

A photograph of three children running happily in a grassy garden. In the background, there is a traditional house with a thatched roof and a large tree. The scene is bright and sunny.

# Corporate Factbook

September 2024



VATTENFALL

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A man and a woman are standing on a rocky outcrop, looking down at a small town below. The man is wearing a dark jacket and the woman is wearing a light-colored coat and a hat. A large, shaggy brown dog is standing between them. The town below is densely packed with houses of various colors, including red, white, and blue. The sky is overcast and grey. The text "Overview and Strategy" is overlaid in the center of the image.

# Overview and Strategy



VATTENFALL

# This is Vattenfall


Activities in the Value Chain ● Active ● Inactive




## In Brief


- Vattenfall is a leading European energy company
- We want to enable the **fossil freedom that drives society forward**
- 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+ stable outlook by S&P and A3 stable outlook by Moody's**

 **8.0 Million**  
Electricity customers

 **2.1 Million**  
Heat customers<sup>1</sup>

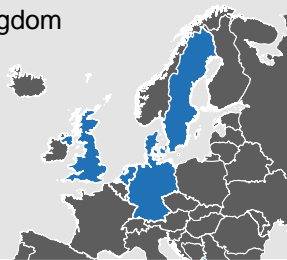
 **1.0 Million**  
Electricity grid customers

 **2.3 Million**  
Gas customers

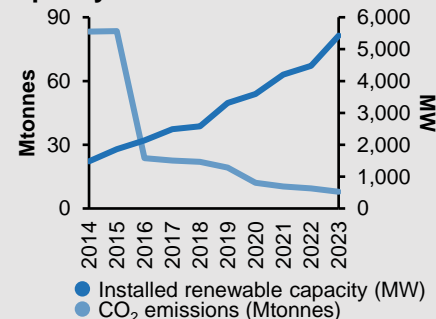
 **20,995**  
Employees<sup>1</sup>

## Main markets

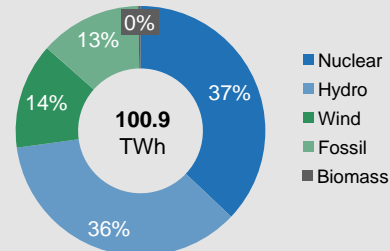
- Sweden
- Netherlands
- Denmark
- United Kingdom
- Germany



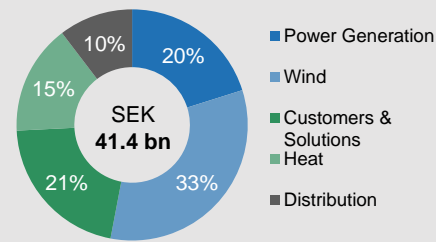
## CO<sub>2</sub> emissions & renewable capacity



## Electricity generation breakdown by technology, 2023



## Underlying EBITDA breakdown by segment, 2023<sup>2,3</sup>



<sup>1</sup> As of end of 2023. Excluding Heat Berlin, that was divested in the second quarter of 2024: 0.6 million heat customers and 19,040 employees

<sup>2</sup> Breakdown excludes other and eliminations

<sup>3</sup> Since 1<sup>st</sup> January 2024, segment Heat is included in Customers & Solutions

# Location of our operations and major plants



Wind ●



Biomass ●



Hydro ●



Gas ●



Nuclear ●



Coal ●

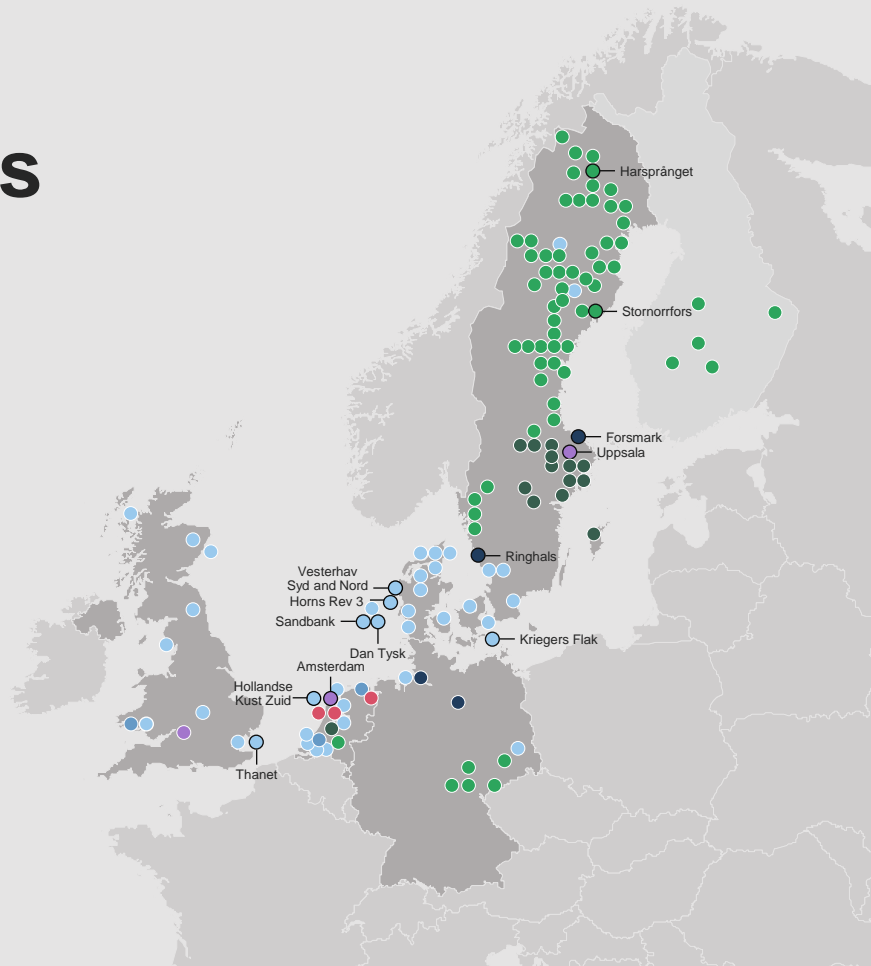


Solar ●



District heating ●

○ Largest facilities marked with a circle



# Vattenfall's value chain

## Electricity value chain

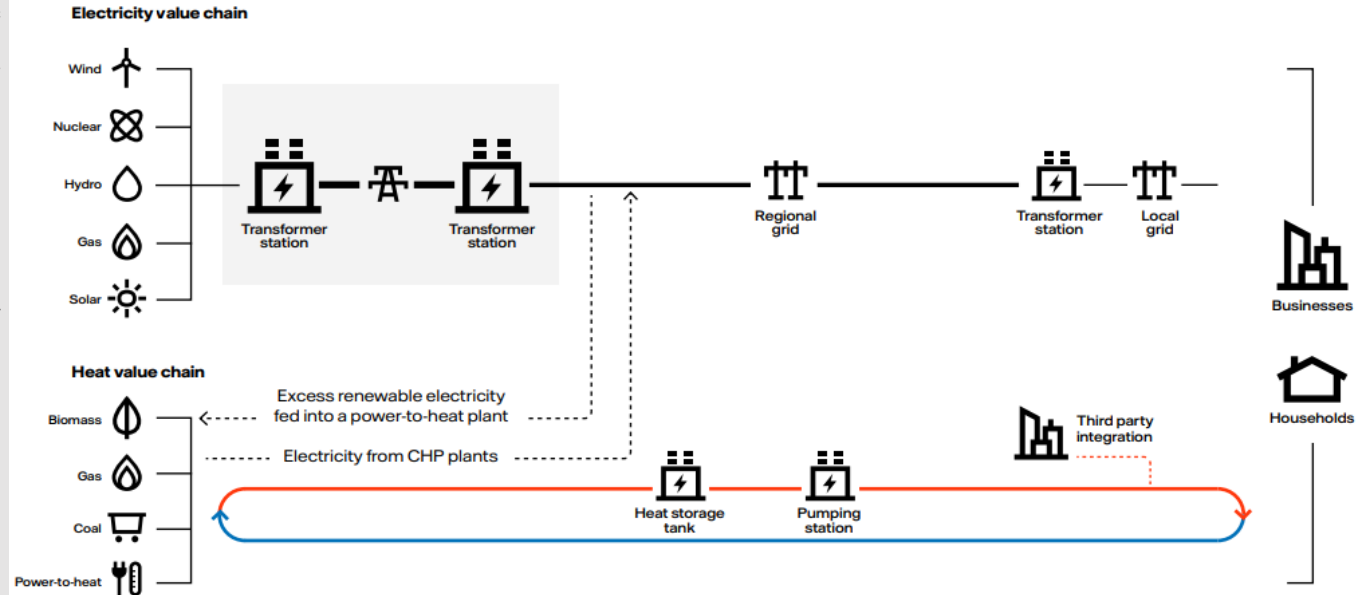
Electricity goes through three main steps before it can be used by end customers: generation, transmission, and distribution. Generation is typically a competitive market both in terms of energy sources and the number of actors. The transmission grid is typically a national monopoly while regional and local grids are regulated monopolies.

## Heat value chain

District heating systems transport hot water to heat up buildings. The water is kept in a closed loop, which means that it is returned to the heating plant, re-heated, and re-used in the network. Heat storage tanks serve as buffer for fluctuations in supply and demand, and pumping stations ensure the right pressure throughout the network. Heat can also be integrated from third-party sources that feed their excess heat into the network.

## The two value chains are interconnected

Plants used for district heating can also produce electricity. These are called combined heat and power (CHP) plants and the co-generation makes more efficient use of the utilised fuel. Electricity from CHP plants are typically fed directly into the grid. In so-called power-to-heat plants, excess electricity from e.g. wind and solar can be used in an e-boiler to generate heat.



# Operating segment overview H1 2024

## 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<sup>1</sup>

<b>Power Generation</b>	7,831
<b>Customers &amp; Solutions<sup>5</sup></b>	5,353
<b>Wind</b>	1,749
<b>Distribution</b>	1,801
<b>Other<sup>2,6</sup></b>	3,459

<sup>1</sup> Full-time equivalents

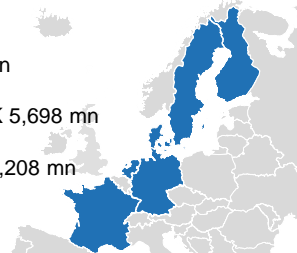
<sup>2</sup> Pertains mainly to Staff Functions and Shared Service Centres

## Customers & Solutions<sup>5,6</sup>

**Responsible for our customer relations, heat plants and gas-fired condensing plants as well as sales of electricity, gas, heat and energy services.**

- A market leader in Sweden and the Netherlands. A total of 5.3 million electricity and gas contracts in Germany with a leading position as electricity supplier in Berlin and Hamburg.
- Operates 51,000 e-mobility charging points in Sweden, Germany, the Netherlands, and Norway.
- Partnerships with cities for the realisation of carbon reduction plans, supported by a track record of meeting previous reduction targets
- Heat production and distribution systems used as platforms to integrate other energy solutions, like district cooling, e-mobility charging solutions, wind, and solar.

**Net Sales:** SEK 95,324 mn  
(47% of total<sup>3</sup>)  
**Underlying EBITDA:** SEK 5,698 mn  
(22% of total)  
**Underlying EBIT<sup>4</sup>:** SEK 4,208 mn  
(26% of total)

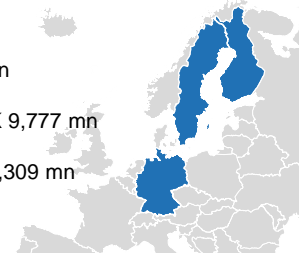


## Power generation

**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 power capacity and 11.5 GW hydro power capacity across Sweden, Finland, and Germany
- One of Europe's largest producers of fossil-free electricity, with 37.4 TWh from nuclear power and 36.1 TWh from hydro power in 2023
- Provides professional assetoptimisation services and market access and is a leading player in commodities trading and power purchase agreements in northwestern Europe.

**Net Sales:** SEK 87,620 mn  
(44% of total<sup>3</sup>)  
**Underlying EBITDA:** SEK 9,777 mn  
(38% of total)  
**Underlying EBIT<sup>2</sup>:** SEK 7,309 mn  
(45% of total)



<sup>3</sup> Calculation excludes eliminations and other

<sup>4</sup> Operating profit excluding items affecting comparability

<sup>5</sup> Since 1<sup>st</sup> January 2024, Heat is included in Customers & Solutions

<sup>6</sup> Heat Berlin included in other

# Operating segment overview HY 2024 (Cont'd)

## Wind

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

- One of the largest producers of onshore wind power in Denmark and the Netherlands
- One of the largest producers of offshore wind power in the world<sup>3</sup>
- 13.8 TWh of electricity generated from 5.4 GW in operated capacity
- Strong wind power pipeline with 2.3 GW in construction and over 2.7 GW in mature stage development
- Forerunner in innovative solutions in solar and batteries, such as co-location.

**Net Sales:** SEK 10,614 mn

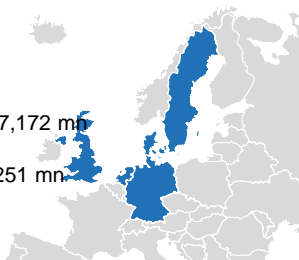
(5% of total<sup>1</sup>)

**Underlying EBITDA:** SEK 7,172 mn

(28% of total)

**Underlying EBIT<sup>2</sup>:** SEK 3,251 mn

(20% of total)



## Distribution

*Responsible for Vattenfall's electricity distribution operations in Sweden and the UK. Provides Power-as-a-Service where we own and operate electrical-, storage- and charging infrastructure on long-term contracts.*

- Leading operator of regional electricity distribution grids and among the top three largest actors in local grids in Sweden
- Distributes over 50% of the electricity 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

**Net Sales:** SEK 7,245 mn

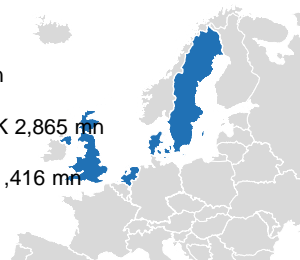
(4% of total<sup>1</sup>)

**Underlying EBITDA:** SEK 2,865 mn

(11% of total)

**Underlying EBIT<sup>2</sup>:** SEK 1,416 mn

(9% of total)



<sup>1</sup> Calculation excludes eliminations and other

<sup>2</sup> Operating profit excluding items affecting comparability

<sup>3</sup> Excluding China as this market is generally inaccessible to western developers.



# Financial characteristics per operating segment

Operating segment	Key drivers for earnings	Characteristics of earnings and cash flow
<b>Customers &amp; Solutions</b>	For the customer business the difference in sourcing costs compared to sales price (gross margin) and development in the customer base. For the heat business mainly fuel costs/spreads and temperature effects/weather	Track record of stable earnings. For the heat business, 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
<b>Power Generation</b>	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
<b>Wind</b>	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
<b>Distribution</b>	Largely a function of regulatory asset base (RAB), regulatory WACC, and the efficiency of the operations	Stable



# A strategy based on an “integrated utility logic”

To enable the fossil freedom that drives society forward

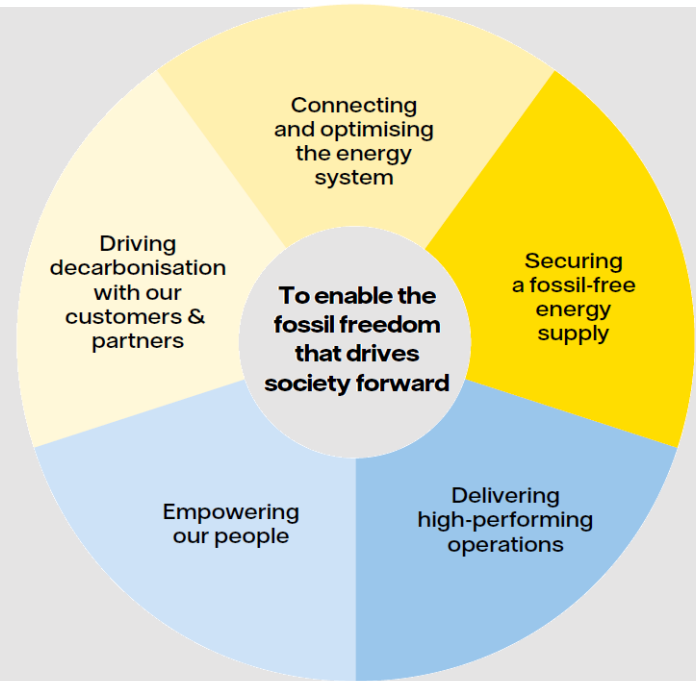
We believe being active in the whole value chain is strategically important:

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 2023	Actual 2022	Progress FY2023	Comments
Driving decarbonisation with our customers & partners	Net Promoter Score <sup>1</sup> (Absolute): <b>+18</b>	+11	+16		Decrease in absolute NPS due to longer response times in customer services during the beginning of 2023
Securing a fossil-free energy supply	CO <sub>2</sub> Emissions Intensity <sup>3</sup> : <b>≤86 gCO<sub>2</sub>e/kWh</b>	69 <sup>3</sup>	78		Improvement due to lower fossil-based generation
Empowering our people	Lost Time Injury Frequency (LTIF): <b>≤1.0</b>	1.5	1.1		Above target levels. Further actions required to enhance safety
	Employee Engagement Index: <b>≥75%</b>	80	80		Outcome above target level after continued improved performance with more engaged employees
Delivering high-performing operations	FFO/Adjusted Net Debt: <b>22-27%</b>	21.5%	55.0%		Below target interval as a result of lower underlying EBITDA, and the adjusted net debt mainly increased due to increased investments.
	ROCE: <b>≥8%</b>	5.3%	4.2%		Outcome below target due to lower electricity prices and also lower generation volumes from hydro power and lower availability from nuclear power. The negative price effects from the Continental hedging also had a negative impact

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

<sup>2</sup> Targeting 86 gCO<sub>2</sub>/kWh by 2025 puts us on a "1.5°C" trajectory by 2030 according to Science Based Target levels

# Financial targets

Financial targets	Targets over a business cycle <sup>1</sup>	FY 2023	FY 2022	Comments
<b>Profitability</b>	Return on capital employed: $\geq 8\%$ <sup>2</sup>	5.3%	4.2%	Outcome below target due to lower electricity prices as well as lower generation volumes from hydro power and lower availability from nuclear power. The negative price effects from the Continental hedging also had a negative impact.
<b>Capital structure</b>	FFO/adjusted net debt: 22%–27%	21.5%	55.0%	Below target interval as a result of lower underlying EBITDA, and the adjusted net debt mainly increased due to increased investments.
<b>Dividend policy</b>	Dividend: 40%–70% of the year's profit after tax	SEK 4.0 bn	SEK 4.0 bn	

