

Vattenfall FY and Q4 Results 2018

7 February 2019

Magnus Hall, CEO

Anna Borg, CFO

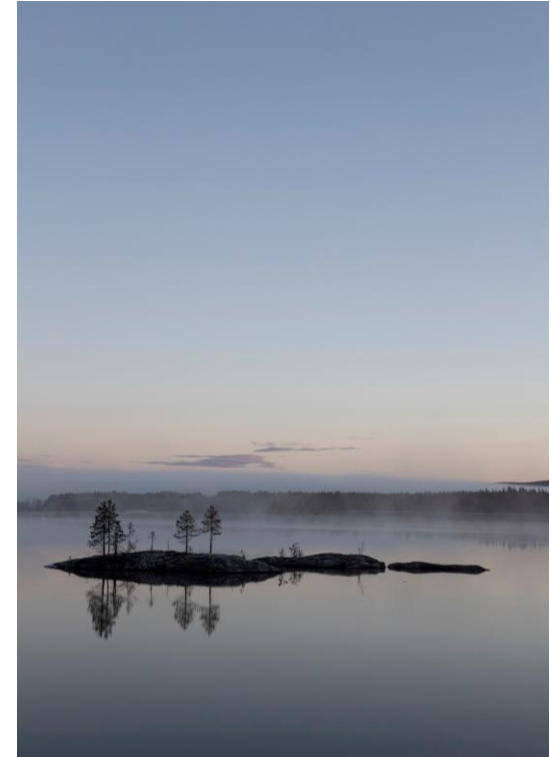


VATTENFALL

Vattenfall FY Results 2018

Opening remarks

- A challenging year with important progress on achieving the vision of a fossil-free future
 - Continued expansion of fossil-free energy, customer growth and investments in electrification
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- Lower underlying operating profit at SEK 19.9 bn (SEK 23.2 bn)
 - Positive contribution from record high nuclear production and higher electricity prices
 - Negative effects from earlier contracted Nordic and Continental price hedges
 - Higher fuel and CO₂ prices significantly lowering contribution from the Heat business
 - Positive contribution from the wind business, supported by price development and additional capacity
 - Lower sales contribution due to margin pressure in the UK and energy solutions growth, core business remains strong
-
- Increase in profit for the year to SEK 12.0 bn (SEK 9.5 bn) supported by lower corporate taxes and a remeasurement of shares in the Swedish Nuclear Waste Fund at fair value
 - The Board of Directors proposes a dividend of SEK 2 bn



Vattenfall FY Results 2018

Overview

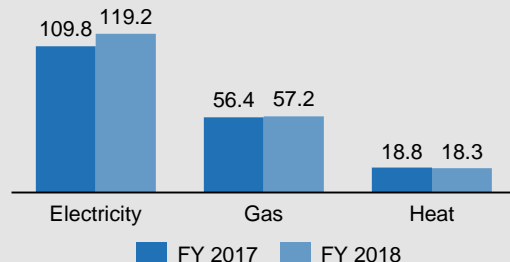
Result development

SEK bn	FY 2018	FY 2017	Δ
Net Sales	156.8	135.1	+16%
EBITDA	34.3	34.4	-0%
Underlying operating profit (EBIT)	19.9	23.2	-14%
EBIT	17.6	18.5	-5%
Profit for the period	12.0	9.5	+11%

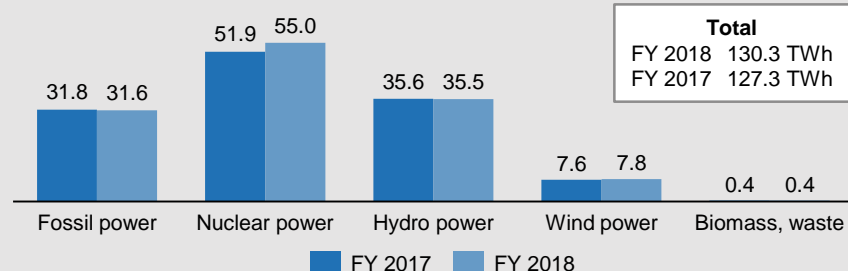
Financial targets

	FY 2018	FY 2017
Return on capital employed ¹ (≥8%)	7.0	7.7
FFO/adjusted net debt ¹ (22-27%)	20.7	21.4

Customer sales (TWh)



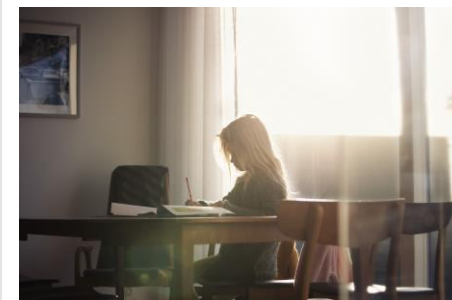
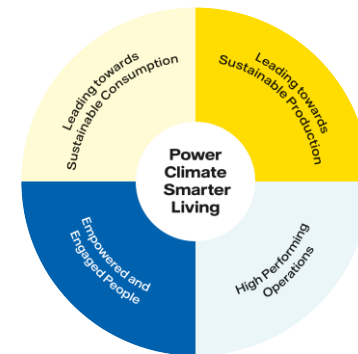
Electricity production (TWh)



¹ Last 12-month values

Strategic targets

Strategic targets to 2020	FY 2018	FY 2017	Comments
Customer engagement, Net Promoter Score relative (relative customer satisfaction): +2	+1	+2	Continued improvement at lower pace
Commissioned new renewables capacity 2016-2020: ≥2,300 MW	752 MW	652 MW	Commissioning of Aberdeen Bay (97 MW), Horns Rev 3 (407 MW) delayed
Absolute CO ₂ emissions, pro rata: ≤21 Mtonnes	21.7¹ MT	22.6 MT	Lower CO ₂ emissions
Return On Capital Employed (ROCE): ≥8%	7.0%	7.7%	Lower operating profit
Lost Time Injury Frequency (LTIF): ≤1.25	1.9	1.5	Tragic fatalities in 2018, increased focus needed
Employee Engagement Index: ≥70%	64%	64%	Stable development, improvement needed



¹ Preliminary value. The final value will be presented in the Annual and Sustainability Report.

