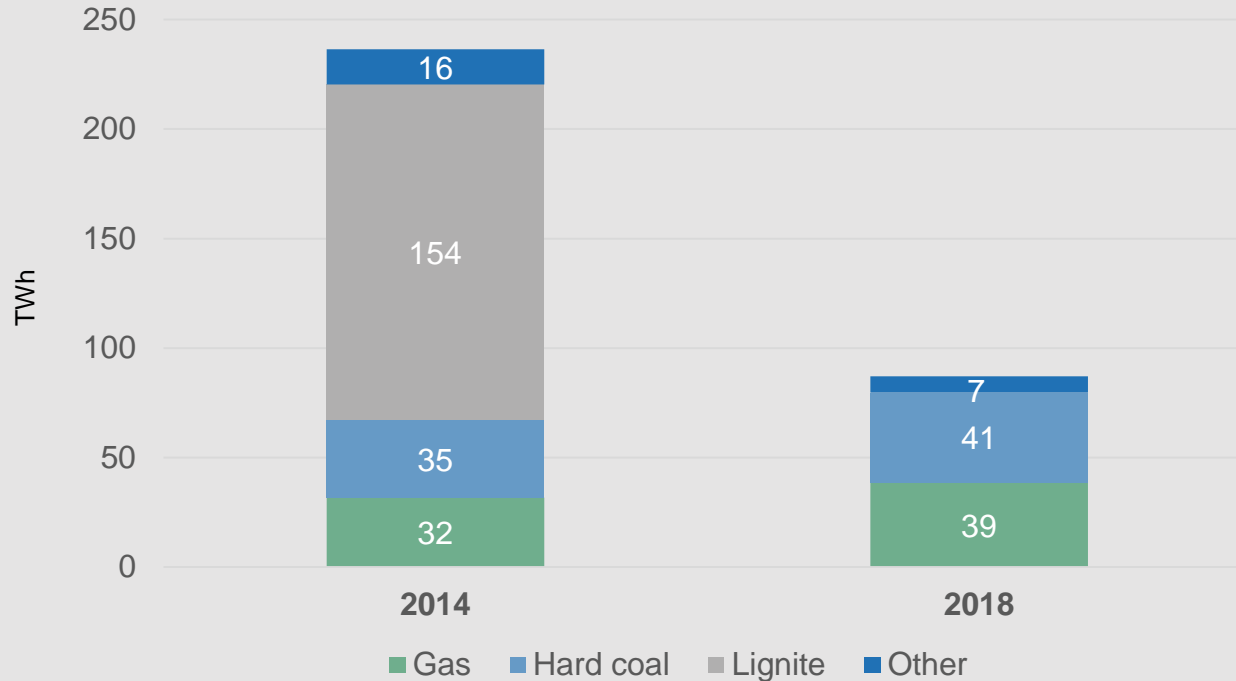
B - Vattenfall grows internationally. Acquisitions in Europe including our German Lignite business.

C - Ongoing transition to enable fossil free living within one generation.

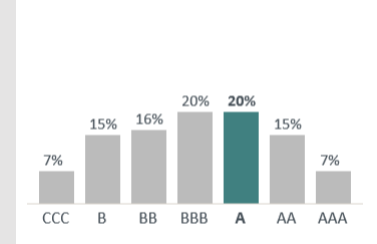
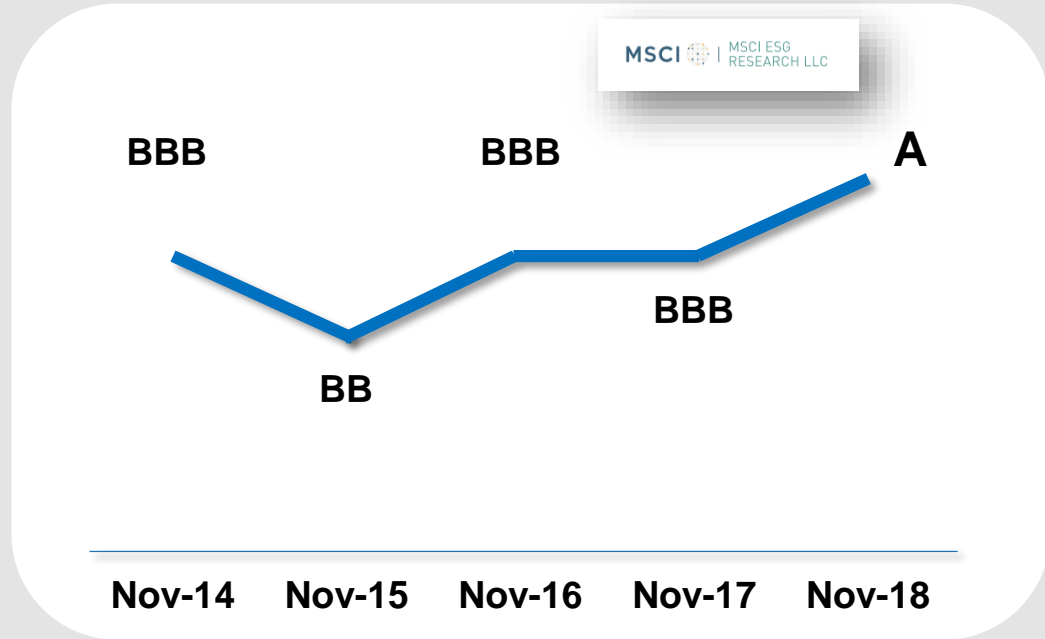
# NO<sub>x</sub>, SO<sub>2</sub>, PM, & Hazardous Waste are dropping



