



Corporate Factbook

21 November 2022



VATTENFALL

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Overview and strategy




VATTENFALL

This is Vattenfall


In Brief


- Vattenfall is a leading European energy company
- We want to make **fossil-free living possible within one generation**
- We are driving the transition to a more sustainable energy system through growth in renewable production and climate smart energy solutions for our customers
- **100 per cent owned by the Swedish State**
- Our long-term credit ratings are **BBB+ positive outlook by S&P and A3 stable outlook by Moody's**

 **7.1 Million**
Electricity customers

 **1.8 Million**
Heat customers

 **1 000 000¹**
Electricity grid customers

 **2.4 Million**
Gas customers

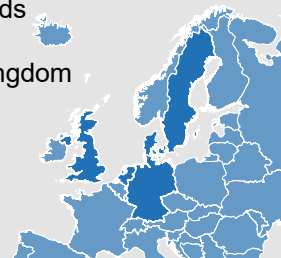
 **18,835**
Employees

Activities in the Value Chain ● Active ● Inactive

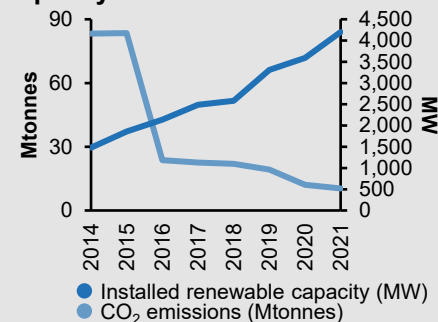


Main markets

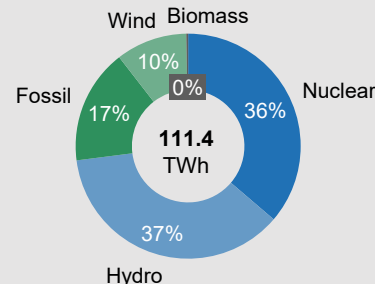
- Sweden
- Germany
- Netherlands
- Denmark
- United Kingdom



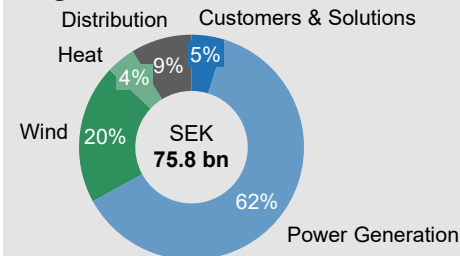
CO₂ emissions & renewable capacity



Electricity generation breakdown by technology, 2021

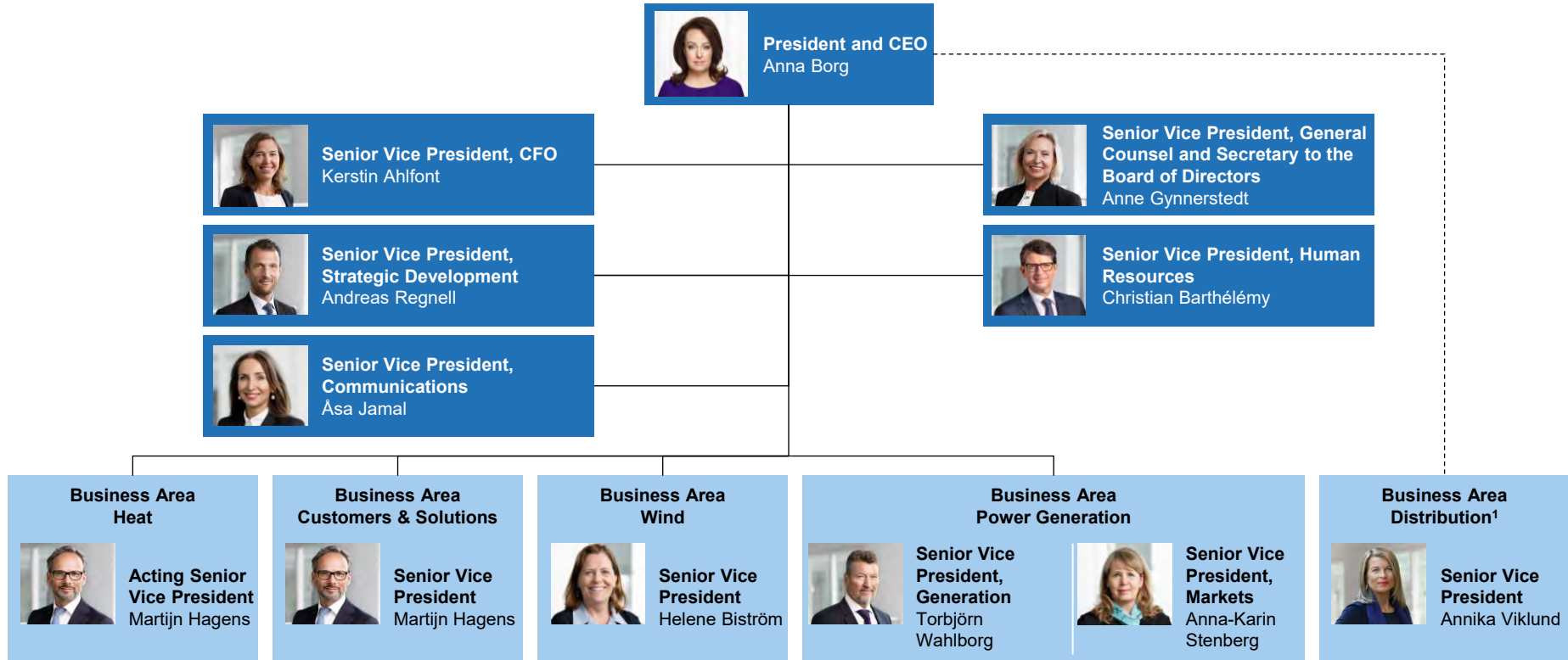


EBITDA breakdown by segment, 2021



¹ Excluding the Berlin grid business which was sold to the city of Berlin on July 1st, 2021

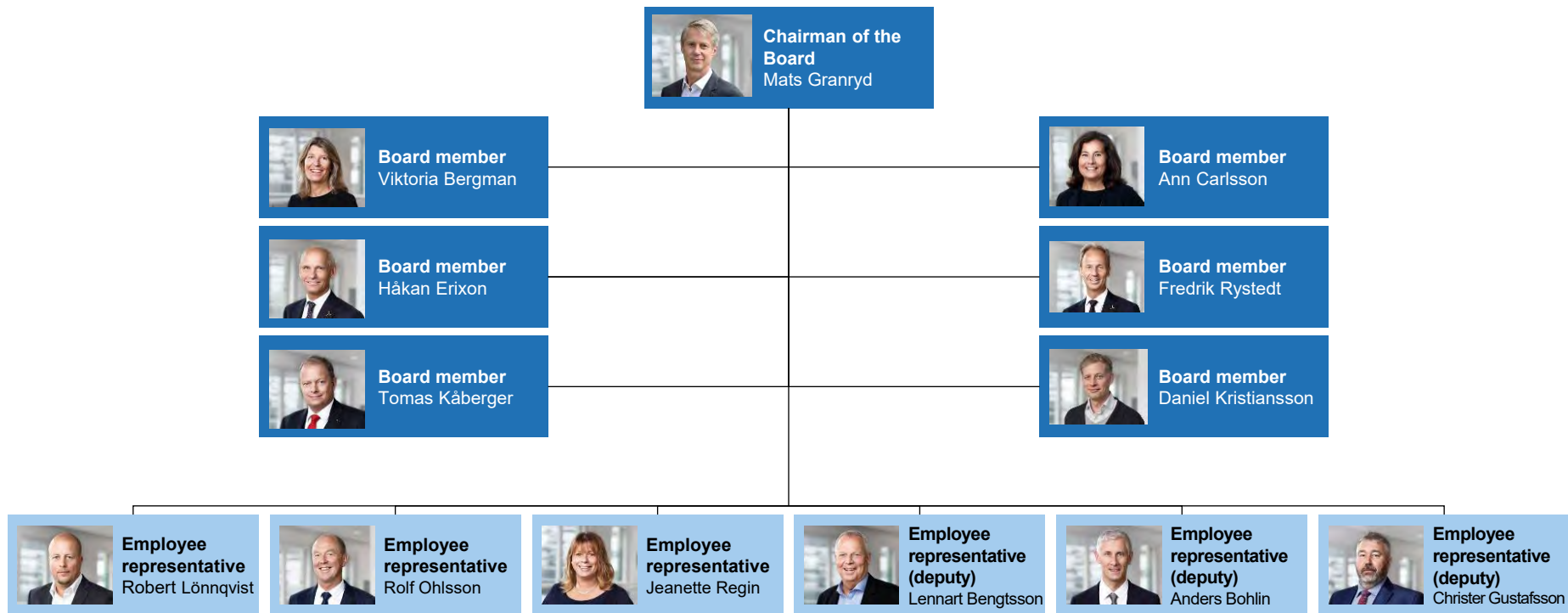
Vattenfall Executive Group Management



For more info: see page 102-103 in the Annual- and Sustainability Report 2021

¹ The electricity distribution operations are unbundled from Vattenfall's other operations in accordance with Swedish and British legislation. The head of Business Area distribution is therefore not a member of the EGM.

Vattenfall Board of Directors



For more info: see page 100-101 in the Annual- and Sustainability Report 2021

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 grids and smart grid solutions
- Enables customers to feed self-generated electricity into the grid ("prosumers")
- Flexibility services to both electricity producers and consumers to optimise grid functionality

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 understand and reduce their environmental impact

District heating

- Drives the transformation towards fossil-free heating and cooling solutions together with partners, 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
- Grid services
- Smart meters

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

Operating segment overview FY 2021

Operating segments

We report our operations broken down by the Group's operating segments: Customers & Solutions, Power Generation, Wind, Heat, and Distribution. The operating segments reflect our Business Area organisational structure except for the Power Generation segment, which is divided into the Generation and Markets Business Areas

Number of Employees as of 31 December 2021¹

Customers and Solutions	3,213
Power Generation	7,260
Wind	1,279
Heat	3,126
Distribution	2,366
Other ²	2,731

¹ Full-time equivalents

² Pertains mainly to Staff Functions and Shared Service Centres

Customers & Solutions

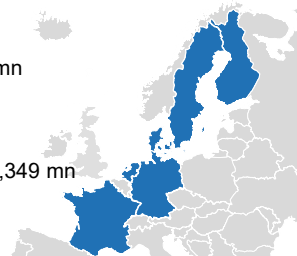
Responsible for sales of electricity, gas and energy services in all of Vattenfall's markets

- A market leader in Sweden with nearly 900,000 electricity contracts
- A market leader in the Netherlands with 4.6 million electricity and gas contracts
- A total of 4.3 million electricity and gas contracts in Germany with a leading position as electricity supplier in Berlin and Hamburg
- Challenger position in sales of electricity in Denmark, Finland and France and in France also of gas
- Operates 28,700 EV charging points in Sweden, Germany and the Netherlands

Net Sales: SEK 106,560 mn
(34% of total³)

EBITDA: SEK 3,241 mn
(4% of total)

Underlying EBIT⁴: SEK 2,349 mn
(7% of total)



Power generation

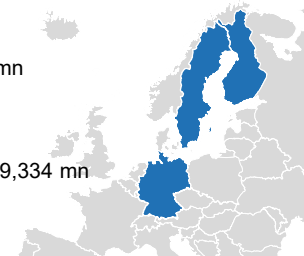
Responsible for Vattenfall's hydro and nuclear power operations, maintenance services business, and optimisation and trading operations, including certain large business customers

- Operates a portfolio with 5.5 GW nuclear capacity and 11.5 GW hydro power capacity across Sweden, Finland and Germany
- One of Europe's largest providers of fossil-free electricity, with 40.9 TWh from hydro power and 40.4 TWh from nuclear power
- Provides professional asset optimisation services and market access, and a leading player in PPA markets in northwest Europe

Net Sales: SEK 126,318 mn
(40% of total³)

EBITDA: SEK 42,053 mn
(55% of total)

Underlying EBIT⁴: SEK 19,334 mn
(60% of total)



³ Calculation excludes eliminations

⁴ Operating profit excluding items affecting comparability

Operating segment overview FY 2021 (Cont'd)

Wind

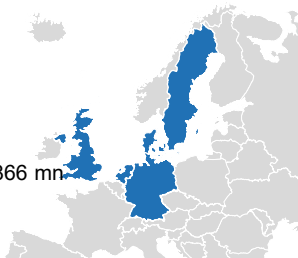
Responsible for development and operation of Vattenfall's wind farms as well as large-scale and decentralised solar power and batteries

- One of the largest producers of offshore wind power in the world
- One of the largest producers of onshore wind power in Denmark and the Netherlands
- Strong wind power pipeline with 2.7 GW under construction and over 3.6 GW in mature-stage development
- 11.2 TWh of electricity generated in 2021
- Front-runner in innovative solutions in solar & batteries, such as colocation with wind farms and shared infrastructure

Net Sales: SEK 20,872 mn
(7% of total¹)

EBITDA: SEK 13,534 mn
(18% of total)

Underlying EBIT²: SEK 7,866 mn
(24% of total)



Heat

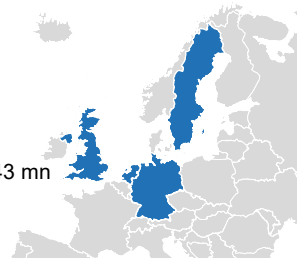
Responsible for Vattenfall's heat operations including sales, decentralised solutions and gas-fired condensing

- One of Europe's leading providers of district heating in large metropolitan areas with approximately 1.8 million end customers
- Strong partnerships with cities for realisation of their carbon reduction plans, supported by a track record of fulfilling previous reduction targets
- Heat production and distribution systems used as platforms to integrate other energy solutions, e.g. cooling, EV charging solutions, wind and solar

Net Sales: SEK 34,759 mn
(11% of total¹)

EBITDA: SEK 2,842 mn
(4% of total)

Underlying EBIT²: SEK -343 mn
(-1% of total)



Distribution

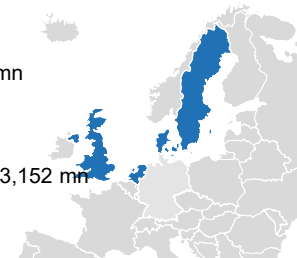
Responsible for Vattenfall's electricity distribution operations in Sweden, Germany (Berlin) and the UK

- Leading operator of regional electricity distribution grids and top-3 position in local grids in Sweden
- Approximately 1,000,000 business and private customers in Sweden
- Unit for operation and ownership of new grids in the UK established in 2017. The unit has around 40 contracts including one of the largest all electric development sites in UK, Edinburgh park.

Net Sales: SEK 17,262 mn
(6% of total¹)

EBITDA: SEK 5,911 mn
(8% of total)

Underlying EBIT²: SEK 3,152 mn
(10% of total)



¹ Calculation excludes eliminations

² Operating profit excluding items affecting comparability

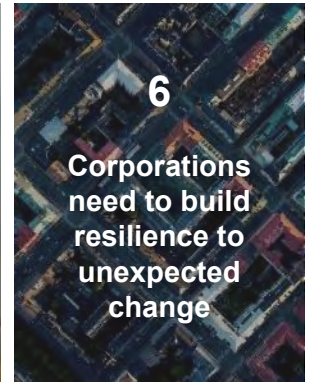
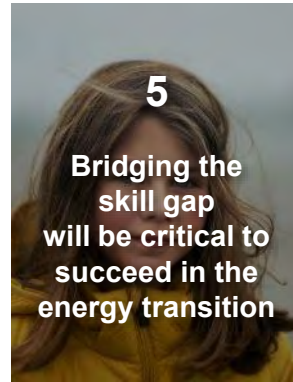
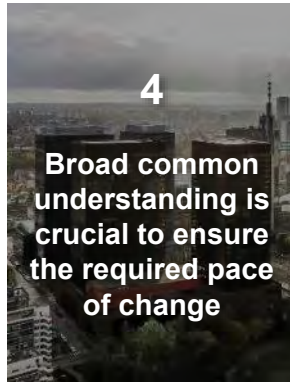
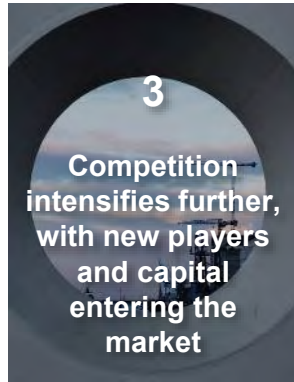
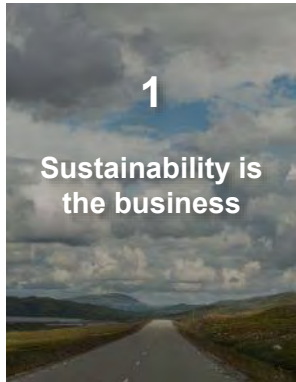
Financial characteristics per operating segment

Operating segment	Key drivers for earnings	Characteristics of earnings and cash flow
Customers & Solutions	Difference in sourcing costs compared to sales price (gross margin) and development in the customer base	Track record of stable earnings
Power Generation	A function of spot price, generation volume, hedge ratio and hedge level	Large outright power price exposure is offset by hedging activities, thereby reducing volatility
Wind	A function of existing subsidies schemes rolling off, net new capacity added, the achieved power price rewarded to new capacity, technological development and synergies	Growing contribution on the back of new capacity
Heat	Mainly fuel costs/spreads and temperature effects/weather	New, partly subsidized, assets replacing older ones and thereby increasing the availability in combination with increased hedging activities contribute to less volatility than seen in last couple of years.
Distribution	Largely a function of regulatory asset base (RAB), regulatory WACC, and the efficiency of the operations	Stable



Our beliefs about the future

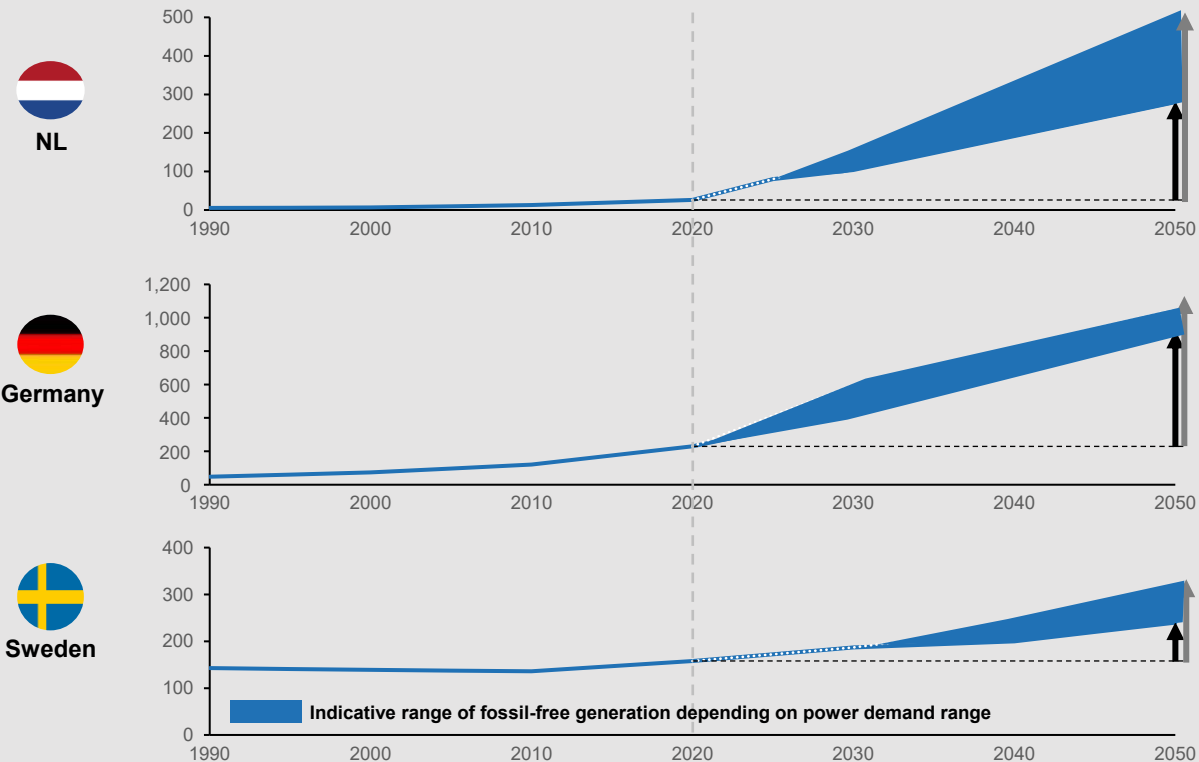
Most important trends that we monitor, leverage and navigate to successfully deliver on our strategy



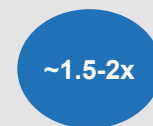
Rapidly growing demand for fossil-free power

Starting points in terms of current fossil-free generation differ widely across markets

Historic and required future fossil-free production, high & low range, TWh



2050



A strategy based on an “integrated utility logic”

