

Vattenfall FY and Q4 Results 2019

5 February 2020
Magnus Hall, CEO
Anna Borg, CFO

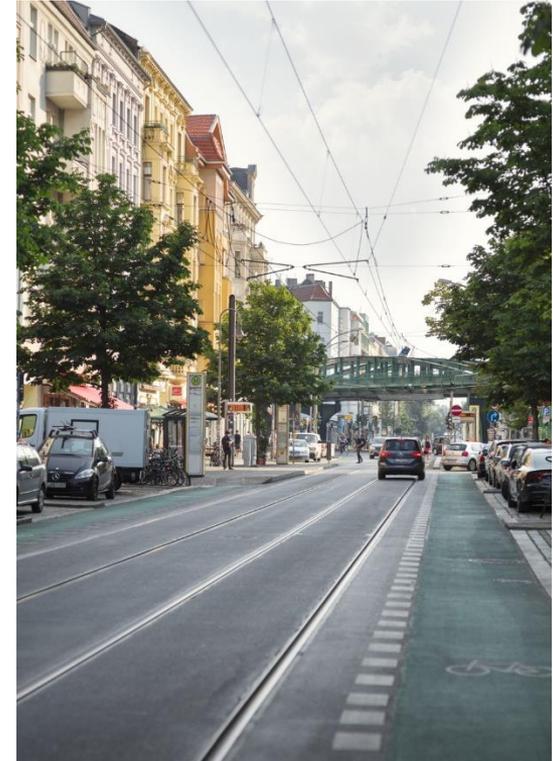


VATTENFALL

Vattenfall FY Results 2019

Opening remarks

- A positive year with delivery on financial targets and tangible steps towards a fossil-free future
 - Customer growth and increased wind capacity coupled with record-high investments in distribution and phase-out of coal-fired generation
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- Underlying operating profit increased by 26% to SEK 25.1 bn (SEK 19.9 bn)
 - Mainly driven by electricity price hedges combined with stable nuclear and hydro generation
 - Increased contribution from new wind farms and trading
 - Distribution business hit by negative impact from the storm “Alfrida” in H1
 - Growth initiatives and strong competition limiting result development in the sales business
 - Low contribution from heat operations with continued margin pressure for coal-fired plants
-
- Profit for the period increased by 24% to SEK 14.9 bn (SEK 12.0 bn) mainly due to a stronger result from operations, partly mitigated by higher nuclear provisions and higher tax but supported by divestment of Hamburg district heating and sale of nuclear production rights in Germany
 - The Board of Directors proposes a dividend of SEK 7.2 bn



Vattenfall FY Results 2019

Overview

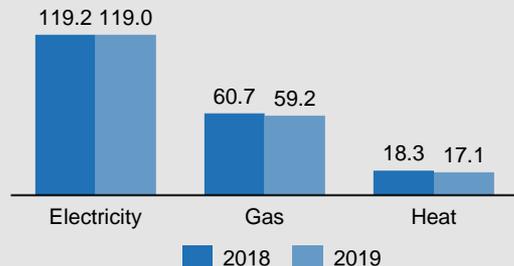
Result development

SEK bn	FY 2019	FY 2018	Δ
Net Sales	166.4	152.1	+9%
EBITDA	42.4	34.3	+24%
Underlying operating profit (EBIT)	25.1	19.9	+26%
EBIT	22.1	17.6	+26%
Profit for the period	14.9	12.0	+24%

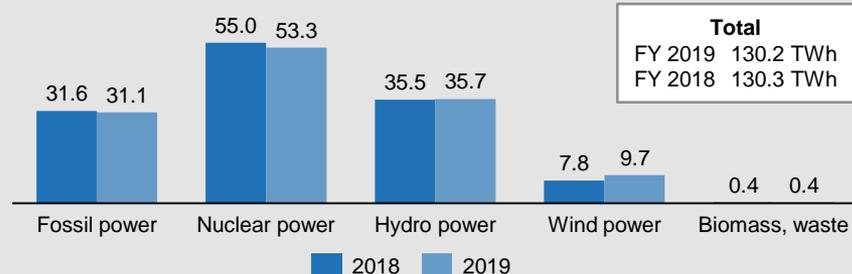
Financial targets

	FY 2019	FY 2018
Return on capital employed ¹ (≥8%)	8.5	7.0
FFO/adjusted net debt ¹ (22-27%)	26.5	20.7

Customer sales (TWh)



Electricity production (TWh)



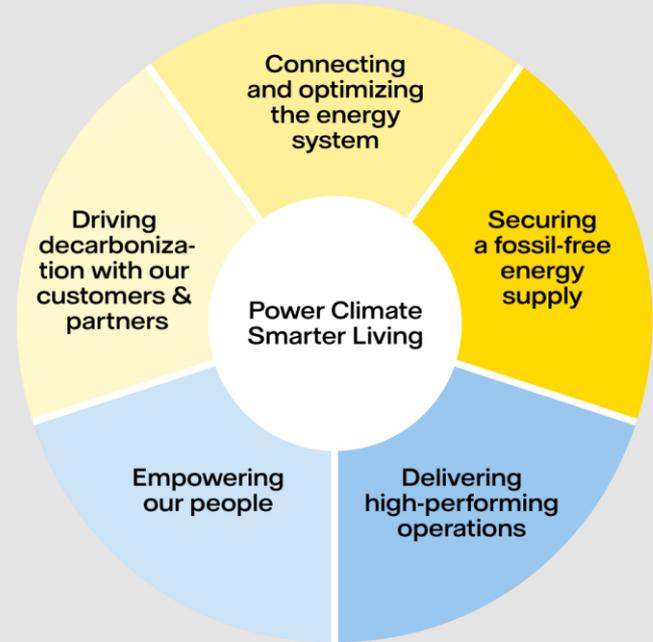
Strategic targets

Strategic targets to 2020	FY 2019	FY 2018	Comments
Customer engagement, Net Promoter Score relative (relative customer satisfaction): +2	+1	+1	Improved performance by Vattenfall and peers
Commissioned new renewables capacity 2016-2020: ≥2,300 MW	1 226 MW	752 MW	Commissioning of Horns Rev 3 (407 MW) and Slufterdam (29 MW)
Absolute CO ₂ emissions, pro rata: ≤21 Mtonnes	19.0¹ Mt	22.0 Mt	Lower coal-fired generation
Return On Capital Employed (ROCE): ≥8%	8.5%	7.0%	Higher gross margin in Power Generation and capital gain (Hamburg)
Lost Time Injury Frequency (LTIF): ≤1.25	2.1	1.9	Unsatisfactory level, major ongoing efforts
Employee Engagement Index: ≥70%	69%	64%	Strong improvement

¹ Preliminary value. The final value will be presented in the Annual and Sustainability Report. Including the heat operations in Hamburg, which has been sold and where the production amounted to 1 Mt during the period January – September.