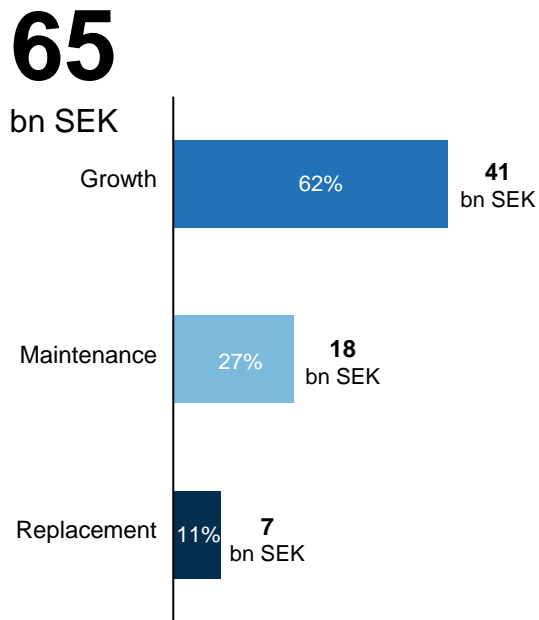
<sup>1</sup> Target for 2025

<sup>2</sup> The key ratio is based on EBIT and average capital employed

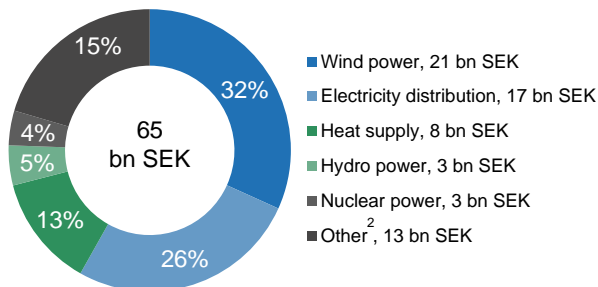
# Investment plan 2024-2025

## Net investments

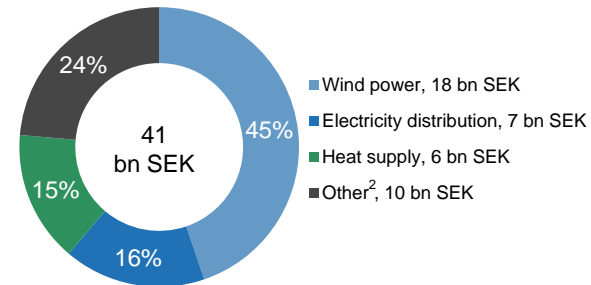
Total<sup>1</sup> capex 2024-2025



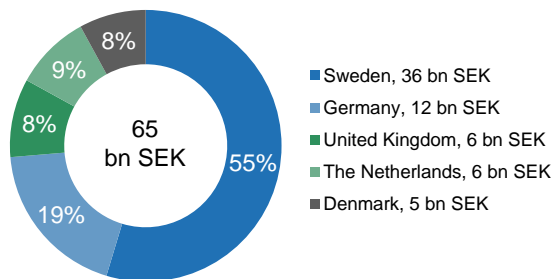
Total<sup>1</sup> capex per technology



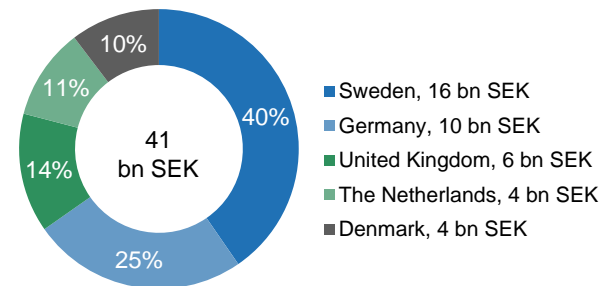
Growth<sup>1</sup> capex per technology



Total<sup>1</sup> capex per country



Growth<sup>1</sup> capex per country












<sup>1</sup> Investment plan excludes investments in Heat Berlin, which is to be divested to the State of Berlin during 2024

<sup>2</sup> Mainly E-mobility, solar and battery projects

# Major investment projects

Decided on and in progress<sup>1</sup>

Project	Country	Type	Capacity	Est. CO <sub>2</sub> reduction <sup>2</sup> (ktonnes)	Vattenfall's share (%)	Completion	Total investment
Hollandse Kust Zuid 1-4 <sup>3</sup>		Wind offshore	1.509 MW	1 563	51%	2024	2.600 MEUR
Vesterhav projects <sup>3</sup>		Wind offshore	344 MW	196	100%	2024	657 MEUR
Bruzaholm <sup>3</sup>		Wind onshore	138 MW	3	100%	2025	2.124 MSEK
Windplan Blauw <sup>3</sup>		Wind onshore	77 MW	59	100%	2024	213 MEUR
Tützpatz <sup>3</sup>		Solar	76 MW	29	100%	2024	57 MEUR
Battery Toledo <sup>3</sup>		Battery	55 MW	n/a	50%	2024	43 MEUR
E-boiler Diemen		Electricity as fuel	150 MWth	n/a	100%	2025	45 MEUR
E-mobility - Netto <sup>3</sup>		E-mobility	n/a	n/a	100%	2025	68 MEUR
E-mobility - Bunting <sup>3</sup>		E-mobility	n/a	n/a	100%	2024	50 MEUR

<sup>1</sup> All numbers in the table reflect the status as per 31 December 2023

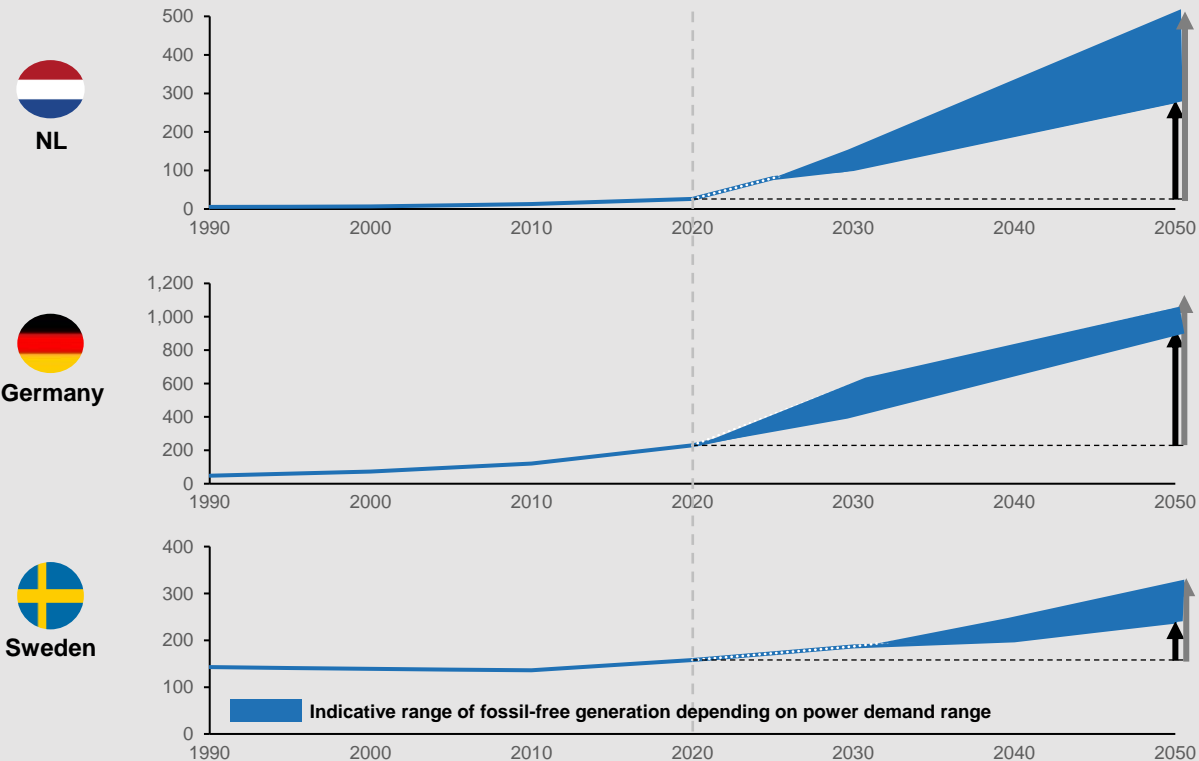
<sup>2</sup> Production from onshore wind estimated to 2.6 GWh/MW installed, from offshore wind to 3.5 GWh/MW installed, and from solar to 1.0 GWh/MW installed. Resulting production is compared against grid average emission factors which will decline over time as the energy system decarbonises. Actual production emission factors and savings will vary. Other projects are compared to project-specific reference cases.

<sup>3</sup> The project is EU taxonomy-eligible and aligned.

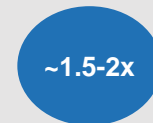
# Rapidly growing demand for fossil-free power

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

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

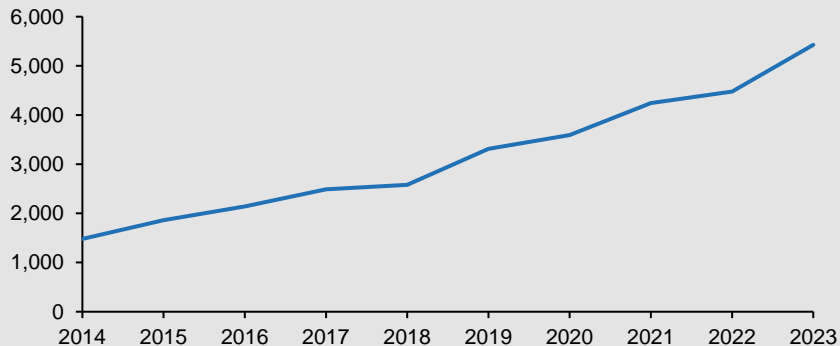


2050



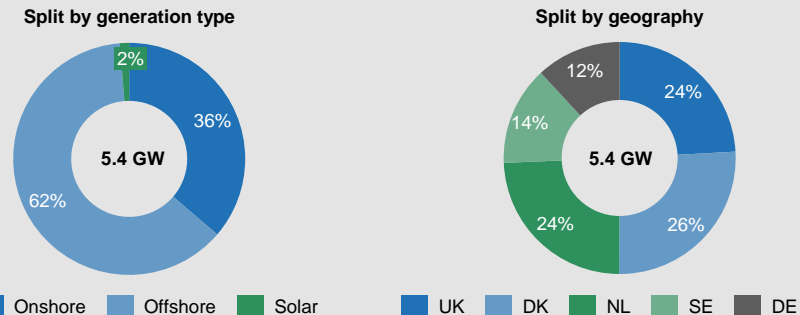
# Growing capacity of wind and solar power

Installed wind and solar capacity 2014-2023



- Continued growth in wind and solar: 5.4 GW installed capacity (21% growth year-over-year)
- Leading player in developing, constructing and operating On- and Offshore Wind, large-scale Solar PV and Batteries. Aim to strengthen project pipeline further by own development, bidding for, or acquiring additional attractive projects in wind and solar.

Capacity in operation, year-end 2023



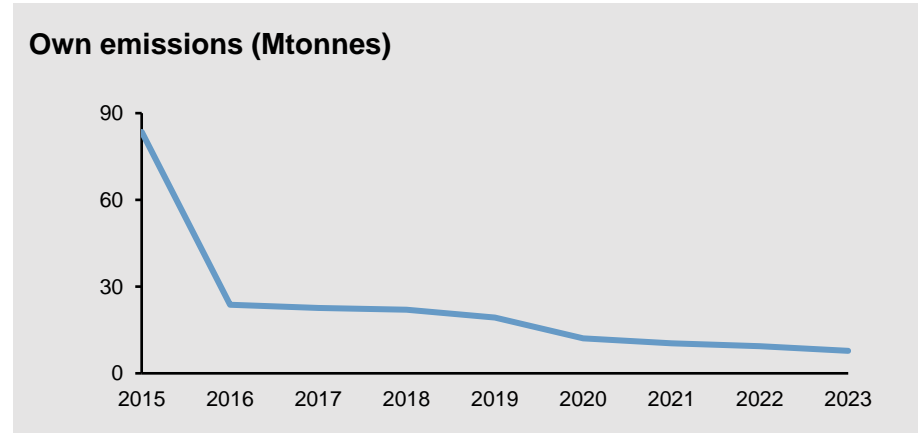
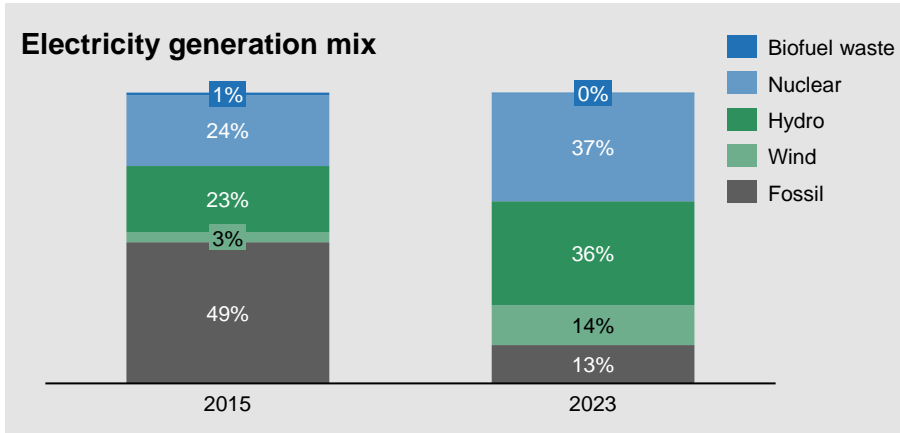
## Projects under construction and pipeline:

- ~2.3 GW Wind projects under construction
- ~2.7 GW Wind projects in mature-stage development
- >8.8 GW Solar projects in development
- >1.6 GW Batteries pipeline



# Significant shift in production portfolio

With dramatic effects on our emissions profile

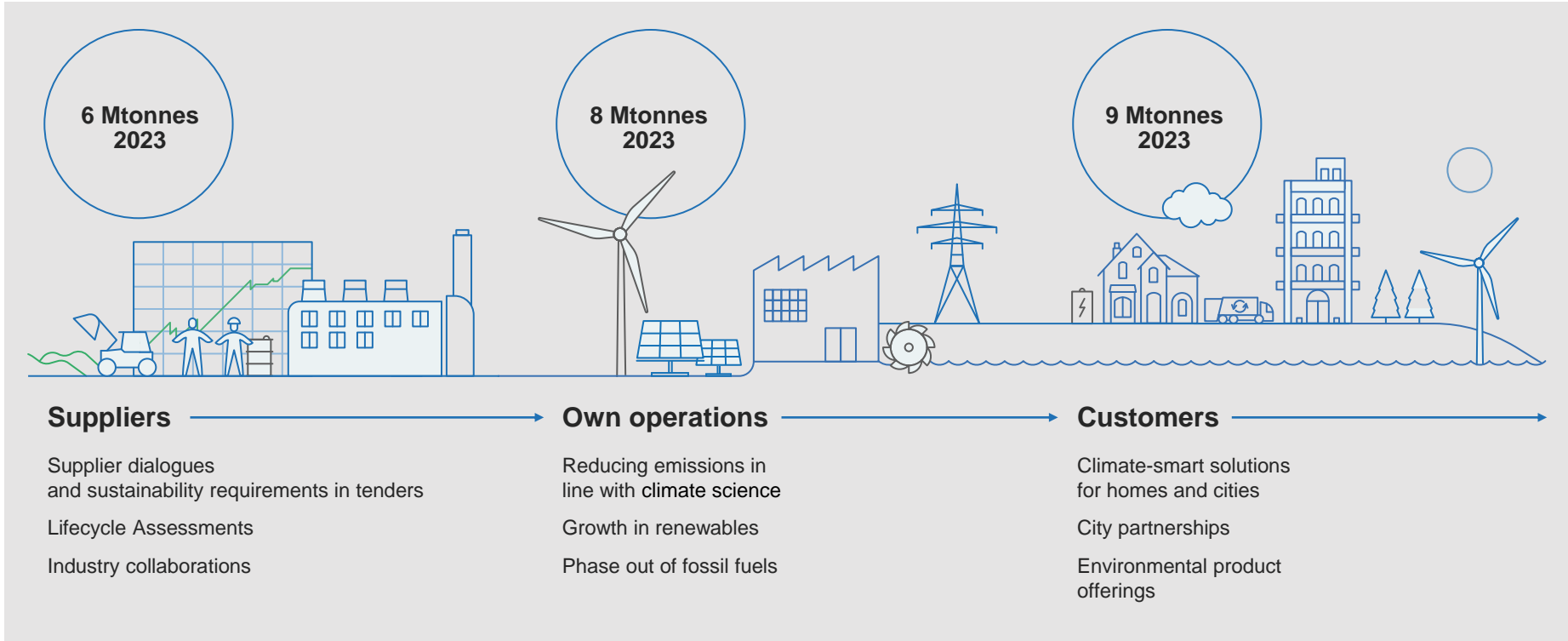


## Milestones

- 2017 - Phase out of lignite with closure of Klingenberg CHP plant in Berlin, Germany. Inauguration of Pen y Cymoedd 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
- 2022 - Inauguration of Vattenfall's largest onshore wind farm, Blakliden Fäbodberget, in Sweden
- 2023 - Inauguration of South Kyle onshore wind farm in the UK and Hollandse Kust Zuid in the Netherlands
- 2024 - Sale of the heat business in Germany to the State of Berlin completed in the second quarter

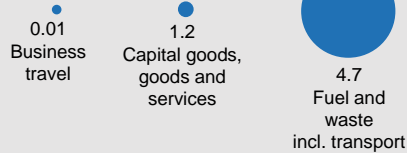
# Cutting CO<sub>2</sub> emissions throughout the value chain

Examples of actions



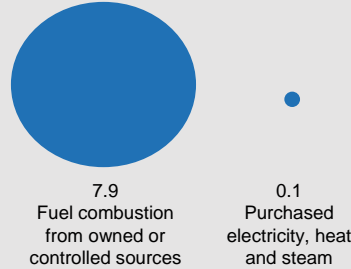
# Current CO<sub>2</sub> emissions<sup>2</sup> and reduction targets

## Suppliers Mtonnes CO<sub>2</sub>e



Scope 3 Other indirect emissions

## Own operations Mtonnes CO<sub>2</sub>e



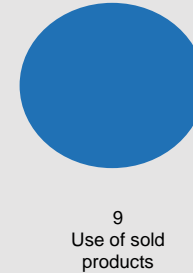
Scope 1+2 Direct and indirect emissions

### Targets<sup>1</sup>



-77% in emissions intensity

## Customers Mtonnes CO<sub>2</sub>e



Scope 3 Other indirect emissions



Use of sold products >54% reduction in absolute emissions by 2030

2030

Business travel: Remain under 50% of 2019 emissions  
Capital goods, purchased goods and services: 50% reduction in emission intensity compared to 2020

2040



**NET ZERO: 90% or more reduction in absolute emissions across the full value-chain**

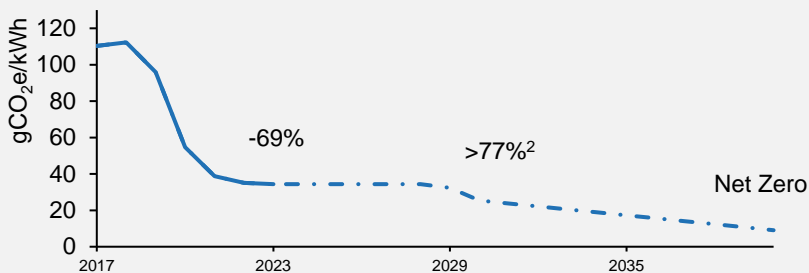
<sup>1</sup> Base year 2017 except for suppliers emissions that have base year 2020.

<sup>2</sup> Emissions along the value chain in 2023. Includes Heat Berlin that was divested in the second quarter of 2024.