To enable our goal of fossil-free living within one generation

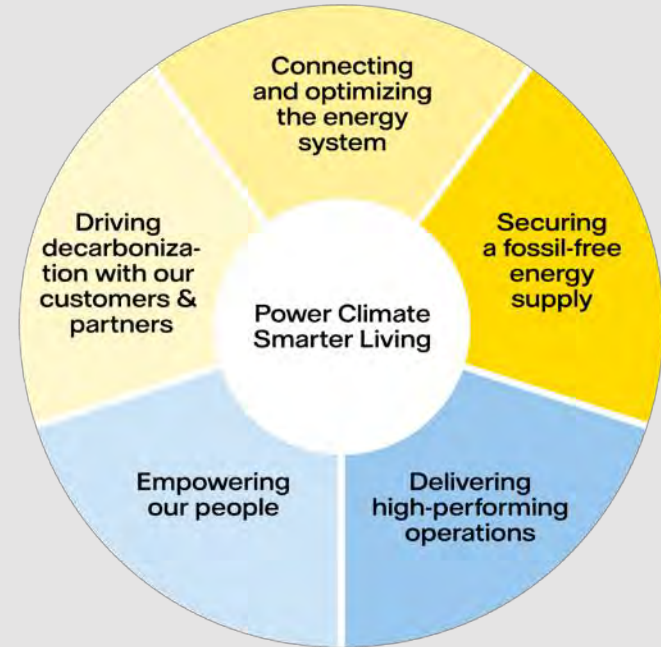
We believe being active in the whole value chain is strategically important:

It increases our competitive advantage in eg. wind auctions, by enabling stable revenues through Corporate PPAs with our customers







Access to renewable volumes on the customer side differentiates us from competitors as fossil-free electricity becomes more scarce

The ability to optimise dispatch across both customer loads and supply brings optimal value of a total portfolio

Diversifying and reducing total portfolio risk means lower cost of capital and an ability to take on more debt



Strategic targets 2025

Strategic focus area	Strategic targets to 2025	Actual 2021	Actual 2020	Progress	Comments
Driving decarbonisation with our customers & partners	Net Promoter Score ¹ (Absolute): +18	+10	+7 ²		Higher NPS mainly owing to the Customers & Solutions operating segment as a result of strong performance in Germany and the Netherlands
Securing a fossil-free energy supply	CO ₂ Emissions Intensity ³ : ≤86 gCO₂e/kWh	79	97		Improvement due to lower fossil-based generation, including closure of Moorburg coal-fired power plant at the end of 2020
Empowering our people	Lost Time Injury Frequency (LTIF): ≤1.0	1.7	1.8		Ongoing initiatives to improve safety, including common H&S strategy and framework for follow-up throughout the organisation
	Employee Engagement Index: ≥75%	75	74 ⁴		Improved result puts Vattenfall among the highest ranked organisations well above industry average
Delivering high-performing operations	FFO/Adjusted Net Debt: 22-27%	171.2%	28.8%		Significant increase mainly due to decrease in adjusted net debt largely driven by a positive net change in margin calls for commodity hedging activities
	ROCE: ≥8%	22.2%	5.8%		Outcome well above target, impacted by compensation for closure of nuclear power in Germany, unrealised changes in market value of energy derivatives and inventories as well as capital gain from sale of Stromnetz Berlin

¹ NPS absolute target is calculated with a weighting of 80% from Customers & Solutions and 20% from Heat resembling size of customer basis

² No outcome for business unit Heat Berlin in 2020, similar level as in 2019 assumed

³ Targeting 86 gCO₂/kWh by 2025 puts us on a “1.5°C” trajectory by 2030 according to Science Based Target levels

⁴ The value has been adjusted compared with previously published information due to change in methodology

Financial targets

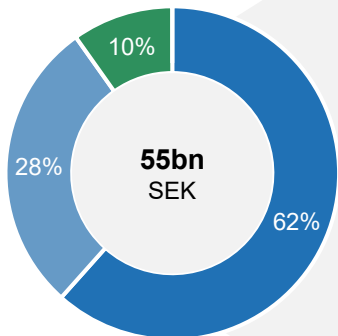
Financial targets	Targets over a business cycle ¹	FY 2021	FY 2020	Comment
Profitability	Return on capital employed: ≥8% ²	22.2%	5.8%	Return on capital employed increased to 22.2%, which is well above the target of 8%, impacted by compensation for closure of nuclear power in Germany, unrealised changes in market value of energy derivatives and inventories as well as capital gain from sale of Stromnetz Berlin
Capital structure	FFO/adjusted net debt: 22%–27%	171.2%	28.8%	FFO/adjusted net debt increased to 171.2% in 2021. Significant increase mainly due to decrease in adjusted net debt largely driven by a positive net change in margin calls for commodity hedging activities.
Dividend policy	Dividend: 40%–70% of the year's profit after tax	SEK 23.4 bn	SEK 4.0 bn	

¹ 5–7 years

² The key ratio is based on EBIT and average capital employed

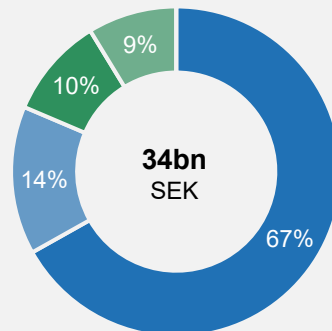
Investment plan 2022-2023

**Total capex
2022-2023**



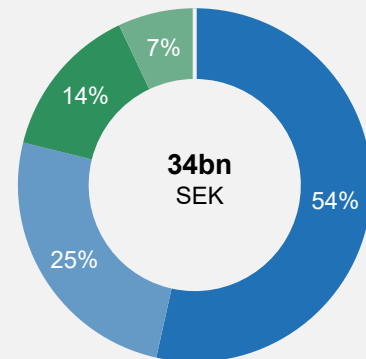
- Growth, 34 bn SEK
- Maintenance, 16 bn SEK
- Replacement, 6 bn SEK

**Growth capex per
technology 2022-2023**



- Wind power, 23 bn SEK
- Heat supply, 5 bn SEK
- Electricity distribution, 3 bn SEK
- Other¹, 3 bn SEK

**Growth capex per country
2022-2023**



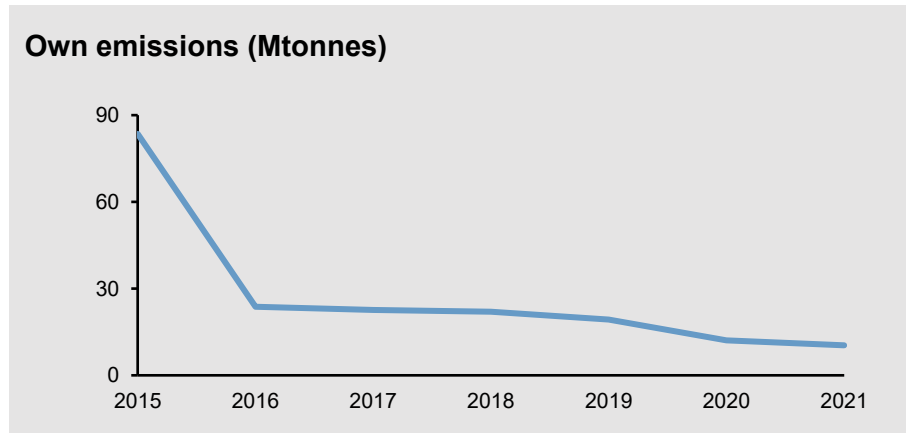
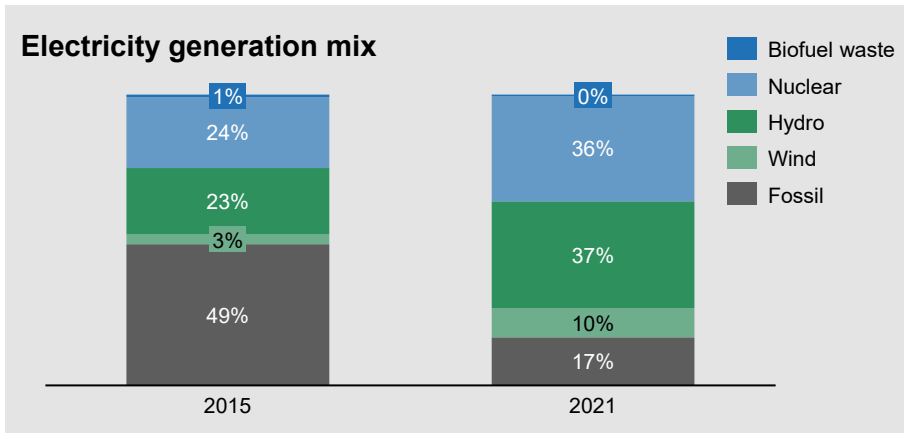
- The Netherlands, 18 bn SEK
- Denmark, 9 bn SEK
- Sweden, 5 bn SEK
- Germany and other², 2 bn SEK

¹ Mainly charging solutions, solar and battery projects, decentralised solutions and the HYBRIT project

² Germany (SEK 3 billion) and other (SEK -1 billion). Other countries mainly relate to France and the UK, negative value owing to expected income from partnerships and from projects developed for sale.

Significant shift in production portfolio

With dramatic effects on our emissions profile



Milestones

2017 - Phase out of lignite with closure of Klingenberg CHP plant in Berlin, Germany and Pen y Cymoedd inaugurated as then the largest onshore wind farm in Wales

2018 - Phase out of peat in Uppsala, Sweden and the start of SamEnergi (third party integration of commercial heat surpluses to district heating networks)

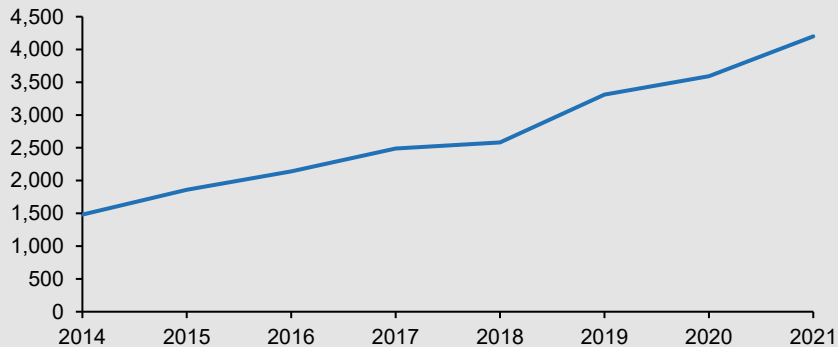
2019 - Closure of coal-fired Hemweg-8 power plant in Amsterdam (NL)

2020 - Closure of coal-fired Moorburg power plant in Hamburg (DE) and opened Princess Ariane Wind Farm, the largest Dutch Onshore wind farm

2021 - Kriegers Flak in Denmark operational as Scandinavia's largest wind farm

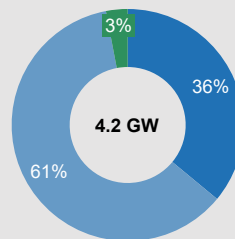
Build-up of renewable capacity and a strong pipeline ahead

Development installed renewable capacity 2014-2021

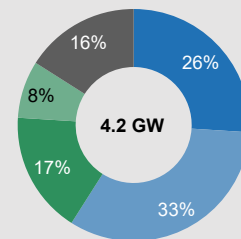


Renewable capacity in operation, year-end 2021

Split by generation type



Split by geography



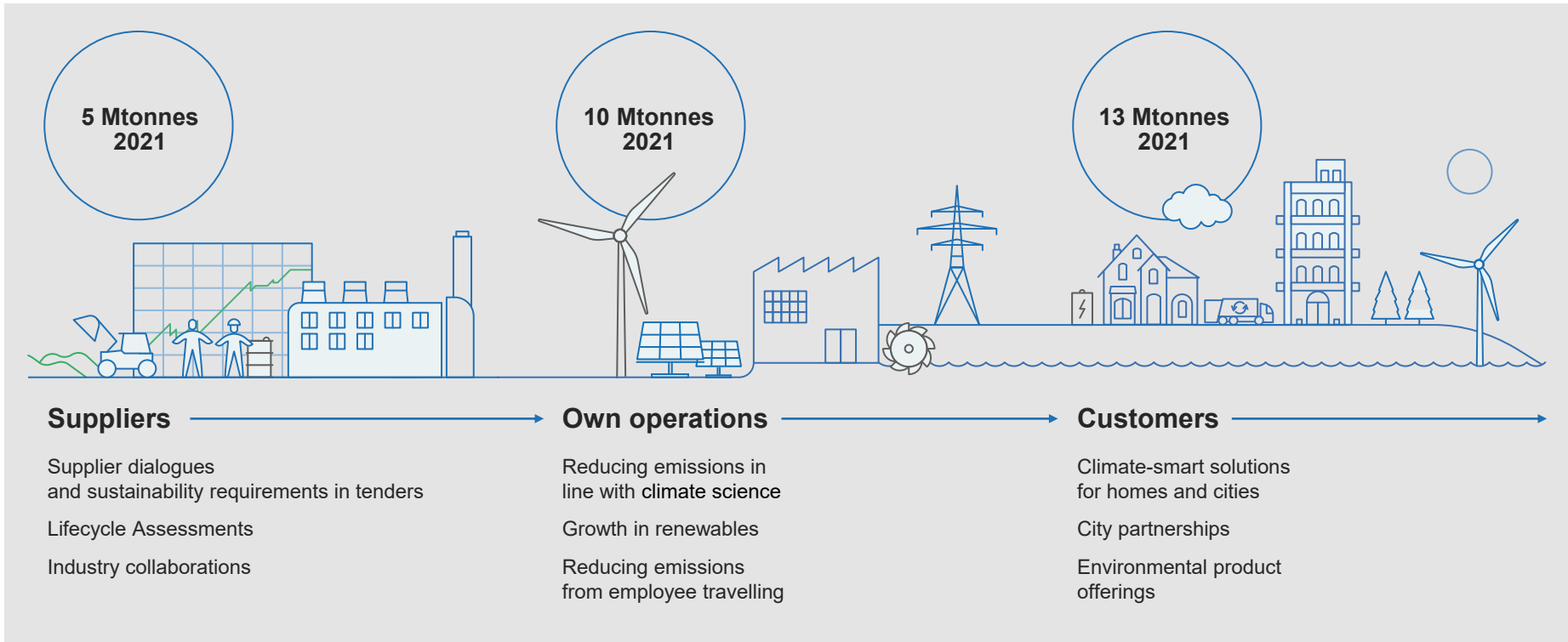
- Strong growth in wind: 4.2 GW installed capacity (19% growth year-over-year)
- Aim to strengthen project pipeline further by own development, bidding for, or acquiring additional attractive projects in wind and solar
- And continue to be industry-leading in Levelised Energy Cost (LEC)

Projects under construction and pipeline:

- >2 GW Wind projects under construction
- ~ 7 GW Wind projects in mature-stage development
- ~3 GW Solar projects in development
- ~500 MW Batteries pipeline

Cutting CO₂ emissions throughout the value chain

Examples of actions



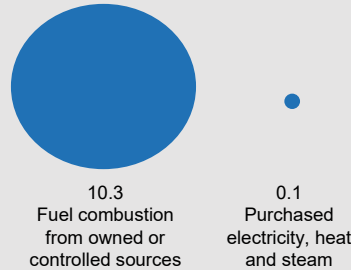
Current CO₂ emissions and reduction targets

Suppliers Mtonnes CO₂e



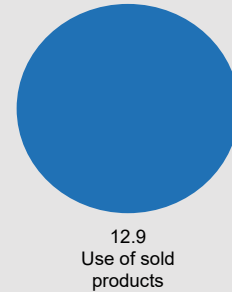
Scope 3 Other indirect emissions

Own operations Mtonnes CO₂e



Scope 1+2 Direct and indirect emissions

Customers Mtonnes CO₂e



Scope 3 Other indirect emissions

Targets¹

2030 Capital goods, goods and services:
–50% in emissions intensity

–77% in emissions intensity

Use of sold goods: –33% in absolute emissions

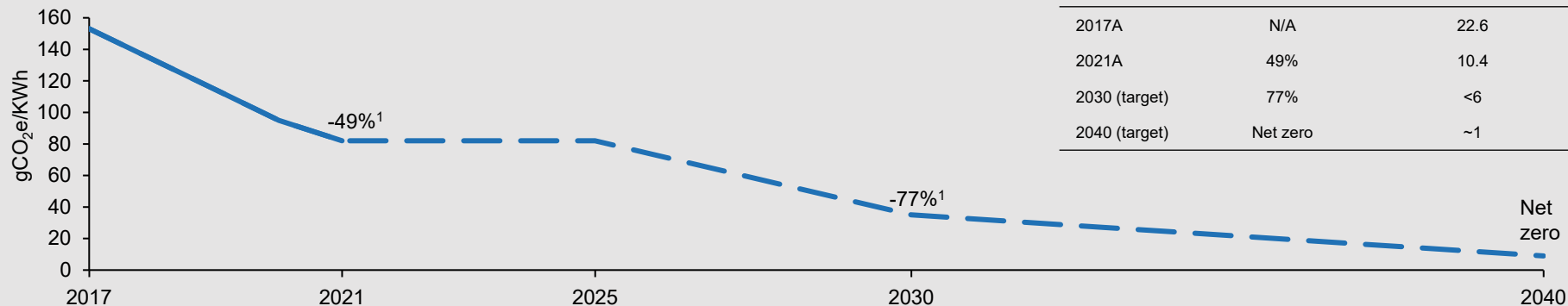
2040 Net zero across the full value chain²

¹ Base year 2017 except for suppliers emissions that have base year 2020
² Remaining emissions (<5%) will be neutralised by carbon removals

The road to net zero emissions

Vattenfall's targets align with the 1.5°C-scenario according to the Science Based Target initiative (SBTi)

Trajectory for CO₂ emissions intensity (Scope 1 + 2), 2017-2040



Key priorities

- Complete phase-out of coal by 2030
- Ambition to commission four times our 2020 wind and solar capacity by 2030 → would bring Vattenfall's total commissioned capacity to over 16 GW
- Phase-out of natural gas requires a combination of all fossil-free technologies, such as biomass, waste heat, green hydrogen, large-scale heat pumps and heat storage
- Develop a carbon capture, storage, and utilisation solution for the biomass and waste plant in Uppsala, Sweden.

¹ Base year 2017

For more info: see page 10-13 in the Annual- and Sustainability Report 2021

Raising our climate ambition

Vattenfall's emissions intensity target is in line with the 1.5°C climate trajectory

Our ambitions to reach our 2030 commitment¹

 **2X**

Electricity distributed in our grid

>125 TWh

Fossil-free electricity produced²

 **+30%**

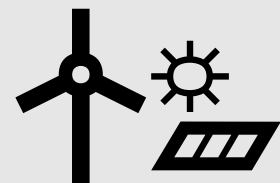
More customers with low or no carbon heat

 **-50%**

CO₂ reductions in procurement of goods & services

 **25X**

More e-mobility charge points in operation

 **X4**

Commissioned solar & wind capacity added²






¹ Base year 2020. Fossil-free electricity production was 93.0 TWh in 2021

² Not considering future ownership structure of added wind and solar production

Environmental, social and governance (ESG) ratings

Vattenfall is assessed by several sustainability rating agencies on its ESG performance

We aim to be as open and transparent as possible in our sustainability reporting and we are proud to be highly ranked for our sustainability performance. The below table shows the agencies we actively engage with and our most recent rating scores

Rating Agency	Rating focus	Score	Latest assessment
 CDP <small>DISCLOSURE INSIGHT ACTION</small>	The leading system globally for disclosing environment data for investors, companies, cities, states and regions	Score A-: top 26% of all rated companies	December 2021
 ecovadis	An online platform that enables companies to monitor the CSR performance of their supply chains by providing supplier sustainability ratings	Platinum rating: top 1% of companies assessed in the energy sector	April 2022
 ISS ESG	ESG rating mainly for the investment community. The assessment spans a broad range of ESG issues that are analysed on the basis of up to 100 rating criteria, most of them sector specific	Score B “Prime”: highest decile of companies assessed in the sector	May 2021
 MSCI	ESG rating mainly for the investment community. Uses a rules-based methodology to identify industry leaders and laggards. Ranks companies according to their ESG risk exposure and how well they manage those risks relative to peers.	Score AA “Leader”: meaning top 29% of companies assessed in the sector.	September 2021
 SUSTAINALYTICS <small>a Morningstar company</small>	ESG rating mainly for the investment community. Uses a two-dimensional materiality framework that measures a company’s exposure to industry specific material risks and how well a company is managing those risks.	ESG risk rating: Medium 23.9 (strong management score and high exposure). Top-13% of companies in subindustry	February 2022

Credit ratings overview



Long term rating: A3¹

Short term rating: P-2

Outlook: Stable

Latest publication: [19 July 2022](#)



Long term rating: BBB+¹

Short term rating: A-2

Outlook: Positive

Latest publication: [10 June 2022](#)

- “Vattenfall’s A3 senior unsecured rating is supported by the breadth and scale of the company’s operations; its clean generation portfolio in the Nordics; a moderate contribution from regulated electricity distribution and district heating activities; an increasing contribution from contracted renewables; and its solid financial profile, with funds from operations (FFO)/net debt amounting to more than 160% (or low 40s in percentage terms excluding the temporary impact from positive margin calls on net debt).”
- “Throughout 2022, we expect credit metrics to weaken, driven mainly by a high dividend payment [SEK 23.4 billion] and a gradual unwinding of the inflow that Vattenfall has seen materialising through margin payments”
- “On balance, however, we expect Vattenfall to continue to have very strong credit metrics this year and into 2023. Notably, its power generation unit will increasingly benefit from a higher price environment as its hedges roll off.