Four strategic focus areas become five

A strategy for leading the energy transition



Customers & Solutions

Increased number of customers but earnings impacted by strong competition and growth

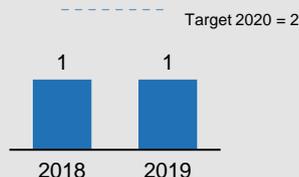
Highlights

SEK million	FY 2019	FY 2018
Net Sales	89,859	81,318
Underlying operating profit	1,337	1,269

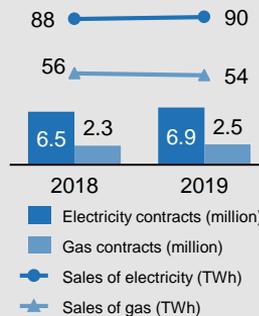
- Net sales increased as a result of higher sales in most of Vattenfall's markets, mainly driven by Germany but also the Netherlands and France
- Underlying operating profit caught up to last year's level supported by customer growth in Germany and increased contributions from Nordics and the Netherlands. Results held back by strong competition and costs for growth activities
- Customer growth in Germany and acquisition of DELTA Energie
- Pilot project with Microsoft on real-time matching of renewable energy consumption
- Expansion of charging solutions, e.g. Berlin Waste Management, Honda and Swedish housing cooperative HSB

Key data

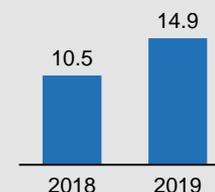
Net Promoter Score¹ (NPS) relative to peers



Retail sales development



Charging points for electric vehicles (thousand)



¹ The target is a positive NPS in absolute terms and +2 compared to Vattenfall's peer competitors to be achieved by 2020.

Power Generation

Higher achieved prices and strong contribution from trading

Highlights

SEK million	FY 2019	FY 2018
Net Sales	102,378	99,970
Underlying operating profit	15,437	9,371

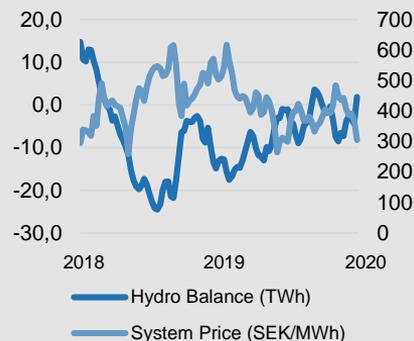
- Net sales and underlying operating profit supported by an improved hedge result (resulting in higher achieved prices), stable generation and a higher contribution from trading
- Slightly lower nuclear generation in part owing to gradual reduction in output at Ringhals 2 ahead of its final shutdown
- Lower spot prices mainly driven by a stronger hydro balance as a result of mild and wet weather conditions
- First corporate Power Purchase Agreement in the UK
- Nuclear improvement programme on track

Key data

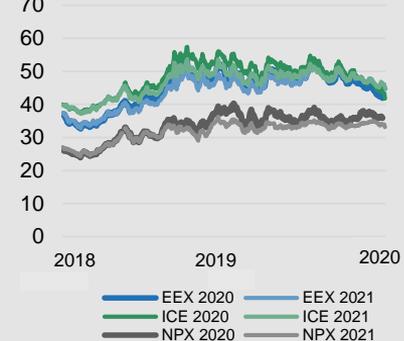
Production and availability



Nordic hydro balance and system price



Electricity futures prices (EUR/MWh)



Wind

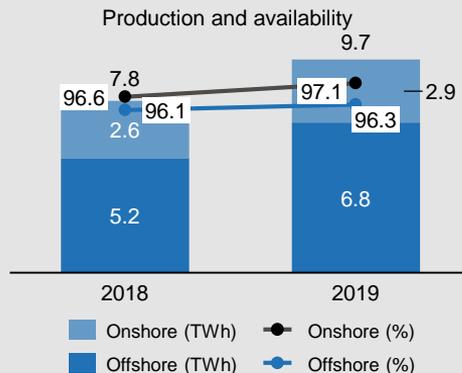
Positive contribution from new wind farms but result development dampened by lower prices

Highlights

SEK million	FY 2019	FY 2018
Net Sales	13,492	11,852
Underlying operating profit	4,155	3,747

- Net sales and underlying operating profit increased during 2019, mainly owing to new capacity¹ which was partly countered by lower prices
- Additional winning tender bid in 2019 will result in Hollandse Kust Zuid 1-4, the largest offshore wind farm in the world (1.5 GW), subsidy-free
 - Agreement with Siemens Gamesa on the supply of 140 11MW-turbines
- Commissioning of Horns Rev 3 (407 MW)
- Construction start for Kriegers Flak (605 MW)
- Increased investments and pipeline for solar energy

Key data



¹ During the last 12 months two wind farms were commissioned, Slufterdam (29 MW) and Horns Rev 3 (407 MW) and commissioning of Wieringermeer has started (43 MW of 185 MW)

Heat

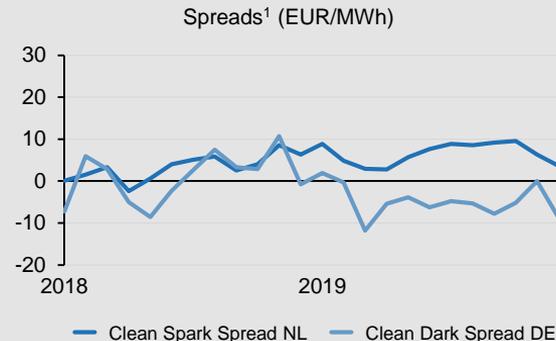
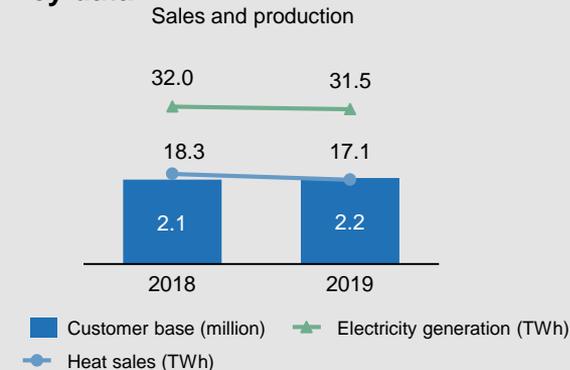
Major steps in coal phase-out whilst results burdened by pressure on clean dark spreads

Highlights

SEK million	FY 2019	FY 2018
Net Sales	31,403	33,970
Underlying operating profit	550	771

- Net sales and underlying operating profit under continued pressure mainly as a result of unfavourable margins for coal-fired electricity generation (clean dark spreads)
- Positive contribution from heating driven by a growing customer base and price effects
- Improved margins and contribution from gas fired generation in the Netherlands
- Divestment of Hamburg district heating Sep 2, 2019²
- Negative impact from warmer weather in Q1 2019
- Vattenfall's last remaining coal-fired power plant in the Netherlands, Hemweg-8 closed at year-end and Reuter C in Berlin closed in autumn
- In Berlin, test activities continued ahead of the commissioning of the Marzahn gas-fired CHP plant (260MW electricity / 222MW heat) that will be completed in 2020

Key data



¹ CSS NL with 50% efficiency, CDS DE with 38% efficiency

² District heating Hamburg consolidated in 2019 (660 MSEK Underlying EBIT, 1.1 TWh electricity generation, 2.5 TWh Heat sales)

Distribution

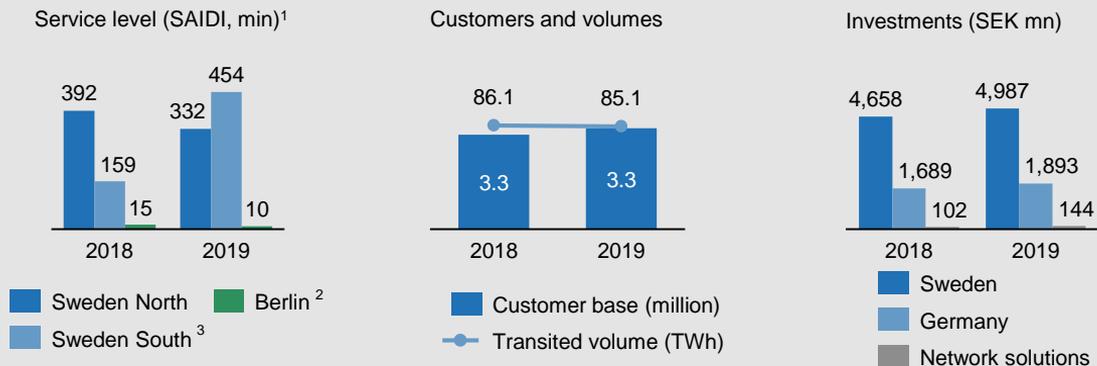
Progress with record investments, but earnings dampened mainly by storm “Alfrida”