Customers & Solutions

Strong sales development – Results hampered by weak UK business and energy solutions growth

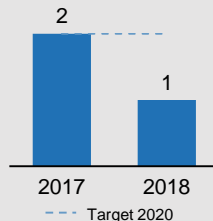
Highlights

SEK million	FY 2018	FY 2017
Net Sales	81,318	68,953
Underlying operating profit	1,269	1,866

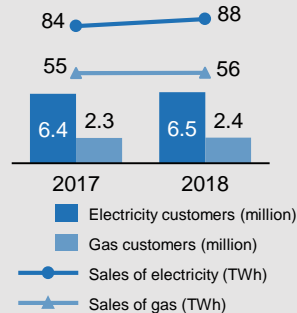
- Increase in net sales supported by increased sales in most markets. A growing customer base by 1.9% also contributed, mainly due to an increase in German contracts
- Decrease in underlying operating profit mainly due to margin pressure in the UK as well as growth in energy solutions
- French retail market entry and expansion in the Netherlands (Delta Energie)
- Long-term electricity supply agreement with Norwegian industrial group Elkem
- First charging stations installed in the UK in partnership with BMM Energy Solutions. Electricity supply from British wind farms

Key data

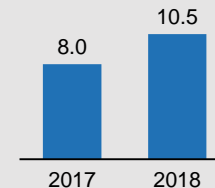
Net Promoter Score¹ (NPS) relative to peers



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. The development from +2 to +1 means that Vattenfall continues to improve and is still ahead of peers who have been catching up.

Power Generation

A strong production year including an all-time record for Swedish nuclear

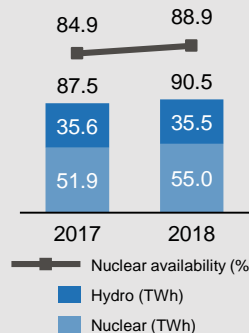
Highlights

SEK million	FY 2018	FY 2017
Net Sales	99,970	79,566
Underlying operating profit	9,371	10,820

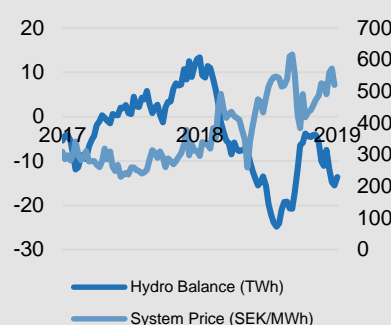
- Net sales increased due to higher electricity prices, higher nuclear power production, higher sales of electricity and gas, as well as positive currency effects
- Underlying operating profit decreased mainly due to previously contracted Nordic and Continental price hedges
- Record-high production for Ringhals 1 and 4 leading to an overall all-time high for Swedish nuclear
- Stable hydro generation in spite of dry weather during summer
- Dismantling and demolition license received for Brunsbüttel
- Automation of marketing and optimisation of renewable power

Key data

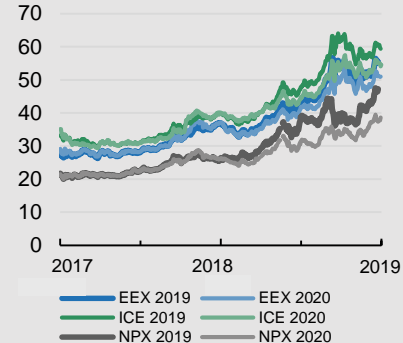
Production and availability



Nordic hydro balance and system price



Electricity futures prices (EUR/MWh)



Nuclear improvement programme

Target	Indicator	AC 2017	AC 2018	KPI 2021
Safe and available	Availability	85%	89%	>90%
Cost effectiveness	Cost/kWh ¹	24 öre	21 öre	19 öre
Capital Discipline	Total Capex	SEK 2.0 bn	SEK 1.7 bn	SEK 1.1 bn



¹ Cost of purchase, O&M cost, depreciation, financing cost, tax

Wind

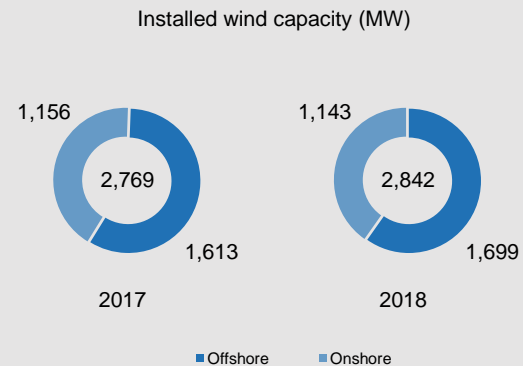
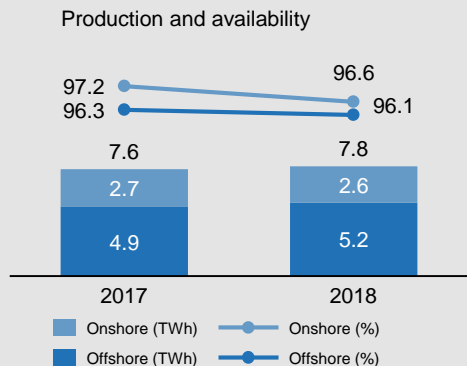
Positive earnings development and major steps forward in continued renewables growth

Highlights

SEK million	FY 2018	FY 2017
Net Sales	11,852	9,438
Underlying operating profit	3,747	2,137

- Net sales and underlying operating profit increased as a result positive price and currency effects and additional capacity¹
- Electricity generation stable - additional capacity largely offset by lower wind speeds
- Major milestone achieved in 2018 with the win of the Hollandse Kust 1 & 2 tender
- Decision to build the Kriegers Flak offshore wind farm (605 MW)
- First supply of electricity from Denmark's largest offshore wind farm, Horns Rev 3 (407 MW)
- Solid progress in onshore wind, e.g. Blakliden/Fäbodberget construction (353 MW), SE, and investment decision for Moerdijk (27 MW) and Haringvliet (22 MW), NL
- Developing solar (24 MW) and battery (30 MW) pipeline

Key data



¹ Vattenfall's latest capacity additions include European Offshore Wind Deployment Centre, Aberdeen Bay (97 MW), Ray (54 MW), Pen y Cymoedd (228 MW) and Sandbank (288 MW)

Heat

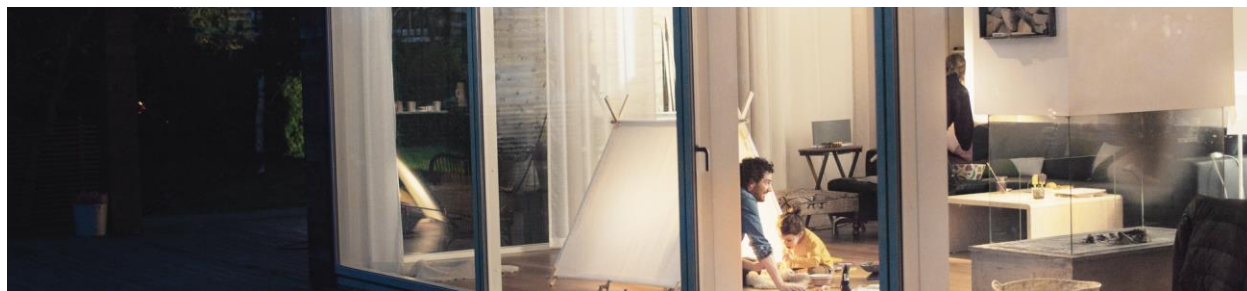
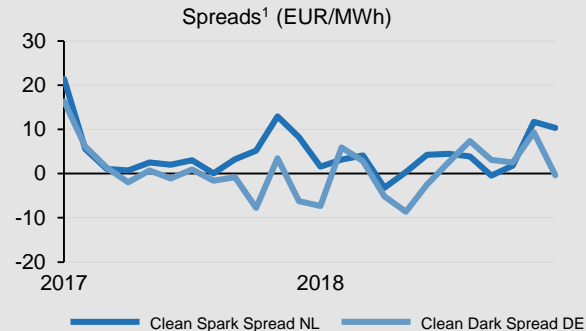
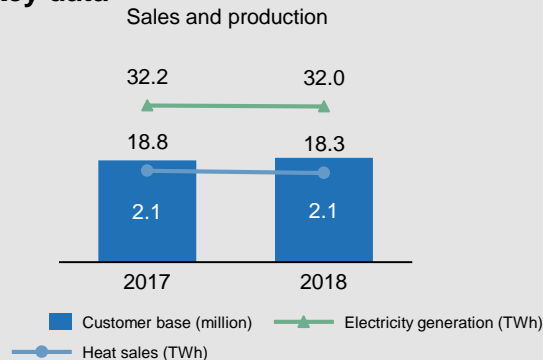
Continued earnings pressure from higher costs for fuels and CO₂ emissions