- “We perceive that Vattenfall’s strategy is to continue to strive for integrated operations, with a clear focus on increasing electricity generation from wind. We view this as positive, as the integrated model should continue to provide stability to cash flow and profitability, at least over the business cycle.”
- “Temporary spike in credit ratios expected to soften over 2022-2023, but ratios should remain strong for the rating”
- “The positive outlook reflects the potential for a one-notch upgrade over the two next years should Vattenfall execute its planned investments. This should lead to a higher share of cash flow from the wind and regulated assets combined, along with a strong balance sheet.”

Vattenfall credit highlights

A leading European energy company with activities across the value chain

BBB+ positive outlook by S&P and A3 stable outlook by Moody's

100 per cent owned by the Swedish State

Regulated and predictable cash flow from electricity distribution and district heating

Leading towards sustainable production

VATTENFALL 

A significant transformation has already happened

Significant growth in renewable production and climate smart energy solutions

Experienced player in renewables and one of the leaders in wind power generation

Green financing



VATTENFALL

Vattenfall's green financing framework

Use of proceeds - eligible categories with examples of technologies¹

Renewable energy

- Solar power
- Wind power
- Hydro power
- Geothermal power
- Bio power
- Hydrogen
- Heat/cool using waste heat



Energy efficiency

- Smart grids
- District heating
- Power to heat



Clean transportation

- Infrastructure for clean transportation



Transmission and distribution of electricity

- Transmission and distribution of electricity



¹ The complete green financing framework can be found on Vattenfall's website:
https://group.vattenfall.com/siteassets/corporate/investors/funding_ratings/doc/green_financing_framework_may2022.pdf

Green bond investor report

Investments under Vattenfall's Green Bond Framework, as of year-end 2021

Category	Project/country	Type	Capacity/ impact	Est. CO ₂ reduction (ktonnes) ¹	Vattenfall's share	Start/ completion	Total investment	Of which green bond spent SEK million ²		
								2019-2020	2021	Total
Renewable energy and related infrastructure	Kriegers Flak/ Denmark	Wind offshore	604 MW	300	100%	2019/2021	7,600 MDKK	2,414	6,398	8,812
	Princess Ariane (retained) ³ /Netherlands	Wind onshore	180 MW	175	100%	2018/2020	220 MEUR	1,154	194	3,940
	Princess Ariane (sold) ^{3,4} /Netherlands	Wind onshore	118 MW	115	0%	2018/2020	174 MEUR	1,089	-1,089	0
	Hollandse Kust Zuid /Netherlands	Wind offshore	1,500 MW	2,000	50.5%	2020/2023	2,600 MEUR	14	2,311	2,325
Industry projects	HYBRIT/Sweden	Pilot project	Fossil-free steel	–	33%	2019/2021	858 MSEK	283	118	401
Total								4,954	7,932	12,886
Not yet used										9,038
Grand total										21,925

¹ Production from onshore wind estimated to 2.6 GWh/MW installed, from offshore wind to 3.5 GWh/MW installed, and from solar to 1.0 GWh/MW installed. Resulting production is compared against grid average emission factors which will decline over time as the energy system decarbonises. Actual production, emission factors and savings will vary

² Pertains to actual payments to third parties. No acquisition costs or retroactive payments are included. Converted to SEK using year-end exchange rate as per 31 December 2021

³ The project was formerly called Wieringermeer and Wieringermeer extension

⁴ Sold in December 2021. Funds returned to portfolio.





Dark green shading by CICERO

“Vattenfall has a clear strategic commitment to become fossil free within a generation with clear, timebound quantitative targets for greenhouse gas emission intensities validated by the Science Based Targets initiative as aligning with a 1.5 degree C warming scenario”

*“Based on the overall assessment of the projects that will be financed under this framework, and governance and transparency considerations, Vattenfall’s green financing framework receives a **CICERO Dark Green shading** and a governance score of **Excellent**.”*



The complete second opinion from CICERO is available on Vattenfall’s website:
https://group.vattenfall.com/siteassets/corporate/investors/funding_ratings/doc/green_financing_second_opinion_may_2022.pdf

	Categories	Green shading
	Renewable energy	Dark Green
	Energy efficiency	Medium to Dark Green
	Transmission and distribution of electricity	Dark Green
	Clean transportation	Dark Green

Hollandse Kust Zuid

Project deep-dive

UN SDG's



Overview

- The world's first subsidy-free offshore wind farm will be put in operation at the latest by 2023
- Project with excellent site conditions (shallow waters, proximity to shore) combined with continuous cost reduction focus and portfolio approach
- Attractive opportunity to support the Dutch energy transition; strong customer base demanding renewable energy

Hollandse Kust Zuid,
The Netherlands

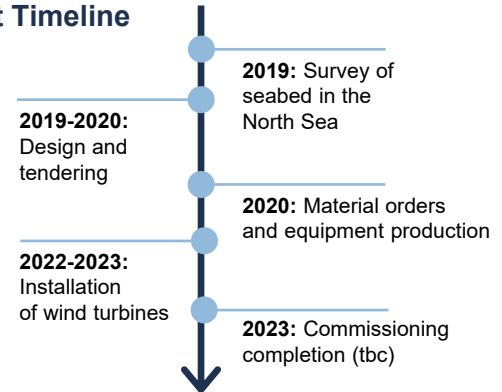


Key data

Capacity	2 x 760 MW
Country	The Netherlands
Technology type	Offshore Wind
Turbine model	SiemensGamesa SG 11.0-200 DD (11 MW)
Grid connection	provided by TenneT
Distance from shore	18-30 km
Water depth	18-28 m
Foundations	Monopiles
Ownership	50.5% Vattenfall, 49.5% BASF
Completion	2023



Project Timeline



HYBRIT

HYBRIT – towards the world's first fossil-free steel

UN SDG's



A joint initiative by



What is HYBRIT?

- HYBRIT – short for Hydrogen Breakthrough Ironmaking Technology – is a joint venture between Vattenfall, SSAB (steel) and LKAB (mining and minerals)
- The aim is to create a completely fossil-free value chain from mine to finished steel, with fossil-free pellets, fossil-free electricity and hydrogen
- In 2021 the world's first fossil-free steel was manufactured and delivered by SSAB to Volvo Group, that is introducing fossil-free steel in its trucks . In June 2022, a pilot plant for storing fossil-free hydrogen was inaugurated

Why is this important?

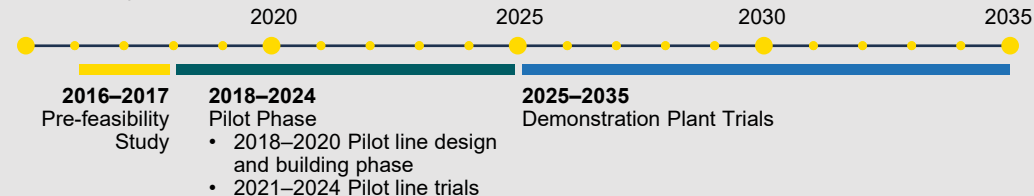
- The steel industry is one of the highest CO₂-emitting industries, accounting for 7% of global and 10% of Swedish total CO₂ emissions
- Steel demand is set to grow due to population and urbanisation → carbon footprint of the industry needs to be addressed

Financing and timeline

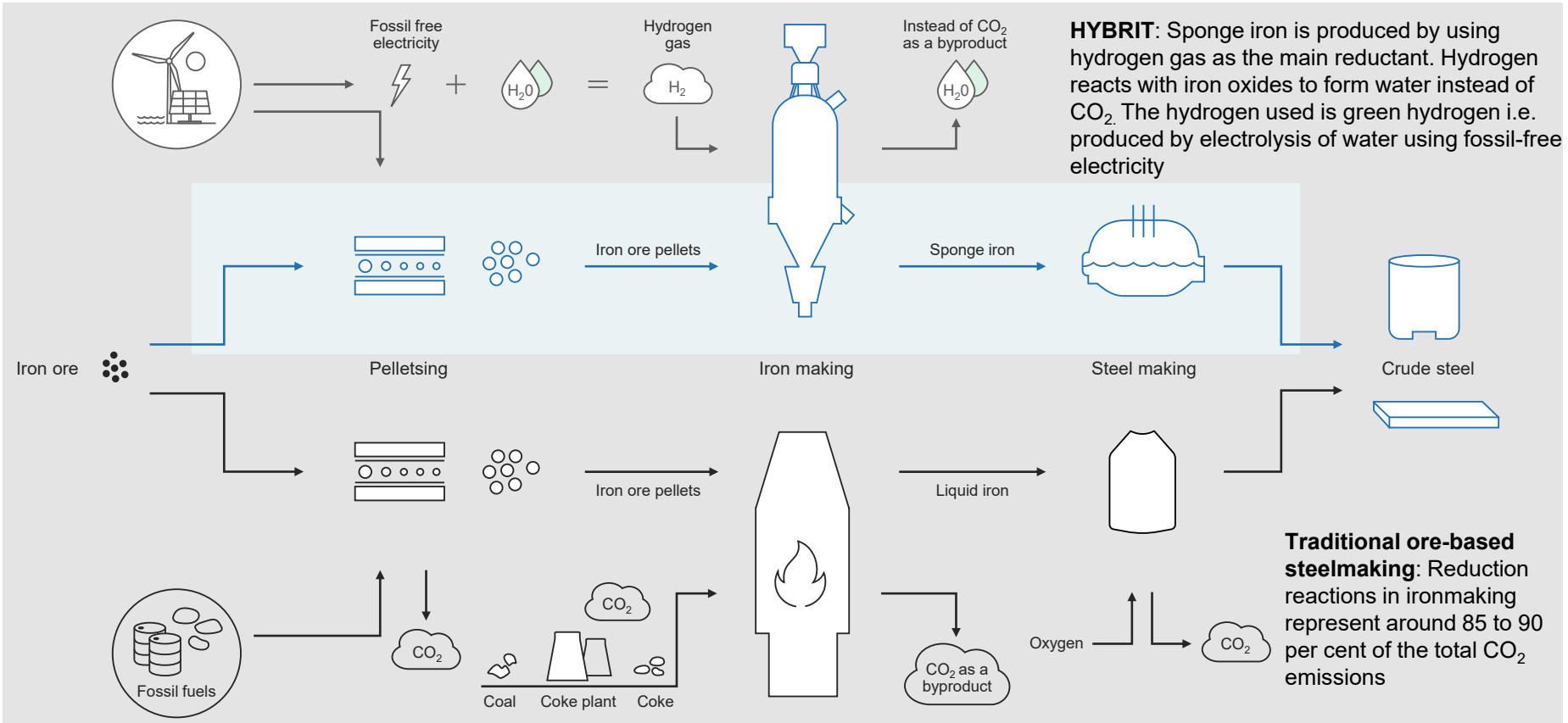
The total cost for the pilot phase is estimated to be SEK 1.4 billion. The Swedish Energy Agency will contribute more than SEK 500 million towards the pilot phase and the three owners, SSAB, LKAB and Vattenfall, will each contribute one third of the remaining costs. The Swedish Energy Agency has earlier contributed SEK 60 million to the pre-feasibility study and a four-year-long research project.

The pilot phase is planned to last until 2024, after which it will move to the demonstration phase in 2025-2035.

Main project phases



HYBRIT vs traditional steel production



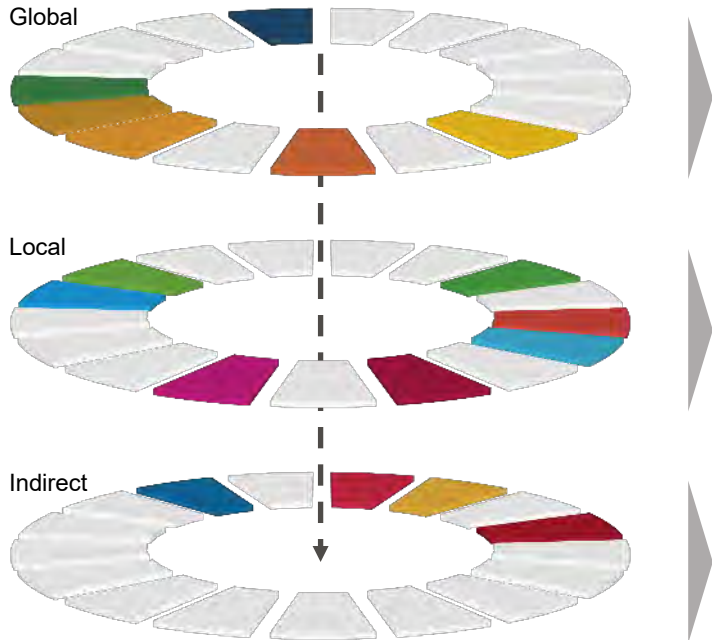
Sustainability deep-dives



VATTENFALL

A strategy and purpose that reflects UN's agenda 2030

Vattenfall's strategy is driving our contribution to the UN's Global Sustainable Development Goals (SDGs)



Vattenfall's contribution to the UN Sustainable Development Goals

Strategic SDGs with global impact



Vattenfall contributes to the goals through its commercial operations. Contributions to these goals have global impacts and are the result of implementing our strategy, in particular when it comes to climate change and consequences for the energy system.

Responsible operations SDGs with local impact



Vattenfall contributes to the goals through its ways of working. Our responsible operations contribute locally, whether in the form of e.g., health & safety or internal diversity standards, or working to have a net positive contribution to biodiversity at our external operating sites.

Responsible supply chain SDGs with indirect impact



Vattenfall contributes to the goals through its engagement and influence in the value chain via suppliers and partners. By engaging only with suppliers and partners who meet our social and environmental standards, we ensure that they make positive contributions to the goals that are most relevant for developing countries, as exemplified here.

Execution of our strategy contributes the most to six prioritised goals

Overview

- In 2016, Vattenfall identified the most relevant SDG's for the business, where we can have the greatest global impact
- These remain valid internally, as reflected in our strategy, as well as for our stakeholders, as confirmed by our materiality analysis

Examples of contribution to our selected SDGs by sub-category



SDG 7.2

Target: By 2030, substantially increase the share of renewable energy in the global energy mix.

Example: Vattenfall is investing in various renewable energy sources and technologies such as wind farms, solar parks and battery storage for a robust pipeline of clean and affordable energy. Currently operating 4.2 GW of renewable energy installed capacity.



SDG 12.2 & SDG 12.5

Target: By 2030, achieve sustainable management and efficient use of natural resources.

Target: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Vattenfall's heat operations are focusing on using excess heat from various third parties, such as the Belvedere waste-to-energy plant in the UK, where heat losses from the plant will be fed into a local district heating network.

Example: More than 99% of residual products from our combustion plants are sold, mainly to the construction industry, for re-use.



SDG 9.4

Target: By 2030, upgrade infrastructure and retrofit industries to make them sustainable.

Example: By replacing and upgrading the flood gates of a centenary hydro power dam, Lilla Edet, with a low-carbon cement, Vattenfall improves the handling of high-water flows and reduce CO2 emissions.



SDG 13.1

Target: Strengthen resilience and adaptive capacity in relation to climate-related hazards and natural disasters.

Example: Climate risks are part of our ERM. Some examples of climate adaptation measures include strengthening our hydro power dams and weatherproofing our grid infrastructure against anticipated future climate risks.



SDG 11.6

Target: By 2030, reduce the adverse environmental impact of cities

Example: Vattenfall has set an ambition to operate 0.5 million charging points by 2030 further enabling the electrification of transport and reducing tailpipe emissions in and around cities.



SDG 17.17

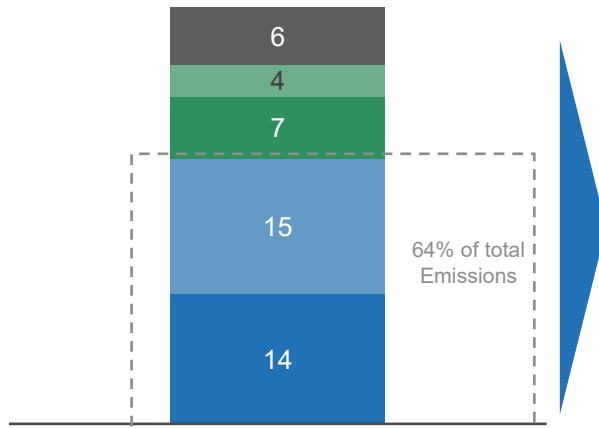
Target: Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.

Example: The completion of three transformer stations to support the regional grid in Gävleborg County highlight the importance of public-private collaborations to Vattenfall in achieving industrial decarbonation projects, like fossil-free data centers.

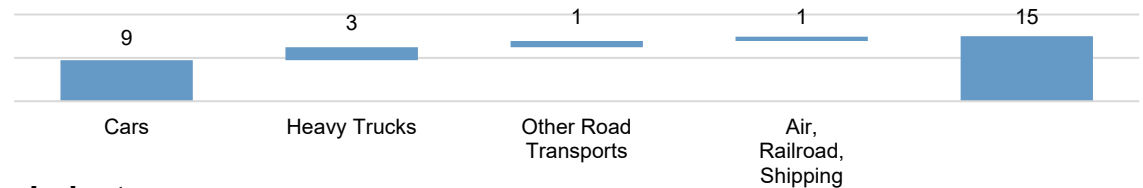
Going beyond our own production maximises CO₂ impact

All parts of society need to adjust – electrifying transports and industry is key to enable a fossil-free life

**Total green house gas emissions
Sweden¹ (2020) 46 MtCO₂e**



Transports
MtCO₂e



Industry
MtCO₂e



There is huge potential to reduce industry emissions through electrification. Vattenfall has discussions and research ongoing with (potential) partners in different sectors.

Besides fossil free steel via the HYBRIT initiative, with a 10% reduction potential of total Swedish emissions when fully implemented, Vattenfall sees potential in other sectors like cement, refinery, chemical, agriculture, shipping and aviation

¹ Source: Swedish Environmental Protection Agency

Industrial partnerships for a fossil-free society

Together with our partners, we pave the way for a new generation of transports, industries and materials

Developing the world's first fossil-free steel



VATTENFALL 

Development of H2 supply from offshore wind to enable fossil-free fuel production



VATTENFALL 

Northern Europe's largest charging network for e-vehicles



VATTENFALL 

Electrification of mines and smelters



VATTENFALL 

Co-operation for e-mobility



VATTENFALL 

World's first synthetic sustainable aviation fuel



VATTENFALL 

Green guaranteed energy delivery large customers, e.g.



VATTENFALL 

Support of a major enterprise for battery production in Sweden



VATTENFALL 

The world's first fossil-free motorcycle



VATTENFALL 

Powering sustainable datacenters



VATTENFALL 

Developing flexible solutions for grid stability



VATTENFALL 

Excess heat from algae cultivation to heat households

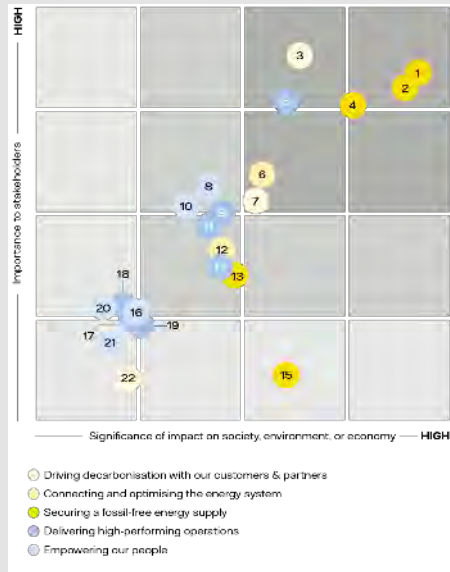


VATTENFALL 

Stakeholder materiality analysis supports strategic focus

According to our stakeholders, Vattenfall's core strategy is aligned with the areas of greatest potential impact

Materiality matrix



- Top material topics
1. Reducing CO₂ emissions and phasing out fossil fuels
 2. Investing in renewable energy
 3. Providing affordable energy
 4. Minimising emissions of pollutants into air, water and land
 5. Protecting nature and biodiversity
 6. Providing affordable, stable, and flexible grid infrastructure for future needs
 7. Developing innovative and sustainable services and solutions for customers

Top 7 most material topics

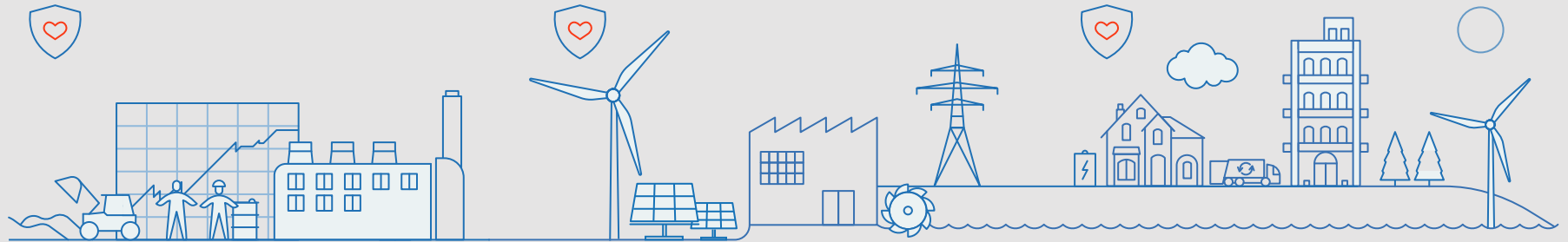
	7	8	11	12	13	17
Reducing CO ₂ emissions	✓	✓	✓	✓	✓	✓
Providing affordable energy	✓		✓			
Investing in renewable energy	✓	✓	✓	✓	✓	✓
Minimising non-CO ₂ emissions		✓		✓		
Protecting nature and biodiversity				✓		
Providing affordable, stable and flexible grid infrastructure	✓	✓				
Developing sustainable solutions for customers and partners		✓	✓	✓		✓

Between May and June 2020, over 2,900 stakeholders from Vattenfall's main markets have rated the most material topics based on importance and significance of impact on the environment, society, or economy. Stakeholder dialogues in 2021 suggest that our 2020 materiality analysis is still valid. Few take away things are mentioned below,

- Vattenfall's strategy remains in line with stakeholder's expectations.
- Affordability, CO₂ reduction and renewables remain top 3 important topics
- Interview responses highlighted the importance of public acceptance to realise energy transition and engaging with local communities

Respect for human rights throughout our value chain ensures we create value in a sustainable way

Tools, processes and actions to respect human rights



Upstream & suppliers

- Supplier risk assessment tool
- Supplier screening and self-assessment questionnaires
- Audits & corrective action plans
- Code of Conduct for Suppliers & Partners
- Supplier capacity building & engagement

Operations

- Stakeholder consultation, in particular indigenous people
- Local community funds
- MyOpinion, H&S maturity
- H&S contractor management
- Just transition & responsible decommissioning




Downstream & customers

- Screening large B2B customers
- Assessing potential partners or acquisition targets
- Evaluating & minimising product end-of-life impacts

We aim to go beyond compliance and deliver positive impact through sustainability in tenders, industry initiatives (WindEurope, Bettercoal, SolarPowerEurope), supplier collaboration and capacity building, and value chain deep dives.