Highlights

SEK million	FY 2019	FY 2018
Net Sales	22,540	22,374
Underlying operating profit	4,998	6,250

- Net sales in line with last year whilst underlying operating profit decreased mainly due to costs related to the storm “Alfrida”, higher transmission fees in Sweden and higher depreciation following major investments
- Development partially countered by a higher contribution from Berlin, mainly due to lower transmission fees
- Vattenfall’s investments in the Swedish electricity grid in 2019 reached a new record, totaling SEK 5 billion (+7% vs. 2018). Still, the new revenue frames mean significantly lower room for investments going forward
- Government announcement that carry-over of revenue frames from the 2012–2015 regulatory period may be used for the coming regulatory period
- Award of concession in Berlin to the city’s own company rejected by the Regional Court

Key data



¹ All outages longer than 1 second in medium and low voltage networks are included

² City network in Berlin results in lower SAIDI. Vattenfall’s Swedish network covers both urban areas and large rural areas.

A leading role in the energy transition

Sample developments in 2019 and initiatives going forward



Fossil-free steel through HYBRIT

- Co-owned with SSAB and LKAB
- World's first pilot plant based on direct reduction of iron ore with hydrogen to be ready in 2020
- SSAB's goal is a market launch of the first fossil-free steel products in 2026
- Technology with potential to reduce the world's total CO₂ emissions by 7 percent

Hybrid power plant Haringvliet

- A fully hybrid renewable energy plant, combining Wind (22 MW), solar (38 MW) and batteries (12 MWh)
- Complementary wind and solar generation profiles reduce the load on the grid compared to a single generation technology
- Cost-sharing of infrastructure
- Commissioning 2020

Flexibility for the network via Coordinet

- EU project with Swedish collaboration between TSO Svenska Kraftnät, E.ON and Vattenfall
- Four marketplaces for flexibility where suppliers and customers can provide increased/decreased load and production
- Vattenfall participating with Uppsala and Gotland

Conversion to hydrogen at Magnum

- Vattenfall's largest gas fired power plant (CCGT) is first out in the fleet to be converted to hydrogen (H₂)
- Blue H₂ joint project with Equinor and Gasunie
- Green H₂ preferred solution long-term

From coal to fossil-free hub at Hemweg 8

- Closure of coal-fired power plant at year-end 2019
- Future hub to provide
 - Fossil-free electricity
 - Fossil-free heat
 - Storage
 - Sustainable fuels (e.g. green hydrogen and synthetic kerosene)
- Developed with partners in Amsterdam port and metropolitan region

Financials

Anna Borg, CFO



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Vattenfall FY Results 2019

Financial highlights

Key data

SEK bn	FY 2019	FY 2018
Net Sales	166.4	152.1
EBITDA	42.4	34.3
Underlying operating profit (EBIT)	25.1	19.9
EBIT	22.1	17.6
Profit for the period	14.9	12.0
Funds from Operations (FFO)	34.9	23.3
Cash flow operating activities	16.7	41.1
Net debt	64.3	47.7
Adjusted net debt	132.0	112.3
Adjusted net debt/EBITDA (times)	3.1	3.3
Financial targets		
ROCE (≥8%)	8.5	7.0
FFO/adjusted net debt (22-27%)	26.5	20.7

Key developments

- Net sales increased by SEK 14.3 bn to SEK 166.4 bn mainly due to higher achieved prices, higher sales in the Nordics, Germany, France and the Netherlands, and higher wind production
- Underlying EBIT increased by SEK 5.2 bn to SEK 25.1 bn. Higher contribution from Power Generation and Wind partly offset by lower result from Distribution due to the storm "Alfrida", higher transmission costs and depreciation
- Profit for the period increased by SEK 2.9 bn to SEK 14.9 bn. One-off items¹ had a negative impact and amounted to SEK 3.0 bn
- ROCE increased to 8.5%, mainly as a result of higher gross margin in Power Generation and capital gain from divestment of Hamburg district heating
- FFO/Adjusted net debt increased to 26.5%, mainly due to higher EBITDA following higher achieved prices in Power Generation and lower paid tax



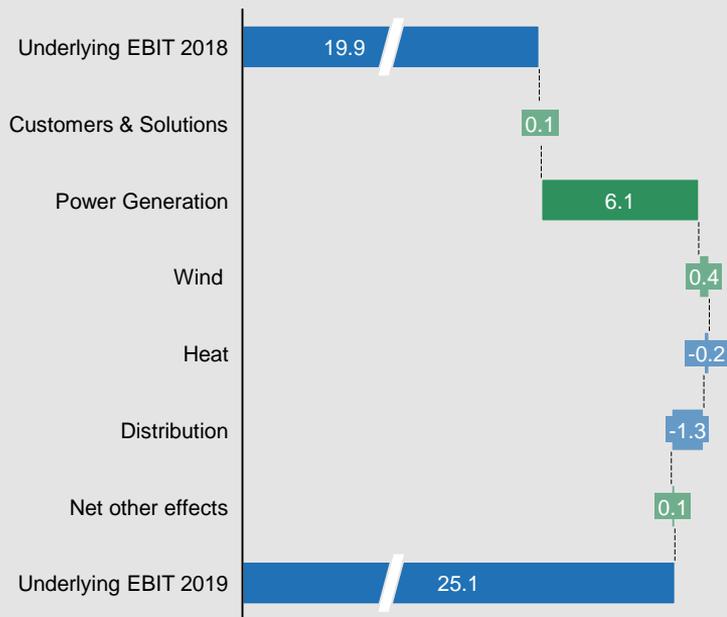
1. Increased nuclear provisions and unrealised changes in fair values partly mitigated by capital gain Hamburg district heating and sale of German nuclear production rights

Development of underlying EBIT FY 2019

Increase from Power Generation and Wind offset by lower contribution from Distribution and Customers & Solutions