Highlights

SEK million	FY 2018	FY 2017
Net Sales	33,970	30,724
Underlying operating profit	771	3,371

- Increased net sales due to higher prices for electricity as well as positive currency effects
- Decrease in underlying operating profit mainly due to deteriorated spreads with higher costs for fuels and CO₂ emission allowances, and one-off items²
- Increase in customer base by 2.3%
- City of Hamburg using its option to buy back Vattenfall's stake of 74.9% in the city's district heating system for a contracted price of EUR 625 million
- Investment programme of SEK 3.5 billion in Uppsala heating system
- Energy storage pilot project in Berlin

Key data



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

² One-off items of about SEK 800 million in 2017, partly related to subsidies for gas-fired CHP plants in Germany

Distribution

Increased investments by over 20% in Sweden

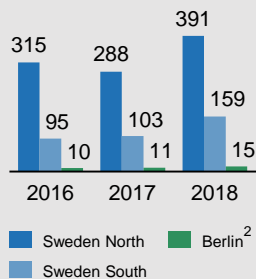
Highlights

SEK million	FY 2018	FY 2017
Net Sales	22,374	21,430
Underlying operating profit	6,250	6,075

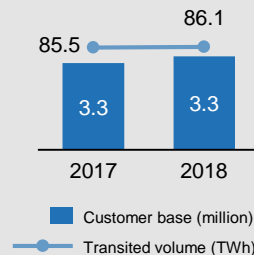
- Increase in net sales mainly owing to higher local network tariffs and higher revenues for the regional network in Sweden, partly offset by lower prices following lower fees from the transmission system operator (TSO) in Germany
- Increase in underlying operating profit as a result of higher revenues in Sweden
- Record-high investments and stable financial performance in 2018
- Berlin distribution operations received distinction from the regulator for being “super-efficient”
- Agreement on charging infrastructure for electric buses in Berlin
- Decision on Berlin concession expected in Q1
- Major efforts ongoing to repair damages from the recent storm Alfrida in Sweden (post Q4)

Key data

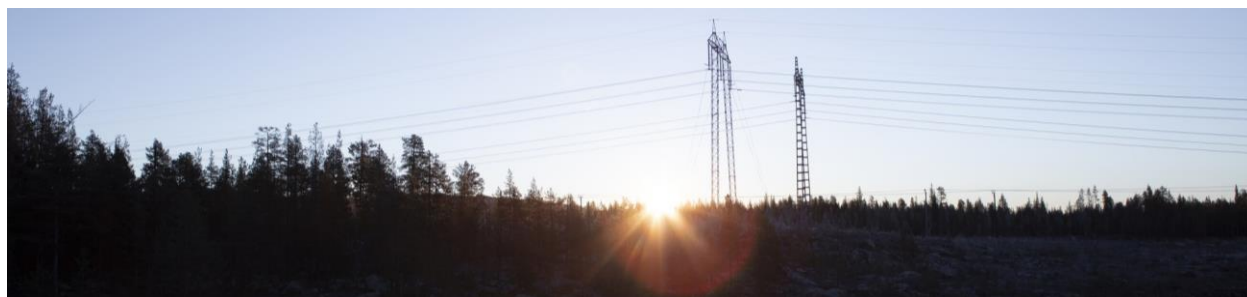
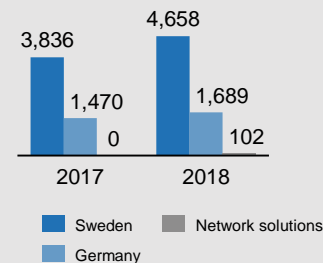
Service level (SAIDI, min)¹



Customers and volumes



Investments (SEK mn)



¹ City grid in Berlin results in lower SAIDI. Vattenfall's Swedish grid covers both urban areas and large rural areas. SE North negatively impacted by more weather related outages and planned outages in 2018.

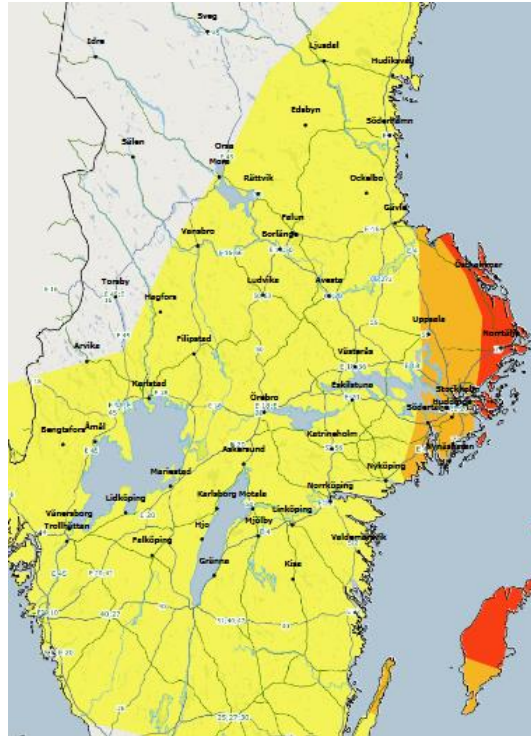
² All outages longer than 1 second in medium and low voltage network is included

Damage to the Swedish network from the storm Alfrida

All customers have the power back, but repair work will go on for several months

Significant damage to the network – major repair and build-up needed

- The storm came from north and swept over Sweden January 2nd. It peaked during the night and reached hurricane strength with winds up to 38 m/s.
- A total of 100,000 customers in Sweden were initially out of electricity
- Outstanding efforts by a major outage organisation - over 500 field resources worked to restore electricity during the most intensive period
- Successful co-operation and dialogue with municipalities and authorities
- Outage compensation costs will amount to ~SEK 350 mn - customer claims, fault repair costs will be added