## Emissions performance and targets

# Vattenfalls own emissions intensity on the road to net zero emissions

### Significant reductions in CO<sub>2</sub>e emissions intensity (Scope 1 + 2)<sup>1</sup>



### Targeting net zero in 2040 across emission scopes

#### Vattenfall science-based targets compared to a 2017 baseline<sup>3</sup>:

Category	S1/2 Own emissions	S3. Electricity sales	S3. Gas sales	S3. Supply chain	Carbon removals
Unit	g/kWh	g/kWh	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e
2030	-77%	-79,7%	-54.6%	N/A <sup>4</sup>	N/A <sup>5</sup>
2040	-91.7%	-96.4%	-90%	-90%	All residual emissions

### Key priorities

- Phase-out of natural gas requires a combination of all fossil-free technologies, such as biomass, waste heat, green hydrogen, biogas, large-scale heat pumps and heat storage
- Expand fossil free electricity generation to reduce overall intensity and enable customers and society to reduce emissions
- Looking beyond Scope 1+2, Vattenfall will increase share of fossil free electricity sales, decrease emissions from gas sales and decrease supply chain emissions

<sup>1</sup> Trajectory as of 26-08-2024. Emission base year and trajectory adjusted for divestment of Heat Berlin in accordance with GHG protocol.

<sup>2</sup> Reduction trajectory for 2030 compared to base year 2017.

<sup>3</sup> Target levels adjusted for the divestment of Berlin in accordance with SBTi requirements, currently under revision by SBTi.

<sup>4</sup> Internal target set on supply chain decarbonisation, not a verified science-based target for 2030

<sup>5</sup> Ongoing project aiming to develop a BECCS plant in Jordbro with the capacity to capture up to 150 kton biogenic CO<sub>2</sub> from the biomass fueled heat plant

# Governance



VATTENFALL

# State Ownership

## State Ownership Policy and principles for state-owned enterprises 2020

### **The Government's management mandate**

Chapter 9, Article 8, of the Instrument of Government (Regeringsformen, IG) provides that, with certain exceptions, state assets are at the disposal of and administered by the Government. Under Chapter 9, Article 9 of IG, the Parliament (Riksdag) decides the principles for the administration and disposition of state assets. The Swedish Budget Act (2011:203) contains provisions on acquisition and transfer of property, including shares and participations in companies. Chapter 8, Section 3 of the Budget Act provides that the Government must not acquire shares or participations or increase the State's share of the voting power or ownership in a company in any other way without an authorisation from the Riksdag. Nor may the Government inject capital in a company without authorisation from the Riksdag. Moreover, Chapter 8, Section 4, second paragraph of the Swedish Budget Act provides that, without the authorisation of the Riksdag, the Government must not, by sale or other means, reduce the state holding in companies in which the State holds at least half of the votes for all shares or participations. In addition to what is stated in these provisions, the approval of the Riksdag is required for material changes in the business purposes of the state-owned enterprises. In contrast, dividend payments, for example, do not require a Riksdag decision since they form part of the ongoing investment management.

### **Targets and assignments for state-owned enterprises**

In the articles of association the owner determines the business purpose of the enterprise's operations and certain specific limits for its operations. The business purpose of the operations of state-owned enterprises is based on decisions of the Riksdag. The articles of association for state-owned enterprises are based on the rules in the Companies Act for public limited companies whose shares are admitted to trading on a regulated market in Sweden, the Swedish Corporate Governance Code and the State Ownership Policy.

### **Owner instructions**

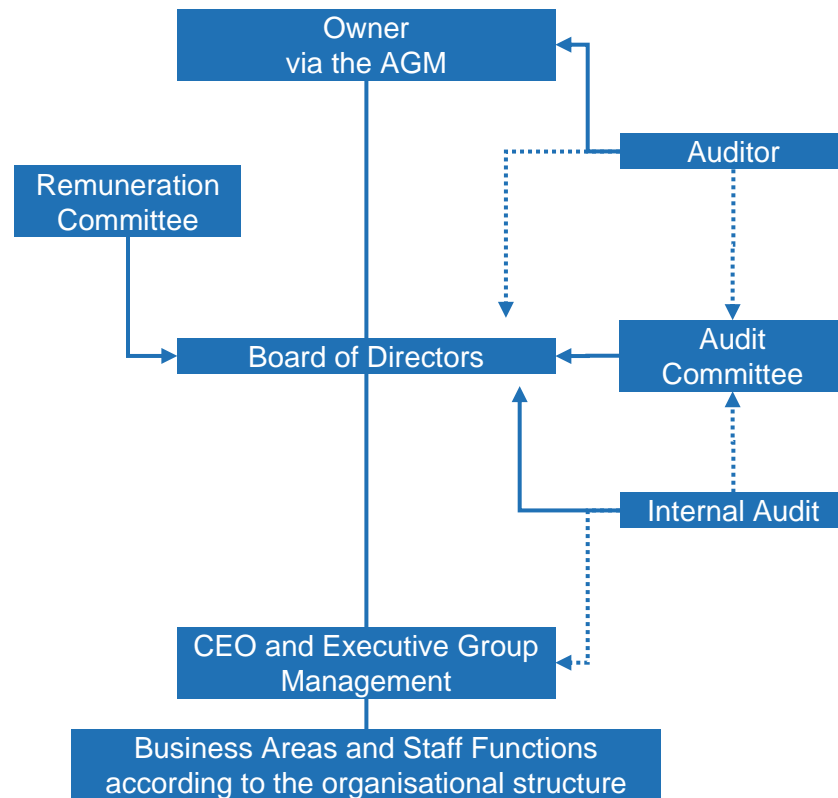
The owner gives instructions to the enterprise's board of directors in owner instructions. In state-owned enterprises, owner instructions are mainly used when an enterprise has a specifically adopted public policy assignment; receives budget appropriations; or is being restructured and also in the context of deregulation or other similar material changes. The content of owner instructions has to be relevant, specific and clear and is formalised through decisions at general meetings. Where an assignment is given in owner instructions, the instructions have to state clearly how the assignment will be financed, reported and tracked.

# Articles of Association


Vattenfall AB is wholly owned by the Swedish state. Ultimately, the Swedish Parliament decides on the assignment for Vattenfall AB. Through a general meeting resolution on the content of the Articles of Association, the shareholder (the owner via its representative) in turn makes decisions on the company's operations. The Government has established the Swedish state's ownership policy and the principles for state-owned companies, which are decided on at the General Meeting. In accordance with the Swedish state's ownership policy, the company's financial targets are also decided on by a general meeting.

The object for the Company's activities is to generate a market rate of return by, directly or indirectly through subsidiaries and associated companies:


- a. operating a commercial energy business that enables the company to be among the leaders in developing environmentally sustainable energy production,
- b. carry on trading with products and services within branches that are promoting, supporting or supplementing the energy business, mainly within the IT and telecom branches, as well as products and services related to subscription,
- c. carry on contracting and consulting activities mainly within the energy sector,
- d. own and administer real estate, shares and other securities associated to the aforesaid business activities,
- e. on behalf of the Group carry on capital and liquidity management operations and engage in trading securities, and carry on other activities consistent there with.




# Vattenfall Executive Group Management




**President and CEO**  
Anna Borg




**Senior VP, CFO**  
Kerstin Ahlfont



**Senior VP, General Counsel and Secretary to the board of Directors**  
Jonas Bengtsson



**Senior VP, Strategic Development**  
Andreas Regnell



**Senior VP, People & Culture**  
Christian Barthélémy



**Senior VP, Communications**  
Åsa Jamal

Operating segment  
Customers & Solutions


Operating segment  
Wind

Operating segment  
Power Generation

Operating segment  
Distribution<sup>1</sup>




**Senior VP**  
Alexander van Ofwegen




**Senior VP**  
Helene Biström



**Senior VP, Generation**  
Torbjörn Wahlborg



**Senior VP, Markets**  
Martijn Hagens

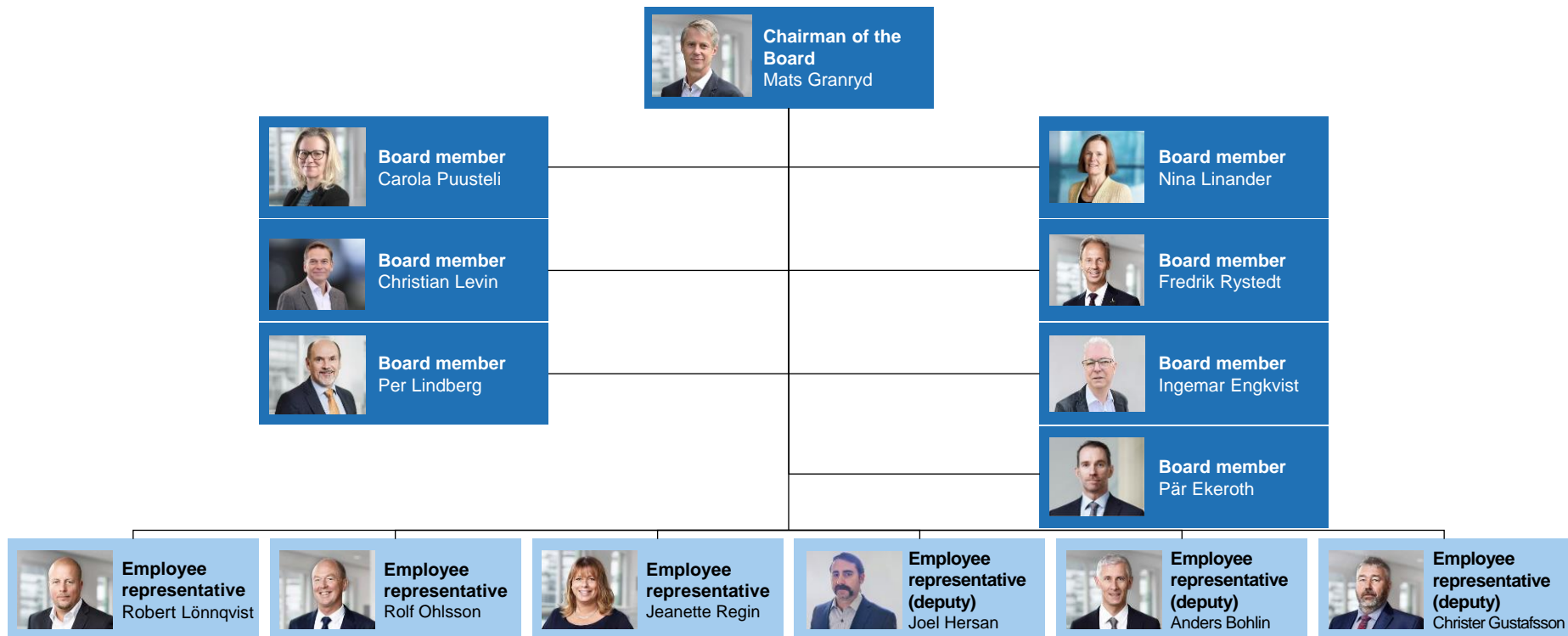


**Senior VP**  
Annika Viklund


<sup>1</sup> Vattenfall's electricity distribution operations are unbundled from other operations, in accordance with Swedish and UK legislation.



# Vattenfall Board of Directors



For more info: see page 106-107 in the Annual and Sustainability Report 2023



# Customers & Solutions



VATTENFALL

# Customers & Solutions<sup>1</sup>

Providing sustainable energy solutions and services to retail and business customers

## Overview

- Strong incumbent positions in core markets with solid, semi-regulated revenue streams
- A growing customer base with high loyalty
- Attractive growth prospects supported by urbanisation trend and increasing regulatory support for low carbon heating
- Strong expertise across the full energy value chain means that we can offer simple integrated solutions to satisfy increasingly sophisticated customer needs
- Considerable contributions to realise carbon reduction plans/target of cities where we operate heat assets/networks
- Well-developed IT infrastructure keeps operations cost-effective
- Our public charging network - InCharge - is one of the largest in northern Europe

## Highlights



**10.8 million** electricity, gas and heat contracts in Europe as of HY 2024



**113.5 TWh** of electricity sold in 2023



**60,300** connected charging points for electric vehicle as of HY 2024



## Key data<sup>1</sup>

	FY 2023	FY 2022
Net sales (SEK bn)	235.2	n.a
External net sales (SEK bn)	215.2	n.a
Underlying EBIT <sup>2</sup> (SEK bn)	9.2	n.a
Sales of electricity (TWh)	113.5	93.5
- of which, private customers	27.6	27.1
- of which, resellers	36.3	20.7
- of which, business customers	49.6	45.7
Sales of gas (TWh)	44.1	46.4
Net Promoter Score (NPS) <sup>3</sup>	+11	+16

<sup>1</sup> As per 1 January 2024 Customers & Solutions include Heat, hence FY2022 consolidated data not available

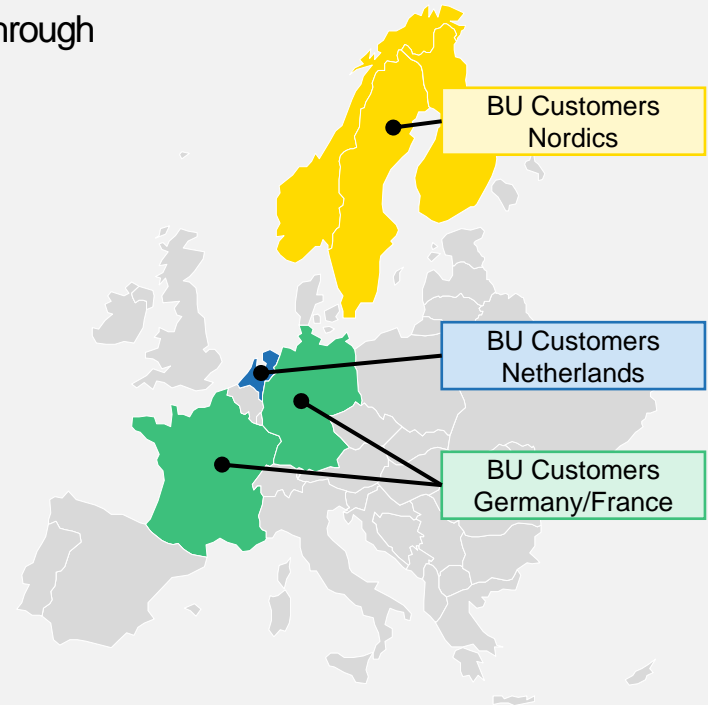
<sup>2</sup> Operating profit excluding items affecting comparability

# Electricity- and gas Customers

We sell electricity to 8M customers in our key markets of Sweden, NL, Germany – as well as in Norway, Finland, and France. Gas sales occur in our continental markets. Decarbonization, and being a partner to the customer as they go through the energy transition, is the key strategic focus

## Overview of electricity- and gas sales and contracts<sup>1</sup>

	Nordics	Netherlands	Germany / France
Sales of electricity, B2C Twh	9.1	5.5	13.0
Sales of electricity, B2B Twh	78.4	16.6	45.2
Electricity contracts, in mn	1.3	1.9	4.9
Sales of gas, Twh	-	32.1	12.4
Gas contracts, in mn	-	1.6	0.7



<sup>1</sup> More information available on page 196 in Vattenfall's Annual and sustainability report 2023

# Heat Customers

We focus on growing our customers base and decarbonizing our heat sources



## 3 TWh Heat

- Mature, saturated market
- District heating, cooling, electricity, and steam
- Focus on reducing fossils in waste



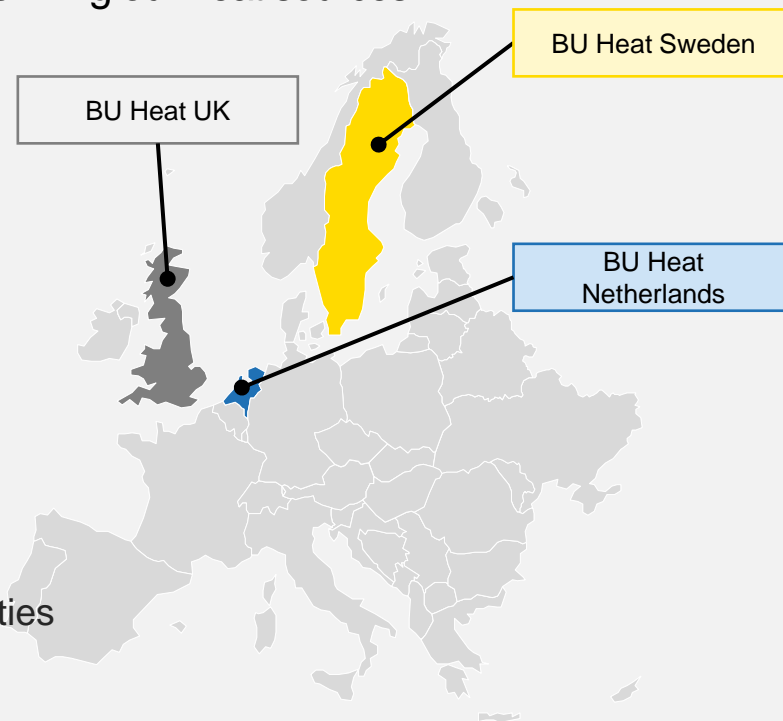
## 1.5 TWh Heat

- Growing market provides opportunities
- Phase out natural gas in 2040
- Invest in geothermal, power-to-heat and TPI



## Growing market

- Immature, growing market with many opportunities
- Start out renewable
- Invest in power-to-heat and Energy from Waste (EfW)



# Overview of largest heat and condensing plants

## The Netherlands

Power and heat plants	Fuel	Capacity heat (MW)	Capacity electricity (MW)
Diemen	🔥	815	684
Almere	🔥	517	0
A'dam South East	🔥	501	2
WPW	🔥🔥🔥	310	2
Arnhem	🔥	215	0
Leiden	🔥	150	0
Rotterdam	🔥🔥🔥	150	0
Velsen	🔥	105	869
Nijmegen	🔥🔥🔥	87	0
Lelystad	🔥🔥	51	0
Hemweg	🔥	0	440
Ede	🔥	10	0

## Sweden

Power and heat plants	Fuel	Capacity heat (MW)	Capacity electricity (MW)
Uppsala	🔥	814	27
Drefviken	🔥	326	19
Nyköping	🔥	185	35
Vänersborg	🔥	80	0
Motala	🔥	65	4
Ludvika	🔥	50	0
Gotland Visby	🔥	44	155

## United Kingdom

Power and heat plants	Fuel	Capacity heat (MW)	Capacity electricity (MW)
Castle Park	🔥	6	0
Broughton House	🔥🔥	5	0
100 Temple St	🔥	4	1
Gardiner Haskins	🔥	4	0