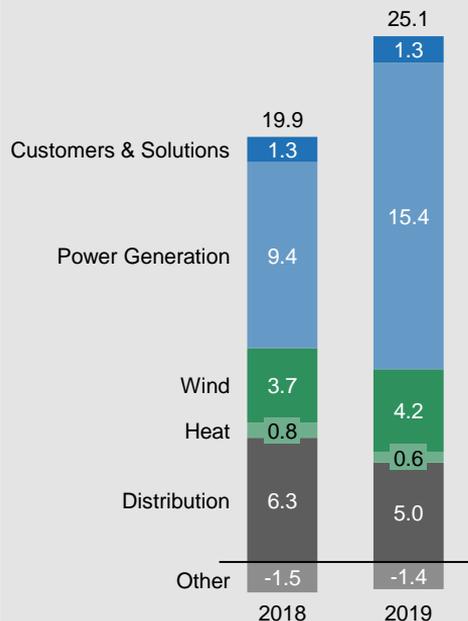
Change in FY 2019 vs. FY 2018

SEK bn



Breakdown per operating segment

SEK bn

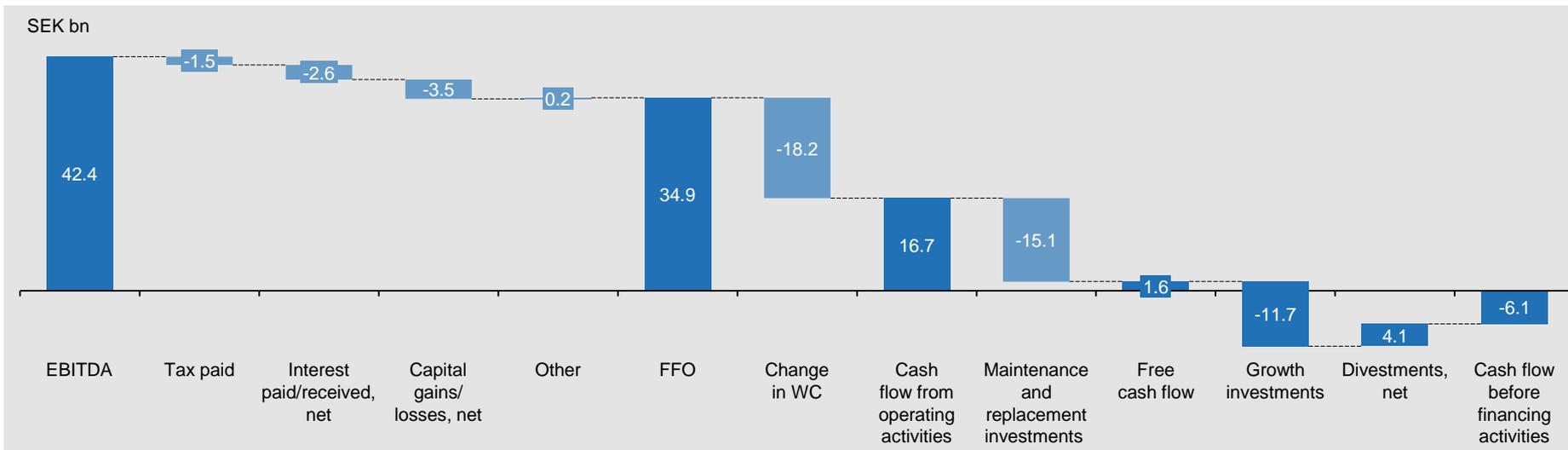


Highlights

- Customers & Solutions: larger customer base in Germany and higher contribution from the Nordics and the Netherlands
- Power Generation: higher achieved prices and a higher realised result from the trading operations
- Wind: increase primarily due to new capacity
- Heat: major pressure on clean dark spreads, higher maintenance costs and depreciation
- Distribution: decrease due to costs related to the storm "Alfrida", higher transmission costs and depreciation

Cash flow development FY 2019

Large impact from change in working capital, mainly due to increased margin calls



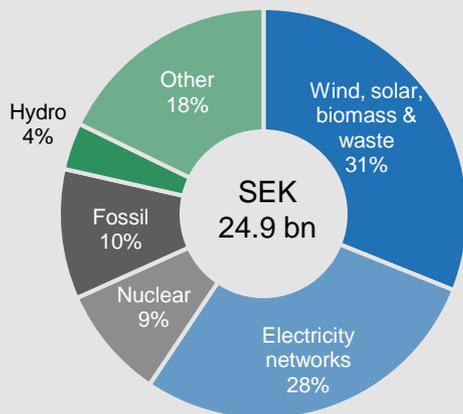
Highlights

- Lower forward power prices was the main driver of increased margin calls (SEK -20.9 bn), i.e. marginal security covering the counterpart's credit risk, in large compensating for major inflows in 2017-2018
- Low tax paid mainly driven by refund tax in Germany and Sweden due to overpaid taxes for prior years

Capital expenditures

Renewables and networks accounted for the majority of investments

Investments per category, 2019



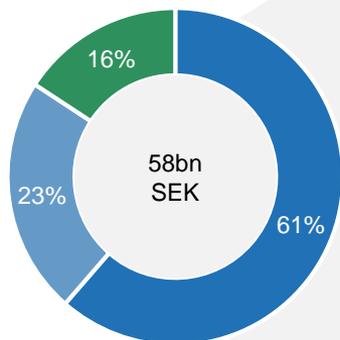
Detailed overview of investments, FY and Q4 2019

SEK bn	FY 2019	FY 2018	Δ	Q4 2019	Q4 2018	Δ
Hydro	0.9	1.1	-17%	0.4	0.4	-16%
Nuclear	2.2	2.4	-7%	0.6	0.8	-25%
Fossil	2.6	3.6	-29%	0.8	1.5	-43%
Wind, solar, biomass & waste	7.7	8.2	-5%	2.1	2.2	-4%
Electricity networks	7.1	6.4	+10%	2.9	2.6	+11%
Other ¹	4.4	2.8	+57%	1.7	1.4	+17%
Total	24.9	24.5	+2%	8.5	8.9	-5%

¹ Investments mainly related to the acquisition of shares (DELTA Energie), Heat grids and Carpe Futurum biomass-fired CHP Uppsala

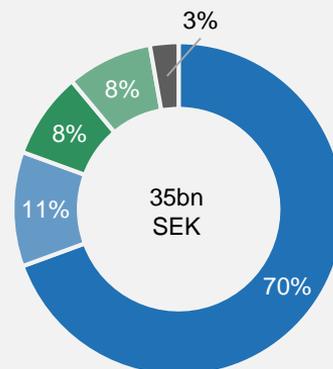
Investment plan 2020-2021

Total capex
2020-2021



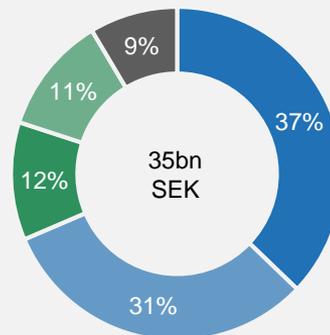
- Growth, 35bn SEK
- Maintenance, 13bn SEK
- Replacement, 9bn SEK

Growth capex per
technology 2020-2021



- Wind power, 25bn SEK
- Heat grids, 4bn SEK
- Distribution grids, 3bn SEK
- New businesses¹, 3bn SEK
- Solar energy & batteries, 1bn SEK

Growth capex per country
2020-2021



- Netherlands, 13bn SEK
- Denmark, 11bn SEK
- Sweden, 4bn SEK
- UK, 4bn SEK
- Germany, 3bn SEK

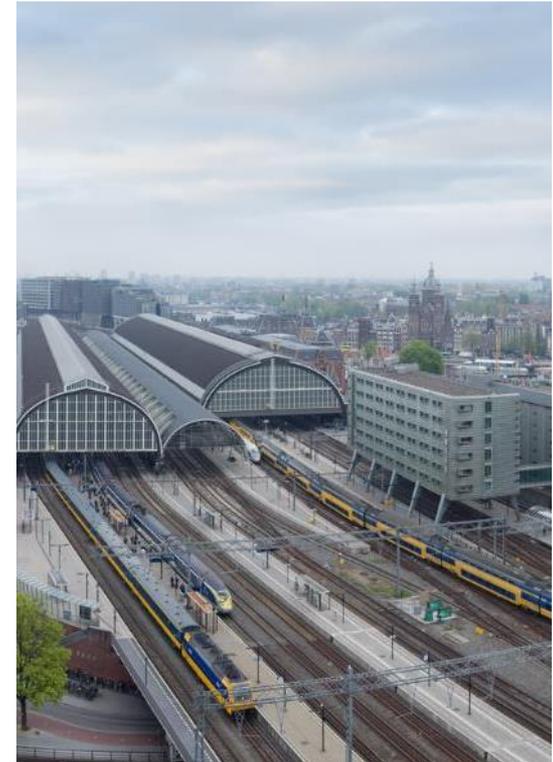
¹ Mainly decentralised solutions, energy storage and e-mobility