Crisis heat map: Main damages in Roslagen, Bergslagen, Uppland, Stockholm and Northern Götaland



Field work: A large number of helicopters, tracked vehicles, forest harvesters, line machines, excavators are being used

Financials

Anna Borg, CFO



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Vattenfall FY Results 2018

Financial highlights

Key data

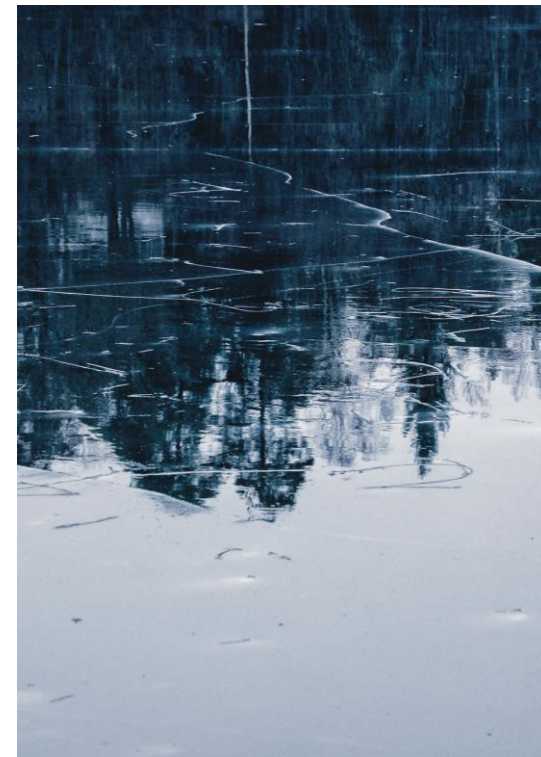
SEK bn	FY 2018	FY 2017
Net Sales	156.8	135.1
EBITDA	34.3	34.4
Underlying operating profit (EBIT)	19.9	23.2
EBIT	17.6	18.5
Profit for the period	12.0	9.5
Funds from Operations (FFO)	23.3	26.6
Cash flow operating activities	41.1	25.7
Net debt	47.7	59.3
Adjusted net debt	112.3	124.4
Adjusted net debt/EBITDA (times)	3.3	3.6

Financial targets

ROCE (≥8%)	7.0	7.7
FFO/adjusted net debt (22-27%)	20.7	21.4

Key developments

- Profit for the period increased by SEK 2.5 bn to SEK 12.0 bn supported by lower corporate taxes and a remeasurement of shares in the Swedish Nuclear Waste Fund at fair value
- Net sales increased by SEK 21.7 bn to SEK 156.8 bn due to increased volumes in Germany, France and the UK, positive price effects in Nordics and the Netherlands and increased nuclear power generation
- Underlying EBIT decreased by SEK 3.3 bn mainly due to pressured margins in Heat and previously contracted Nordic and Continental price hedges
- ROCE at 7.0% mainly as a result of lower underlying EBIT, partially offset by lower Items Affecting Comparability
- FFO/Adjusted net debt at 20.7%. FFO down due to lower underlying EBITDA, counterbalanced by lower interest payments (note GBP bond-buy back in 2017). Lower Adjusted net debt due to strong operating cash flow, partially offset by translation effects, dividends paid and a heavy investment year

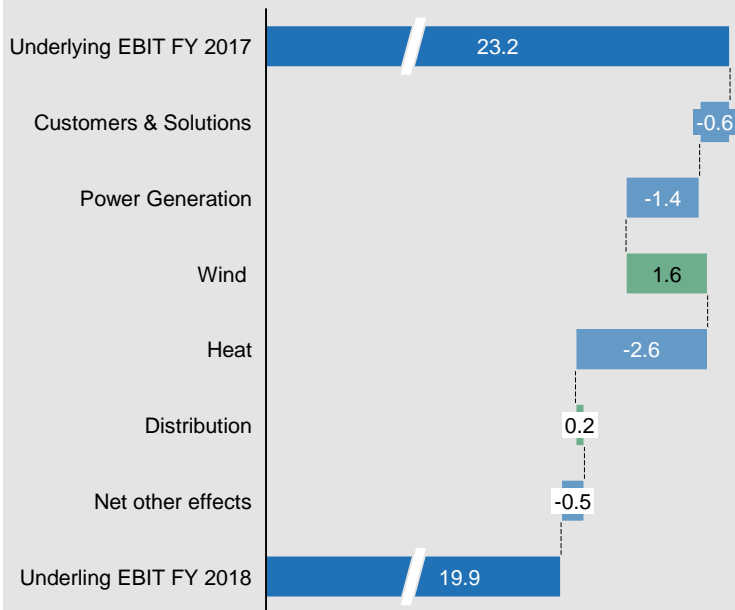


Development of underlying EBIT FY 2018

Significantly deteriorated spreads for Heat and earlier contracted price hedges for Power Generation main drivers of a weaker result