Contributing to biodiversity throughout our operations

Examples of measures

Business area	Aim		Examples
Hydro power	<ul style="list-style-type: none"> Identify new solutions to reduce environmental impact of hydro power production Biotope restoration and species protection Knowledge building activities includes both research and pilot studies Preserve and manage biodiversity and enhance recreation values 		<p>“Laxeleratorn” is a unique, large-scale laboratory for hydro power-related environmental and hydraulic experiments that was inaugurated in 2018. It combines knowledge of biology and hydraulics to find solutions that allow and attract fish to safely pass by the power plant with the smallest possible effect on operations. The main projects has been focused on innovations for downstream fish migration, such as for example bubble curtains and flexible nets to avoid turbine passage.</p> <p>In our R&D work we are also investigating how we can use machine learning to identify and count animal species and how environmental DNA (eDNA i.e. the residual DNA left in the ambient environment by plants and animals) can be used to quickly identify species in our hydro operations. This would be less resource-intensive than the process is today and make it easier to evaluate the effect of measures like fish compensation programmes.</p>
Onshore wind power	<ul style="list-style-type: none"> Increase biodiversity on land Restore peat land functioning and carbon storage 		<p>In 2021 we have been carrying out habitat restoration work at two of our sites in the UK. The relatively small scale (approx. 35 ha) work at Clashindarroch was near completion in 2021 and will be completed early 2022. The much larger scale (up to 1400 ha) work at Pen y Cymoedd began in late 2021 and will continue for several years to come. Both schemes aim to increase biodiversity and restore functioning peatland ecosystems, which can provide multiple ecosystem service benefits in addition to biodiversity increase.</p>
Power distribution	<ul style="list-style-type: none"> Maintenance of habitats and protecting species 		<p>Clearance work for power lines opens meadow-like fields for threatened and rare species, like the butterfly marsh fritillary. With GIS mapping and field inventories performed during 2018, important biodiversity hotspots have been identified, and adjusted clearance plans have been developed accordingly. In the coming phase until 2025, focus will be on implementing enhancing measures in at least 70% of all identified hotspots.</p>

Towards a circular economy

We are committed to enable sustainable use of resources and contribute to a circular economy

A circular economy is based on the principles of keeping products and materials in use, designing out waste and pollution, and using regenerative natural systems. It is a sustainable alternative to the current 'take-make-dispose' linear economic system. The transition to a more circular economy is central to the Green Deal – EU's policy road map towards a low-carbon, sustainable society.

In circular systems, focus is on extending the life-time of products and materials, sharing and pooling of resources, repairing, reusing and recycling to create closed-loop systems, and utilizing smart designs to minimise resource input and the generation of waste, pollution and CO₂ emissions.

Vattenfall contributes to the circular economy:

- ✓ **We invest heavily in renewable energy**
 - Our key role as an energy company is providing renewable energy to drive the circular economy.
- ✓ **We use resources in smarter ways**
 - We use life cycle assessments to assess and manage environmental performance across the full value chain. We also work to design our assets and processes to reduce resource consumption, increase reuse and recycling, and extend the lifetime of our assets.
- ✓ **We offer new products and business models**
 - We are developing new products and energy solutions, as-a-service based models and digital solutions to integrate small scale producers.
- ✓ **We change unsustainable processes and sectors**
 - We switch fuels, partner with industry to make materials more sustainable and fossil free (e.g. steel, cement, fuels), and work to electrify the transport sector.

Examples of activities



Photographer: John Gutted

Recycling excess heat

In the initiative Samenergi, Vattenfall collaborates with SME's to help them recycle excess heat and utilise it in the district heating network. (Image from Lindvall's coffee manufacturing site, a Samenergi partner.)



Phase-out of creosote poles

In a circular economy, hazardous substances must be kept out of material streams. Vattenfall is phasing out creosote poles from distribution grids. Alternative materials and methods are used and tested for new poles.



Declaring life cycle impacts

Vattenfall provides transparent, verified and comparable information about the life-cycle resource utilisation and environmental impacts from our electricity generation through environmental product declarations®.

We are adapting to a changing climate

We continuously monitor, invest in and modernise our assets to ensure safety and resilience

- There is increasing urgency linked to climate change and the reduction of emissions needs to accelerate. Climate change affects Vattenfall through both physical effects on our assets and operations, and through changes associated with the transition to a fossil-free society. We are committed to our goal of enabling fossil-free living within one generation and have a high focus on adapting to change.
- Vattenfall supports the disclosure of climate related risks and opportunities in accordance with recommendations from the Task Force on Climate-related Financial Disclosures (TCFD)¹.



Climate change affects Vattenfall

Today, the world is about 1 °C warmer than preindustrial levels and it is rising. Climate change leads to physical changes in parameters such as temperature, rainfall and sea level. This will affect Vattenfall's assets and operations.

As an example, changes in the frequency and magnitude of extreme weather events such as strong winds, flooding or forest fires can lead to infrastructure damage. Similarly, changes to rainfall and snowmelt affects river flows, which has relevance for our hydropower production, planning and dam safety aspects. Vattenfall continuously works to improve the safety and robustness of our operations.



Ensuring security of supply and resilient operations

We have assessed effects of climate change for Vattenfall's operations, and here is a good general level of awareness and adaptation measures in place to reduce climate-related risks. We are working with scenario analysis to further improve our understanding, in line with EU taxonomy requirements.

Examples of measures to ensure resilient operations are replacing overhead powerlines with underground cables, tree clearance, flood protection, investments to adapt hydropower dams to future higher flows, and improved monitoring. Vattenfall will continue to have strong focus on management of climate risks, through e.g. scenario analyses and increased focus on supply chain aspects.

¹ For more info see page 67 and 175 in the Annual- and sustainability report 2021

A holistic view of Vattenfall's net impact

Using Upright's net impact assessment¹ to quantify both positive and negative impacts of our activities

Impact	Negative	Score	Positive	Comment
Society	-	3.9	3.9	Vattenfall's largest impact comes from providing essential societal infrastructure. Mainly driven by power generation, heat production and distribution businesses, as these activities are crucial for keeping societies running. In addition, Vattenfall contributes positively to society through taxes paid, employment and dividends to the Swedish state.
	Jobs	0.3		
	Taxes	0.7		
	Societal infrastructure		2.9	
	Societal stability			
	Equity and human rights			
Society (total)		3.9		
Knowledge	-1.0	-0.8	0.2	Vattenfall uses is scarce human capital through employing a highly talented and educated workforce. Vattenfall also has a minor positive contribution to knowledge creation through innovation and R&D activities in the energy sector.
Health	-0.1	-0.1	-	Vattenfall's impact on human health is relatively limited. The negative impact Vattenfall does have is related to physical diseases from particulate matter emissions from burning fossil fuels.
Environment	-2.4	0.8	3.2	Vattenfall has a significant impact on the environment. Positive impacts related to both greenhouse gas (GHG) and non-GHG emissions are driven by non-fossil power generation – mainly hydro, nuclear and wind power. Negative impacts on emissions are driven by power and heat production with fossil fuels. Natural resource use, such as uranium or nuclear waste generation, are visible on the negative environmental side. The impacts on biodiversity are mainly driven by hydro, among other activities.
	GHG emissions	-0.7	2.4	
	Non-GHG emissions	-0.4	0.7	
	Scarce natural resources	-0.2		
	Biodiversity	-0.3		
	Waste	-0.7	0.1	
	Environment (total)	-2.4	3.2	
Net impact ratio		52%		

¹ <https://www.uprightproject.com/>

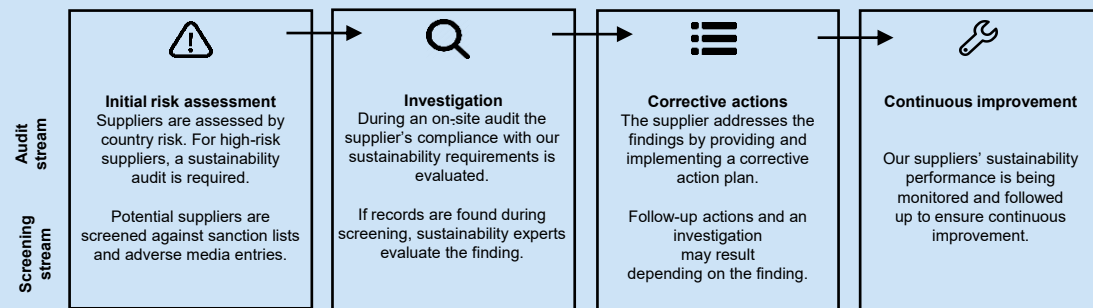
See more on page 73 in the Annual and Sustainability report 2021

Promoting responsible business practices throughout the supply chain

Key improvements in supply chain sustainability

- **Supplier Risk Assessment Tool Light** developed to improve initial risk assessment of new suppliers based on product/service, country and spend and apply targeted mitigation measures
- **“Candy Shop”**, an online user-driven platform for best practice sharing on how to integrate sustainability requirements in tenders, including requirements on circularity, CO2 and human rights
- **Code of Conduct for Supplier and Partners** updated to ensure an accurate reflection of Vattenfall’s values and legislative landscape with major improvements on climate impact, high risk minerals, remediation mechanisms and broadening the scope to partners
- **Supplier Risk Assessment Tool** produced a granular risk categorisation of our existing supplier base in 2020, resulting in several follow-up measures such as sustainability requirements in tender and awareness raising sessions in 2021
- **Manage Counterparty Screening Initiative**, a Group initiative to align processes across Vattenfall for initial and continuous assessment of counterparties

Vetting process to ensure compliance with the Code of Conduct for Suppliers



Sustainable supply chain across four primary sourcing and purchasing streams (2021)

Goods and services	~20,200	Sweden, Germany, Netherlands	3	100%
Waste & biomass	~200	Sweden, Germany, Norway	5	100%
Coal	~10	Russia ¹ , USA	3	No new suppliers
Nuclear fuel	~10	Canada, Australia, Kazakhstan and Russia ²	0	No new suppliers
	Number of suppliers	Primary countries	Number of site audits conducted	% new suppliers that have undergone social/environmental assessments

For more info: See page 86-87 in Vattenfall’s Annual- and Sustainability Report 2021
 1 As of March 2022, Vattenfall intends to not make any new hard coal purchases from Russia until further notice.

2 In February 2022 Vattenfall voluntarily stopped accepting deliveries of uranium from Russia and will not place new orders until further notice.

Customers & Solutions



VATTENFALL

Customers & Solutions

Providing sustainable energy solutions and services to retail and business customers

Overview

- Strong incumbent positions in core markets
- A growing customer base with high loyalty
- Strong expertise across the full energy value chain means that we can offer simple integrated solutions to satisfy increasingly sophisticated customer needs
- Brand perception on positive trend according to several surveys
- Well-developed IT infrastructure keeps operations cost-effective
- Our e-mobility charging network - InCharge - is one of the largest in northern Europe

Highlights



10.5 million customer contracts in Europe



96.1 TWh of electricity sold in 2021



33,700 connected charging points for electric vehicles



Key data

	FY 2021	FY 2020
Net sales (SEK bn)	106.6	86.3
External net sales (SEK bn)	102.3	84.7
Underlying EBIT ¹ (SEK bn)	2.3	2.1
Sales of electricity (TWh)	96.1	95.8
- of which, private customers	26.8	26.3
- of which, resellers	7.9	8.0
- of which, business customers	61.4	61.5
Sales of gas (TWh)	56.0	52.1
Net Promoter Score (NPS) ²	+15	+12

¹ Operating profit excluding items affecting comparability

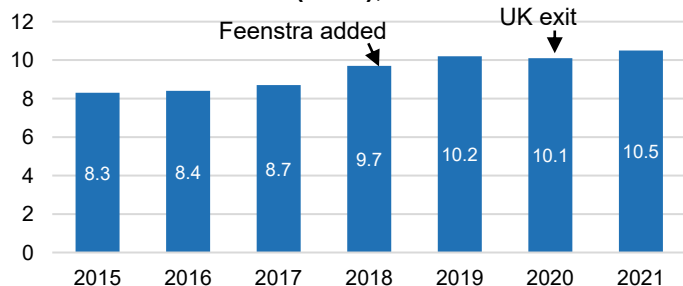
² NPS is a tool for measuring customer loyalty and for gaining an understanding of customers' perceptions of Vattenfall's products and services

Customers & Solutions

Market overview

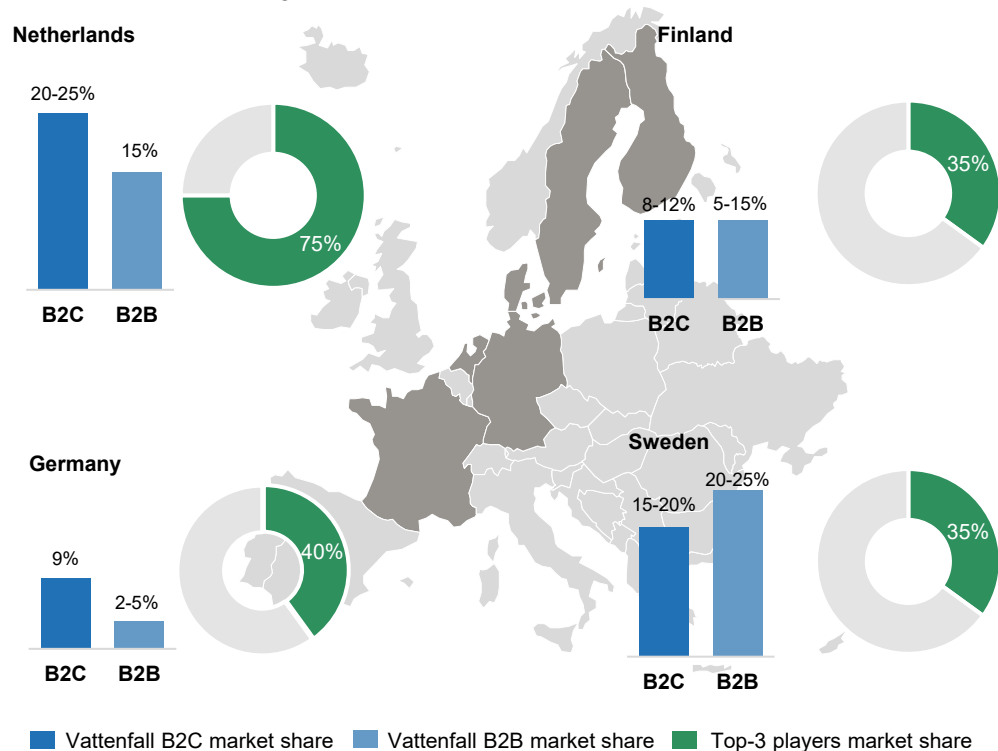
- Customers & Solutions supplies electricity, gas and energy solutions to retail and business customers, with 10.5 million customer contracts
- We are one of the market leaders in the retail and business segments in Sweden (~900,000¹ electricity contracts) and in the Netherlands (4.6 million¹ electricity and gas contracts)
- In Germany we supply electricity and gas to retail customers (4.3 million¹ contracts) and to businesses. In Berlin and Hamburg, we are the market leader in the electricity retail segment
- In Denmark, Finland and France our position is that of a challenger in sales of electricity and in France also of gas.

Customer contracts (total), in millions



¹ Year-end 2021 numbers

Vattenfall and top-3 players market share, main markets



E-mobility – enabling the electrification of transports

InCharge offers everything from infrastructure and hardware installation to software and connected services

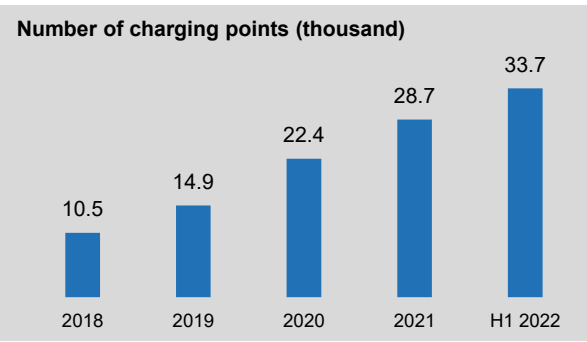


InCharge is fully owned by Vattenfall but grows together with our partners. We take care of all the details with end-to-end services, offering everything from infrastructure and hardware installation to software and connected services – all backed up with expertise and advice.

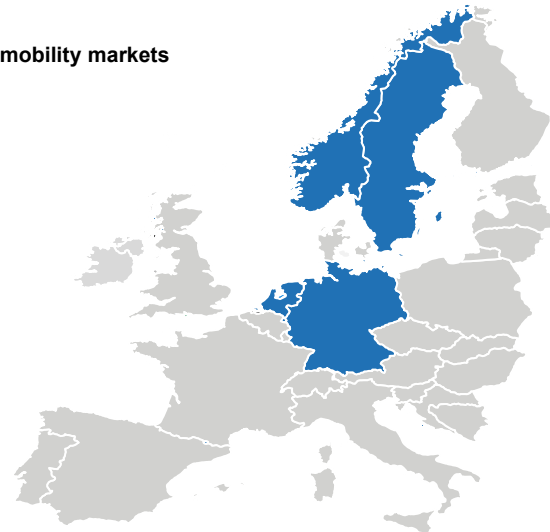
In close collaboration with government officials and planners, InCharge makes it easier for cities to become greener and cleaner. Businesses, large and small, housing associations and estates, as well as private homeowners all have flexible options to choose from our portfolio.

The e-mobility market is rapidly developing, and new players are shaping their roles in the value chain. Vattenfall therefore needs to be innovative and agile, taking advantage of the multitude of services our organisation as well as our partners can offer.

One example is Flexpower in Amsterdam where InCharge charging points are steered based on daily load curves from the grid operator and forecasts for local neighborhood solar panel production.