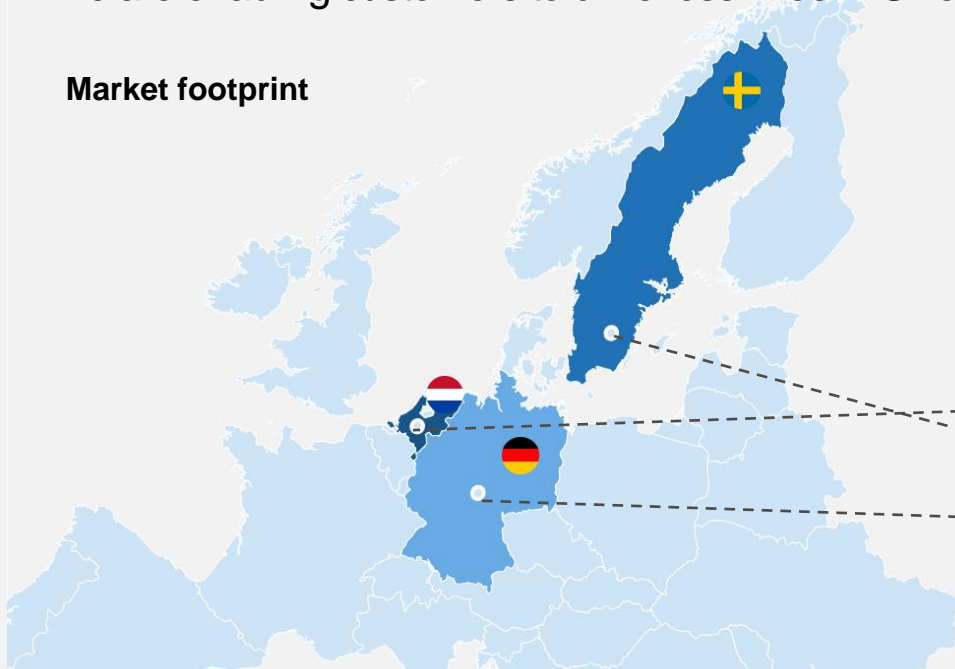


🔥 Biomass
⚡ Electric
🔥 Gas
🔥🔥🔥 Steam

# E-Mobility Customers

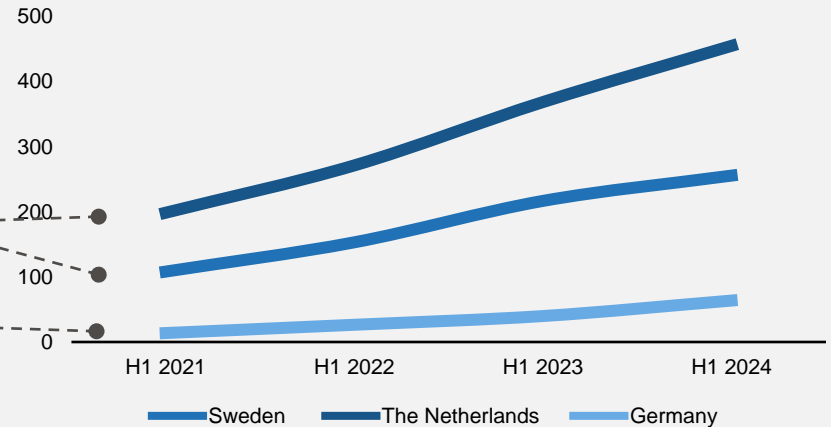
We are enabling customers to drive fossil-free in Sweden, The Netherlands, and Germany

## Market footprint



## Volume growth over the past 3 years

Installed Charging Capacity (mW)



Key partners

NH | HOTEL GROUP

Dawonia



Lufthansa

NETTO



Den Haag



VATTENFALL





# 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



**10.8 GW** managed capacity of renewable generation assets



Laxede power plant, Sweden

## Key data

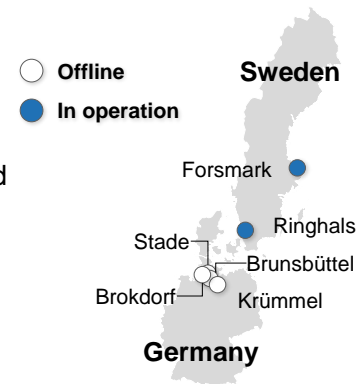
	FY 2023	FY 2022
<b>Net sales (SEK bn)</b>	207.5	205.8
<b>External net sales (SEK bn)</b>	37.8	28.2
<b>Underlying EBIT (SEK bn)</b>	3.1	14.3 <sup>1</sup>
<b>Electricity generation (TWh)</b>	73.5	80.1
- of which, hydro	36.1	40.5
- of which, nuclear	37.4	39.6
<b>Customer sales of electricity (TWh)</b>	11.3	15.6
- of which, resellers	9.4	13.8
- of which, business customers	1.9	1.8

<sup>1</sup> The value has been adjusted compared with information previously published in Vattenfall's financial reports, see note 1 Accounting policies, risks and uncertainties.

# 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 nuclear power generation in 2023 amounted to 37.4 TWh (39.6). Combined availability was 80.5% (83.6%)



## 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

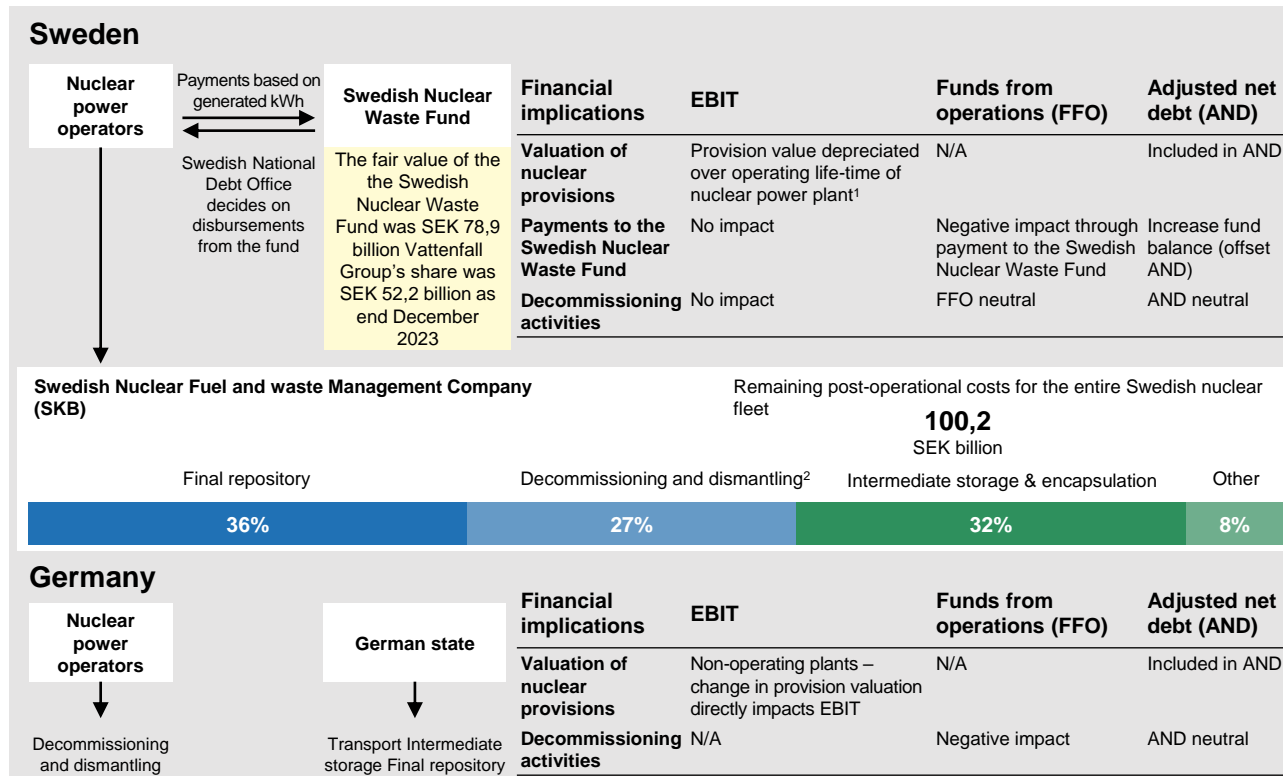
Financial implications of the various steps in the financing systems in Sweden and Germany

## 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.

## 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.



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

<sup>2</sup> Decommissioning and dismantling are the responsibility of the nuclear power operators and are not included in SKB's operations

# Hydro power

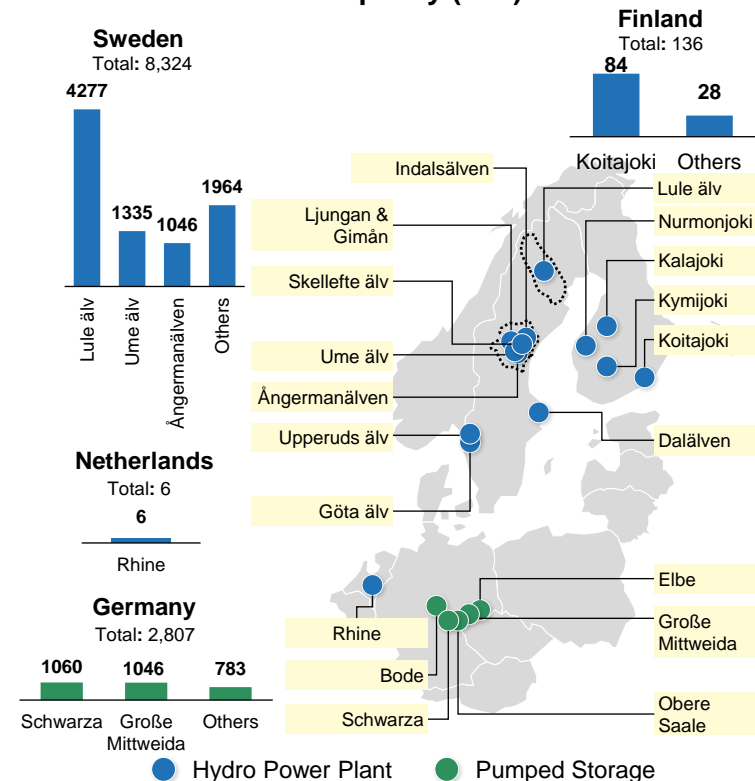
## Hydro overview

- 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 2023, Vattenfall's hydro power capacity of 11.5 GW generated 36.1 TWh (40.5 TWh in 2022)
- 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

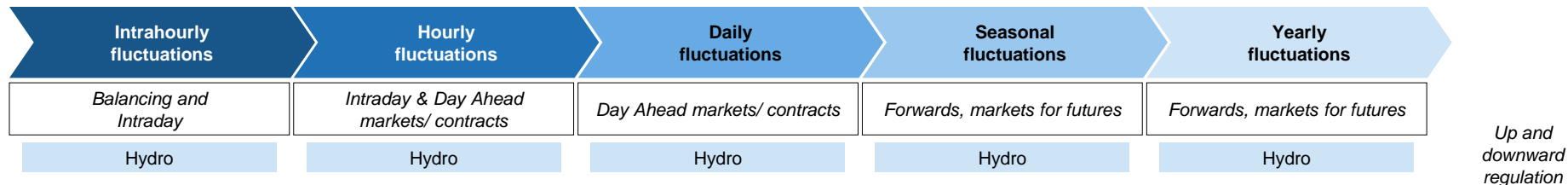
## Major Hydro Power Plants

	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)

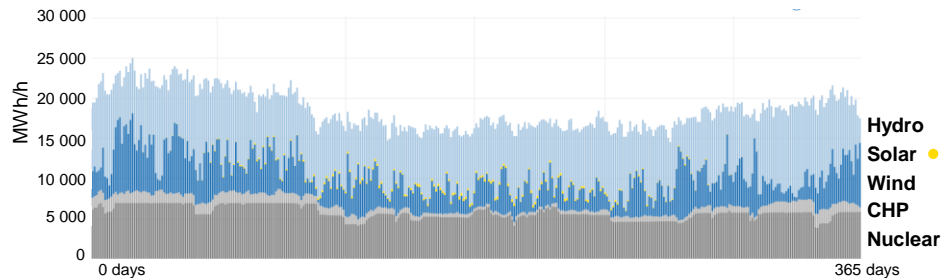
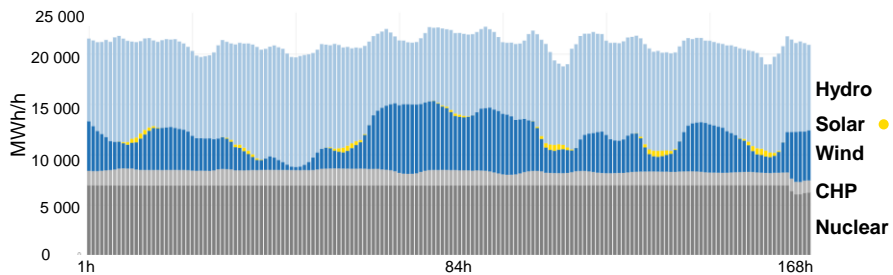


# The inherent flexibility of Vattenfall's hydro power visualised



WEEK, SWEDEN

YEAR 2022, SWEDEN













## Flexible hydro power plays an instrumental role in the decarbonisation of the energy system

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 more challenging to balance the energy system. Flexible hydro power offers its huge reservoirs of stored water as a giant “green” battery. This capacity can be increased by upgrading existing plants and building new pumped storage plants.

\*Combined heat and power plant (CHP)

# Major deals on Corporate PPAs and PPAs

During 2023 our contracted volume has increased to 7.3 TWh of renewable electricity (Corporate PPAs).

Contracted volume CPPA: 7.3 TWh		 225 GWh	Vattenfall will provide wind power to Volvo from onshore wind farm Bruzaholm over a tenor of 10 years. Wind farm Bruzaholm is located in Jönköping County, southern Sweden.
		 120 GWh	Vattenfall will provide solar power to chemical company Evonik from 100 MW solar farms Juliusburg/Krukow and Silberstedt over a tenor of 10 years. The solar farms are located east and north of Hamburg.
		 46 GWh	Vattenfall will provide solar power to copper producer Wieland Werke AG from 46 MW solar farm Nauen in over a tenor of 10 years. The solar farm is located in Brandenburg, west of Berlin.
		 650 GWh	Vattenfall will provide wind power to E.on UK from onshore wind farm South Kylie over a tenor of 10 years. Wind farm South Kyle is located in Scotland, south of Glasgow.
Current capacity PPA: 11 GW		 220 MW	Vattenfall has signed an agreement with ILOS Energy for a 10-year PPA for 6 newly developed solar farms of Ilos in the UK.

A photograph of two offshore wind turbines in the ocean under a blue sky. The water is shimmering with sunlight. A large ship is visible on the horizon to the right. The word "Wind" is overlaid in white text in the center.

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



**4.4 GW** installed Offshore Wind capacity



**2 GW** installed Onshore Wind capacity



**~9.2 GW** Solar PV pipeline (all stages)



**~2,4 GW** Batteries pipeline



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

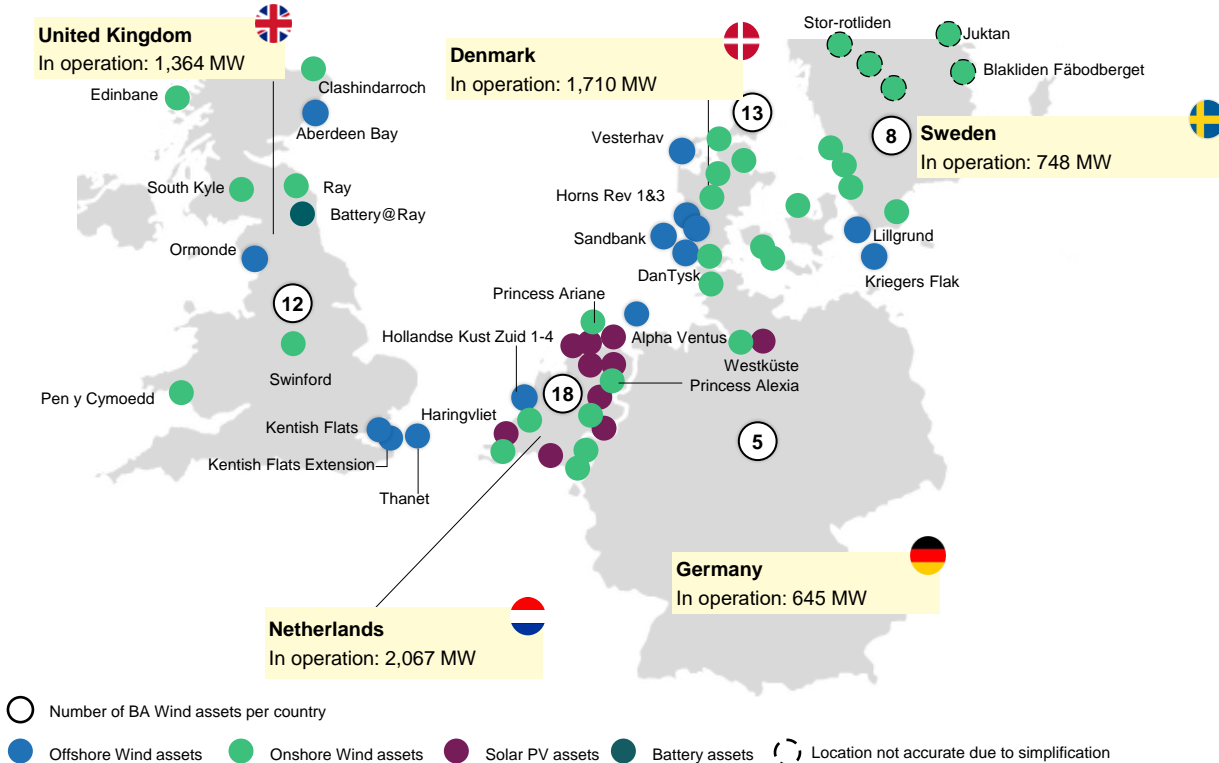
## Key data

	FY 2023	FY 2022
Net sales (SEK bn)	25.4	29.1
External net sales (SEK bn)	8.5	4.3
Underlying EBIT <sup>1</sup> (SEK bn)	6.5	16.5
Electricity generation (TWh)	13.8	12.2

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



# Vattenfall operates Offshore and Onshore Wind, Solar PV farms and batteries in five core European markets<sup>1</sup>



4.4 GW

Installed Offshore Wind capacity

2.0 GW

Installed Onshore Wind capacity

67 MW

Installed Solar PV capacity

55 MW

Installed Battery capacity

<sup>1</sup> As of July 2024

# We accelerate fossil-free living with the power of wind and solar

**Kogel**  
First large-scale Solar PV farm in Germany commissioned (30 MW)



**Danish Kriegers Flak**  
Commissioning of Scandinavia's largest Offshore Wind farm (605 MW)



**Blakliden Fäbodberget**  
Commissioning of Scandinavia's largest Onshore Wind farm (353 MW)



**Bruzaholm**  
Onshore wind farm. Construction started in 2023 (140 MW). Commissioning expected in 2025



**South Kyle**  
Commission of the largest Onshore Wind farms in the UK (240 MW)



**Tützpatz AgriPV**  
Solar farm under construction (76 MWp)



2021

2022

2023



**Hollandse Kust Zuid 1-4**  
Divestment of 49% of the project (1.5 GW) to industrial partner BASF

**Haringvliet**  
Commissioning of first hybrid project (Onshore Wind + Solar PV + Battery)

**Eemshaven West**  
Onshore Wind, Solar, Batteries and Electrolyser 2022-2024 permitting in process

**Solizer**  
Acquisition of solar farm with a 4GW pipeline for development

**Nordlicht I & II**  
Divestment of 49% of Nordlicht I and II (1.6 GW) to BASF.

**Ijmuden Ver Beta**  
Award received of 2 GW offshore park, 50 MWp floating offshore solar and 1 GW electrolyzer together with Copenhagen Infrastructure Partners.