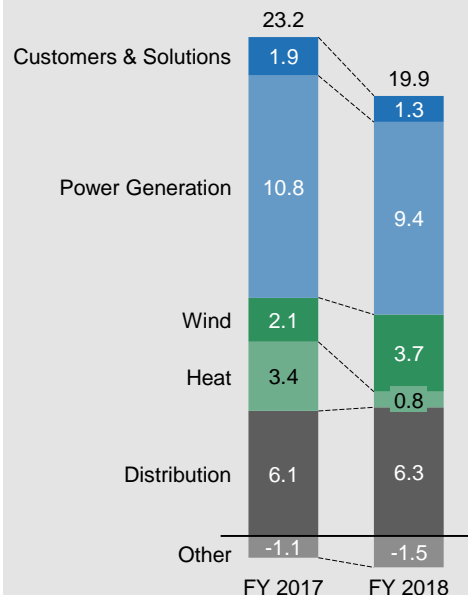
Change in FY 2018 vs. FY 2017

SEK bn



Breakdown per operating segment

SEK bn

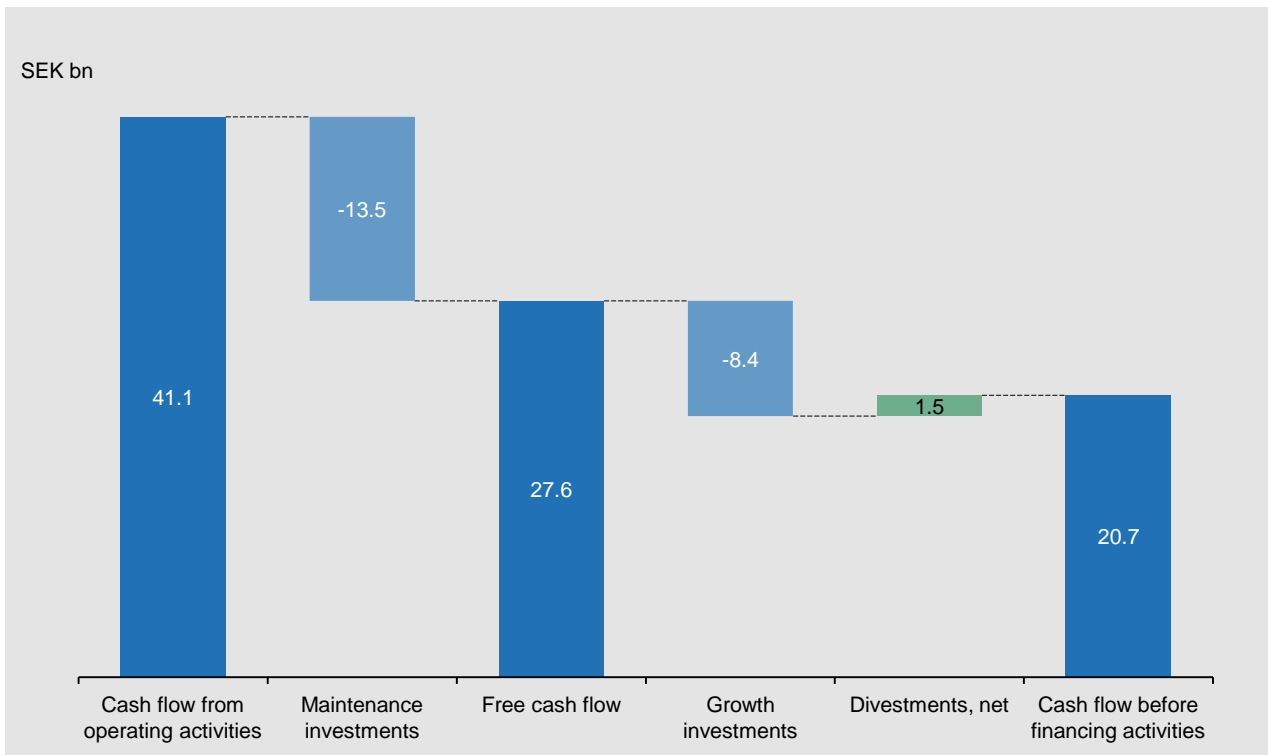


Highlights

- Customers & Solutions: decrease mainly due to margin pressure in the UK as well as growth in energy solutions
- Power Generation: earlier contracted price hedges offsetting higher prices, nuclear generation and sales of electricity and gas
- Wind: positive price and currency effects and additional capacity
- Heat: significantly deteriorated spreads (higher costs for fuels and certificates) and slightly lower electricity generation. Further impacted by one-off items in 2017 (~SEK 800 mn) partly related to CHP subsidies
- Distribution: higher local network tariffs and higher revenues in the regional network in Sweden

Cash flow development FY 2018

Operating cash flow financing investments with significant margin



Highlights

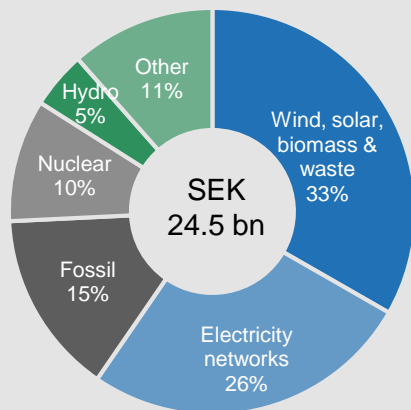
- Cash flow from operating activities at SEK 41.1 bn. Positive impact from change in working capital by SEK 17.8 bn, mainly attributable to changes in margin calls, increased liabilities for EUAs¹ and changes in inventory of which majority refers to usage of nuclear fuel
- Cash flow before financing activities at a high level, also supported by the positive impact from change in working capital
- Growth investments mainly in wind

¹ European Emissions Allowances

Capital expenditures

~60% of investments directed to renewables and networks

Investments per category, FY 2018



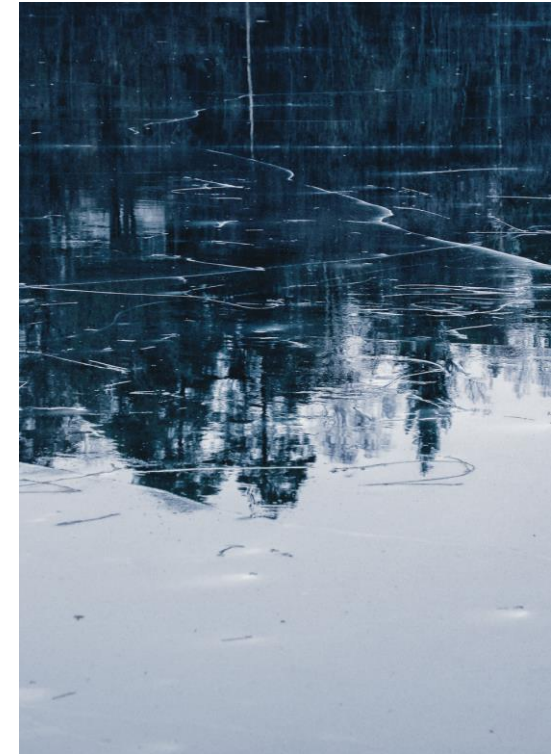
Detailed overview of investments, FY and Q4 2018

SEK bn	FY 2018	FY 2017	Δ	Q4 2018	Q4 2017	Δ
Hydro	1.1	1.3	-16%	0.4	0.6	-27%
Nuclear	2.4	1.9	+27%	0.8	0.6	+23%
Fossil ¹	3.6	2.2	+61%	1.5	1.2	+24%
Wind, solar, biomass & waste	8.2	5.6	+46%	2.2	1.8	+18%
Electricity networks	6.4	5.3	+22%	2.6	2.1	+25%
Other	2.8	4.1	-31%	1.4	1.0	+40%
Total	24.5	20.4		8.9	7.4	

¹ Investments mainly related to coal to gas transition; Marzahn gas-fired CHP, Reuter heat-only boiler, Lichterfelde gas-fired CHP (updated to a more efficient and environmental compatible combined cycle gas turbine)

Overview of key figures FY and Q4 2018

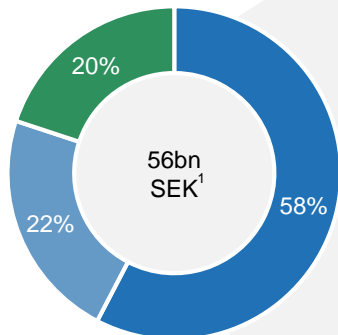
Amounts in SEK bn unless indicated otherwise	FY 2018	FY 2017	Q4 2018	Q4 2017
Net sales	156.8	135.1	48.0	38.3
EBITDA	34.3	34.4	8.7	10.0
EBIT	17.6	18.5	4.2	5.9
Underlying operating profit (EBIT)	19.9	23.2	4.6	7.2
Profit for the period	12.0	9.5	3.1	2.8
Electricity generation (TWh)	130.3	127.3	35.9	35.1
Sales of electricity (TWh)	174.1	157.3	49.9	43.6
- of which, customer sales (TWh)	119.2	109.8	31.7	30.6
Sales of heat (TWh)	18.3	18.8	5.8	6.1
Sales of gas (TWh)	57.2	56.4	18.0	18.5
Return on capital employed ($\geq 8\%$)	7.0	7.7	7.0 ¹	7.7 ¹
FFO/adjusted net debt (22-27%)	20.7	21.4	20.7 ¹	21.4 ¹