E-mobility markets



Partners (examples)



Power Generation



VATTENFALL

Power Generation

One of Europe's largest providers of fossil-free electricity

Overview

- Largest segment by power production volume in Vattenfall, contributing to our position as Europe's second largest provider of fossil-free electricity
- Century-long roots in hydro power and a leading position in Sweden's hydro power development
- Major owner of nuclear power with vast experience of nuclear operations, decommissioning and management of radioactive waste and spent nuclear fuel
- One of the leading energy trading companies in Europe offering reliable, responsible and flexible access to all relevant commodity wholesale markets
- Sourcing of gas, biomass and carbon credits for Vattenfall and third parties
- Maximising value and managing risk by optimising and dispatching as well as hedging of Vattenfall's assets and sales positions
- Proprietary trading within the risk mandate set by Vattenfall's Board of Directors
- Offer PPAs to renewable asset owners and offer fossil-free energy to large customers
- Responsible for Sweden's leading maintenance service business in the energy sector

Highlights



5.5 GW nuclear power



11.5 GW hydro power



9.1 GW managed capacity of renewable generation assets



Laxede power plant, Sweden

Key data

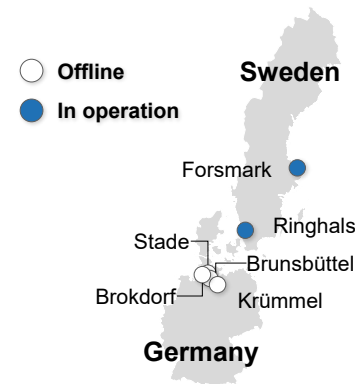
	FY 2021	FY 2020
Net sales (SEK bn)	126.3	90.1
External net sales (SEK bn)	40.3	36.6
Underlying EBIT¹ (SEK bn)	19.3	14.7
Electricity generation (TWh)	81.3	79.0
- of which, nuclear	40.4	39.3
- of which, hydro	40.9	39.7
Customer sales of electricity (TWh)	22.2	20.0
- of which, resellers	17.5	17.9
- of which, business customers	4.7	2.1

¹ Operating profit excluding items affecting comparability

Nuclear power

Vattenfall's nuclear power plants

- Vattenfall owns eleven nuclear reactors. Seven reactors are located in Sweden (four at Ringhals, three at Forsmark), and four in Germany (Brunsbüttel, Krümmel and minority stakes in Brokdorf and Stade)
- Five of our reactors are in commercial operation in Sweden
- Our last operational nuclear asset in Germany, Brokdorf, was decommissioned at year-end 2021
- Vattenfall's power generation in 2021 amounted to 40.4 TWh (39.3). Combined availability was 84.8% (76.4%)



Nuclear Power Plant list

Nuclear Power Plant	Country	Installed Capacity (MW)	Vattenfall ownership share	Co-Owners	Commission Year	Final operating year	Operation status	Decommissioning status
Ringhals	Sweden	3,967	70.4%	Sydkraft Nuclear Power AB (29.6%)	Ringhals 1: 1976; Ringhals 2: 1975; Ringhals 3: 1981; Ringhals 4: 1983	Ringhals 2: 2019; Ringhals 1: 2020	In operation	Ringhals 1 & 2: Shutdown, in pre-decommissioning planning
Forsmark	Sweden	3,271	66.0%	E.ON (8.5%) and Mellansvensk Kraftgrupp (25.5%)	Forsmark 1: 1980; Forsmark 2: 1981; Forsmark 3: 1985	-	In operation	-
Brunsbüttel	Germany	771	66.7%	E.ON (33.3%)	1977	2007	Offline	Decommissioning mode
Krümmel	Germany	1,346	50.0%	E.ON (50.0%)	1984	2011	Offline	Planned to initiate decommissioning in 2021
Stade	Germany	640	33.3%	PreussenElektra GmbH (66.7%)	1972	2003	Offline	Undergoing decommissioning since Oct 2005
Brokdorf	Germany	1,410	20.0%	PreussenElektra GmbH (80.0%)	1986	2021	Offline	Decommissioned in 2021

The financing system for post-operational nuclear costs

Financial implications of the various steps in the financing systems in Sweden and Germany

In Sweden

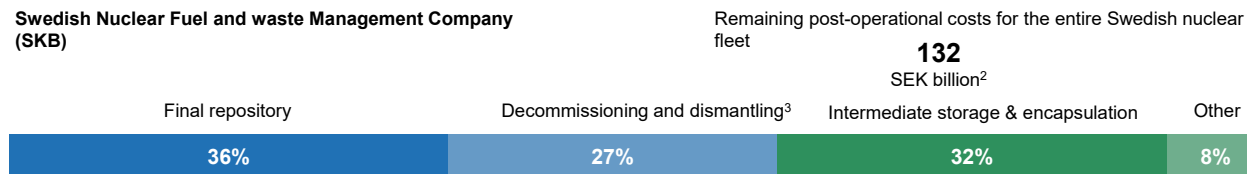
Nuclear power plant owners in Sweden are obligated to finance the costs for dismantling and management of spent nuclear fuel. The financing is handled by payment of fees for each generated kWh to the Swedish Nuclear Waste Fund, which manages paid-in funds. The fund also reimburses owner for the payment to SKB (responsible for long term safe-handling of radioactive waste) meeting the obligation based on Swedish law.

Sweden

Nuclear power operators	Payments based on generated kWh	Swedish Nuclear Waste Fund	Financial implications	EBIT	Funds from operations (FFO)	Adjusted net debt (AND)
	Swedish National Debt Office decides on disbursements from the fund	The fair value of the Vattenfall Group's share in the Swedish Nuclear Waste Fund was SEK 47 billion as of 31 June 2022	Valuation of nuclear provisions	Provision value depreciated over operating life-time of nuclear power plant ¹	N/A	Included in AND
			Payments to the Swedish Nuclear Waste Fund	No impact	Negative impact through payment to the Swedish Nuclear Waste Fund	Increase fund balance (offset AND)
			Decommissioning activities	No impact	FFO neutral	AND neutral

In Germany

Following the nuclear accident in Fukushima, Japan in 2011, Germany's government decided to shut down all the 17 nuclear power plants by 2022. The German state took over the responsibility for interim and final storage of low and intermediate level spent nuclear fuel in 2017, funded by the contributions that the NPP operators paid to state-controlled fund. The German Federal Council must agree on a suitable location for permanent storage of spent nuclear fuel by 2031 and final repository by 2050. The spent nuclear fuel and radioactive waste must be stored in interim storage close to the nuclear power plant.



Germany

Nuclear power operators	German state	Financial implications	EBIT	Funds from operations (FFO)	Adjusted net debt (AND)
Decommissioning and dismantling	Transport Intermediate storage Final repository	Valuation of nuclear provisions	Non-operating plants – change in provision valuation directly impacts EBIT	N/A	Included in AND
		Decommissioning activities	N/A	Negative impact	AND neutral

¹ For reactors no longer in operation, nuclear provisions has an immediate effect on EBIT

² Remaining costs based on plan 2022, to be decided by the government end of 2023

³ Decommissioning and dismantling are the responsibility of the nuclear power operators and are not included in SKB's operations

Hydro power

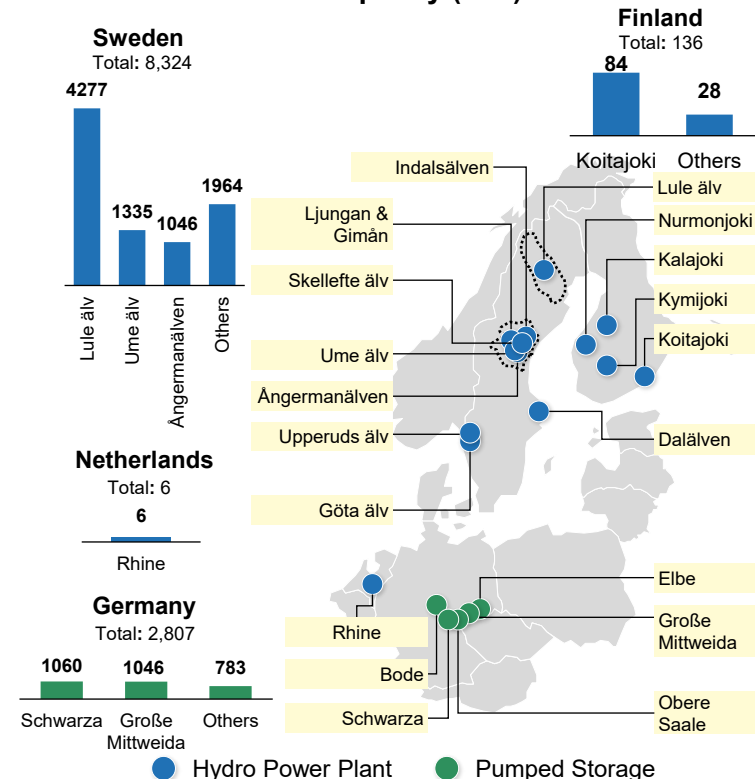
Hydro overview

- We own and operate hydro power plants, most of which are located in Sweden (79 sites). Additional sites are located in Germany (pumped storage, 8 sites), Finland (9 sites) and the Netherlands (1 site). In 2020, Vattenfall's hydro power capacity of 11.5 GW generated 40.9 TWh (39.7)
- In response to the increasing value of dispatchable production, investments in our hydro power stations have focused on refurbishments and upgrades that increase availability and flexibility. We are also undertaking a number of initiatives to reduce the negative effects of hydro power on ecosystems and biodiversity

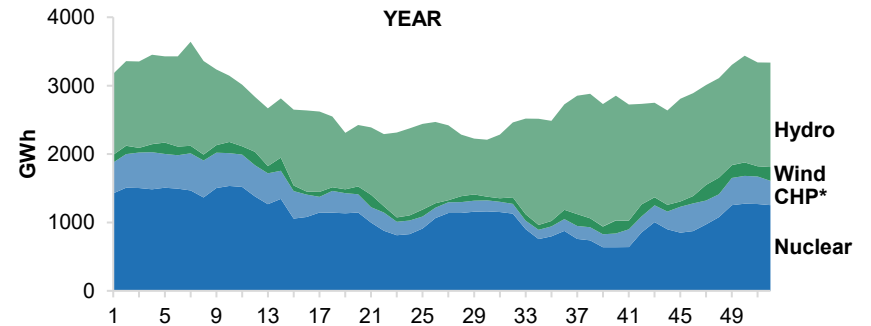
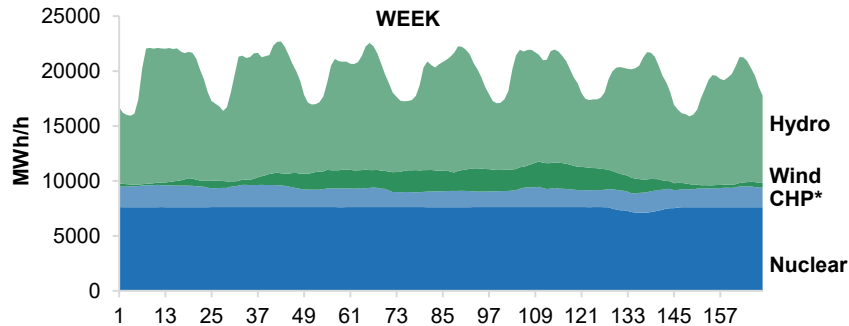
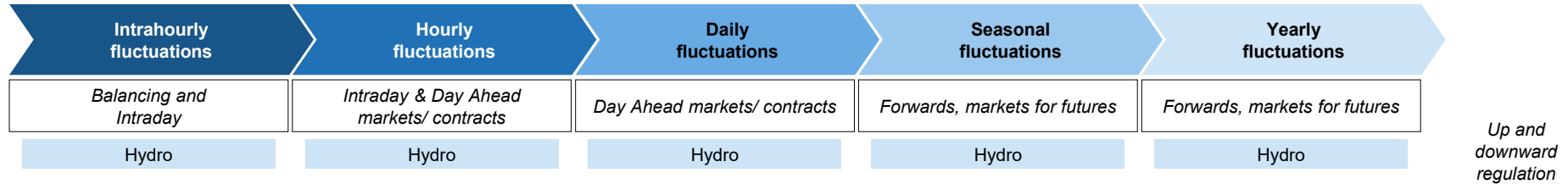
Major Hydro Power Plants

	Project	Turbine Type	Installed Capacity (MW)	Country	River	Vattenfall ownership share	Commission Year
Hydro Power	Harsprånget	Francis	871	Sweden	Lule älv	100%	1951
	Letsi	Francis	486	Sweden	Lule älv	100%	1967
	Messaure	Francis	463	Sweden	Lule älv	100%	1963
	Porjus	Francis	430	Sweden	Lule älv	100%	1915
	Stornorrfors	Francis	604	Sweden	Ume älv	75%	1958
Pumped storage	Goldisthal	Francis/Ossberger	1,060	Germany	Schwarza	100%	2004
	Markersbach	Francis/Ossberger	1,046	Germany	Große Mittweida	100%	1981
	Hohenwarte II	Francis	320	Germany	Obere Saale	100%	1966

River stream installed capacity (MW)



The inherent flexibility of Vattenfall's hydro power visualised













Flexible hydro power plays an instrumental role in an energy system with more and more wind and solar power

The intensified focus on climate change and CO₂ emissions has contributed to significant growth in installed capacity of renewable energy sources. However, the intermittent nature of these energy sources makes it necessary to have back-up capacity. Flexible hydro power can offer its huge reservoirs of stored water as a giant “green” battery for the Nordic region and other markets (with the help of interconnectors)

*Combined heat and power plant (CHP)

Major deals on Corporate PPAs and PPAs

Our goal is to sell 10 TWh of renewable electricity (Corporate PPAs) annually by 2026

<p>Current volume CPPA: ~1 TWh</p>		 <p>2,600 GWh</p>	<p>BASF purchased 49.5% of Vattenfall's wind farm Hollandse Kust Zuid. BASF acquired the electricity from the wind farm for its ownership share through a Corporate PPA. The wind park becomes fully operational in 2023.</p>
		 <p>600 GWh</p>	<p>Vattenfall expands partnership with Air Liquide by delivering 500 GWh of renewable electricity per year for 15 years starting in 2025. This Corporate PPA comes in addition to an already existing 100 GWh-PPA.</p>
		 <p>60 GWh</p>	<p>Vattenfall will provide solar power to Deutsche Telekom from a 50 MW solar farm over a tenor of 10 years and to Bosch from a 10 MW solar farm for 12 years. Both solar farms are located in North-East Germany.</p>
<p>Current capacity PPA: 9.1 GW</p>		 <p>253 MW</p>	<p>Vattenfall has signed a 6-year agreement with Energy Infrastructure Partners and Enercon regarding balancing services and market access for the wind farm Markbygden Phase II North</p>
		 <p>300 MW</p>	<p>Vattenfall has signed a 15-year purchase agreement for renewable electricity from the Zeewolde onshore wind farm in the Netherlands</p>

Wind



VATTENFALL

Wind

One of the biggest renewable energy players in Europe

Overview

- Strong position within Offshore Wind with an extensive pipeline
- A pioneer within Offshore Wind from the outset and a leader in the reduction of levelised cost of energy
- One of the largest producers of Onshore Wind power in Denmark and the Netherlands
- Highly experienced team managing all key processes with close supplier collaboration along the value chain
- Strong platform and project execution track record
- Reputation as a trustworthy partner helps securing financing and off-takers
- Front-runner on innovative solutions within Solar PV & Batteries such as co-location with wind farms and shared infrastructure

Highlights



2.6 GW installed Offshore Wind capacity



1.6 GW installed Onshore Wind capacity



~3 GW Solar PV and Batteries pipeline



Blakliden Fäbodberget, Scandinavia's largest onshore wind farm to date

Key data

	FY 2021	FY 2020
Net sales (SEK bn)	20.9	13.6
External net sales (SEK bn)	7.8	6.9
Underlying EBIT ¹ (SEK bn)	7.9	4.0
Electricity generation (TWh)	11.2	10.8
Investments (SEK bn)	12.6 ²	5.8 ²

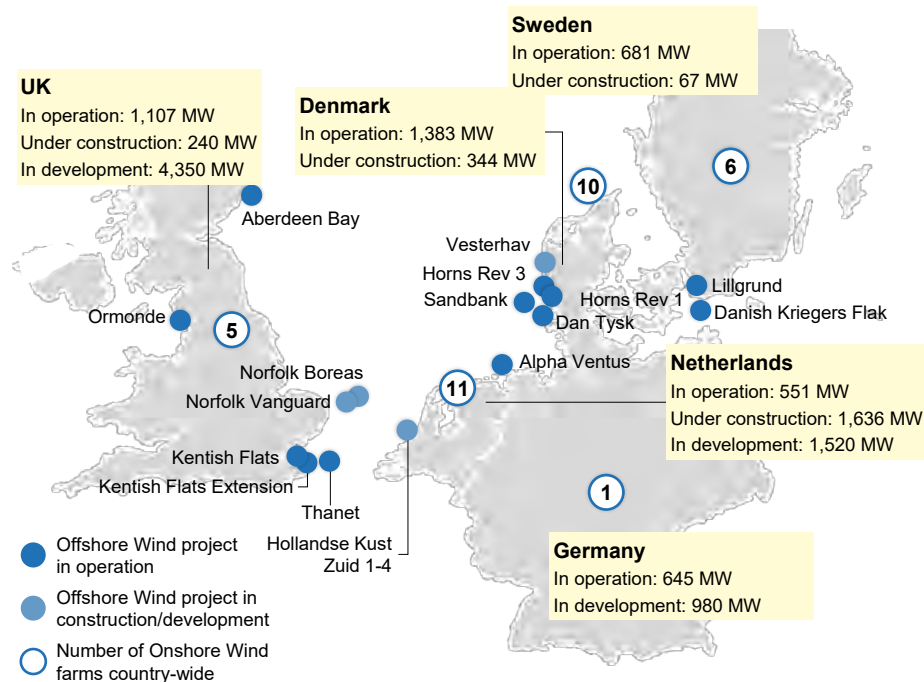
¹ Operating profit excluding items affecting comparability

² Excluding investments in projects under develop-to-sell assumptions

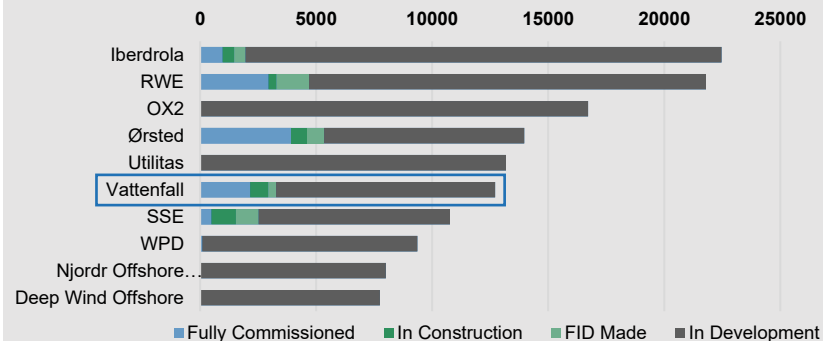
A leader in the European renewables transition

Strong position within Offshore Wind and extensive European pipeline ahead

Geographical overview – we develop, construct and operate Wind and Solar PV farms in our core European markets¹



Capacity of top 10 European Offshore Wind Players (MW)²



² 4COffshore database as of March 2022; net capacity (i.e. only showing owned capacity)

Under construction and pipeline¹

> 2 GW

Wind projects under construction

~ 7 GW

Wind projects in development (mature stage)

~ 3 GW

Solar PV projects in development

~ 500 MW

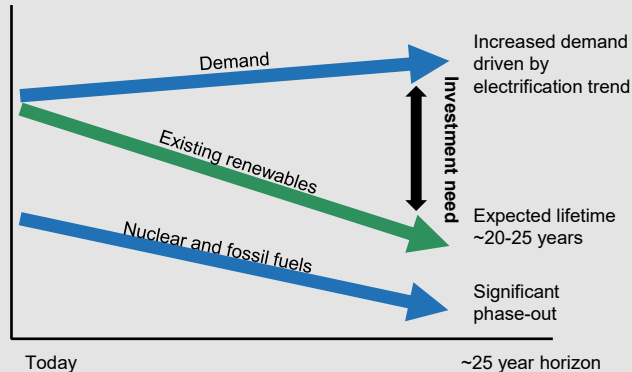
Batteries pipeline

¹ As of September 2022

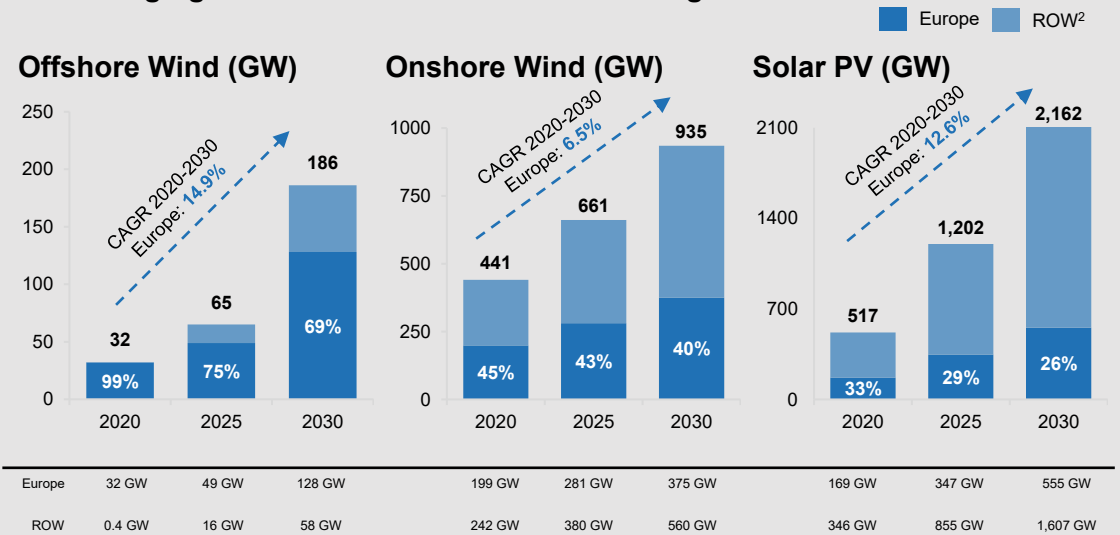
Europe continues to be a highly attractive growth market

Despite significant ramp-up in renewables, much more growth is expected in the coming decade

Increasing demand and phase-out of coal gives plenty of room for growth in Europe