Overview of key figures FY and Q4 2019

Amounts in SEK bn unless indicated otherwise	FY 2019	FY 2018	Q4 2019	Q4 2018
Net sales	166.4	152.1	46.2	45.0 ¹
EBITDA	42.4	34.3	8.8	8.7
EBIT	22.1	17.6	2.4	4.2
Underlying operating profit (EBIT)	25.1	19.9	8.2	4.6
Profit for the period	14.9	12.0	0.5	3.1
Electricity generation (TWh)	130.2	130.3	34.7	35.9
Sales of electricity (TWh)	169.4	169.3 ¹	42.9	45.2 ¹
- of which, customer sales (TWh)	119.0	119.2	29.8	31.7
Sales of heat (TWh)	17.1	18.3	5.1	5.8
Sales of gas (TWh)	59.2	60.7 ¹	19.7	19.0 ¹
Return on capital employed (≥8%)	8.5	7.0	8.5 ²	7.0 ²
FFO/adjusted net debt (22-27%)	26.5	20.7	26.5 ²	20.7 ²

¹ The value has been adjusted compared with information previously published in Vattenfall's financial reports.

² Last 12-month values

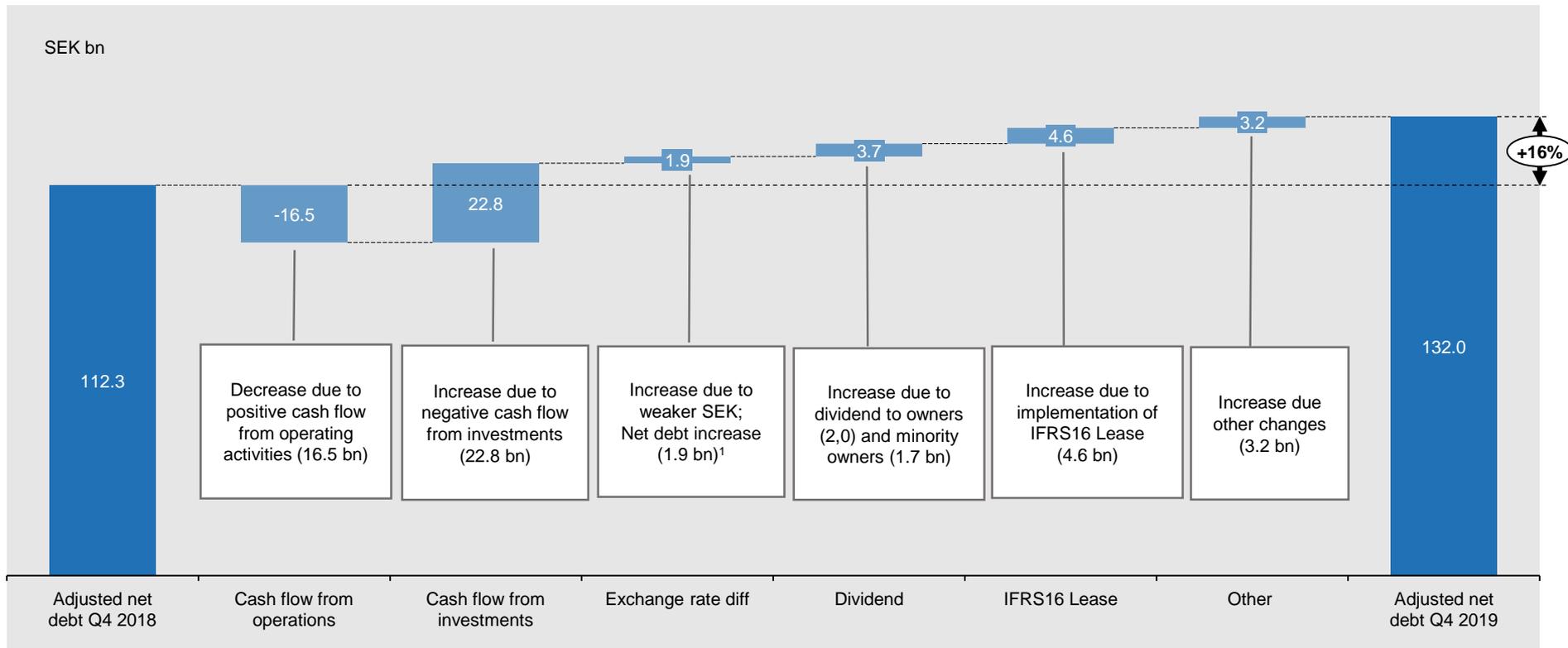


Appendix



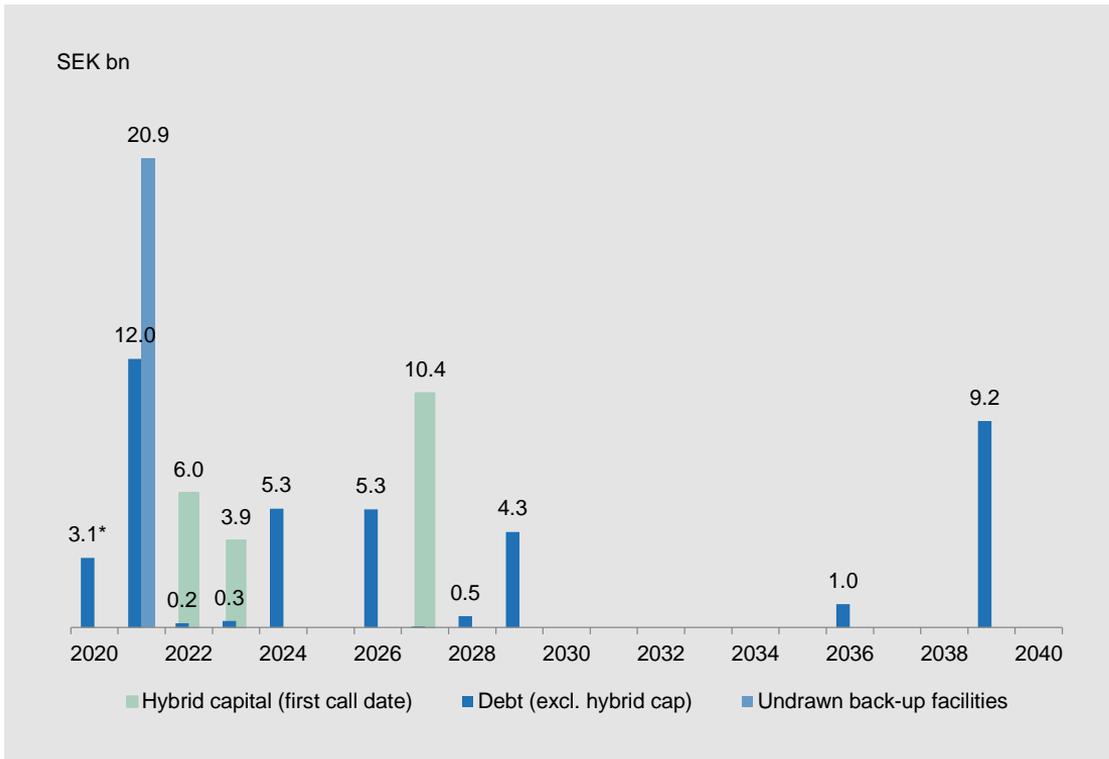
Development of adjusted net debt YTD 2019