¹ Last 12-month values

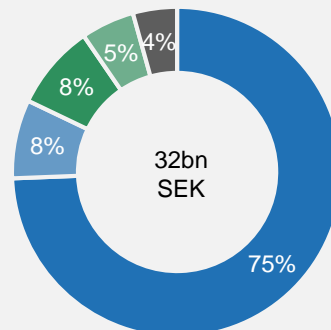
Investment plan 2019-2020

**Total capex
2019-2020**



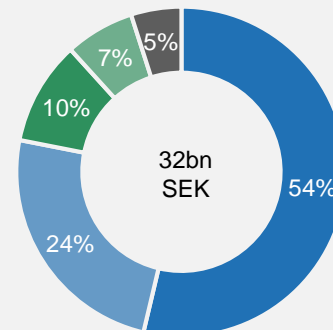
- Growth, 32bn SEK
- Maintenance, 13bn SEK
- Replacement, 11bn SEK

**Growth capex per
technology 2019-2020**



- Wind power, 24bn SEK
- Distribution grids, 3bn SEK
- Heat grids, 3bn SEK
- New businesses, 2bn SEK
- Solar energy & batteries, 1bn SEK

**Growth capex per country
2019-2020**



- Denmark, 17bn SEK
- Netherlands, 8bn SEK
- Germany, 3bn SEK
- Sweden, 2bn SEK
- UK, 2bn SEK

¹ Of which SEK 0.5 billion pertains to investments in the district heating system in Hamburg, where the city has decided to exercise its option to buy back the operation

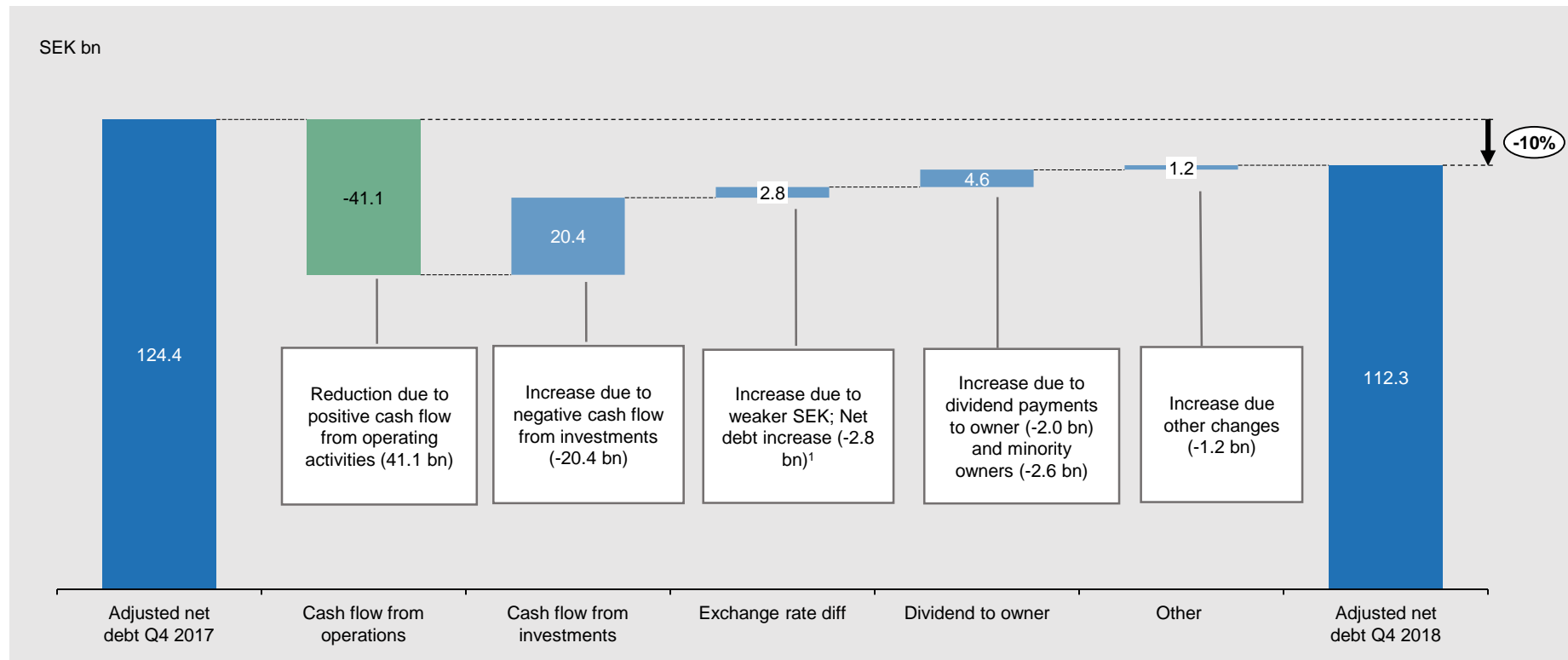
² Mainly decentralised solutions, energy storage and e-mobility