Offshore Onshore Solar & Batteries

# Europe continues to be a highly attractive market for renewables, even more growth is expected in the coming decade

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



Increased demand for electricity due to electrification across different sectors



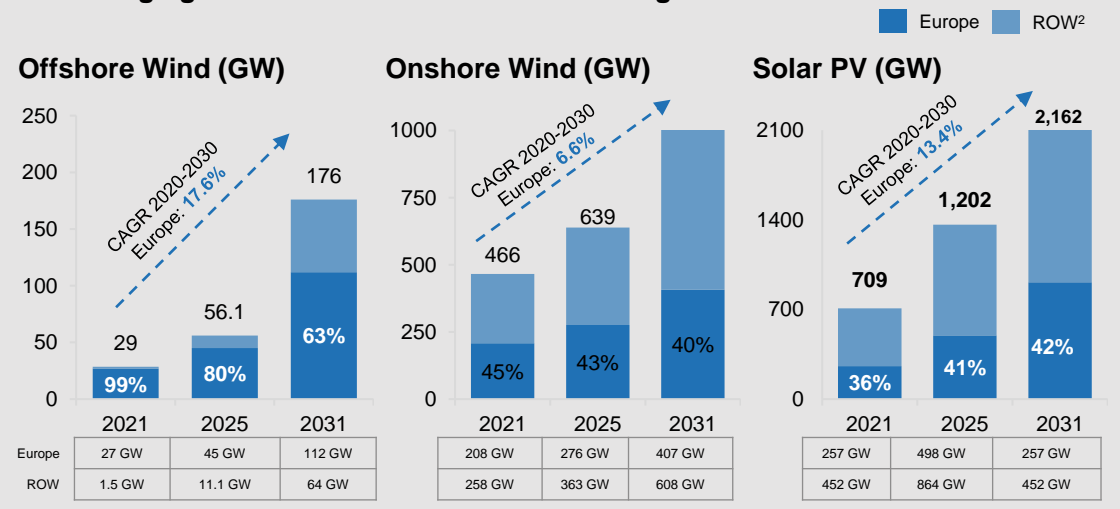
Aging fleet of existing renewable assets (~20-25 years)



Coal phase out



## Double-digit growth across renewables technologies until 2030<sup>1</sup>

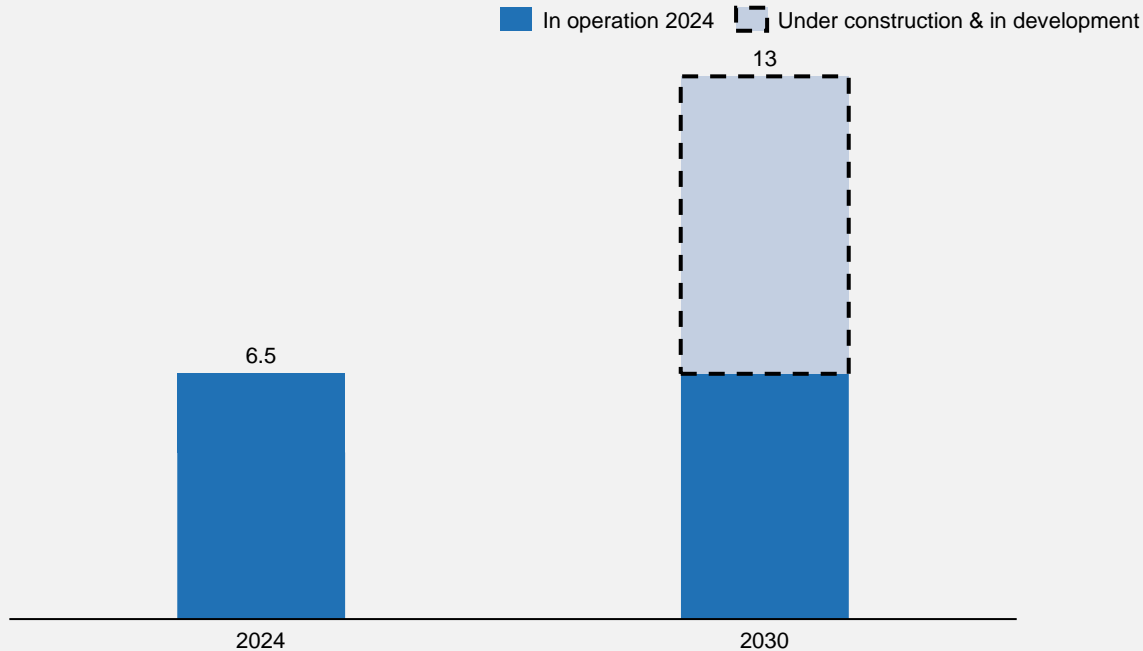


<sup>1</sup> Wood Mackenzie, accumulated capacity

<sup>2</sup> ROW excludes China

# With plans for further development until 2030 and beyond

## Under construction capacity (2024) & development pipeline towards ~2030 (GW)



### Examples of projects under construction:

- ⚓ Blauw, 77 MW
- ⚓ Bruzaholm, 138 MW
- ⚓ Velinga, 60 MW
- ⚓ Tützpatz 76 MW

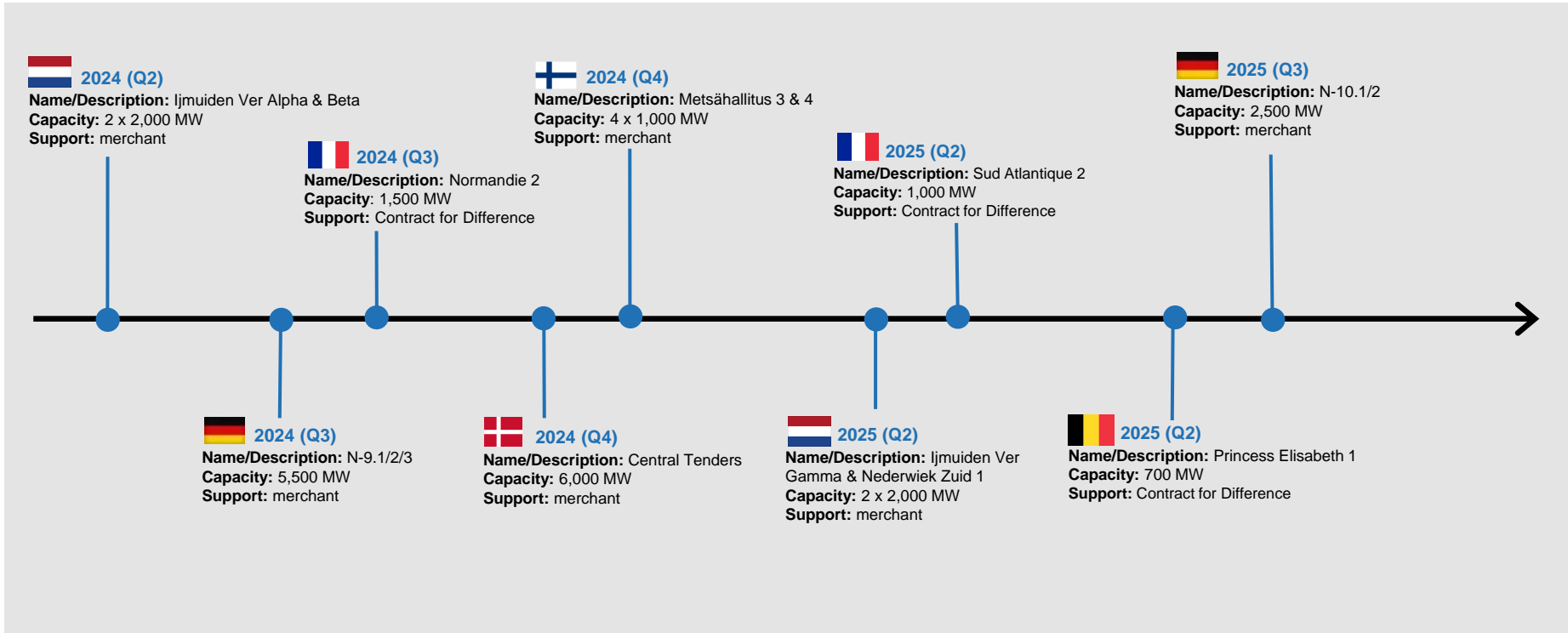
### Offshore Wind ⚓

Capacity secured – projects in development:

- 🇳🇱 Ijmuden Ver Beta : 2000 MW
- 🇩🇪 Nordlicht 1 & 2: 980 MW, 630 MW
- 🇬🇧 Muir Mhòr: 700 MW
- 🇩🇪 Korsnäs: 1300 MW

# Pipeline of opportunities supports Vattenfall ambitions

Several upcoming offshore wind tenders in relevant markets\*



\* Listed by expected award date

# Zeevink II & CIP

## IJVER Beta – supporting the energy system of tomorrow



- **50% partnering** with CIP pre-bid
- Collaboration and joint execution organization with a developer/ competitor



- **2 GW offshore wind**
- **50 MWp offshore floating solar**

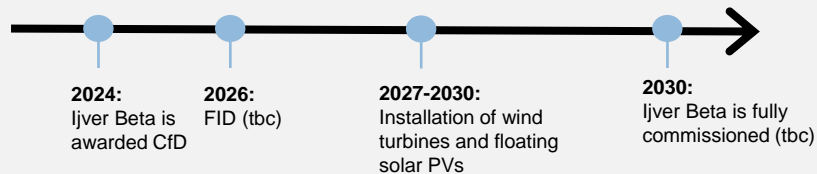


- **Ecology** measures
- **Circularity** design and reduced CO<sub>2</sub>

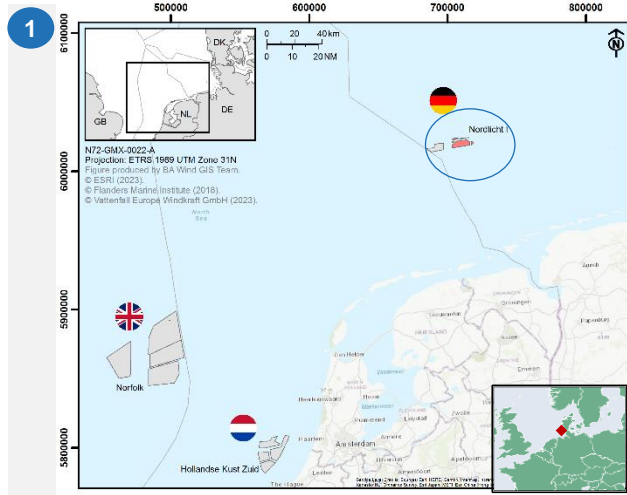


- **1 GW system integration**
- **Electrolyzer** at port of Rotterdam

### Project Timeline



# Nordlicht I (NDL 1) & Nordlicht II (NDL 2)



## 2 Background:

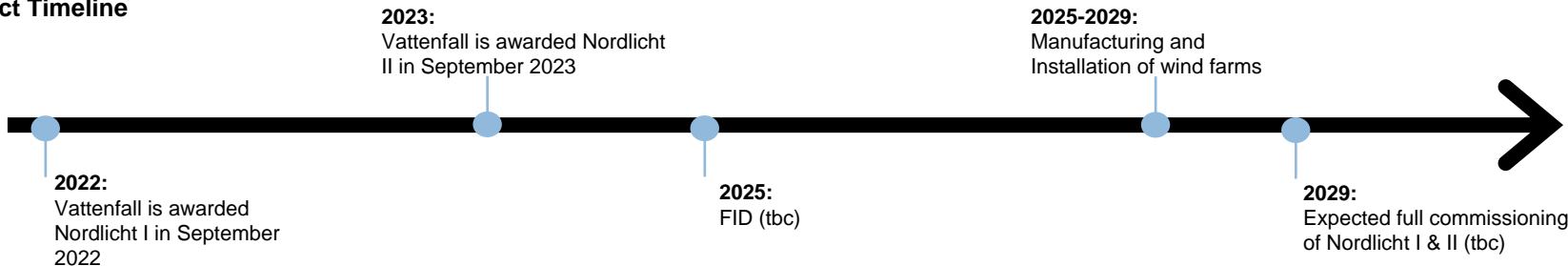
The offshore wind farm NDL 1 with a capacity of 980 MW was awarded to Vattenfall in September 2022 after Vattenfall exercised its step-in rights for the project.

The offshore wind farm NDL 2 with a capacity of 630 MW was awarded to Vattenfall in September 2023 after Vattenfall matched a competitor's bid and exercised its step-in rights for the project.

## 3 Current status:

- Turbine and service contract for both sites signed
- Closing with BASF May 15th; all contracts signed
- Onboarding process of BASF liaison kicked off
- Geophysical Scope NDL 2 has begun
- Site Investigation NDL 1 finalised, outstanding claims currently being settled with NEXTGeo
- NDL 1: Public hearing completed – no further statements expected. BSH started technical papers as preparation for draft plan approval
- Overall Procurement Process on track and ongoing

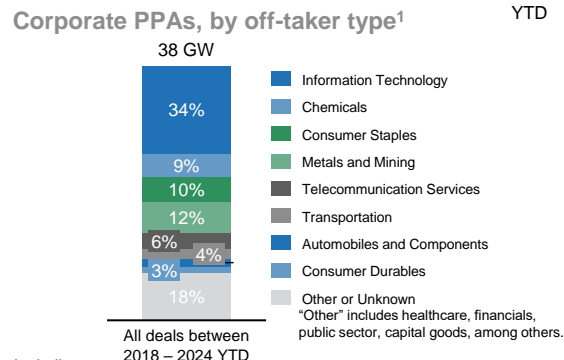
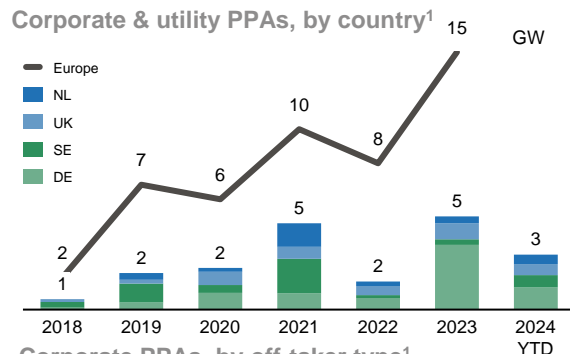
## Project Timeline



# PPA market continues to grow again after slowdown in 2022 as more projects with grid parity become available

## Rationale for corporate PPAs

- 1. Prerequisite for partnering:** Fixed-income structures are more attractive to or even a pre-requisite for financial partners to invest in merchant risk-exposed projects.
- 2. Long-term hedging:** Corporate PPAs are complementing a portfolio of subsidised (e.g. CfD) and merchant projects, with the opportunity of de-risking up to 100% production volumes of merchant projects for 5-15 years.
- 3. Additional value creation:** Green PPAs from dedicated assets enable capturing higher willingness to pay of individual customers, thus beating our long-term revenue expectations.



## Vattenfall's position as a trusted partner



### Hollandse Kust Zuid

- 10-year deal with Air Liquide, signed in 2021, to supply industry sites
- First CPPA from a subsidy-free Offshore Wind farm



### Nordlicht I & II

- Lifetime deal with BASF, signed in 2024. 49% sale of Nordlicht 1 and 2 wind farms (980 MW, 630MW)



### Blakliden/Fäbodberget

- 20-year deal for 60% production volume of the 353 MW Onshore Wind farm, signed with Norsk Hydro in 2018

<sup>1</sup>Source: Pexapark. Only PPAs included that enable new subsidy free RES capacity to be built. Data up until June 2024.



# 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:** commissioned

**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:** Commissioned

**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"> <li>A settlement price is guaranteed to the Offshore power provider. The support is based on the difference between agreed and market price</li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Maximum of 20 years (after the wind farm has been connected to the grid)</li> </ul>
	Feed-in premium	Founding year: 2009 Status: in force Eligible technology:  	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Depends on the type of technology and date of commissioning</li> </ul>
	Contracts for Difference (CfD)	Founding year: 2014 Status: in force Eligible technology:   	<ul style="list-style-type: none"> <li>A Contract for Difference (CfD) is a private law contract between a renewable electricity generator and the CfD counterparty – Low Carbon Contracts Company (LCCC)</li> <li>The CfD is based on a difference between the day ahead hourly market price and an agreed “strike price”</li> <li>If strike price &gt; market price: The CfD counterparty must pay the difference between the two to the generator</li> <li>If strike price &lt; market price: The generator must pay the difference between the two to the CfD counterparty</li> <li>There is an open seabed leasing round “Celtic Sea Floating Offshore Wind Leasing Round 5” for 12GW;</li> </ul>	<ul style="list-style-type: none"> <li>CfD contracts are awarded for a period of 15 years, index linked to CPI</li> </ul>
	SDE++	Founding year: 2011 Status: in force Eligible technology <sup>2</sup> :  	<ul style="list-style-type: none"> <li>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</li> <li>The budget is based on an auction system, where the lowest bidder receives the premium</li> <li>Total budget of SDE++ 2024: at least € 11,5 billion</li> <li>In 2024 a clawback mechanism is introduced to reduce risk on oversubsidizing. Only received subsidies can be clawed back.</li> <li>Aim is to replace the SDE++ by a two-way CfD from 2027 onwards for wind and solar developments.</li> </ul>	<ul style="list-style-type: none"> <li>Premium is paid for a period of up to 15 years</li> </ul>
	EEG	Founding year: - Status: in force Eligible technology:   	<ul style="list-style-type: none"> <li>A tendering process with prices set by competitive auctions, where projects receive contracts to sell the produced electricity at the bid price. Note that marketing schemes for Offshore, Onshore and Solar PV are diverging.</li> <li>Bids are based on floating market premium</li> <li>Market Premium: reference value of the respective renewable energy plant minus its technology-specific market value</li> </ul>	<ul style="list-style-type: none"> <li>Market premium is paid for a period of 20 years</li> </ul>
	The Electricity Certificate System	Founding year: 2003 Status: in force Eligible technology:   	<ul style="list-style-type: none"> <li>The demand for certificates is regulated by a quota system, which is fixed in proportion to total electricity use (energy intensive industry is exempted)</li> <li>The electricity producer receives a certificate for each MWh from renewable sources and sells it to electricity consumers on the open market</li> <li>Since December 2021, the Electricity Certificate system is closed for new plants.</li> </ul>	<ul style="list-style-type: none"> <li>The system will be entirely closed down by 2036</li> </ul>
	Contracts for Difference (CfD)	Founding year: 2010 Status: in force Eligible technology:   	<ul style="list-style-type: none"> <li>A Contract for Difference (CfD) is in place and is based on a difference between the market price and an agreed “strike price”</li> <li>If strike price &gt; market price: State must pay the difference to the producer</li> <li>If Strike price &lt; market price: Producer must pay the difference to the State</li> <li>Post 2024, future projects will most certainly have a mix of CfD and PPA (70% - 30% ventilation).</li> </ul>	<ul style="list-style-type: none"> <li>20 years, partially indexed on labour and industrial production</li> </ul>

<sup>1</sup> Older version of the SDE+ scheme

# Wind & Solar - Installed capacity (MW<sup>1</sup>) Q2 2024

	Solar	Onshore	Offshore	Batteries	Total
United Kingdom	-	623	686	55	1,364
Denmark	-	196	1,514	-	1,710
The Netherlands	65	515	1,487	-	2,067
Sweden	-	638	110	-	748
Germany	2	7	636	-	645
<b>Total (MW)</b>	<b>67</b>	<b>1,978</b>	<b>4,434</b>	<b>55</b>	<b>6,534</b>



United Kingdom	
■ Thanet	300
■ Ormonde (51%)	150
■ Aberdeen	97
■ Kentish Flats	90
■ Kentish Flats Extension	50
■ South Kyle (0%, AMA <sup>2</sup> )	240
■ Pen Y Cymoedd	228
■ Ray	54
■ Edinbane	41
■ Clashindarroch	37
■ Swinford	22
■ Battery@Ray	55
<b>Installed capacity (MW)</b>	<b>1,364</b>

Sweden	
■ Lillgrund	110
■ Blakliden + Fäbodberget (30%)	353
■ Stor-Rotliden	78
■ Grönhult (0%, AMA <sup>2</sup> )	67
■ Högabjär-Kårsås (50%)	38
■ Höge Våg (50%)	37
■ Hjuleberg (50%)	36
■ Juktan (50%)	29
<b>Installed capacity (MW)</b>	<b>748</b>

Denmark	
■ Kriegers Flak	605
■ Horns Rev 3	407
■ Horns Rev 1 (60%)	158
■ Vesterhav	344
■ Klim (98%)	67
■ Nørrekær Enge 1 (99%)	30
■ Rejsby Hede	23
■ Hagesholm	23
■ Tjæreborg Enge	17
■ Bajlum (89%)	15
■ DræbyFed	9
■ Ejsing (97%)	7
■ Lyngmose	5
<b>Installed capacity (MW)</b>	<b>1,710</b>