Double-digit growth across renewables technologies until 2030¹

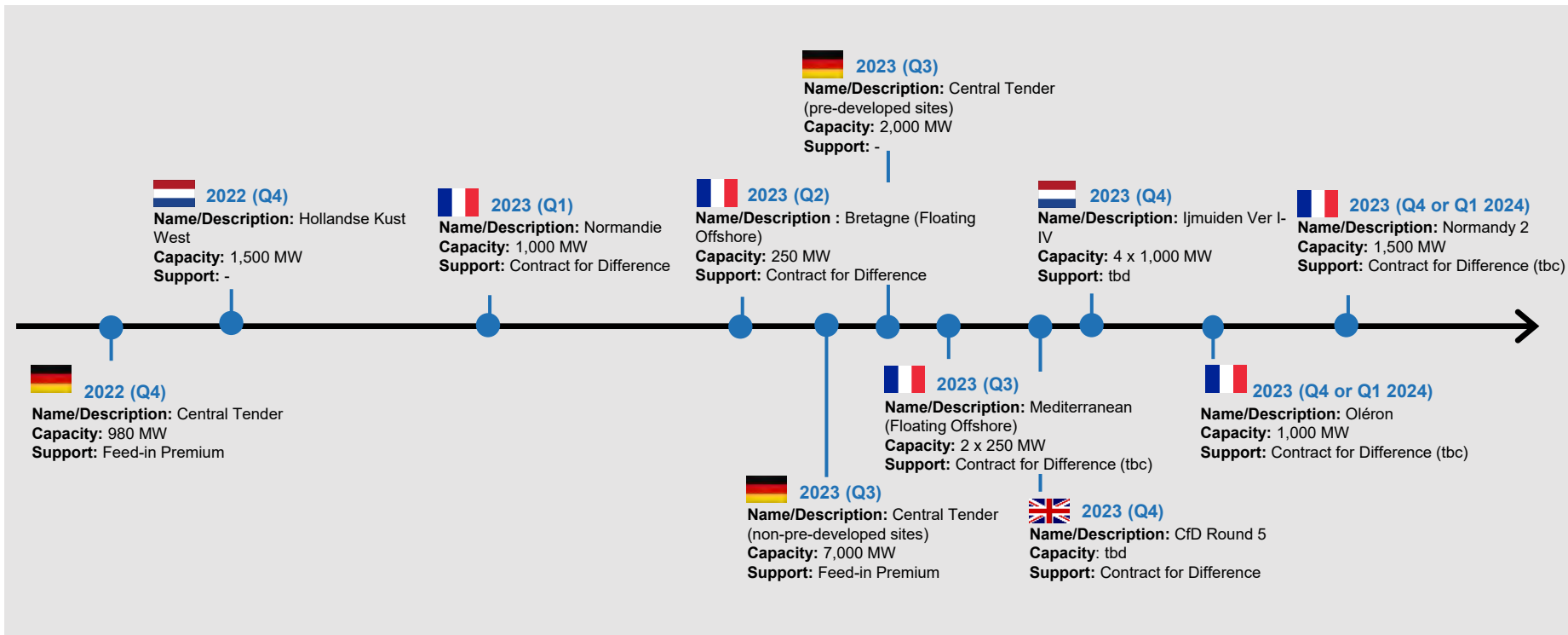


¹ Source: Wood Mackenzie, cumulated capacity

² ROW excludes China

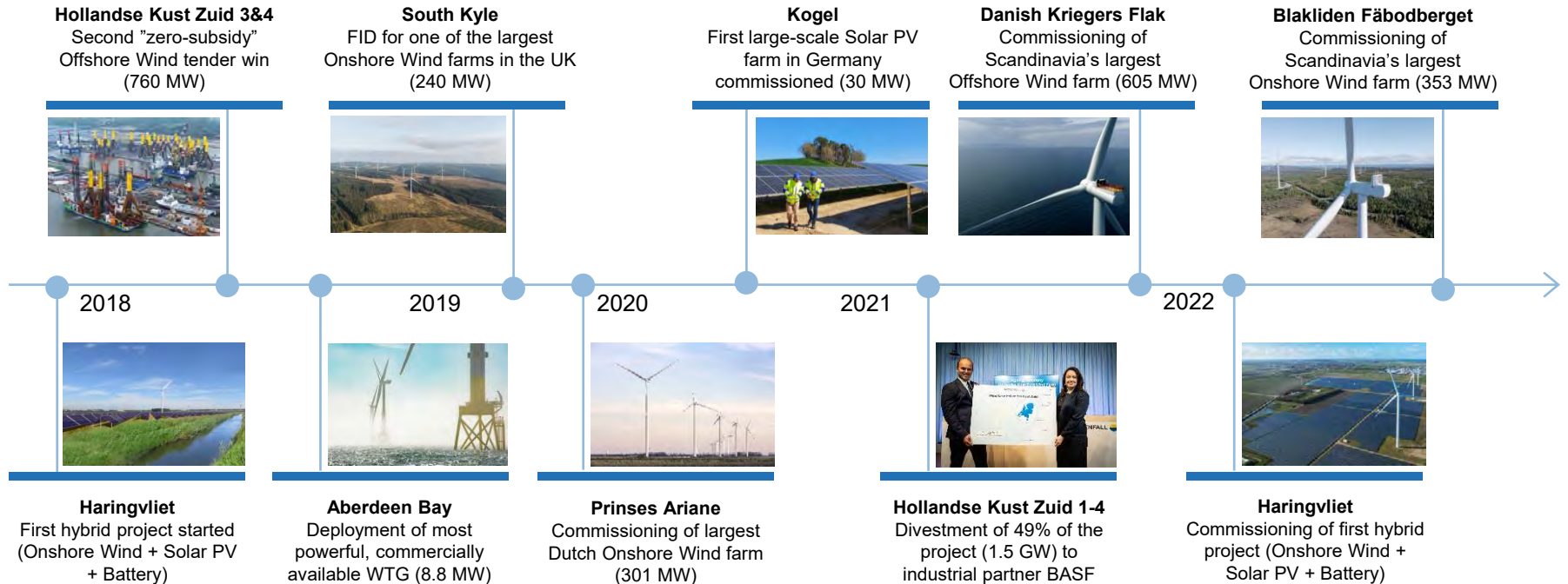
Pipeline of opportunities supports Vattenfall ambitions

Several upcoming offshore wind tenders in relevant markets*



* Listed by expected award date

Accelerate fossil-free living with the power of renewables



Examples of partnership structures within wind and solar



DanTysk and Sandbank (DE)

Status: in operation

Specs: Offshore Wind (288 + 288 MW)

Partner: Stadtwerke München

Deal structure: jointly owned subsidiary (Vattenfall share: 51%) that constructed and now operates the wind farm.

Coevorden (NL)

Status: in operation

Specs: Solar PV (7 MW)

Partner: Patronale

Deal structure: sale of 100% stake in operating Solar PV farm.

Blakliden/Fäbodberget (SE)

Status: in operation

Specs: Onshore Wind (353 MW)

Partners: Vestas and PKA

Deal structure: sale of 70% stake before construction. In addition, ~60% of the production is covered in 20-year PPA (with Norsk Hydro).

South Kyle (UK)

Status: under construction

Specs: Onshore Wind (240 MW)

Partner: Greencoat UK Wind

Deal structure: sale upon completion and operation of the wind farm for a minimum of 10 years. Vattenfall will also purchase the power for a period of 15 years.

Hollandse Kust Zuid (NL)
























Status: under construction

Specs: Offshore Wind (1,500 MW)

Partners: BASF and Allianz

Deal structure: sale of 49.5% stake in post-FID project.

Overview of current regulatory regimes

Country	Name	Founding year/ Status/Technology	Overview	Time period
	Contracts for Difference (CfD)	Founding year: - Status: in force Eligible technology: 	<ul style="list-style-type: none"> A settlement price is guaranteed to the Offshore power provider. The support is based on the difference between agreed and market price If market price is lower than the agreed price, the project owner receives the support. If the market price is higher than the agreed price, the profit is divided between the project owner and the government 	<ul style="list-style-type: none"> Maximum of 20 years (after the wind farm has been connected to the grid)
	Feed-in premium	Founding year: 2009 Status: in force Eligible technology:  	<ul style="list-style-type: none"> Since 2020, all onshore solar and wind run at merchant risk. However, projects before 2020 receives subsidies equivalent to the difference between the spot market price and the fixed support income. Vattenfall has disinvested from onshore wind and solar development. Four existing onshore wind farms receive subsidies. 	<ul style="list-style-type: none"> Depends on the type of technology and date of commissioning
	Contracts for Difference (CfD)	Founding year: 2014 Status: in force Eligible technology:   	<ul style="list-style-type: none"> A Contract for Difference (CfD) is a private law contract between a renewable electricity generator and the CfD counterparty – Low Carbon Contracts Company (LCCC) The CfD is based on a difference between the market price and an agreed “strike price” If strike price > market price: The CfD counterparty must pay the difference between the two to the generator If strike price < market price: The generator must pay the difference between the two to the CfD counterparty 	<ul style="list-style-type: none"> CfD contracts are awarded for a period of 15 years, index linked to CPI
	MEP ¹ / SDE+ / SDE++	Founding year: 2011 Status: in force Eligible technology ² :  	<ul style="list-style-type: none"> Provides a feed-in-premium subsidy that covers the financial gap between the cost of the subsidised sustainable technology and the cost of the fossil alternative, e.g. difference between wholesale electricity prices and cost of electricity from renewable sources The budget is based on an auction system, where the lowest bidder receives the premium Total budget of SDE++ 2022: at least € 8 billion 2022: lifting of the overall 35 TWh subsidy ceiling for renewable electricity in 2030. 	<ul style="list-style-type: none"> Premium is paid for a period of up to 15 years
	EEG	Founding year: - Status: in force Eligible technology:   	<ul style="list-style-type: none"> Several models deployed over the years. Prior to 2017, FIT system. This has now been replaced with a tendering process (prices set by competitive auctions) where projects receive contracts to sell the produced electricity at the bid price Bids are based on floating market premium Market Premium: reference value of the respective renewable energy plant minus its technology-specific market value 	<ul style="list-style-type: none"> Market premium is paid for a period of 20 years
	The Electricity Certificate System	Founding year: 2003 Status: in force Eligible technology:   	<ul style="list-style-type: none"> The demand for certificates is regulated by a quota system, which is fixed in proportion to total electricity use (energy intensive industry is exempted) The electricity producer receives a certificate for each MWh from renewable sources and sells it to electricity consumers on the open market Since December 2021, the Electricity Certificate system is closed for new plants. 	<ul style="list-style-type: none"> The system will be entirely closed down by 2036
	Contracts for Difference (CfD)	Founding year: 2010 Status: in force Eligible technology:   	<ul style="list-style-type: none"> A Contract for Difference (CfD) is in place and is based on a difference between the market price and an agreed “strike price” If strike price > market price: State must pay the difference to the producer If Strike price < market price: Producer must pay the difference to the State 	<ul style="list-style-type: none"> 20 years, partially indexed on labour and industrial production

¹ Older version of the SDE+ scheme

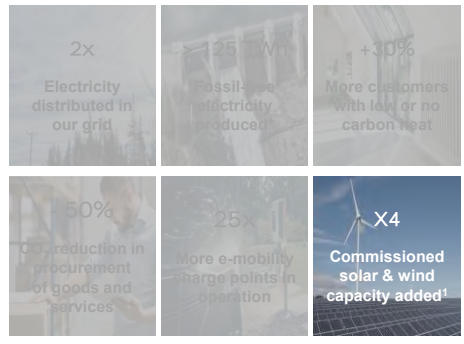
Pipeline of opportunities supports Vattenfall's ambitions

Many projects in pipeline and several upcoming tenders in relevant markets

Commissioned capacity (2021; 2024 forecast) & development pipeline towards 2030 (GW)



Commitments related to 1.5 degree target



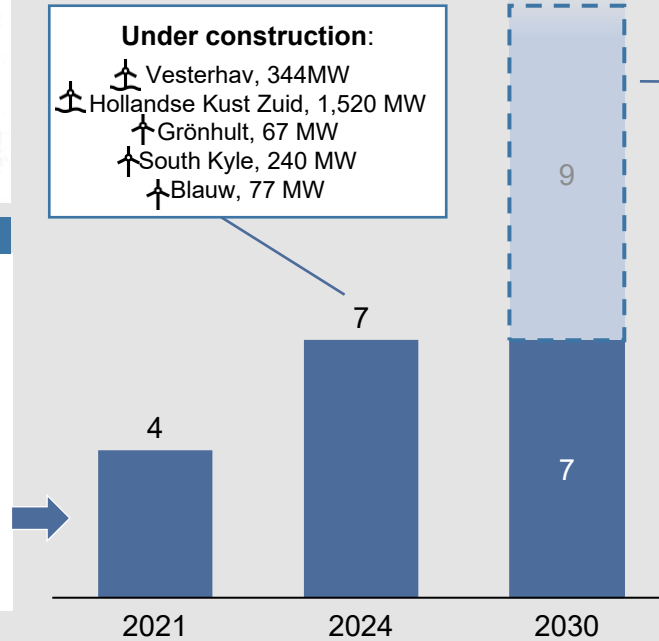
Under construction:

- ⚓ Vesterhav, 344MW
- ⚓ Hollandse Kust Zuid, 1,520 MW
- ⚓ Grönhult, 67 MW
- ⚓ South Kyle, 240 MW
- ⚓ Blauw, 77 MW

Offshore Wind ⚓

In development:

- 🇬🇧 Norfolk projects: 3,600 MW (mature stage)
 - 🇳🇱 Hollandse Kust West: 1,500 MW (bid submitted)
 - 🇩🇪 Site N-7.2: 980 MW
 - 🇬🇧 Scotwind: 750 MW
- Other opportunities: ~5 GW, e.g.:
- 🇩🇪 Site N-6.6: ~600 MW (secured)
 - 🇸🇪 Swedish Kriegers Flak: 600 MW (secured)
 - 🇬🇧 Mara Mhør: 798 MW (secured)
 - 🇫🇷 Normandie (1,000 MW), Bretagne (250 MW), Méditerranée (250 MW) (pre-qualified for all 3)
 - 🇳🇴 Sørlige Nordsjø 2 (1,500 MW)














¹ Base year 2020 (4 GW commissioned)

Wind & Solar - Installed capacity (MW¹) Q3 2022

	Solar	Onshore	Offshore	Total
United Kingdom	0	421	686	1,107
Denmark	0	213	1,170	1,383
The Netherlands	74	476	0	551
Sweden	0	571	110	681
Germany	7	60	636	703
Total (MW)	81	1,741	2,602	4,425

 Solar
 Onshore
 Offshore

United Kingdom – ROC scheme

 Thanet	300
 Ormonde (51%)	150
 Aberdeen	97
 Kentish Flats	90
 Kentish Flats Extension	50
 Pen Y Cymoedd	228
 South Kyle	38
 Ray	54
 Edinbane	41
 Clashindarroch	37
 Swinford	22














Installed capacity (MW) 1,107

Sweden – certificate scheme

 Blakliden + Fäbodberget	353
 Lillgrund	110
 Stor-Rotliden	78
 Högabjär-Kårsås (50%)	38
 Höge Väg (50%)	37
 Hjuleberg (50%)	36
 Juktan (50%)	29






Installed capacity (MW) 681

Denmark – FIT scheme

 Kriegers Flak	605
 Horns Rev 3	407
 Horns Rev 1 (60%)	158
 Klim (98%)	67
 Nørrekær Enge 1 (99%)	30
 Rejsby Hede	23
 Hagesholm	23
 Nørre Økse Sø	17
 Tjæreborg Enge	17
 Bajlum (89%)	15
 DræbyFed	9
 Ejsing (97%)	7
 Lyngmose	5




















Installed capacity (MW) 1,383

Germany – EEG scheme

 DanTysk (51%)	288
 Sandbank (51%)	288
 alpha ventus (26%)	60
 Westküste (20%)	7
 Decentral Solar installations	2

Installed capacity (MW) 645

The Netherlands – MEP/SDE(+)

 Princess Ariane	184
 Princess Alexia	122
 Haringvliet	38
 Slufterdam	29
 Moerdijk	27
 Haringvliet	22
 Nij Hiddum Houw	19
 A16 / Klaverspoor	17
 Eemmeerdijk	17
 Irene Vorrink	17
 Echteld	8
 Oom Kees (12%)	6
 Oudendijk	5
 Hiddum Houw	4
 Eemshaven	6
 Velsen	2
 Hemweg	2
 Diemen	1
 Decentral Solar installations	25

Installed capacity (MW) 551

¹ Capacity in operation: total capacity of the wind farms that Vattenfall has an ownership in. Minority shares included as 100%

Main renewables projects in our 5 core countries

Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
NL	Hollandse Kust Zuid 1-4	1,520	-	X	-	51	2023	Under construction, Partnering with BASF
DK	Vesterhav	344	FIT	X	50.000hrs	100	2023/2024	Under construction
NL	Ny Hiddum Houw	19	SDE+	X	15 yrs	100	2023	Under construction
UK	South Kyle	240	-	N/A	-	100	2022	Under construction
NL	A16	20	SDE+	X	15 yrs	100	2022	Under construction
SE	Grönhult	67	Certs	N/A	-	0 ¹	2023	Under construction
NL	Windplan Blauw	77	SDE+	X	15 yrs	100	2023	Under construction
UK	Battery@Ray	20	-	-	-	100	2022	Under construction
In construction		2,307						
UK	Norfolk projects	3,600	CfD		15 yrs	100	2027-2029	Norfolk Boreas received CfD in AR4, Norfolk Vanguard is preparing for CfD bid in AR5
UK	Scotwind	750	CfD			50	2030	Under development with consenting and permitting progressing to ensure participation in the CfD bid, JV with Fred Olsen
NL	Hollandse Kust West	1,520	-		-	51	2025-2027	Bids submitted on May 12th
DE	N-7.2 (Global Tech II)	980	-		-	100	2027	Development rights received in September 2022, FID planned for 2023
In development (in mature stage)		6,850						

■ Offshore
 ■ Onshore
 ■ Solar
 ■ Batteries

¹ The project has been sold but Vattenfall will build and operate the wind farm

Heat



VATTENFALL






Heat

One of Europe's leading players in district heating

Overview

- One of Europe's leading players in district heating in metropolitan areas
- Building and operating district heating assets and grids in 4 countries and ~ 25 cities
- Solid, semi-regulated revenue streams
- Attractive growth prospects supported by urbanisation trend and increasing regulatory support for low carbon heating
- Strong partnerships with cities for realisation of their carbon reduction plans / targets
- Heat generation & distribution systems are a platform to integrate other energy solutions, e.g. cooling, energy from waste, wind and solar
- In the UK, construction of Vattenfall's first district heating and cooling network is under construction and is planned to be operational in 2023

Highlights

-  > **5,500 km** heat grids in operation
-  ~ **9 GW** heat capacity
-  ~ **6 GW** electricity capacity
-  ~ **2 million** heat related end customers
-  < **0.5%** churn rate



Key data

	FY 2021	FY 2020
Net sales (SEK bn)	34.8	23.3
External net sales (SEK bn)	14.7	13.5
Underlying EBIT ¹ (SEK bn)	-0.3	1.0
Electricity generation (TWh)	19.0	22.8
Sales of heat (TWh)	15.6	13.8

¹ Operating profit excluding items affecting comparability

Heat

Overview of markets and installed capacity

The Heat operating segment includes VF's heating & condensing businesses. Our core business is district heating, where we have growing end customer base in metropolitan areas like Berlin, Amsterdam, Uppsala & London. In the UK, Vattenfall has secured several contracts to supply low carbon district heating and help decarbonise the real estate sector. The condensing business consists of gas-fired power plants in the Netherlands.