Adjusted net debt increase mainly due negative cashflow after investments, IFRS16 and dividend payments



¹ SEK weakened against EUR (from 10.25 to 10.45); translation of EUR denominated net debt into SEK leads to increase in Adjusted net debt

Debt maturity profile¹



* Short term debt are excluded (Repo, ECP and SCP) (17,4) ¹ Commercial paper (ECP) Loans from associated companies, minority owners, margin calls received (CSA) and valuation at fair value are excluded and currency derivatives for hedging debt in foreign currency are included

	31 Dec. 2019	31 Dec. 2018
Duration (years)	4.7	4.4
Average time to maturity (years)	6.8	6.4
Average interest rate (%)	4.0	4.5
Net debt (SEK bn)	64.3	47.7
Available group liquidity (MSEK)	29.3	34.5
Undrawn committed credit facilities (MSEK)	21.4	20.5

Cumulative maturities excl. undrawn back-up facilities

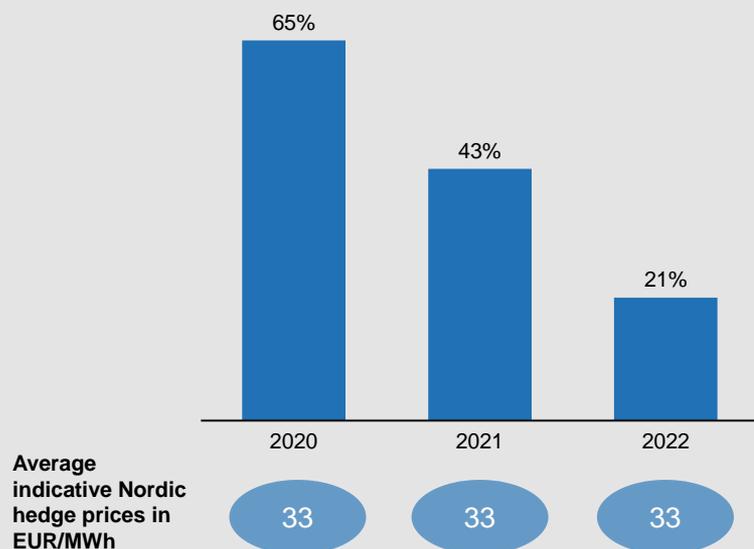
	2020-2022	2023-2025	From 2026
Debt incl. hybrid capital	21.3	9.5	30.8
<i>% of total</i>	35%	15%	50%

Price development

Hedging, achieved prices and sensitivity analysis

Vattenfall continuously hedges its future electricity generation through sales in the forward and futures markets. Spot prices therefore have only a limited impact on Vattenfall's earnings in the near term

Estimated Nordic¹ hedge ratio (%) and indicative prices



Achieved prices² - Nordic portfolio

2019	2018	Oct-Dec 2019	Oct-Dec 2018
32	30	33	33

Sensitivity analysis – Continental³ portfolio

Market quoted	+/- 10% price impact on future profit before tax, MSEK ⁴			Observed yearly volatility
	2020	2021	2022	
Electricity	+/- 1,433	+/- 1,678	+/- 1,547	14% - 23%
Coal	-/+ 133	-/+ 157	-/+ 157	19% - 22%
Gas	-/+ 660	-/+ 720	-/+ 754	17% - 26%
CO ₂	-/+ 419	-/+ 438	-/+ 407	39% - 48%

¹ Nordic: SE, DK, FI

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

³ Continental: DE, NL, UK

⁴ The denotation +/- entails that a higher price affects operating profit favorably, and +/- vice versa

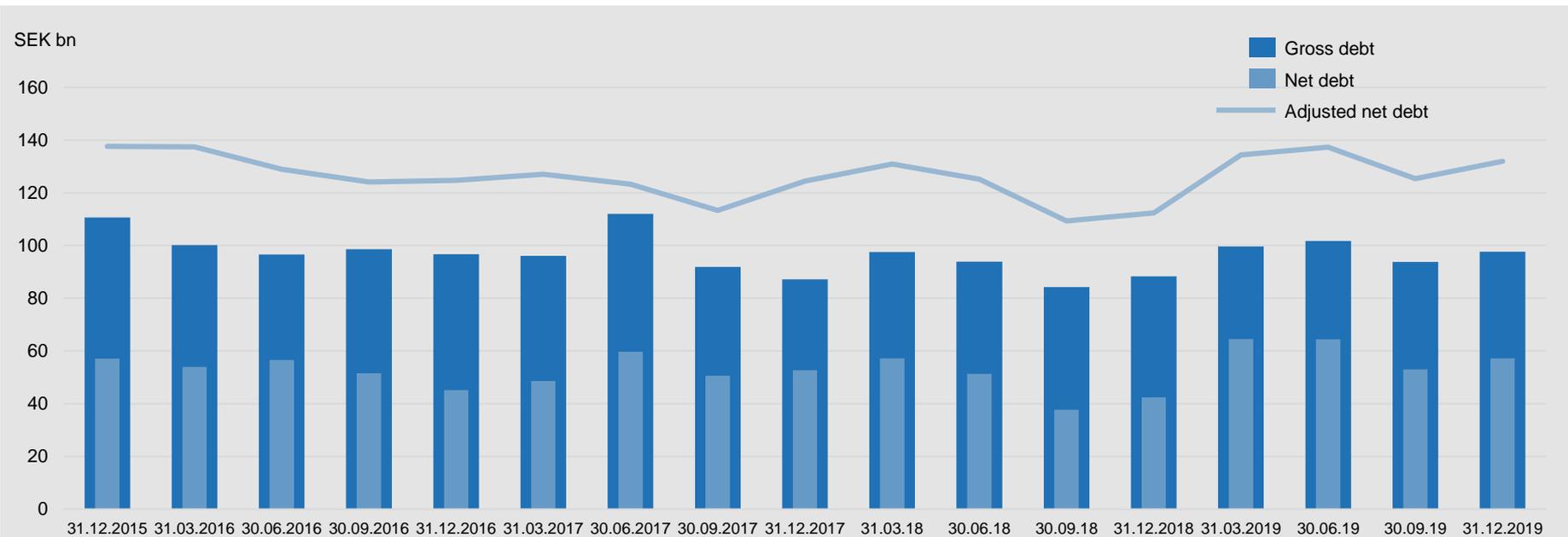
Liquidity position

Group liquidity	SEK bn	Committed credit facilities	Facility size, EUR bn	SEK bn
Cash and cash equivalents	10.6	RCF (maturity Dec 2021)	2.0	20.9
Short term investments	22.6	Total undrawn		20.9
Reported cash, cash equivalents & short term investments	33.2	Debt maturities²		SEK bn
Unavailable liquidity ¹	-3.9	Within 90 days		0.3
Available liquidity	29.3	Within 180 days		0.3

¹ German nuclear "Solidarvereinbarung" 1.0 SEK bn, Margin calls paid (CSA) 2.0 SEK bn, Insurance "Provisions for claims outstanding" 0.8 SEK bn