Germany	
■ DanTysk (51%)	288
■ Sandbank (51%)	288
■ Alpha Ventus (26%)	60
■ Westküste (20%)	7
■ Decentral Solar installations	2
<b>Installed capacity (MW)</b>	<b>645</b>

The Netherlands	
■ Hollandskust Zuid (51%)	1,487
■ Princess Ariane	184
■ Princess Alexia	122
■ Windplan Blauw	77
■ A16 / Klaverspoo	34
■ Slufterdam	29
■ Moerdijk	27
■ Haringvliet	22
■ Echteld	8
■ Oom Kees (12%)	6
■ Oudendijk	5
■ Haringvliet	38
■ Kooypunt	12
■ Velsen	2
■ Hemweg	2
■ Diemen	1
■ Symbizon	1
■ Decentral Solar installations	8
<b>Installed capacity (MW)</b>	<b>2,067</b>

<sup>1</sup> Capacity in operation: total capacity of the wind farms that Vattenfall has an ownership or is responsible for the operation. Minority shares included as 100%

<sup>2</sup> Asset divested but in operation by Vattenfall under Asset Management Agreement (AMA)

# Main projects BA Wind 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	2023/2024	Commissioning ongoing, partnering with BASF
DK	Vesterhav	344	FIT	X	50.000hrs	100	2023/2024	Fully commissioned. TG5 granted in April 2024
NL	Windplan Blauw	77	SDE+	X	15 yrs	100	2023/2024	Fully commissioned. TG5 expected in Q4 2024
SE	Bruzaholm	139				100	2025/2026	Under construction, cPPA* signed
SE	Velinga	60				100	2026	Under construction, cPPA* signed
SE	Battery@Bruzaholm	38				100	2025/2026	Under construction
SE	Battery@Toledo	20				100	2024	Under construction
DE	Tützpatz	76				100	2024	Under construction, cPPA* signed
DE	Silberstedt	23				100	2024	Under construction, cPPA* signed
DE	Nauen	46				100	2025	Under construction, cPPA* signed
<b>In construction</b>		<b>2,343</b>						
NL	Ijmuiden Ver Beta	2,000				50	2029/2030	Bid awarded in June 2024, partnering with CIP
UK	Muir Mhor (Scotwind)	750	CfD			50	2030	Under development with consenting and permitting progressing to ensure participation in the CfD bid, JV with Fred Olsen
DE	Nordlicht I (N 7.2)	980	-		-	50	2029	FID planned for 2025, partnering with BASF
DE	Nordlicht II (N 6.6)	630	-		-	50	2029	FID planned for 2025, partnering with BASF
DE	Wolfsberg	17	EEG			100	2026	FID planned for 2024
SE	Vargtrask	84				100	2027	FID planned for 2024
DE	Big Battery @ Brunsbittel	230	-		-	100	2028	FID planned for 2024
DE	Battery @ Tützpatz	50	-		-	100	2025	FID planned for 2024
<b>In development (in mature stage)</b>		<b>4,741</b>						

	Offshore
	Onshore
	Solar
	Batteries

\* cPPA stands for Commercial Power Purchase Agreement. For these projects, BA Wind has signed a contract with a partner for the sale of contractually agreed amount of MW per year, for a fixed period of time (usually ranging between 10-15 years)

# 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

## Highlights



**~1 000 000** household and business customers



**~139,000 km** of electricity grids



**SEK 7 billion** in investments 2023



**SEK 89 billion** RAB 2023



## Key data

	FY 2023	FY 2022
Net sales (SEK bn)	11.1	12.5
External net sales (SEK bn)	10.4	11.7
Underlying EBIT <sup>1</sup> (SEK bn)	1.5	2.1
Investments (SEK bn)	7	5.5
SAIDI <sup>2</sup> (minutes/customer)	132	157
SAIFI <sup>3</sup> (number/customer)	1.91	2.08
RAB	89	68

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

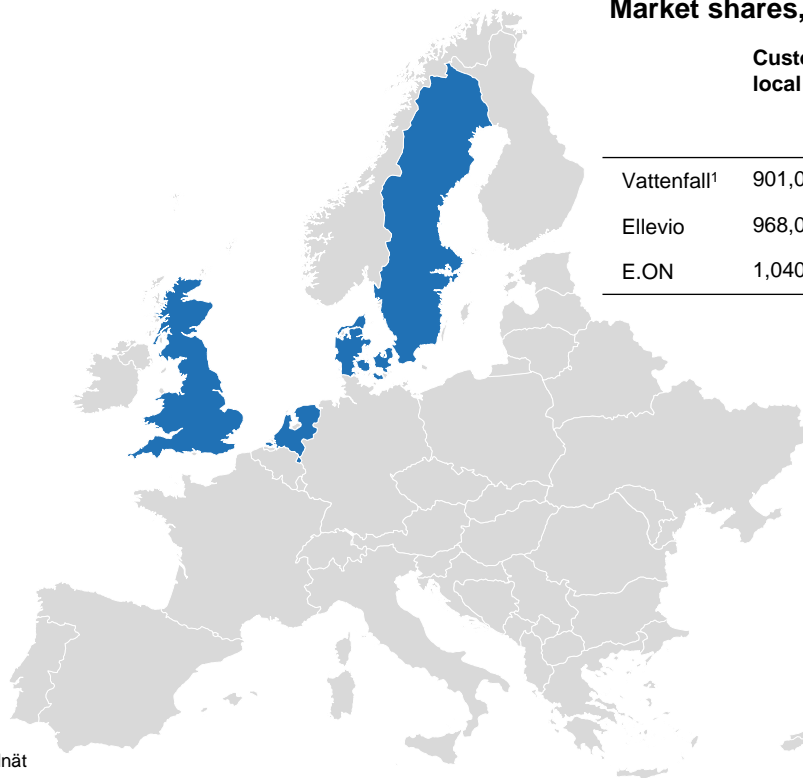
<sup>2</sup> SAIDI: System Average Interruption Duration Index

# Distribution

## Market and business overview

### In brief

- Vattenfall's Distribution business owns and operates electricity distribution grids in Sweden.
- Approximately 1 000 000 business and household customers<sup>1</sup>
- A new business unit for operation and ownership of new grids in the UK was established in 2017. Vattenfall is one out of 16 established IDNOs<sup>4</sup> in the UK
- In early 2021, Vattenfall entered the Dutch and Danish markets and the first Power-as-a-Service deals have now been signed



### Market shares, Sweden

	Customers local grids	Markets share regional grid <sup>2</sup>	Market share local grid <sup>3</sup>
Vattenfall <sup>1</sup>	901,000	54%	16%
Ellevio	968,000	24%	17%
E.ON	1,040,000	22%	19%

<sup>1</sup> Excluding Vattenfall's subsidiaries Gotlands Elnät and Västerbergslagens Elnät

<sup>2</sup> Based on volume of transited energy excluding grid losses

<sup>3</sup> Based on number of contracts

<sup>4</sup> Independent Distribution Network Operator

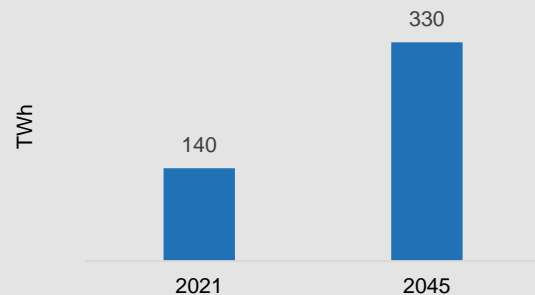
# Energy transition to spur dramatic growth in electricity demand in Sweden

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
- Businesses such as hydrogen industry 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)<sup>1</sup>



<sup>1</sup> Source: Energiföretagen Sverige, Sveriges elbehov 2045, 2023

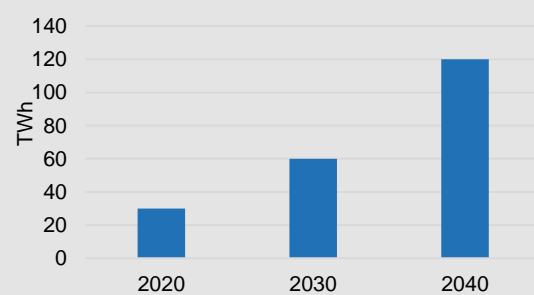
<sup>2</sup> Source: Svensk vindenergi, Färdplan 2040, 2021

<sup>3</sup> Asset base per 2020-01-01

## Installed wind capacity continues to grow

- 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

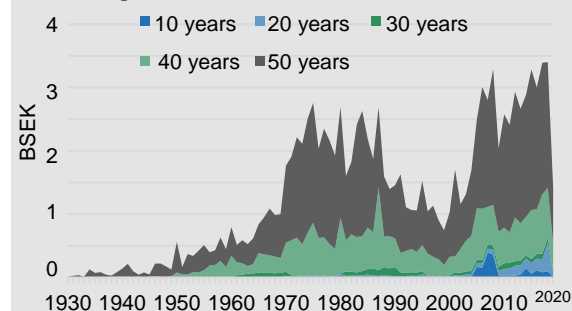
Forecast – wind power generation (Sweden)<sup>2</sup>



## 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 Eldistribution<sup>3</sup>





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# Financial performance

H1 2024



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# Vattenfall H1 Results 2024

## Financial highlights

### Key data

SEK bn	H1 2024	H1 2023
Net Sales	128.5	158.5
EBITDA	43.3	27.1
Underlying operating profit (EBIT)	17.9	14.6
EBIT	32.6	13.5
Profit for the period	26.2	6.9
Funds from Operations (FFO)	20.8	16.9
Cash flow operating activities	27.5	-25.1
Net debt	14.4	48.4
Adjusted net debt	83.0	126.9
Adjusted net debt/EBITDA <sup>1</sup> (times)	1.5	5.1
Financial targets	H1 2024	H1 2023
ROCE <sup>1</sup> (≥8%)	11.5	0.5
FFO/adjusted net debt <sup>1</sup> (22-27%)	40.9	30.6

<sup>1</sup> Last 12-month values

### Key developments

- Net sales decreased by SEK 30.0 bn to SEK 128.5 bn mainly explained by lower electricity and gas prices in customer sales
- Underlying EBIT increased by SEK 3.3 bn to SEK 17.9 bn. Price hedging allowed for achieving higher prices in the Nordics despite a falling market trend. This compensated for a more difficult situation for the Dutch heat operation, with lower margins for gas-fired power generation. The comparison is also influenced by a higher profit for the heat operation in Berlin, which is consolidated until the beginning of May this year.
- Profit for the period increased to SEK 26.2 bn. Besides the improved operating profit, the increase is explained by one-off effects mainly related to capital gains from the sale of 49% of the Nordlicht I and II offshore wind farms and the sale of the Norfolk Offshore Wind Zone
- ROCE increased to 11.5% mainly due to higher positive changes in fair value, capital gains from the sales of 49% of the Nordlicht I & II offshore wind farms (SEK 5.1 billion) and the Norfolk Offshore Wind Zone (SEK 4.6 billion), and an impairment for Norfolk in Q2 2023
- FFO/Adjusted net debt increased to 40.9% due to significantly lower Adjusted net debt, mainly as a result of the divestment of the heat operations in Berlin and the sale of 49% of Nordlicht I and II

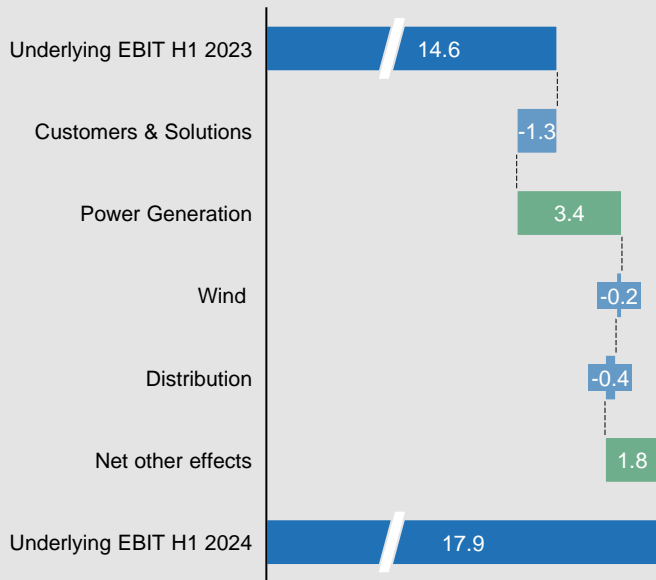


# Development of underlying EBIT H1 2024

Increase in earnings mainly due to higher achieved prices

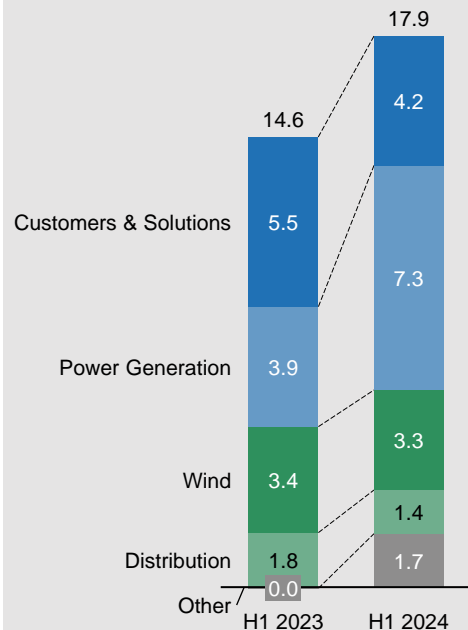
## Change in H1 2024 vs. H1 2023

SEK bn



## Breakdown per operating segment

SEK bn

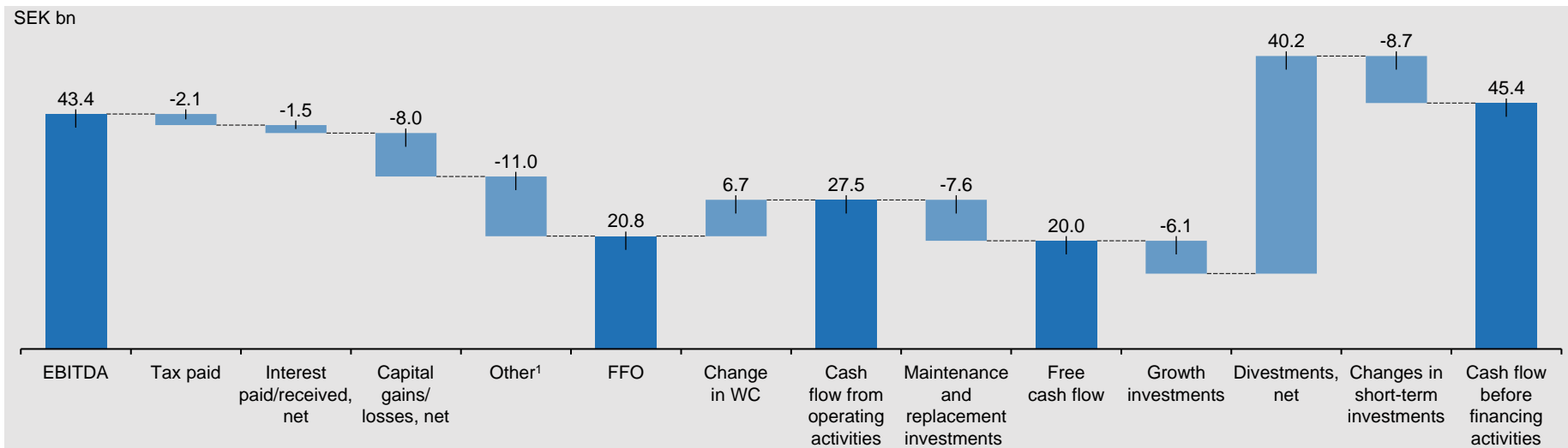


## Highlights

- Customers & Solutions: mainly driven by lower margins for gas-fired generation
- Power Generation: higher results from Nordic hedges offsetting the lower electricity prices in the Nordics, as well as higher production volumes from hydro and nuclear power
- Wind: higher volumes from Offshore wind farms Hollandse Kust Zuid in Netherlands and Vesterhav in Denmark could not fully offset higher costs and lower electricity prices
- Distribution: higher costs for the transmission grid as well as higher personnel costs due to growth
- Other: primarily owing to a higher result from the heat business in Berlin, which was consolidated until the 2nd of May 2024, although the effective date of the transaction is the 31st of December 2023

# Cash flow development H1 2024

Positive working capital development mainly related to cash inflow from margin calls



## Main effects

Change in working capital mainly driven by net changes in margin calls for commodity hedging activities (SEK +15.2 bn) and lower operating receivables in segment Customers & Solutions (SEK +4.8 bn). Partially offset by lower operating liabilities in Heat Berlin until closing (SEK -10.7 bn) and higher operating receivables in segment Power Generation (SEK -4.1 bn).

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

# Hedging, debt and funding

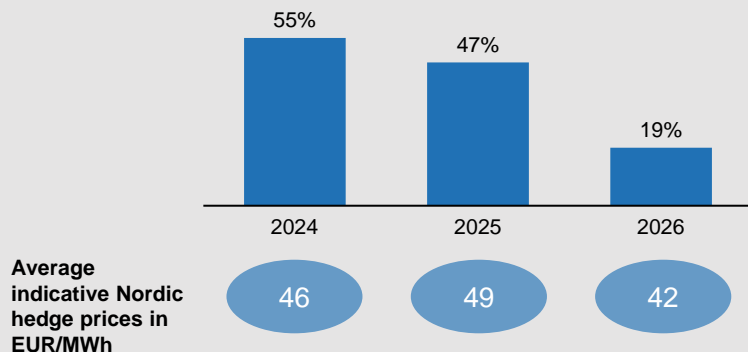
H1 2024



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# Price hedging

Estimated Nordic<sup>1</sup> volume hedge ratio (%) and indicative prices



Achieved prices<sup>2</sup> - Nordic portfolio

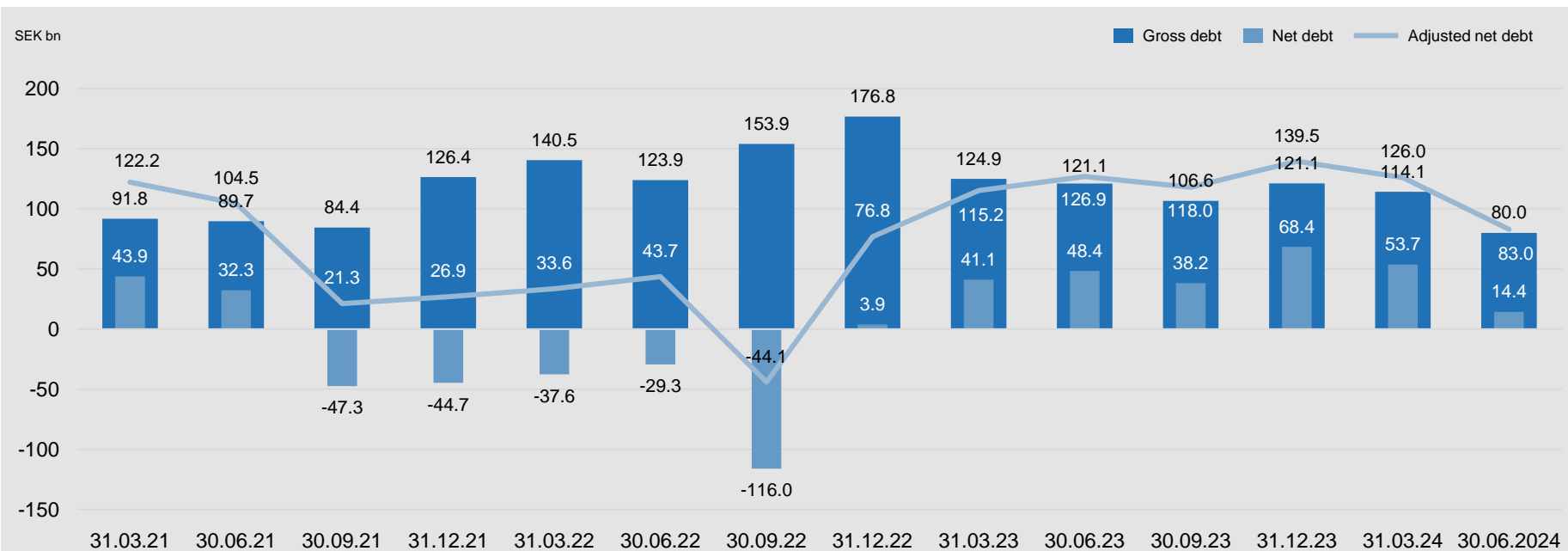
YTD 2024	YTD 2023	Q2 2024	Q2 2023	FY 2023
45	38	40	35	37

Vattenfall's price hedging strategy is primarily focused on the Nordic generation assets because the primary risk exposure is linked to base production of nuclear power and hydro power. The degree of hedging is highest for the next few years and decreases thereafter. Hedging is mainly based on the Nordic system price (SYS) while delivery takes place in the price areas where generation assets are located. The achieved price in the second quarter 2024 increased compared with the second quarter 2023 due to a significantly higher hedge price as well as less negative EPADs (Electricity Price Area Differentials).