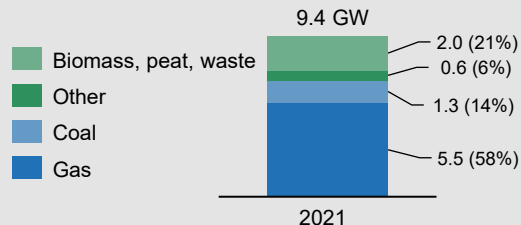
Heat cluster 2021

	Heat (TWh)	Power (TWh)
Germany	10.3	6.8
Sweden	3.2	0.2
Netherlands	1.9	-
Total	15.4	7.0

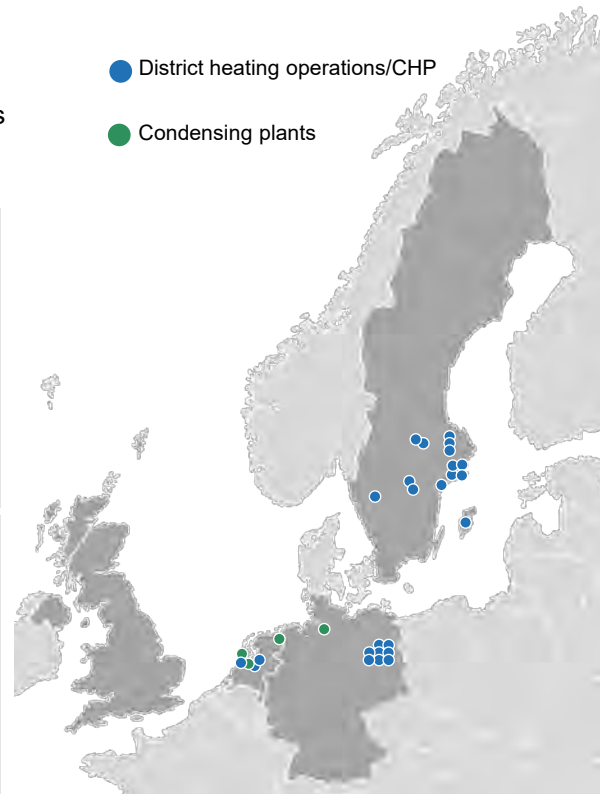
Condensing cluster 2021¹

	Heat (TWh)	Power (TWh)
Germany	0.1	0.1
Netherlands		11.6
Total	0.1	11.7

Installed capacity by GW_{heat}



Transformation into fossil-free heat supply by 2040

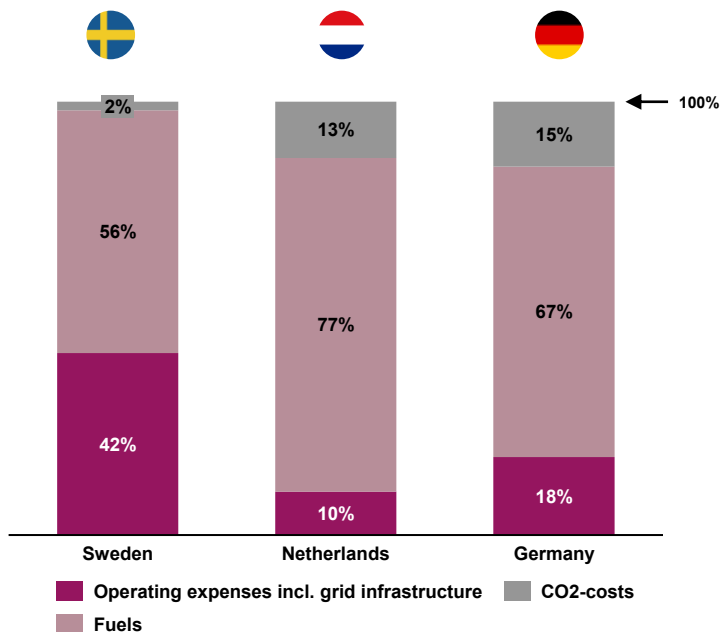


¹ Magnum plant: Change of ownership per September 2022

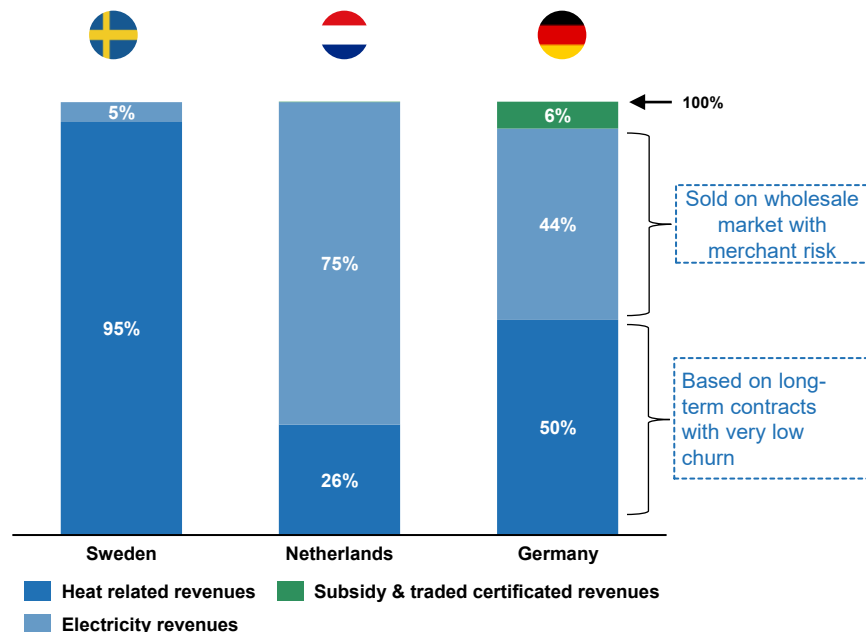
District heating & condensing revenue and cost structure

Business model differs per country – in Sweden stable heat revenues account for 95% of the total

Cost split (indicative)^{1,2}



Revenue split (indicative)²



¹ SWE: including Heat SWE, Heat Projects SWE, BA Staff SWE | NL: including Heat NL, Condensing NL, Heat Projects NL, BA Staff NL | GER: including Heat Berlin, Heat Projects GER, BA Staff GER

² Split as of 2021

Political support for district heating across our markets

District heating is an attractive option for cities to decarbonise their building sectors

As of 2022-08-13



"European Climate Law"

2030 climate target: **-55% net GHG⁴ emission (compared to 1990 levels)**; 2050 target: EU-wide climate neutrality |

„Fit for -55% package“
[tabled 14 July 2021]

Increased requirements for heating/cooling and buildings sector: share of renewables, phase out coal, demand reduction/energy efficiency | energy system integration; power-to-heat is gaining momentum, increased positive perception for district heating and cooling (focus renewable sources and waste heat; avoid "lock in" of gas -> 100% climate neutral/hydrogen ready CHP); Hydrogen one priority area; CO₂ pricing

	Market maturity ¹	Political support	Competitiveness	Concession based	Price setting (heat)	Typical customer contract length
	Young	Low carbon district heating market share 30% by 2030 in metropolitan areas ² (2% today)	Highly competitive once plans to mandate district heating for new build are put in place allied with stronger government focus on district heating as a key net zero enabler	Mainly yes, (e.g. for Brent Cross South > 40 years)	Price escalation formula for heat	30 years
	Mature + Transition to Green	Prolonged CHP production support / subsidies Green heat funding program approved by EU	Highly competitive Low primary energy factor for new houses Reliable and comfortable delivery of city heating	No	Price escalation formula for heat	up to 10 years
	Mature + Transition to Green	Natural gas phase out boosts renewable district heating. Subsidy schemes for renewable heat sources and connecting existing buildings	Competitive pricing against natural gas due to Heat Act, but because of the connection costs it's normally still cheaper to stick to the gas boiler. The current energy crisis / rising gas prices has increased the competitiveness of district heating. Competitive in relation to heat pumps.	Mainly concession based, a typical term is then 30 years ³	Heat supply via district heating has to be cheaper (or equal) than pure gas-fueled boiler solutions. Other (maximum) tariffs are based on average sector costs	15-25 years
	Mature (already green)	Supportive but few special incentives	Competitive position that is being challenged by heat pumps	No	No heat price regulation	Until further notice

¹ Referring to how established the technology is on the market and the future growth prospects

² District heating market share of 30% in metropolitan areas follows governmental goal to reach low carbon heat supply by 17% district heating UK wide



³ The other type of contract is the heat delivery contract. Contracts are then building-specific with a typical contract length of 10 years

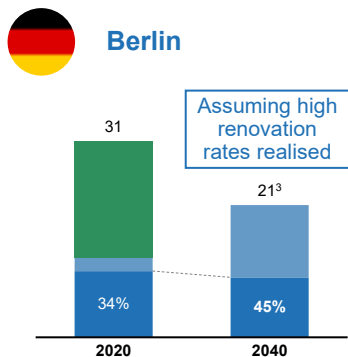
⁴ GHG: greenhouse gas emissions

District heating volumes set to increase significantly in Amsterdam and the UK...

... with a stable trend in Berlin and Uppsala as population growth is offset by energy efficiency measures

Heat consumption (TWh) and district heating market share (%) by City, 2020 vs 2040

■ District Heat ■ Electricity, Renewables & Other ■ Fossil

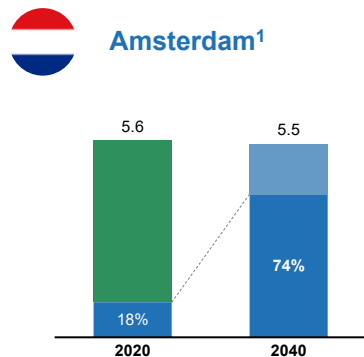


Dominating fuel (district heat)

Gas/coal/waste Power to heat/green gas/biomass/TPI

Rapid phase out of coal and totally fossil free by 2040+

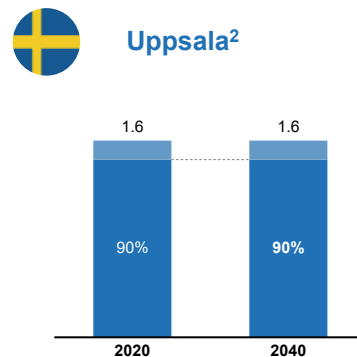
Total heat demand set to decrease due to energy efficiency measures; district heating volumes stable with increased market share



Gas/waste Power to heat/green gas/waste

Gas boiler phase out set to spur dramatic increase in district heating

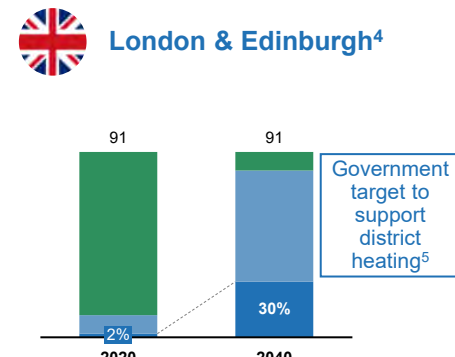
Stable total heat demand – population growth offset by energy efficiency measures



Biomass/waste Biomass/waste

Mature market with dominant market share of district heating

Stable heat demand – population growth offset by energy efficiency measures

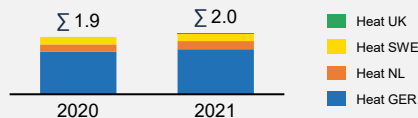


Gas Power to heat/waste

Dramatic growth of district heating expected as market share increases to 30% in 2040

Stable heat demand – population growth offset by energy efficiency measures

of household equivalents (end-consumers) [in mln]



■ Heat UK
■ Heat SWE
■ Heat NL
■ Heat GER

¹ Simplified to reflect connections in Amsterdam/Almere (= 70% of Heat Netherlands); Source for 2040: Study by Municipality of Amsterdam

² Simplified reflecting Uppsala demand (= 42% of Heat Sweden supply)



















³ Source: Feasibility study with City of Berlin (2019) here considering building efficiency increase of 1.5% p.a.

⁴ First cities VF has entered the Heat UK market | ⁵ District heating market share of 30% in metropolitan areas follows governmental goal to reach low carbon heat supply by 17% district heating UK wide

















Overview of largest heat and condensing plants














Germany

Power and heat plants	Fuel	Capacity heat (MW)	Capacity electricity (MW)
Lichterfelde		609	300
Klingenberg		760	164
Reuter West		878	564
Marzahn		924	264
Mitte		680	444
Wilmersdorf		120	0
Charlottenburg		300	144
Moabit		247	123
Reuter		219	36
Scharnhorststraße		167	1
Buch		137	12,5
Lange Enden		111	4
Märkisches Viertel		106	6
Köpenick		47	11
Treptow		39	-
Friedrichshagen		29	-
Blankenburger Str		19	1
Altglienicke		25	1

The Netherlands

Power and heat plants	Fuel	Capacity heat (MW)	Capacity electricity (MW)
Magnum*		-	1,410
Velsen		-	869
Diemen		615	684
Hemweg 9		-	440
IJmond		105	144
Almere Hogering		175	-
Almere Stad		112	-
Schuytgraaf		60	-
Duiven Westervoort		59	-
Waalsprong		41	-
Lelystad		25	12
Arena Holterbergweg		20	-
Boris Pasternak		19	-
Amsterdam Driehoek		120	-

Sweden

Power and heat plants	Fuel	Capacity heat (MW)	Capacity electricity (MW)
Uppsala		822	10
Storvreta		15	-
Haninge Tyresö		252	19
Nyköping		208	25
Gotland		143	-
Motala		104	4
Vänernsberg		90	-
Ludvika		79	-
Fagersta		66	-
Knivsta		45	-
Gustavsberg		43	-
Fisksätra		16	-
Askersund		11	-

 Biomass  Coal  Gas  Steam

Distribution



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Distribution

Leading owner and operator of electricity distribution grids in Sweden

Overview

- Largest operator of regional electricity distribution grids in Sweden and top-3 position in local grids
- Regulated business with stable demand
- Enabler of the energy transition by connecting renewable production to the grid
- Demand set to grow – Vattenfall grids are located in areas with population growth and strong demand for industrial electrification
- High operational efficiency compared to industry average
- Our positioning across the whole energy value chain enables us to take advantage of our grids using both demand and supply side flexibility

Highlights¹



970 000 household and business customers



~139,000 km of electricity grids



SEK 6.0 billion in investments 2021



SEK 58 billion RAB 2021



Key data

	FY 2021	FY 2020
Net sales (SEK bn)	17.3	21.6
External net sales (SEK bn)	14.6	17.0
Underlying EBIT ¹ (SEK bn)	3.2	5.3
Investments (SEK bn)	6.0	7.6
SAIDI ² (minutes/customer)	112	148
SAIFI ³ (number/customer)	1.8	2.0
RAB	58	53

¹ Operating profit excluding items affecting comparability

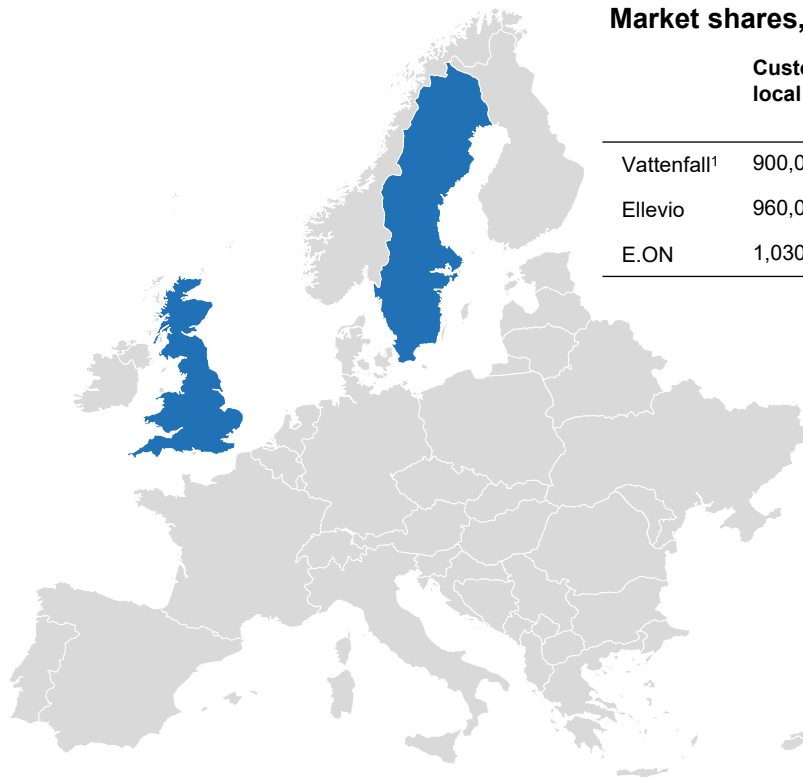
² SAIDI: System Average Interruption Duration Index

Distribution

Market and business overview

In brief

- Vattenfall's Distribution business owns and operates electricity distribution grids in Sweden.
- Approximately 900 000 business and household customers¹
- A new business unit for operation and ownership of new grids in the UK was established in 2017. Vattenfall is one out of 14 established IDNOs⁴ in the UK
- On 1 July 2021, Vattenfall sold the electricity grid company Stromnetz Berlin GmbH to the State of Berlin



Market shares, Sweden

	Customers local grids	Markets share regional grid ²	Market share local grid ³
Vattenfall ¹	900,000	53%	16%
Ellevio	960,000	22%	17%
E.ON	1,030,000	23%	19%

¹ Excluding Vattenfall's subsidiaries Gotlands Elnät and Västerbergslagens Elnät

² Based on volume of transited energy excluding grid losses

³ Based on number of contracts

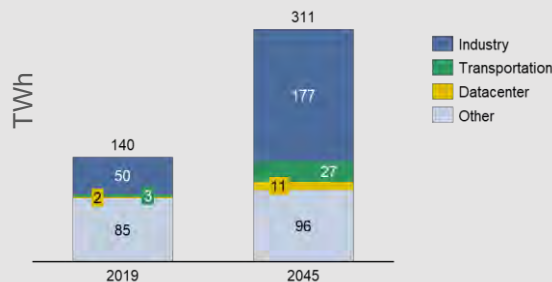
Energy transition to spur dramatic growth in electricity demand in Sweden

Electrification, growth in renewable production capacity and ageing assets call for large grid investments

Electricity demand set to grow due to electrification and new electricity intensive businesses

- Electrification of industry and transports to increase total electricity demand
- New businesses such as data centres and battery factories are also likely to have a significant impact
- Efficiency improvements in the residential sector only have a small mitigating effect on total demand

Forecast – Total electricity demand (Sweden)¹



¹ Source: Färdplan EI, Scenarioanalys om Sveriges framtida elanvändning fram till 2045 – Högnivåscenario, April 2021

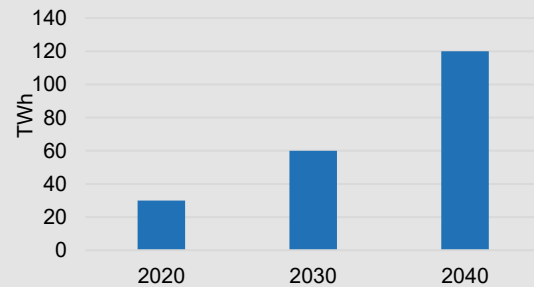
² Source: Svensk vindenergi, Färdplan 2040, Dec 2020

³ Asset base per 2020-01-01

Installed wind capacity continues to grow

- More and more capacity will be intermittent and decentralised
- Wind production is set to continue the growth in Sweden, mainly in the North and off the coast in Southern Sweden which increases the need for grid capacity

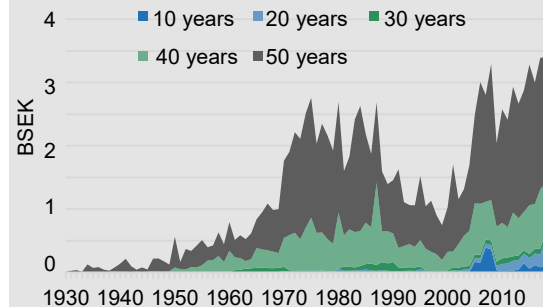
Forecast – wind power generation (Sweden)²



Existing grid assets are increasingly in need of reinvestments

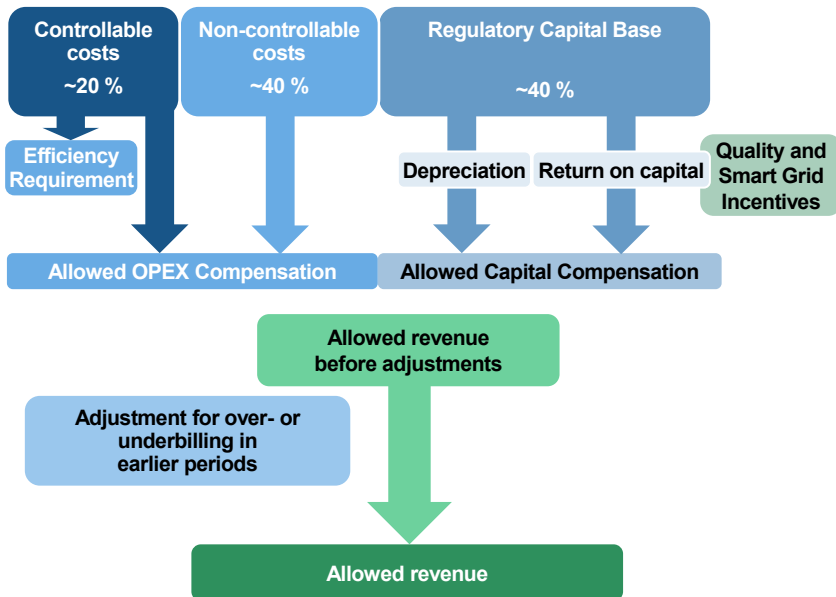
- There was a large build out of grid assets in 1970-1990. These assets are now reaching the age when they need to be reinvested in
- This is on top of the need to make new investments in the grid to accommodate more renewable energy and electrification

Asset age structure – Vattenfall Eldistribution³



Regulatory revenue framework Sweden

Schematic overview - revenue Sweden



Legal process

- In June 2022, the Swedish Administrative Court of Appeal issued a ruling on the revenue frames for the electricity grid companies for the regulatory period 2020-2023.
- The ruling means that the Swedish Energy Markets Inspectorate will need to decide on new revenue frames for the regulatory period 2020-2023. It also voids the application of previous court rulings, which creates ambiguities for how the weighted average cost of capital should be calculated.
- Vattenfall and other electricity grid companies appealed the decision to the Supreme Administrative Court after the end of the second quarter 2022.

¹ Assuming a worst-case scenario where the process goes on all the way to the Supreme Administrative Court.

Financial performance

9M 2022



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Vattenfall 9M Results 2022

Financial highlights

Key data

SEK bn	9M 2022	9M 2021
Net Sales	160.8	116.6
EBITDA	49.0	65.6
Underlying operating profit (EBIT)	23.8	22.1
EBIT	36.7	52.5
Profit for the period	17.0	41.9
Funds from Operations (FFO)	27.6	27.5
Cash flow operating activities	109.0	97.5
Net debt	-116.0	-47.3
Adjusted net debt	-44.1	21.3
Adjusted net debt/EBITDA ¹ (times)	-0.7	0.3
Financial targets		
ROCE ¹ (≥8%)	17.3	22.4
FFO/adjusted net debt ¹ (22-27%)	n/a ²	182.7

¹ Last 12-month values

² The adjusted net debt decreased to a net asset mainly due to increased margin calls received. Excluding effects from received and paid margin calls FFO/adjusted net debt was at 41.4%.