Appendix



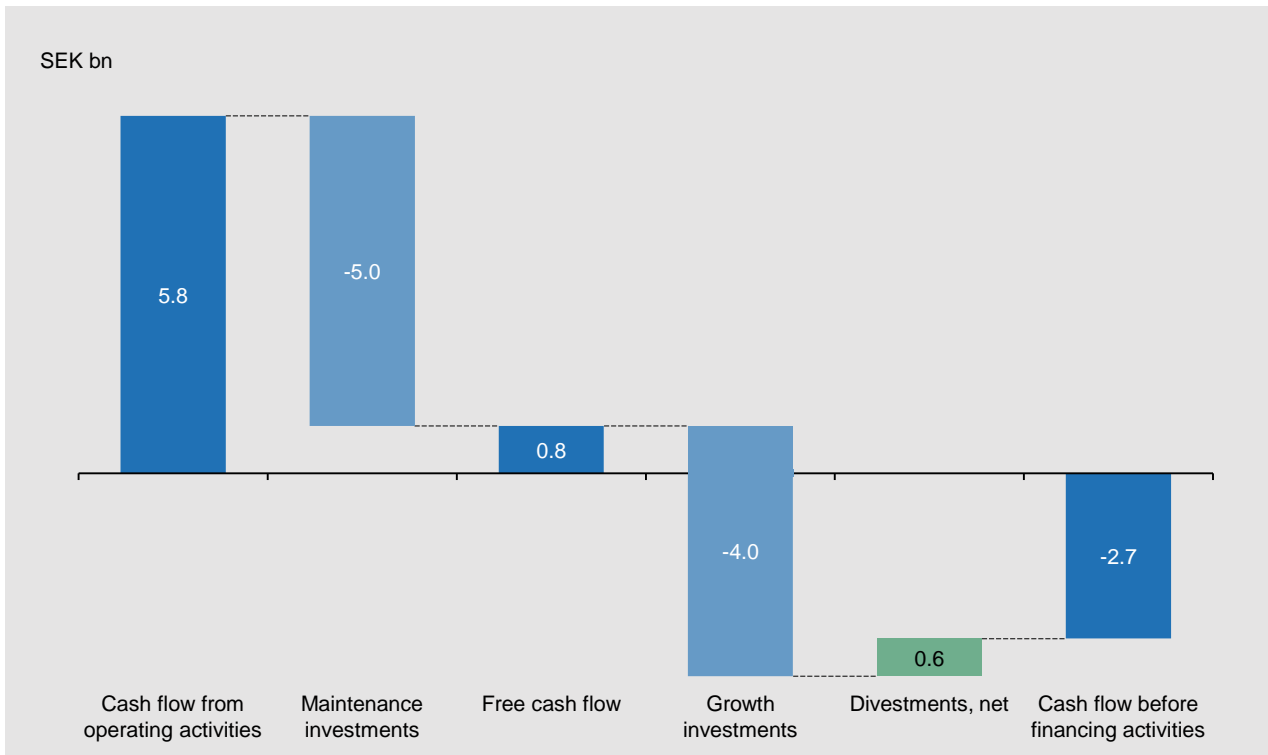
Development of adjusted net debt FY 2018

Adjusted net debt reduction due to positive cash flow from operating activities



¹ SEK strengthened against EUR (from 9.84 to 10.25); translation of EUR denominated net debt into SEK leads to increase in Adjusted net debt

Cash flow development Q4 2018

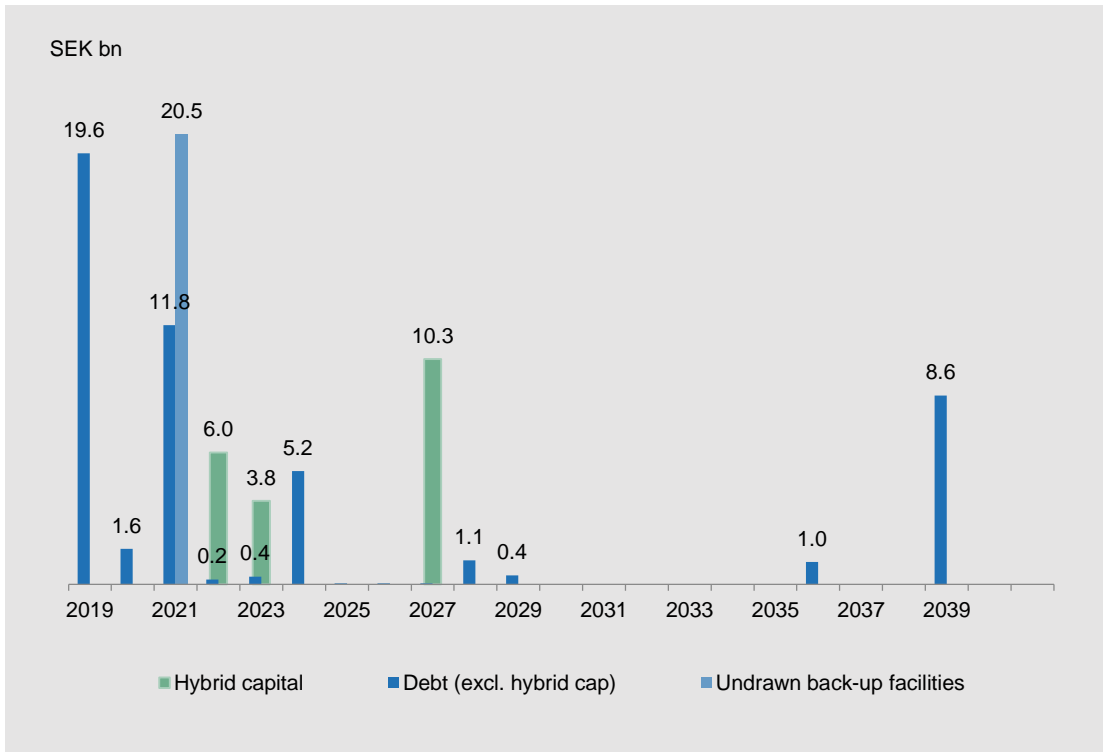


Highlights

- Cash flow from operating activities at SEK 5.8 bn. FFO positively impacted by refund tax (Germany). Change in working capital by SEK -1.5 bn, mainly attributable to margin calls offset by increased liabilities for EUAs¹
- Maintenance investments (and also replacement investments) in existing powerplants, and heat and distribution networks in order to be able to supply reliable energy to costumers
- Growth investments are done in foremost renewables and also in heat and distribution networks

¹ European Emissions Allowances

Debt maturity profile¹



	31 Dec. 2018	31 Dec. 2017
Duration (years)	4.4	4.3
Average time to maturity (years)	6.4	6.9
Average interest rate (%)	4.5	4.4
Net debt (SEK bn)	47.7	59.3
Available group liquidity (MSEK)	34.5	19.9
Undrawn committed credit facilities (MSEK)	20.5	19.7

Cumulative maturities excl. undrawn back-up facilities

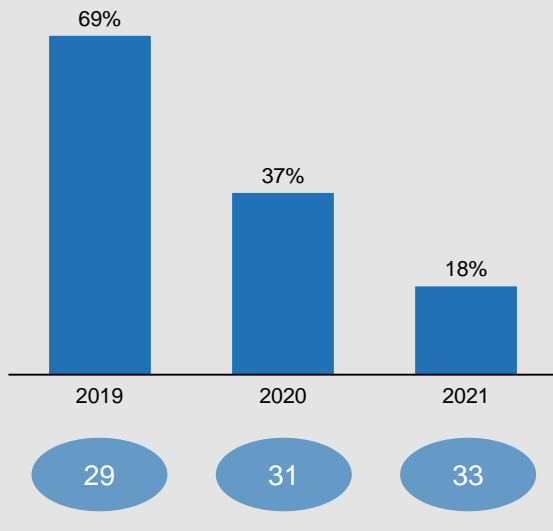
	2019-2021	2022-2024	From 2025
Debt incl. hybrid capital	33.1	15.6	21.5
<i>% of total</i>	47%	22%	31%

¹ 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

Price hedging

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



Sensitivity analysis – Continental² portfolio

Market quoted	+/- 10% price impact on future profit before tax, MSEK ³			Observed yearly volatility
	2019	2020	2021	
Electricity	+/- 2,184	+/- 2,006	+/- 1,962	19% - 23%
Coal	-/+ 403	-/+ 355	-/+ 293	21% - 25%
Gas	-/+ 964	-/+ 841	-/+ 790	16% - 21%
CO ₂	-/+ 513	-/+ 575	-/+ 623	44% - 48%