<sup>1</sup> Nordic: SE, DK, FI

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

# Debt development



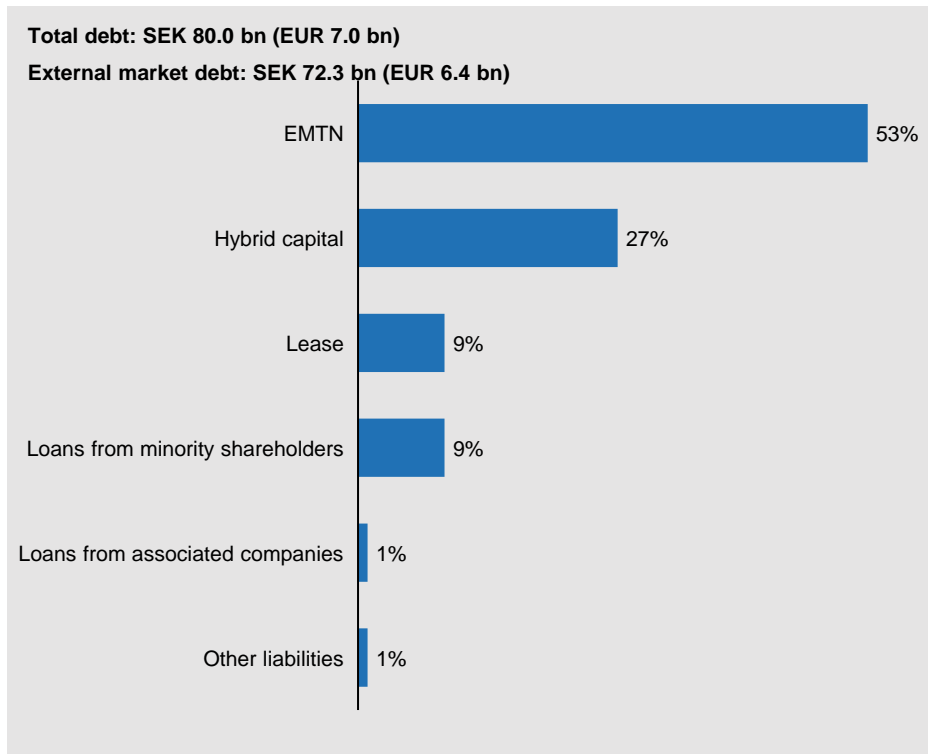
Net debt decreased by SEK 54.1 bn to SEK 14.4 bn compared with the level at 31 December 2023. Adjusted net debt decreased by SEK 56.5 bn to SEK 83.0 bn compared with the level at 31 December 2023. For the calculation of adjusted net debt, see slide 21.

# Reported and adjusted net debt

Reported net debt (SEK bn)	30 Jun. 2024	31 Dec. 2023	Adjusted net debt (SEK bn)	30 Jun. 2024	31 Dec. 2023
Hybrid capital	21.6	21.0	Total interest-bearing liabilities	80.0	121.1
Bond issues and liabilities to credit institutions	42.6	62.0	50% of Hybrid capital	-10.8	-10.5
Commercial papers and Repos	0.0	20.1	Present value of pension obligations	27.8	28.1
Liabilities to associated companies	0.5	0.7	Wind & other environmental provisions	15.4	15.4
Liabilities to minority shareholders	7.3	10.1	Provisions for nuclear power (net)	39.5	46.0
Lease liabilities	6.8	6.3	Margin calls received	-0.4	-0.3
Other liabilities	1.2	1.0	Liabilities to minority owners due to consortium agreements	-7.3	-10.1
<b>Total interest-bearing liabilities</b>	<b>80.0</b>	<b>121.1</b>	Adjustment related to assets/liabilities held for sale	0.0	-3.4
Reported cash, cash equivalents & short-term investments	65.2	52.3	<b>= Adjusted gross debt</b>	<b>144.3</b>	<b>186.3</b>
Loans to minority owners of foreign subsidiaries	0.4	0.4	Reported cash, cash equivalents & short-term investments	65.2	52.3
<b>Net debt</b>	<b>14.4</b>	<b>68.4</b>	Unavailable liquidity	-3.9	-5.4
			<b>= Adjusted cash, cash equivalents &amp; short-term investments</b>	<b>61.3</b>	<b>46.8</b>
			<b>= Adjusted net debt</b>	<b>83.0</b>	<b>139.5</b>



# Breakdown of gross debt



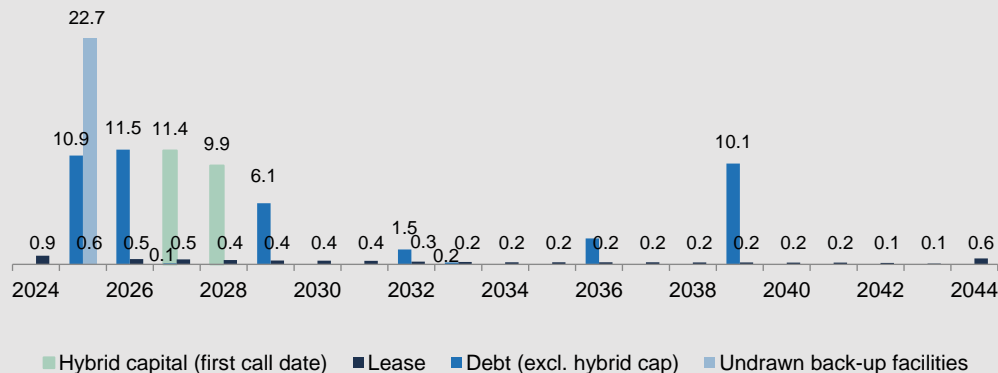
Debt issuing programmes	Size (EUR bn)	Utilization (EUR bn)
EUR 10bn Euro MTN	10.0	3.7
EUR 10bn Euro CP	10.0	0.1
Total	20.0	3.8

- 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.

<sup>1</sup> EMTN= Euro Medium Term Notes

# Debt maturity profile<sup>1</sup>

SEK bn



<sup>1</sup> Short term debt (Commercial paper and Repo's: 0.0), 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.

	30 Jun. 2024	31 Dec. 2023
Duration (years)	5.0	3.5
Average time to maturity (years)	5.3	4.2
Average interest rate (%)	3.6	3.9
Net debt (SEK bn)	14.4	68.4
Available group liquidity (SEK bn)	61.3	46.8
Undrawn committed credit facilities (SEK bn)	22.7	33.3

## Cumulative maturities excl. undrawn back-up facilities

	2024- 2026	2027- 2029	From 2030
Debt incl. hybrid capital	24.4	28.8	18.1
<i>% of total</i>	34%	41%	25%

# Liquidity position

<b>Group liquidity</b>	<b>SEK bn</b>	<b>Committed credit facilities</b>	<b>Facility size, EUR bn</b>	<b>SEK bn</b>
Cash and cash equivalents	32.9	RCF (2025)	2.0	22.7
Short term investments	32.3	<b>Total undrawn</b>		<b>22.7</b>
<b>Reported cash, cash equivalents &amp; short-term investments</b>	<b>65.2</b>			
		<b>Debt maturities<sup>2</sup></b>		<b>SEK bn</b>
Unavailable liquidity <sup>1</sup>	-3.9	Within 90 days		0.0
<b>Available liquidity</b>	<b>61.3</b>	Within 180 days		0.9

<sup>1</sup> German nuclear "Solidarvereinbarung" 1.1 SEK bn, Margin calls paid (CSA) 2.0 SEK bn, Insurance "Provisions for claims outstanding" 0.8 SEK bn.

<sup>2</sup> Excluding loans from minority owners and associated companies.

# Nuclear provisions

Reactor <sup>1</sup>	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	<b>Total Ringhals: 39.9</b>	<b>Total Ringhals: 39.9<sup>2</sup></b>	
Forsmark 1	984	1980	66.0			
Forsmark 2	1,120	1981	66.0			
Forsmark 3	1,170	1985	66.0	<b>Total Forsmark: 37.1</b>	<b>Total Forsmark: 24.5</b>	
<b>Total Sweden</b>	<b>6,974</b>	<b>-</b>		<b>80.7<sup>3</sup></b>	<b>66.4<sup>3</sup></b>	<b>44.9<sup>4</sup></b>
Brunsbüttel	771	1977	66.7	11.1	7.4	
Brokdorf	1,410	1986	20.0	-	3.2	
Krümmel	1,346	1984	50.0	7.6	7.6	
Stade <sup>5</sup>	640	1972	33.3	-	0.3	
<b>Total Germany</b>	<b>4,167</b>	<b>-</b>	<b>-</b>	<b>18.7</b>	<b>18.5</b>	
<b>Total SE &amp; DE</b>	<b>11,141</b>			<b>99.4</b>	<b>84.9</b>	

<sup>1</sup> Five reactors are in commercial operation in Sweden; Ringhals 3 & 4 and Forsmark 1, 2 & 3. Ringhals 1 & 2 and all reactors in Germany are taken out of commercial operation. Stade is being dismantled.

<sup>2</sup> Vattenfall is 100% liability of Ringhals decommissioning, while owning only 70.4%

<sup>3</sup> Total provisions in Sweden (IFRS accounting) include provisions of SEK 0.3 bn (pro rata SEK 0.3 bn) related to Ågesta, SEK 3.1 bn (pro rata SEK 1.6 bn) related to SVAFO and SEK 0.3 bn (pro rata SEK 0.0 bn) related to SKB.

<sup>4</sup> Vattenfall's share of the Nuclear Waste Fund. IFRS consolidated value is SEK 53.8 bn.

An aerial photograph of a tractor with a long spray boom moving through a field of young green crops. The tractor is positioned in the upper center, and the spray boom extends horizontally across the frame. Fine mist is visible from the nozzles. The rows of crops are neatly spaced and recede into the distance.

# ESG and Credit Ratings








VATTENFALL

# 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.	CDP Climate Score: A / A CDP Water Score: B / A	January 2024
 ecovadis	An online platform that enables companies to monitor the performance of their supply chains by providing supplier sustainability ratings.	Score: 85 / 100. "Platinum rating": top 1% in the energy sector.	April 2024
 ISS ESG	ESG rating mainly for the investment community. The assessment spans over a range of ESG issues that are analysed on the basis of up to 100 rating criteria, most of them sector specific.	Score B- "Prime"	September 2024
 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 AAA/AAA: meaning top 10% of companies assessed in the sector	December 2023
 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 25.3 (strong management score and high exposure)	December 2023

# Credit ratings overview



Long term rating: A3<sup>1</sup>

Short term rating: P-2

Outlook: Stable

*Latest publication: 6 July 2023*

- “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 50% (or around the high 30s in percentage terms excluding the temporary impact from positive margin calls on net debt).”
- “Throughout 2023, we expect credit metrics to weaken, driven mainly by a high level of capital spending [more than SEK40 billion] and some impact still from unwinding of margin payments. As a consequence, we expect free cash flow to be largely negative for the year and lead to FFO/net debt in the low 20s. However, metrics should again strengthen quite substantially in 2024, and we expect the company’s credit metrics to remain solidly positioned for the rating category over the medium term.”



Long term rating: BBB+<sup>1</sup>

Short term rating: A-2

Outlook: Stable

*Latest publication: 15 December 2023*

- “We believe that risks in the Nordic power market have increased over the last few years, and that price volatility will be larger in the future. We also anticipate that Vattenfall’s underlying EBITDA exposure to unregulated power production will gradually increase over 2024-2026, likely to 80%-85%.”
- “Vattenfall AB’s business risk has therefore not developed as favorably as we expected when we assigned a positive outlook in November 2021, and, because of likely increased investment, we expect management to steer toward the upper end of its financial policy of funds from operations (FFO) to debt of 22%-27% over the medium to long term. Nevertheless, we continue to view Vattenfall’s position in Sweden as very strong, generating about 45% of the electrical power in the country, with an already very low emission profile and a diverse generation mix, which support a strong business risk profile. We also expect Vattenfall’s financial position to remain robust and supportive for the rating over the coming years. ”
- “The stable outlook indicates that we expect Vattenfall’s current ample rating headroom will decrease over time, returning to FFO to debt below 30%.”

# Vattenfall credit highlights

A leading European energy company with activities across the value chain

BBB+ stable 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



An aerial photograph of a dense forest with a substation and power lines. The substation is located in the lower-left quadrant, with several tall metal towers and a complex network of power lines. The forest is a mix of green and brown trees, suggesting a transition between seasons. The power lines stretch across the frame from the substation towards the right and top-right corners.

# Green financing



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# Vattenfall's green financing framework

Use of proceeds - eligible categories with examples of technologies<sup>1</sup>

## Renewable energy

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



## Clean transportation

- Infrastructure for clean transportation



## Energy efficiency

- Smart grids
- District heating
- Power to heat



## Transmission and distribution of electricity

- Transmission and distribution of electricity



<sup>1</sup> The complete green financing framework can be found on Vattenfall's website: [green\\_financing\\_framework\\_220913.pdf \(vattenfall.com\)](https://www.vattenfall.com/~/media/2022/09/green_financing_framework_220913.pdf)

# Green bond investor report

Investments under Vattenfall's Green Bond Framework, as of year-end 2023

Category	Project/country	Type	Capacity/ impact	Est. CO <sub>2</sub> reduction (ktonnes) <sup>1</sup>	Vattenfall's share	Start/ completion	Total investment	2023	-2022	Total
Renewable energy and related infrastructure	Hollandse Kust Zuid 1–4 / Netherlands	Wind offshore	1,509 MW	1,563	51%	2020/2024	2,600 MEUR	7,814	17,935	25,750 MSEK
	Kriegers Flak / Denmark	Wind offshore	604 MW	345	100%	2019/2021	7,600 MDKK	0	9,694	9,694 MSEK
	Vesterhav-projects / Denmark	Wind offshore	344 MW	196	100%	2022/2023	657 MEUR	4,262	1,806	6,068 MSEK
	Princess Ariane (retained) <sup>2</sup> / Netherlands	Wind onshore	180 MW	139	100%	2018/2020	220 MEUR	0	1,348	1,348 MSEK
	Bruzaholm /Sweden	Wind onshore	139 MW	3	100%	2023/2025	2,124 MSEK	226	0	226 MSEK
	Velinga / Sweden	Wind onshore	67 MW	1	100%	2024/2026	1,200 MSEK	0	0	0 MSEK
Industry projects	HYBRIT / Sweden	Fossil-free steel	Pilot project	–	33%	2019/2021	858 MSEK	20	460	480 MSEK
<b>Total</b>								<b>12,322</b>	<b>31,243</b>	<b>43,565 MSEK</b>
<b>Outstanding green bonds</b>										<b>25,217 MSEK</b>

<sup>1</sup> 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. Other projects are compared to project-specific reference cases.





<sup>2</sup> The project was formerly called Wieringermeer and Wieringermeer extension

# 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**.”



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

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](https://group.vattenfall.com/siteassets/corporate/investors/funding_ratings/doc/green_financing_second_opinion_may_2022.pdf)

# 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?

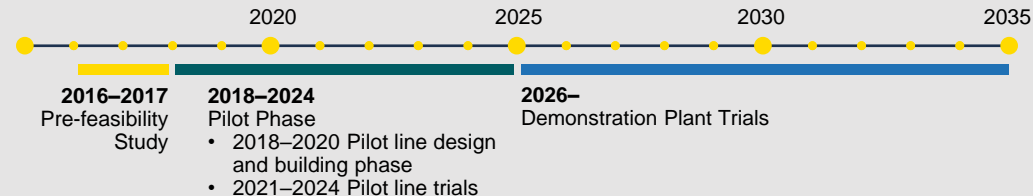
- The steel industry is one of the highest CO<sub>2</sub>-emitting industries, accounting for 7% of global and 10% of Swedish total CO<sub>2</sub> emissions
- Steel demand is set to grow due to population and urbanisation → carbon footprint of the industry needs to be addressed

## Financing and timeline

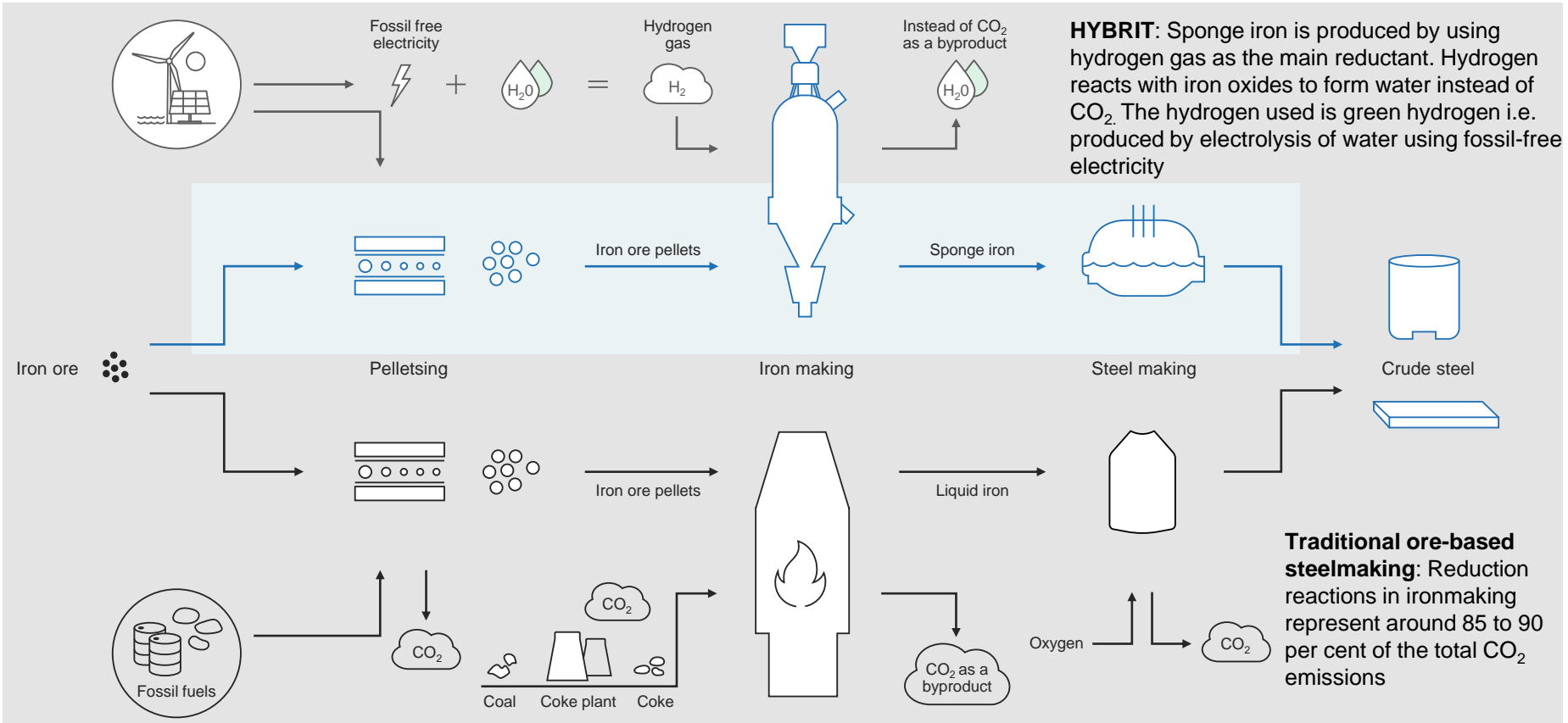
The total cost for the pilot phase is estimated to be more than SEK 2 billion. The Swedish Energy Agency will contribute about SEK 600 million towards the pilot phase. The three owners, SSAB, LKAB and Vattenfall, will each contribute one third of the remaining costs, together approximately 70% of the total investment. 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 with large scale production to start in 2026.