Key developments

- Net sales increased by SEK 44.2 bn to SEK 160.8 bn due to higher spot prices and higher sales volumes in the Nordics and Germany
- Underlying EBIT increased by SEK 1.8 bn mainly due to increased earnings in segment Wind due to higher electricity prices and new capacity as well as increased earnings in segment Customers & Solutions due to an increased customer base in Germany. Lower achieved prices in the Nordics, lower realised trading result and lower clean spark spreads had an offsetting impact
- Profit for the period decreased to SEK 17.0 bn, affected by lower return from the Swedish Nuclear Waste Fund. Profit for the period 9M 2021 was impacted by the compensation for closure of nuclear power in Germany and capital gain from sale of Stromnetz Berlin
- ROCE based on rolling 12-month figures decreased to 17.3%. ROCE 9M 2021 was affected by compensation for closure of nuclear power in Germany and capital gain from the sale of Stromnetz Berlin
- The adjusted net debt decreased to a net asset mainly due to increased margin calls received. Excluding effects from received and paid margin calls FFO/adjusted net debt was at 41.4%

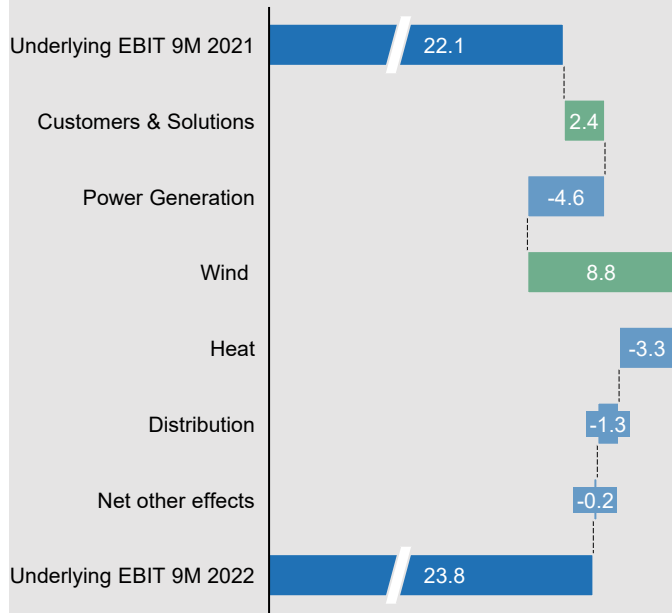


Development of underlying EBIT 9M 2022

Increase from Wind and Customers & Solutions partly offset by lower earnings in Power Generation, Heat and Distribution

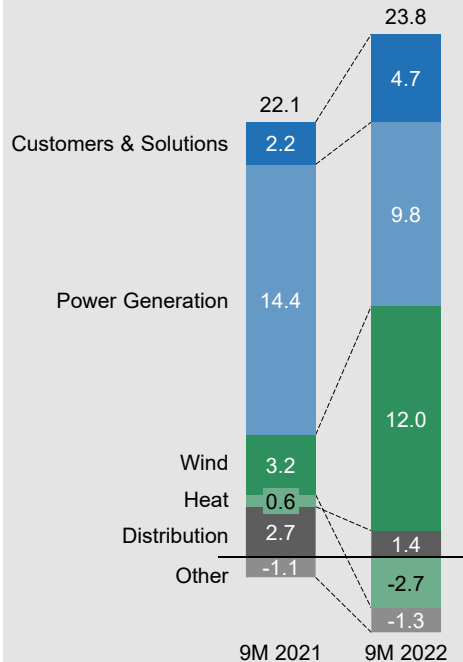
Change in 9M 2022 vs. 9M 2021

SEK bn



Breakdown per operating segment

SEK bn

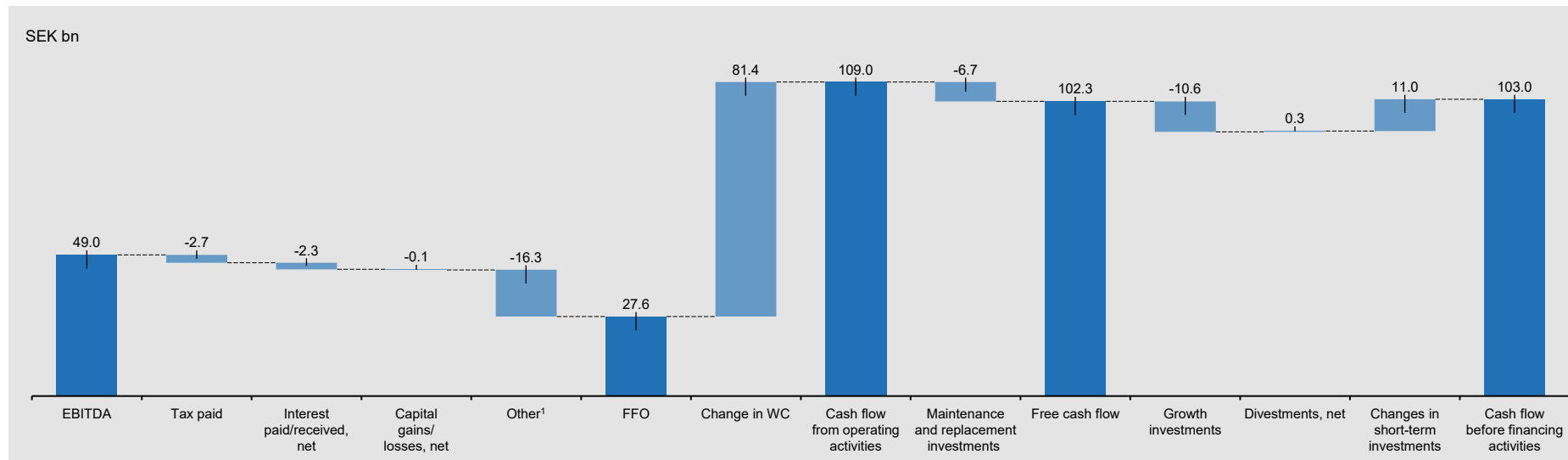


Highlights

- Customers & Solutions: increased customer base in Germany and temporary effects from sourcing of gas and electricity
- Power Generation: lower achieved prices in the Nordic countries affected by large price differences between electricity price areas in Sweden as well as lower realised trading result
- Wind: higher electricity prices, especially in Continental Europe, and new capacity, mainly the Kriegers Flak offshore wind farm in Denmark
- Heat: higher gas prices led to lower clean spark spreads largely affecting the heat operations and higher operating expenses mainly driven by scheduled plant overhauls
- Distribution: higher operating expenses and lower gross margin, mainly owing to higher costs for the transmission network as well as an increase in network losses caused by higher electricity prices. Earnings comparison also negatively affected by sale of Stromnetz Berlin in 2021 (SEK 0.7 bn)

Cash flow development 9M 2022

Positive working capital development mainly related to changes in margin calls



Main effects

- Change in working capital mainly driven by changes related to net change in margin calls received for commodity hedging activities (SEK 67.0 bn) following sharp price increases for gas and electricity on the Continent as well as changes related to CO₂ emission allowances (SEK +23.3 bn)
- Changes in short-term investments are mainly related to cash flows from margin calls and other operating activities

¹ "Other" includes non-cash items included in EBITDA, mainly changes in fair value of commodity derivatives

Hedging, debt and funding

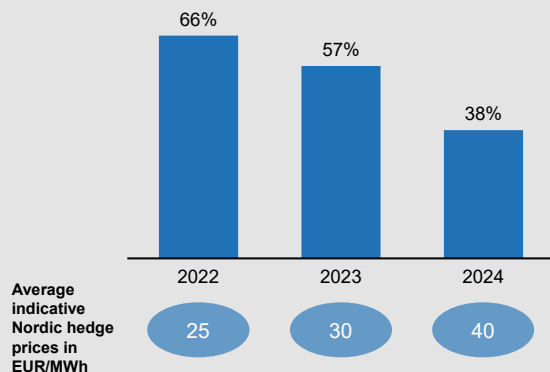
9M 2022



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Price hedging

Estimated Nordic¹ hedge ratio (%) and indicative prices



Achieved prices² - Nordic portfolio

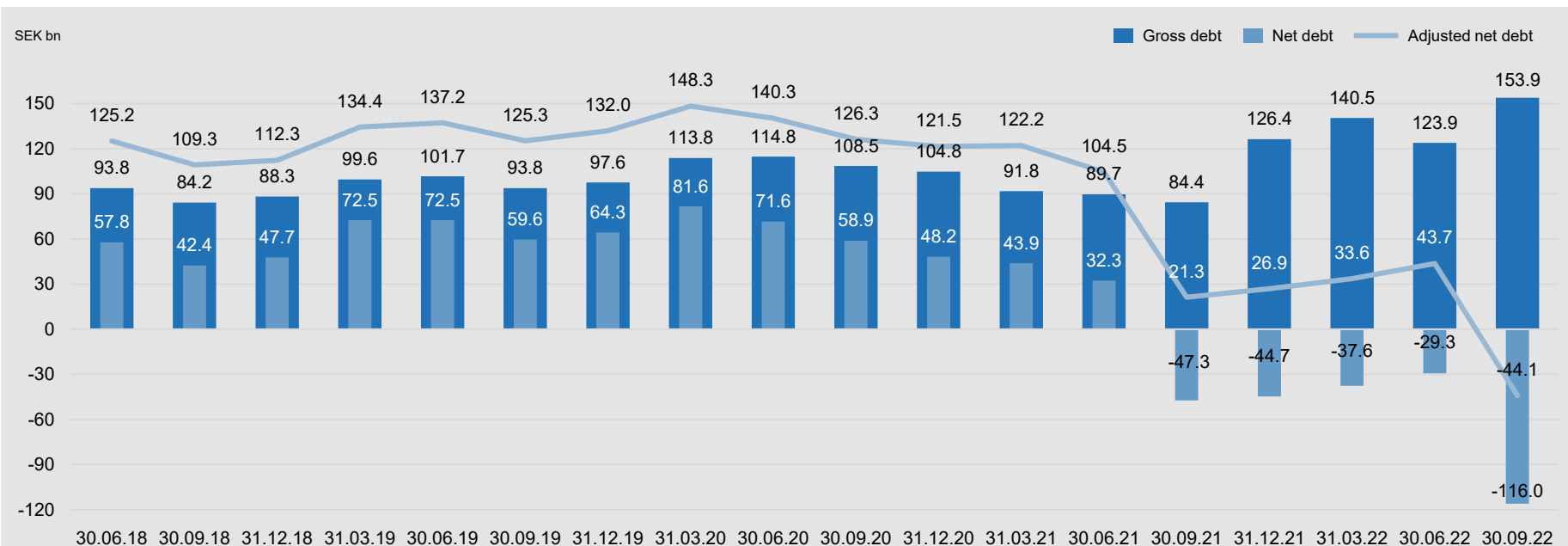
YTD 2022	YTD 2021	Q3 2022	Q3 2021	FY 2021
17	31	14	28	31

Vattenfall's hedging strategy has the objective to stabilize profits by selling parts of the planned production in the forward markets. The main exposures arise from outright power in the Nordics (nuclear and hydro), with a growing exposure in wind both in the Nordics and on the Continent/UK. Hedging is mainly based on the Nordic system price (SYS) while delivery takes place in the price areas where generation assets are located. The main part of Vattenfall's hydro power generation is located in price area SE1 and SE2, where prices were at a lower level compared to SYS, which has therefore resulted in a lower achieved price

¹ Nordic: SE, DK, FI

² Achieved prices from the spot market and hedges. Includes Nordic (SE, DK, FI) hydro, nuclear and wind power generation

Debt development

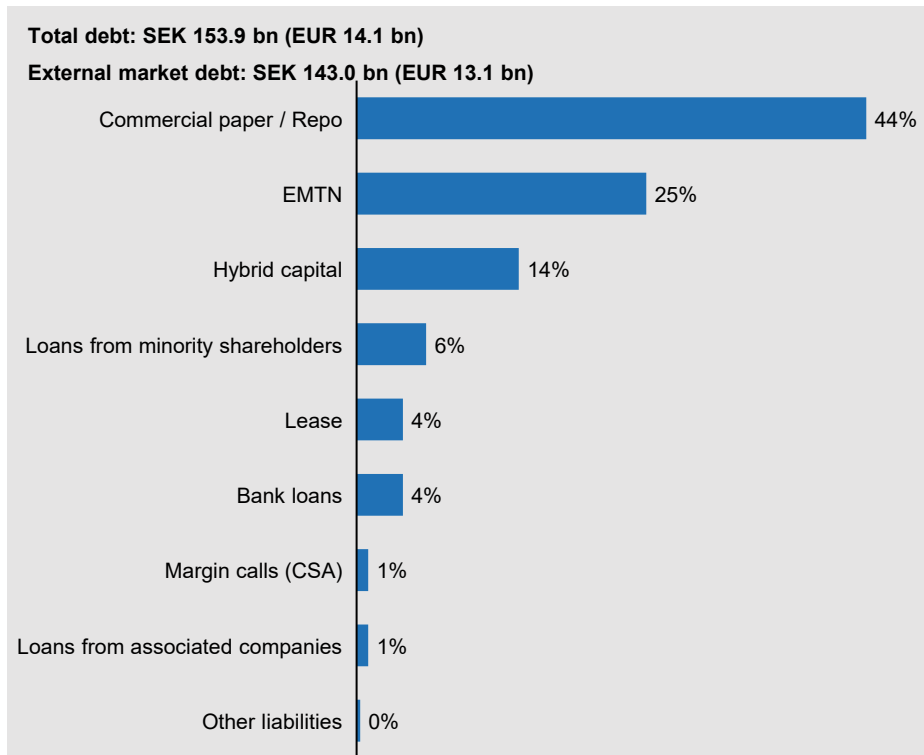


Net debt decreased by SEK 71.3 bn compared with the level at 31 December 2021 to a net asset of SEK 116.0 bn. Adjusted net debt decreased by SEK 71.0 bn to a net asset of SEK 44.1 bn compared with the level at 31 December 2021. For the calculation of adjusted net debt, see slide 22.

Reported and adjusted net debt

Reported net debt (SEK bn)	30 Sep. 2022	31 Dec. 2021	Adjusted net debt (SEK bn)	30 Sep. 2022	31 Dec. 2021
Hybrid capital	22.0	20.4	Total interest-bearing liabilities	153.9	126.4
Bond issues and liabilities to credit institutions	44.2	37.7	50% of Hybrid capital	-11.0	-10.2
Commercial papers and Repos	67.5	46.2	Present value of pension obligations	24.5	40.3
Liabilities to associated companies	0.9	1.5	Wind & other environmental provisions	13.8	11.7
Liabilities to minority shareholders	10.0	10.7	Provisions for nuclear power (net)	54.1	40.2
Lease liabilities	6.6	6.2	Margin calls received	-2.3	-3.3
Other liabilities	2.7	3.7	Liabilities to minority owners due to consortium agreements	-10.0	-10.7
Total interest-bearing liabilities	153.9	126.4	= Adjusted gross debt	223.0	194.4
Reported cash, cash equivalents & short-term investments	269.3	170.9	Reported cash, cash equivalents & short-term investments	269.3	170.9
Loans to minority owners of foreign subsidiaries	0.6	0.2	Unavailable liquidity	-2.2	-3.4
Net debt	-116.0	-44.7	= Adjusted cash, cash equivalents & short-term investments	267.1	167.4
			= Adjusted net debt	-44.1	26.9

Breakdown of gross debt

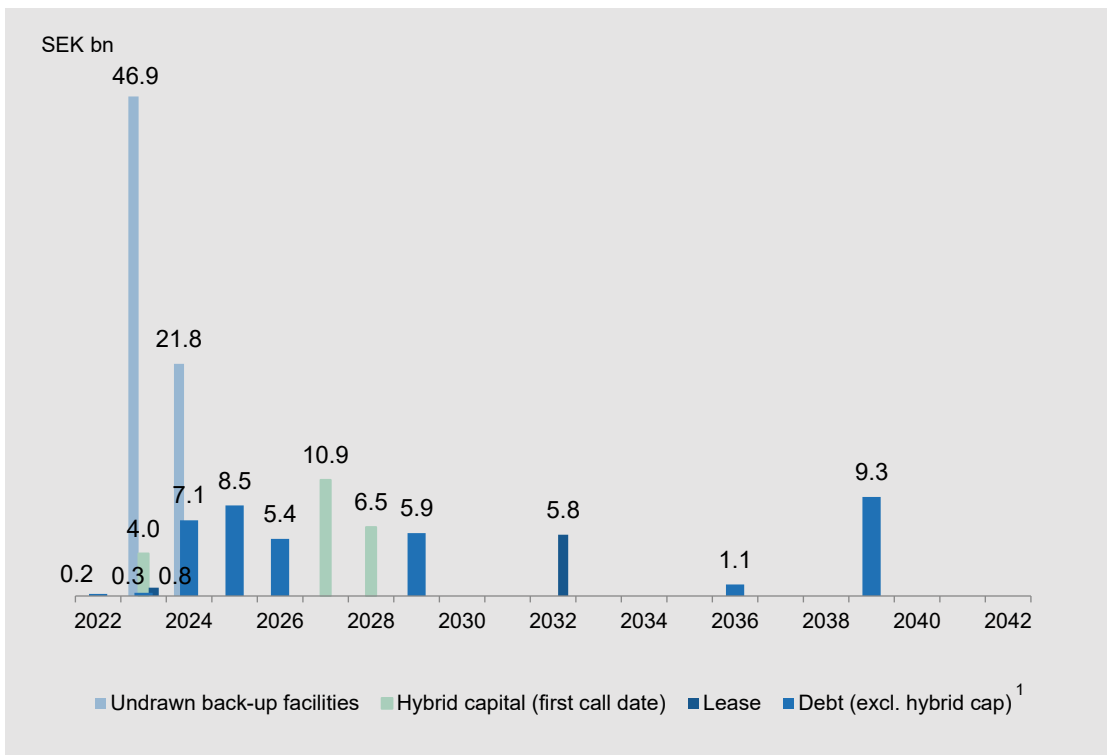


Debt issuing programmes	Size (EUR bn)	Utilization (EUR bn)
EUR 10bn Euro MTN	10.0	3.5
EUR 6bn Euro CP	6.0	4.6
Total	16.0	8.0

- All public debt is issued by Vattenfall AB.
- The main part of debt portfolio has no currency exposure that has an impact on the income statement. Debt in foreign currency is either swapped to SEK or booked as hedge against net foreign investments.
- No structural subordination.

¹ EMTN= Euro Medium Term Notes

Debt maturity profile¹



	30 Sep. 2022	31 Dec. 2021
Duration (years)	3.7	4.7
Average time to maturity (years)	6.2	6.8
Average interest rate (%)	3.4	2.9
Net debt (SEK bn)	-116.0	-44.7
Available group liquidity (SEK bn)	267.1	167.4
Undrawn committed credit facilities (SEK bn)	68.7	20.5

Cumulative maturities excl. undrawn back-up facilities

	2022- 2024	2025- 2027	From 2028
Debt incl. hybrid capital	12.4	24.8	28.5
<i>% of total</i>	19%	38%	43%

¹ Short term debt (Repo's and Commercial paper: 68.7), loans from associated companies, minority owners, margin calls received (CSA) and valuation at fair value are excluded. Currency derivatives for hedging debt in foreign currency are included.

Liquidity position

Group liquidity	SEK bn	Committed credit facilities	Facility size, EUR bn	SEK bn
Cash and cash equivalents	173.4	Committed credit lines (2023)	4.3	46.9
Short term investments	96.0	RCF (2024)	2.0	21.8
Reported cash, cash equivalents & short term investments	269.3	Total undrawn		68.7
		Debt maturities²		SEK bn
Unavailable liquidity ¹	-2.2	Within 90 days		1.0
Available liquidity	267.1	Within 180 days		1.0

¹ German nuclear "Solidarvereinbarung" SEK 1.0 bn, Margin calls paid (CSA) SEK 0.4 bn, Insurance "Provisions for claims outstanding" SEK 0.8 bn.

² Excluding loans from minority owners and associated companies.

Nuclear provisions

Reactor ¹	Net capacity (MW)	Start (year)	Vattenfall share (%)	Vattenfall provisions, SEK bn (IFRS accounting)	Vattenfall provisions, SEK bn (pro rata)	Sw nuclear waste fund SEK bn (Vattenfall pro rata share)
Ringhals 1	879	1976	70.4			
Ringhals 2	809	1975	70.4			
Ringhals 3	1,070	1981	70.4			
Ringhals 4	942	1983	70.4	Total Ringhals: 45.2	Total Ringhals: 45.2²	
Forsmark 1	984	1980	66.0			
Forsmark 2	1,120	1981	66.0			
Forsmark 3	1,170	1985	66.0	Total Forsmark: 41.5	Total Forsmark: 27.4	
Total Sweden	6,974	-		90.9³	74.8³	39.0⁴
Brunsbüttel	771	1977	66.7	11.8	7.9	
Brokdorf	1,410	1986	20.0	0	3.7	
Krümmel	1,346	1984	50.0	7.3	7.3	
Stade ⁵	640	1972	33.3	0	0.4	
Total Germany	4,167	-	-	19.1	19.2	
Total SE & DE	11,141			110.0	94.0	

¹ Five reactors are in commercial operation in Sweden; Ringhals 3 & 4 and Forsmark 1, 2 & 3.

² Vattenfall has 100% liability of Ringhals decommissioning, while owning only 70.4%

³ Total provisions in Sweden (IFRS accounting) include provisions of SEK 0.5 bn (pro rata SEK 0.5 bn) related to Ägesta, SEK 3.1 bn (pro rata SEK 1.7 bn) related to SVAFO and SEK 0.5 bn (pro rata SEK 0.0 bn) related to SKB.

⁴ Vattenfall's share of the Nuclear Waste Fund. IFRS consolidated value is SEK 46.3 bn.

⁵ Stade is being dismantled