# Vattenfall's fuel consumption is shifting



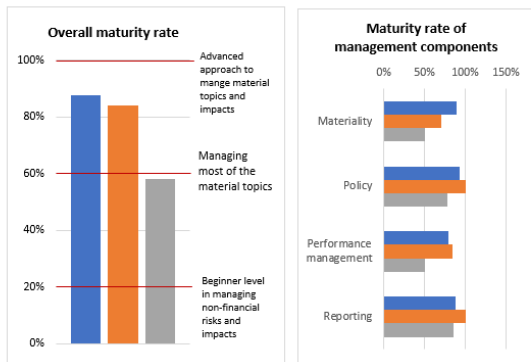
# We are climbing in all CSR ratings e.g. MSCI



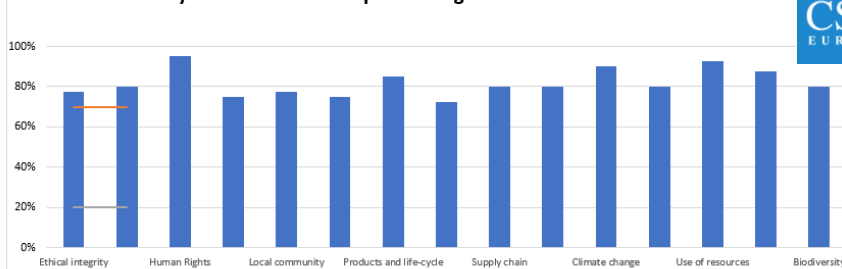
2019  
pending

# In CSR Europe's 2019 assessment Vattenfall came out as the most mature company

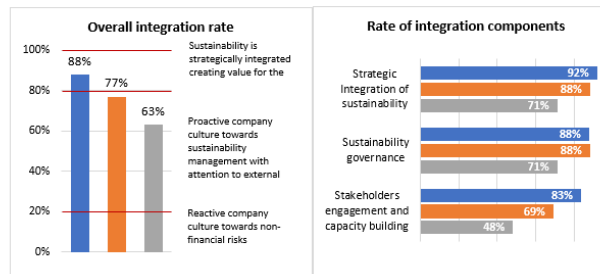
Maturity of sustainability management benchmark (%)



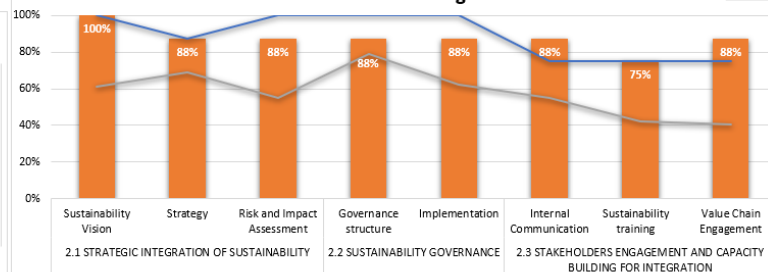
Overall maturity level of material topics management



Integration of sustainability management benchmark (%)