## Main project phases



# HYBRIT vs traditional steel production



A photograph of a yellow flower with a small bee on its petals, positioned in the foreground. The background consists of a grid of solar panels, creating a strong geometric pattern. The overall image is slightly blurred, emphasizing the flower and the text.

# Sustainability deep-dives

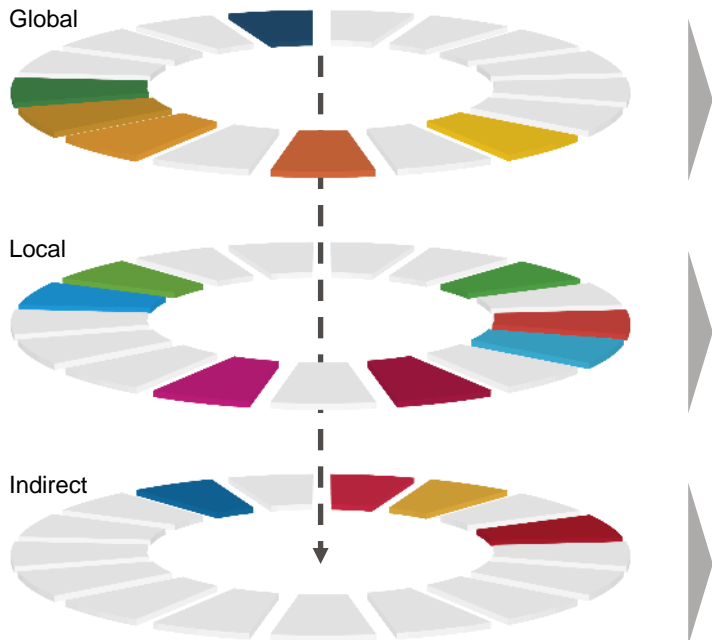


VATTENFALL

# 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)

## SUSTAINABLE DEVELOPMENT GOALS



### 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 has continued to grow and develop its fossil free energy pipeline that span various renewable energy sources and technologies, such as wind farms, solar parks, and battery storage. Currently, Vattenfall operates 5.4 GW of capacity in wind and solar power.



### SDG 12.2 & SDG 12.5

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

**Example:** Vattenfall strives to maximise the value of resources in its value chain, such as using excess heat from various third parties for local heating networks or recycling or repurposing old wind turbine blades.

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

**Example:** More than 95 per cent of residual products from our combustion plants are sold for re-use mainly to the construction industry.



### SDG 9.4

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

**Example:** Vattenfall has developed and maintained energy infrastructure for years. Hence, sustainable retrofitting activities, such as those in our heat operations in Berlin or upgrades, like those in our hydro operations, are core to our business.



### 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:** We operate 51,000 charging points, install heat pumps in homes, and develop microgrids for communities to enable the decarbonisation of cities and their surroundings.



### 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:** Together with a plethora of academia, public, and private partners, Vattenfall has magnified its impact. From creating international responsible business conduct agreements to evaluating the feasibility of new nuclear power, these partnerships drive society forward.

# 6 material topics based on 2023 internal DMA

After an extensive materiality assessment in 2022, where Vattenfall engaged with over 4,100 stakeholders, the 2023 process was based on quantitative and qualitative internal expert assessment. Vattenfall applied a Double Materiality approach which was inspired by the CSRD Principles, due to which we were able to systematically assess the extent to which the company impacts these topics (referred to as impact materiality) and the extent to which these topics could impact the company's financial performance (referred to as financial materiality).

## 2023 internal DMA

- Internal experts assessed the impact materiality on all ESRS topics, sub-topics and sub-sub-topics.
- Expert group sessions were organized to calibrate results.
- Final calibration and validation done together with experts, business, risk and finance representatives, as well as senior management.
- All results checked against internal documents, including the 2022 materiality assessment.

## Material topics

**E1** Climate change

**S1** Health & Safety (own workers)

**E4** Biodiversity and ecosystems

**S2** Workers in the value chain

**E5** Circular economy

**S3** Rights of indigenous peoples

# 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

Investigation of opportunities for electrification to enable fossil-free fuel production



VATTENFALL

One of Northern Europe's largest charging network for e-vehicles



VATTENFALL

Supporting development of near zero emission cement and a future demand



VATTENFALL

Co-operation for e-mobility



VATTENFALL

Industry partnerships offshore wind: HKZ, Nordlicht and Zeevonk



We create chemistry



Copenhagen Infrastructure Partner

VATTENFALL

Green guaranteed energy delivery large customers, e.g.



We create chemistry



VATTENFALL

Investigating joint investments in new fossil free energy production in Sweden



VATTENFALL

Investigate feasibility H2 at Swedish Airports



Swedavia Airports



VATTENFALL

24/7 matching fossil-free energy for data centers



VATTENFALL

Developing flexible solutions for grid stability



GRÄNGES



VATTENFALL

Excess heat from algae cultivation to heat households

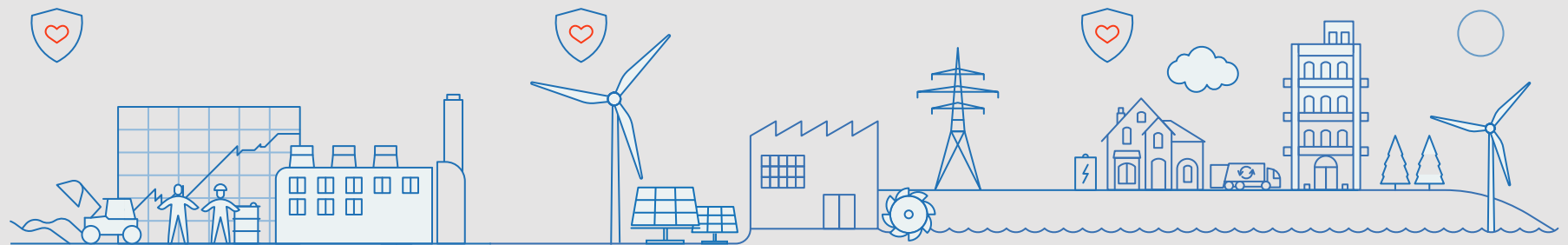


Be you, Just healthier

VATTENFALL

# 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.**

# Mapping our value chain-wide impact on biodiversity

A quantitative biodiversity footprint assessment to prioritise areas for further target setting.

## “Towards a net positive impact approach”

We are committed not only to reduce impacts, but also positively contribute by implementing biodiversity enhancing measures. Our biodiversity strategy aims to break down our overall ambition into concrete actions and targets. Calculating our biodiversity footprint has increased our understanding of how we can contribute to a net positive impact, prioritise actions, and improve our targets.

## Measuring our 2020 baseline

- ✓ In 2022, Vattenfall finalised a value chain-wide biodiversity footprint assessment to obtain a quantitative measurement of how our economic activities impact nature and species.
- ✓ The assessment was done using the Global Biodiversity Score—a tool that uses different types of data such as land use, emissions, water use, and financial data to model impacts on biodiversity.
- ✓ The model measures the level of impact on pristine nature caused by a company, or an economic activity, measured in a single indicator called Mean Species Abundance (MSA.km<sup>2</sup>).

## Results

- The result from the GBS assessment is split into so-called static and dynamic impacts<sup>1</sup>
- Nearly two-thirds Vattenfall's total terrestrial static footprint stem from upstream **land use** in our value chain (see figure below). This primarily relates to the extraction of fossil fuels as well as the land use footprint of biomass. Approximately one third stems from land use relating to power line corridors (scope 1).
- 95% of the annually growing footprint (dynamic impact) stemmed from **climate change**<sup>2</sup> impacts caused by GHG emissions in all scopes.

### Vattenfall's terrestrial static biodiversity footprint<sup>3</sup>, in MSA.km<sup>2</sup>

#### Scope 1: Land use impacts from own operations

Power line corridors	328
Properties surrounding hydropower stations	27
Industrial sites	19
Onshore wind farms	6

#### Scope 3: Upstream land use impacts in all geographies

Fossil fuel extraction	310
Purchased goods and services	235
Biomass fuels	234
Nuclear fuels	1




<sup>1</sup> **Static impact** comes from, for example, historically exploited land that has had and still has an impact on biodiversity. Examples of this are hydro power plants and the electricity distribution network. **Dynamic impact** can be linked to new projects, activities, and resource use that take place over a certain period, often measured on an annual basis. Dynamic impact builds onto the static impact.

<sup>2</sup> Climate change and biodiversity are closely interlinked. A changing climate is a significant and a growing driver of biodiversity loss.

<sup>3</sup> Screening based on the GBS methodology. For an accurate assessment more thorough analysis is needed.

# Contributing to biodiversity throughout our operations

## Examples of measures

Business area	Aim		Examples
<b>Hydro power</b>	<ul style="list-style-type: none"> <li>Identify new solutions to reduce environmental impact of hydro power production</li> <li>Biotope restoration and species protection</li> <li>Knowledge building activities includes both research and pilot studies</li> <li>Preserve and manage biodiversity and enhance recreation values</li> </ul>		<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.</p> <p>During 2022 and 2023 several initiatives were ongoing. An AI-based fish recognition system is used in the fish ladder in the hydropower plant Stornorrfors in northern Sweden to count and register properties of salmon and trout individuals providing valuable knowledge on behaviour of the fish and status of fish populations. To improve downstream migration of fish several activities were ongoing using both pumps to direct water flows and net as physical barriers to guide the migration.</p>
<b>Wind power</b>	<ul style="list-style-type: none"> <li>Restore peat land functioning and carbon storage</li> <li>Avoiding sea bird collisions</li> </ul>		<p>We have been carrying out habitat restoration work at two of our sites in the UK. In Pen y Cymoedd a larger scale peat land restoration work (up to 1400 ha) began in late 2021 and will continue for several years to come.</p> <p>At the Aberdeen offshore wind farm in Scotland, Vattenfall has conducted a pilot study of specific birds' flight paths during the summer of 2022 to test a promising new technology – a video camera and an AI-based solution from the Norwegian start-up Spoor.</p>
<b>Power distribution</b>	<ul style="list-style-type: none"> <li>Maintenance of habitats and protecting species</li> </ul>		<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, important biodiversity hotspots have been identified, and tailored maintenance plans have been developed for each of the 980 identified hotspots. The tailored maintenance has been conducted on 30% of the hotspots in 2023, and the target is to have introduced the approach at 100% of the hotspots by 2026.</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 CO<sub>2</sub> emissions.

## Vattenfall contributes to the circular economy:

- ✓ **We invest in renewable energy**  
- We provide fossil-free and renewable energy to power 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



### Recycling excess heat

In the initiative Samenergi, Vattenfall collaborates with SMEs, like cold stores and data centres to help them recycle excess heat and utilise it in the district heating network.



### Phase-out of creosote poles

In a circular economy, hazardous substances must be kept out of material flows. Vattenfall is phasing out creosote poles from distribution grids, using alternative materials and methods 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)<sup>1</sup>.



## 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 physical effects of climate change on Vattenfall's operations, considering both intermediate (+2°C) and high-end (+4°C) climate scenarios. Vattenfall is generally well equipped to adapt to a changing climate. Where relevant, measures and margins are adjusted to account for larger changes and variability.

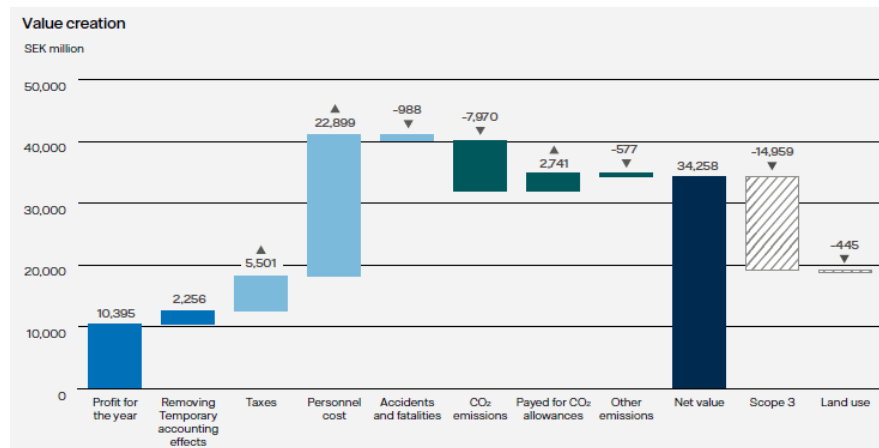
Examples of measures to ensure resilient operation include adapting hydropower dams to be able to manage larger future flows, ensuring cooling solutions for exposed infrastructure, and weather-proofing the distribution networks. Vattenfall will continue to have strong focus on management of climate risks, through e.g. scenario analyses and increased focus on supply chain aspects.

<sup>1</sup> For more info see page 90-91 in Vattenfall's Annual- and sustainability report 2023



# A holistic view of Vattenfall's net impact

Using our total value creation model<sup>1</sup> to quantify both positive and negative impacts of our activities



## Economic value

Vattenfall's SEK 10.4 billion profit does not accurately reflect the economic value created as it includes large temporary accounting effects attributable to the realisation and valuation of electricity and fuel contracts that have been entered into in previous years. Hence these effects have been removed bringing the total economic value to SEK 12.7 billion.

## Social value

We strive to identify our impacts on people and society, although much of the social value we create - investments in community improvements - and the costs we cause - impacts on people's health and human rights - can be difficult to quantify. We have included taxes, wages, and costs related to employee or contractor accidents. Health costs associated with non-CO<sub>2</sub> emissions are included in the "Other emissions" category in the environmental section. Our estimated social value creation is SEK 27.4 billion.

## Environmental value

As Vattenfall decarbonises on the road to net zero, the costs associated with our CO<sub>2</sub> and other emissions will decrease at the same rate. The effects of our efforts will be gradual. We place great focus on our full value chain and have set science-based targets to ensure continuous and meaningful climate action (read more on pages 56-58). However, we also pay for our CO<sub>2</sub> allowance in accordance with the EU ETS. Our estimated environmental value loss is SEK 5.8 billion.

## Experimental values

To expand coverage of our impacts, we have also gathered metrics such as CO<sub>2</sub> emissions from our supply chain (Scope 3) and estimated costs from land use and biodiversity based on standard restoration costs (based on Vattenfall's Global Biodiversity Score analysis 2020). Our estimated value loss from these variables is SEK 15.4 billion.

Vattenfall strives to create value for society and the environment by enabling fossil-free living. In our model for total value creation, we attempt to quantify, in monetary terms, our impacts – both positive and negative – from economic, social, and environmental perspectives.

Translating different forms of value into financial terms is complex and comes with a high level of uncertainty. The figures should therefore be seen as an attempt to quantify impacts.

**Compared to 2022, this year's total value creation provides mixed signals:**

- ✓ Environmental losses reduced by SEK 2.2 billion
- ✓ Social value increased by SEK 3 billion
- ✗ Economic value fell by SEK 7.5 billion

The economic hurdles of 2023 impacted Vattenfall's profit significantly, overshadowing our gains on the environmental front due to a further reduction of Scope 1 and 2 CO<sub>2</sub> emissions. Similarly, more social value was created by spending more on personnel this year.

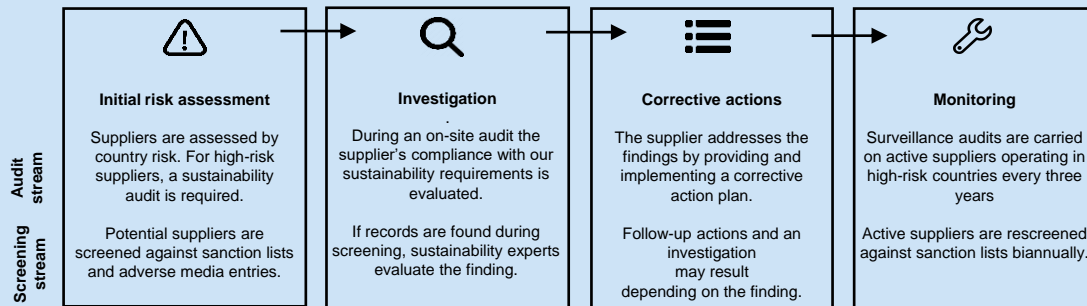
<sup>1</sup> See more on page 50 in the Annual and Sustainability report 2023

# Promoting responsible business practices throughout the supply chain

## Key improvements in supply chain sustainability

- **Continuous supplier monitoring process** was activated in 2023, enabling regular assessment and monitoring of counterparty risk in ongoing business relationships
- **Supplier Risk Assessment Tool** updated the risk heat map, revealing 104 high-risk suppliers across all sourcing streams that were validated through internal dialogues, resulting in several follow-up measures, including sustainability audits, additional sustainability requirements for tenders and supplier awareness sessions.
- **A guide** to Code of Conduct for Supplier and Partners (CoCfSP) published to ensure that our suppliers and partners have access to a range of different examples on how to fulfil the expectations outlined in the CoCfSP
- **Quality and compliance checks** of internal procurement processes and gap analysis to the legal requirements from the German Act on Corporate Due Diligence Obligations in Supply Chains was conducted as well as close monitoring of the legal and regulatory landscape related to supply chain due diligence, such as the EU Corporate Sustainability Due Diligence Directive.

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



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

<b>Goods and services</b>	24,680	Sweden, Germany, Netherlands & other European and Asian countries	4,113	41	100%
<b>Waste &amp; biomass</b>	190	Sweden, Germany, UK, Latvia and other countries	162	48	100%
<b>Coal</b>	1	South Africa	N/A	N/A	N/A
<b>Gas</b>	N/A	European gas hubs	N/A	N/A	N/A
<b>Nuclear fuel</b>	12	Canada, Australia	28	3	100%

Number of suppliers | Primary countries | Number of supplier screenings conducted | Number of site audits conducted | % new suppliers that have undergone social/environmental assessments