² Excluding loans from minority owners and associated companies

Debt development

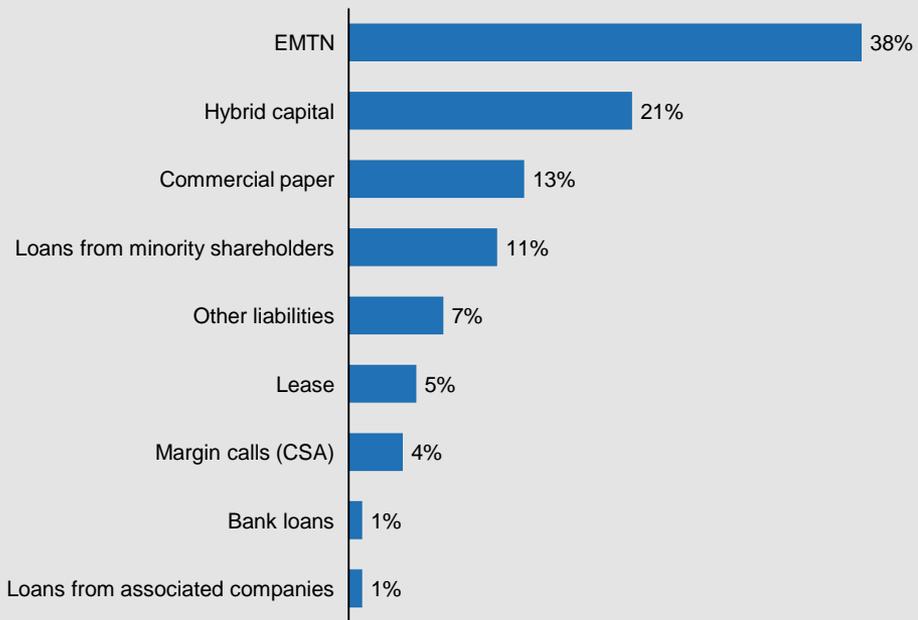


Net debt increased by SEK 16.5 bn compared with the level at 31 December 2018. Adjusted net debt increased to SEK 132.0 bn, SEK 19.7 bn higher compared with the level at 31 December 2018. For the calculation of adjusted net debt, see slide 26.

Breakdown of gross debt

Total debt: SEK 97.6 bn (EUR 9.3 bn)

External market debt: SEK 86.2 bn (EUR 8.3 bn)



Debt issuing programmes	Size (EUR bn)	Utilization (EUR bn)
EUR 10bn Euro MTN	10.0	3.5
EUR 2bn Euro CP	2.0	1.1
SEK 15bn Domestic CP	1.4	0.2
Total	13.4	4.8

- 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

¹ EMTN= Euro Medium Term Notes

Reported and adjusted net debt

Reported net debt (SEK bn)	31 Dec. 2019	31 Dec. 2018	Adjusted net debt (SEK bn)	31 Dec. 2019	31 Dec. 2018
Hybrid capital	-20.2	-19.8	Total interest-bearing liabilities	-97.6	-88.3
Bond issues, commercial paper and liabilities to credit institutions	-51.1	-50.3	50% of Hybrid capital	10.1	9.9
Liabilities to associated companies	-0.7	-0.5	Present value of pension obligations	-44.0	-39.7
Liabilities to minority shareholders	-10.6	-10.4	Wind & other environmental provisions	-8.6	-7.7
Lease liabilities	-4.6	0.0	Provisions for nuclear power (net)	-35.5	-31.9
Other liabilities	-10.4	-7.2	Margin calls received	3.7	3.4
Total interest-bearing liabilities	-97.6	-88.3	Liabilities to minority owners due to consortium agreements	10.6	9.2
Reported cash, cash equivalents & short-term investments	33.2	40.1	Adjustment related to assets/liabilities held for sale	0.0	-1.7
Loans to minority owners of foreign subsidiaries	0.2	0.5	= Adjusted gross debt	-161.3	-146.8
Net debt	-64.3	-47.7	Reported cash, cash equivalents & short-term investments	33.2	40.1
			Unavailable liquidity	-3.9	-5.6
			= Adjusted cash, cash equivalents & short-term investments	29.3	34.5
			= Adjusted net debt	-132.0	-112.3

Nuclear provisions

Reactor	Net capacity (MW)	Start (year)	Vattenfall share (%)	Vattenfall provisions, SEK bn (IFRS accounting)	Vattenfall provisions, SEK bn (pro rata)	Sw nuclear waste fund SEK bn (Vattenfall pro rata share)
Ringhals 1	879	1976	70.4			
Ringhals 2	809	1975	70.4			
Ringhals 3	1,070	1981	70.4			
Ringhals 4	942	1983	70.4	Total Ringhals: 33.9	Total Ringhals: 33.9¹	
Forsmark 1	984	1980	66.0			
Forsmark 2	1,120	1981	66.0			
Forsmark 3	1,170	1985	66.0	Total Forsmark: 29.4	Total Forsmark: 19.4	
Total Sweden	6,974	-		66.1²	54.6²	39.0³
Brunsbüttel	771	1977	66.7	12.2	8.1	
Brokdorf	1,410	1986	20.0	0	3.5	
Krümmel	1,346	1984	50.0	7.6	7.6	
Stade ⁴	640	1972	33.3	0	1.0	
Total Germany	4,167	-	-	18.5	19.3	
Total SE & DE	11,141			78.7	69.4	

¹ Vattenfall has 100% liability for Ringhals decommissioning, while owning only 70.4%

² Total provisions in Sweden (IFRS accounting) include provisions of SEK 0.5 bn (pro rata SEK 0.3 bn considering share in Studsviksfonten) related to Ägesta, and SEK 2.3 bn (pro rata SEK 0.9 bn considering share in Studsviksfonten) related to SVAFO

³ Vattenfall's share of the Nuclear Waste Fund. IFRS consolidated value is SEK 46.4 bn.

⁴ Stade is being dismantled

Items affecting comparability

Amounts in SEK million	Full year 2019	Full year 2018	Oct-Dec 2019	Oct-Dec 2018
Items affecting comparability	- 2 954	- 2 264	- 5 780	- 438
- of which, capital gains	3 538	1 067	49	406
- of which, capital losses	- 25	- 111	- 7	- 28
- of which, impairment losses	- 1 459	- 136	- 1 459	- 136
- of which, provisions	- 3 431	- 1 649	- 2 901	- 893
- of which, unrealised changes in the fair value of energy derivatives	- 1 688	- 156	- 1 789	695
- of which, unrealised changes in the fair value of inventories	- 556	61	125	76
- of which, restructuring costs	- 148	- 554	- 19	- 263
- of which, other non-recurring items affecting comparability	815	- 786	221	- 295

Major items (FY 2019)

- Capital gains from the sale of the district heating operations in Hamburg, SEK 3.1 bn
- Sale of nuclear production rights in Germany, SEK 1.5 bn
- Unrealised changes in the fair value of energy derivatives and inventories, SEK -2.2 bn
- Higher provisions for nuclear power, SEK -3.4 bn
- Impairments, SEK -1.5 bn

Impairment history 2009 – 2019

SEK bn		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
The Netherlands	Thermal assets		4.3 ¹	0.4 ²	8.6 ²	14.7	2.6		2.8			0.7	34.1
	Trading					6.5 ¹	10.0 ¹		0.7				17.2
	Other	1.2	1.2			1.5 ²	1.9				0.1	0.2	6.1
Germany	Thermal assets			0.3		4.3	5.7	19.2	26.1			0.1	55.7
	Nuclear assets			10.5									10.5
	Transmission		5.1										5.1
	Other					0.1	1.1	0.3	2.3	0.4			4.2
The Nordic Countries	Renewable assets						1.4		0.1			0.2	1.7
	Thermal assets	4.1				3.0		0.1					7.2
	Nuclear assets							17.0	0.4				17.4
	Other								0.3				0.3
UK	Renewable assets						1.1	0.2				0.1	1.4
	Other											0.1	0.1
Not allocated		0.2	0.5	0.1									0.8
Impairment Liberia					1.3								1.3
Impairments; shares in Enea S.A. Poland					2.4								2.4
Impairments; shares in Brokdorf and Stade									1.1				1.1
Impairments		5.5	11.1	11.3	12.3	30.1	23.8	36.8	33.8	0.4	0.1	1.5	166.7
Reversed impairment losses		-1.3	-1.3	-0.4	0.0	0.0	0.0	-0.5	-0.9	0.0	0.0	0.0	-4.4
Impairments (net)		4.2	9.8	10.9	12.3	30.1	23.8	36.3	32.9	0.4	0.1	0.0	162.3