Detailed results integration

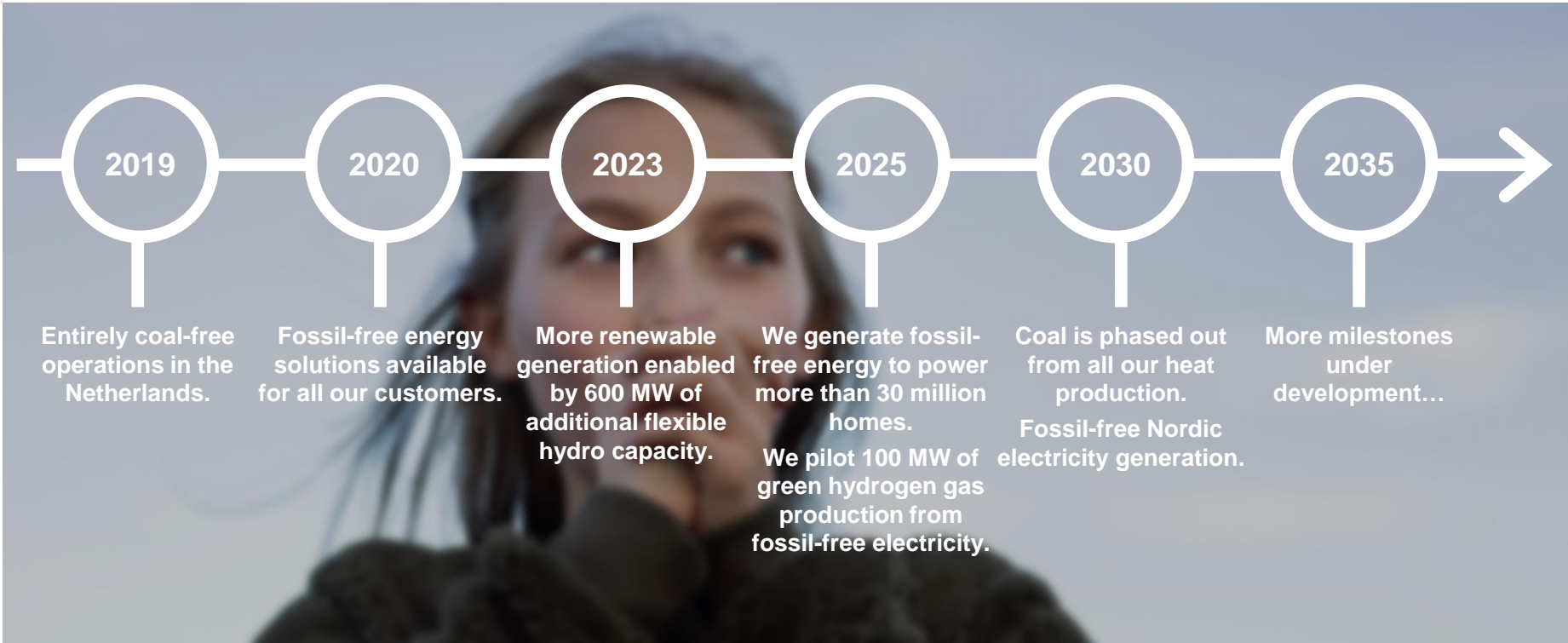


Legend:



\*) Best in Class calculated without Vattenfall data

# Our milestones towards fossil-free living within one generation



# Examples



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# Sustainability at Vattenfall - Environmental examples

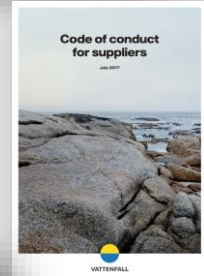
- Managing a **scientific research program** to understand the environmental impacts of offshore wind in the Aberdeen Bay (Scotland)
- Tracking **golden eagles** using GPS to improve impact assessment and siting of wind farms
- Industry project DEPONS and GESCHA study looking at impacts on **porpoise** connected to offshore windfarms
- Voluntary **preservation areas** in Vuollerim and in Älvkarleby
- Access granted to city substations in Berlin to **beekeepers**



- **Vattenkraftens Miljöfond** to meet strengthened environmental demands - 8 Swedish hydro power companies fund raising with 10BSEK over 20 year
- In river Elbe ~300,000 fish per year move up the **fish ladder** built by Vattenfall
- **Test facility** for studying the behaviour of fish in running water and around power plants at the Vattenfall R&D Centre
- **"Eels on wheel"** – lorry transportation of eels to avoid turbines
- **Frog hotel** and ponds built in Forsmark for the pool frog (on the national endangered species list)

# Sustainability at Vattenfall - Social examples

- On-site enhanced **due diligence** to identify possible human rights risks in coal procurement in Colombia
- A **Human Rights Action plan** developed – 11 steps to 2022
- **Health & Safety** e-learning, trainings, monthly dialogues
- Launch of **Nuon Verlicht**, a service that allows consumers who are under judicial control to purchase electricity and gas at a competitive rate without a deposit
- **Diversity** aspects translated in the “recruiters handbook” for job ads and interview guidelines
- Our goal is to have the same **gender balance** in management positions as in the company as a whole
- Participation in the “**100 club**” – offering work practice to people not yet fully established in their new country
- Passing on **used computers, left over furniture's etc** to charity organisations



# Sustainability at Vattenfall - Governance examples

- The **6 Group strategic targets** are sustainability targets
- The overarching Sustainability Policy and complementary **policies** e.g. Human rights, Environmental, Code of Conduct for Suppliers are adopted by the Board of Directors and revised every other year
- **Code of Conduct and Integrity** re-written with mandatory training on-going
- **Diversity** aspects translated in the “recruiters handbook” for job ads and interview guidelines



- Establishment of a **procurement roadmap** to align due diligence requirements and increase transparency around sourcing
- All suppliers in High Risk Countries undergo a **CSR audit**
- **Signatory** of a number of initiatives like UN Global Compact, New Deal for Europe, etc
- **Partnering up** for sustainable supply e.g. WindEurope, Bettercoal, Sustainable Biomass Program, with joint requirements or Code of Conduct



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