¹ Impairment of goodwill

² Impairment of assets and goodwill

Wind & Solar - Installed capacity (MW¹) Q4 2019

	Solar	Onshore	Offshore	Total
United Kingdom	5	391	687	1,083
Denmark	0	243	540	783
The Netherlands	23	302	108	433
Sweden	0	244	110	355
Germany	3	19	636	658
Total (MW)	30	1,200	2,081	3,311



United Kingdom – ROC scheme

Thanet	300
Ormonde (51%)	150
Aberdeen	97
Kentish Flats	90
Kentish Flats Extension	50
Pen Y Cymoedd	228
Ray	54
Edinbane	41
Clashindarroch	37
Swinford	22
Parc Cynog	4
PV@Cynog	5
Pendine	5

Installed capacity (MW) 1,083

Sweden – certificate scheme

Lillgrund	110
Stor-Rotliden	78
Högabjär-Kärsås (50%)	38
Höge Väg (50%)	37
Hjuleberg (50%)	36
Juktan (50%)	29
Östra Herrestad	16
Näsudden	10

Installed capacity (MW) 355

Denmark – FIT scheme

Horns Rev 1 (60%)	158
Horns Rev 3 ²	382
Klim (98%)	67
Nørrekær Enge 1 (99%)	30
Rejsby Hede	23
Hagesholm	23
Nørre Økse Sø	17
Tjæreborg Enge	17
Hollandsbjerg	17
Bajlum (89%)	15
DræbyFed	9
Ryå	8
Ejsing (97%)	7
Nordjyllandsværket	6
Lyngmose	5

Installed capacity (MW) 783

Germany – EEG scheme

DanTysk (51%)	288
Sandbank (51%)	288
alpha ventus (26%)	60
Jänschwalde	12
Westküste (20%)	7
Decentral Solar installations	3

Installed capacity (MW) 658

The Netherlands – MEP/SDE(+)

NoordzeeWind (50%)	108
Princess Alexia	122
Wieringermeer	43
Slufterdam	29
Eemmeerdijk	17
Irene Vorrink	17
Jaap Rodenburg	17
Windpoort (40%) ³	3
Hoofdplaatpolder (70%)	10
Reyndersweg (50%)	9
Echteld	8
De Bjirmen	6
Oom Kees (12%)	6
Oudendijk	5
Mariapolder	5
Hiddum Houw	4
Eemshaven	6
Velsen	2
Enkhuizen	2
Hemweg	2
Decentral Solar installations	12

Installed capacity (MW) 433

¹ Capacity in operation: total capacity of the wind farms that Vattenfall has an ownership in.

Minority shares included as 100%

² 46 of 49 WTG fully operational

³ 4 of 20 WTG still operational, to be decommissioning during 2020 for repowering

Pipeline of key wind farms in our 5 core countries

Construction

Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
DK	Horns Rev 3	407	FIT	X	50.000hrs	100	2019	Finalizing construction
DK	Kriegers Flak	605	FIT	X	50.000hrs	100	2021	Under construction
NL	Wieringermeer	185	SDE+	X	15 yrs	100	2019/2020	Commissioning ongoing
NL	Wieringermeer ext.	118	SDE+	X	15 yrs	100	2020	Under construction
NL	Moerdijk	27	SDE+	X	15 yrs	100	2021	Under construction
NL	Haringvliet	22	SDE+	X	15 yrs	100	2020	Under construction
NL	Nieuwe Hemweg	19	SDE+	X	15 yrs	100	2021	Under construction
SE	Blakliden + Fäbodberget	353	Certs	N/A	-	30	2022	Under construction

Total 1736 MW

Development

Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
UK	South Kyle	240	-	N/A	-	100	2022	Construction starting 2020
NL	Jaap Rodenburg	38	SDE+	X	15 yrs	100	2021	Procurement
DK	NK II	~150	-	N/A	-	100	2021	Permitting phase
DK	Nørre Økse Sø	~50	-	N/A	-	80%	2021	Permitting phase
NL	Hollandse Kust Zuid 1-4	~1.500	-	X	-	100	2022/2023	Procurement
DK	Vesterhav projects	344	FIT	X	50.000hrs	100	2023	Consenting
UK	Thanet Extension	272	CFD		15 yrs	100	2024	Early planning, application for a Development Consent Order submitted
UK	Norfolk Vanguard	1,800	CFD		15 yrs	100	2027	Early planning, application for a Development Consent Order submitted
UK	Norfolk Boreas	1,800	CFD		15 yrs	100	2028	Early planning, application for a Development Consent Order submitted

Total >5GW

Offshore
Onshore

Solar & batteries

Large scale solar & batteries pipeline under construction

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Large Scale Solar	NL	PV@Heat	10	SDE+	X	15 full-load yrs	100	2018 / 2019	Handover to O&M
	NL	Coevorden	6.5	SDE+	X	15 full-load yrs	100	2019	Construction phase
	NL	Haringvliet	37.9	SDE+	X	15 full-load yrs	100	2020	Pre-construction phase
	Total 54.4 MW								
Decentral solar Commissioned	DE	Tenant electricity/ Mieterstrom	0.9	EEG (small scale)	X	20 years	100	2018 / 2019	Program finalized
	DE	PV@VF sites	1.1	EEG (small scale)	X	20 years	100	2019	Program finalized
	DE	B2B customers – direct sale	0.4	EEG / own consumption	X	20 years	0	2019	Program finalized
	NL	B2B customers – direct sale / Leasing	12.1	SDE+		15 Full-load yrs	0	2019	Program 2019 finalized
	Total 14.5 MW								
Decentral solar Construction	DE	PV@VF sites	6.7	EEG	X	20 years	100	2020	
	NL	Direct sale	0	SDE+	X	15 Full-load yrs	0	2019	
	Total 13.0 MW								

Solar & batteries

Large scale solar & batteries pipeline under construction

Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
DE	NEW 4.0	1	Funding in R&D operation and FCR	Weekly for PFC	1-3 yrs funding 4-15 yrs FCR	100	2018	Operating
DE	Jungheinrich	1	No support scheme → Peak shaving			100	2018	Operating
SWE	Åre	1	No support scheme → Peak shaving			0	2019	Operating
UK	Battery @ PyC	22	EFR and CM	X	1-4 yrs EFR 5-15 CM	100	2019	Operating
NL	Battery @ Alexia	3	FCR	weekly	15 years	100	2019	Commissioning phase
DE	Hafenbatterie	1	Cooperation with BMW and Bosch, FCR	weekly		100	2019	Commissioning phase
SWE	Networks	1	No support scheme			0	2019	Project finalized
NL	E-Mobility	0.25	No support scheme			0	2019	Project finalized
DE	Ingredion	0.5	No support scheme → Peak shaving			0	2019	Operating
NL	Battery @ Haringvliet	12	FCR			100	2020	Contracts signed

Total 42.5 MW

PFC – Primary Frequency Control

FCR - Frequency Response Regulation

CM – Capacity Mechanism

EFR – Enhanced Frequency response