¹ Nordic: SE, DK, NO, FI

² Continental: GE, NL, UK

³ The denotation +/- entails that a higher price affects operating profit favorably, and -/+ vice versa

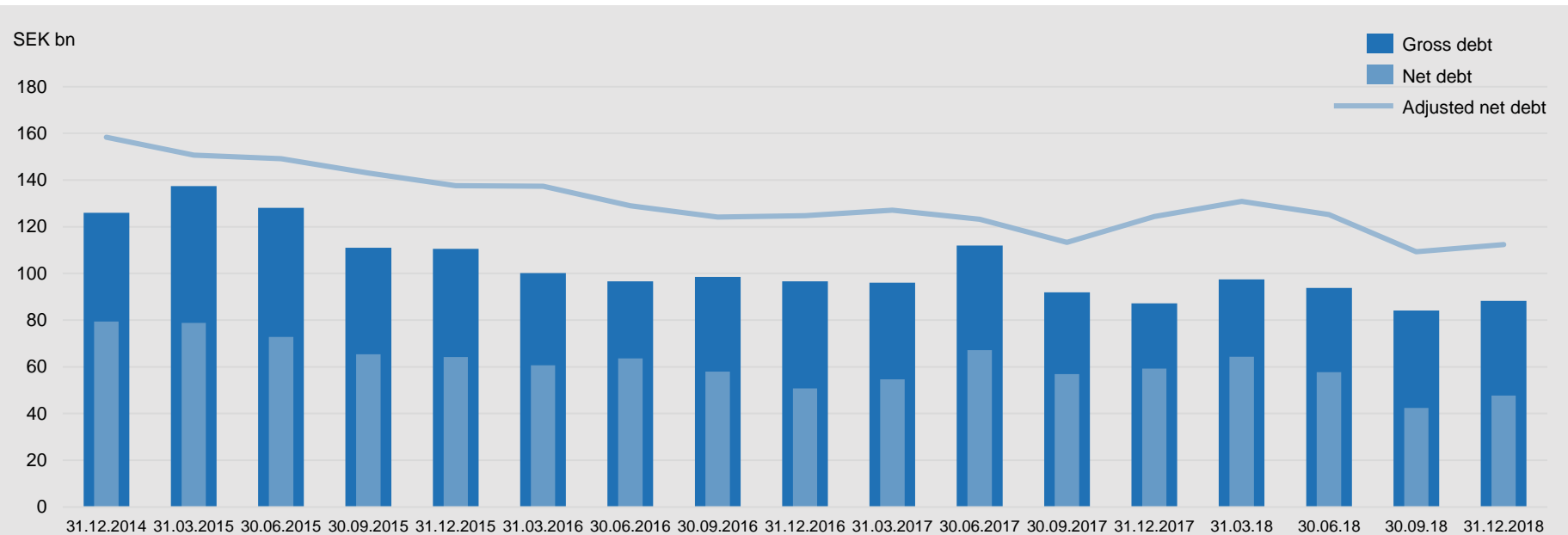
Continued strong liquidity position

Group liquidity	SEK bn	Committed credit facilities	Facility size, EUR bn	SEK bn
Cash and cash equivalents	17.1	RCF (maturity Dec 2021)	2.0	20.5
Short term investments	23.0	Total undrawn		20.5
Reported cash, cash equivalents & short term investments	40.1	Debt maturities²		SEK bn
Unavailable liquidity ¹	-5.6	Within 90 days		16.4
Available liquidity	34.5	Within 180 days		16.4

¹ German nuclear "Solidarvereinbarung" 2.3 SEK bn, Margin calls paid (CSA) 2.4 SEK bn, Insurance "Provisions for claims outstanding" 0.8 SEK bn

² Excluding loans from minority owners and associated companies

Debt development

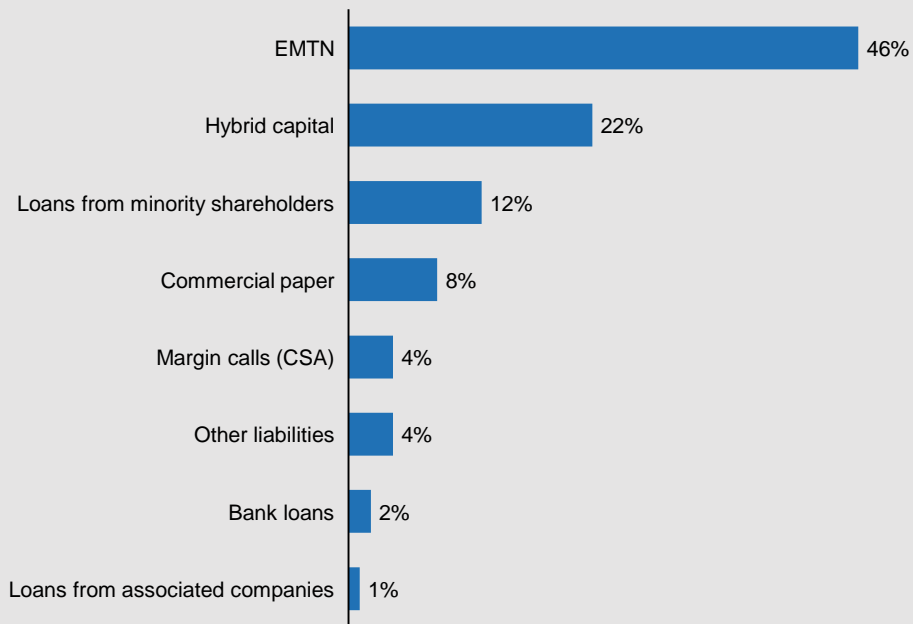


Net debt improved by SEK 11.5 bn compared with the level at 31 Dec. 2017. Adjusted net debt decreased by SEK 12.0 bn to SEK 112.3 bn at 31 December 2018. For the calculation of adjusted net debt, see slide 27.

Breakdown of gross debt

Total debt: SEK 88.3 bn (EUR 8.6 bn)

External market debt: SEK 77.4 bn (EUR 7.5 bn)



Debt issuing programmes	Size (EUR bn)	Utilization (EUR bn)
EUR 10bn Euro MTN	10.0	3.7
EUR 2bn Euro CP	2.0	1.1
SEK 15bn Domestic CP	1.5	0.0
Total	13.5	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. 2018	31 Dec. 2017	Adjusted net debt (SEK bn)	31 Dec. 2018	31 Dec. 2017
Hybrid capital	-19.8	-19.1	Total interest-bearing liabilities	-88.3	-87.2
Bond issues and commercial papers and liabilities to credit institutions	-50.3	-52.1	50% of Hybrid capital	9.9	9.6
Liabilities to associated companies	-0.5	-0.5	Present value of pension obligations	-39.7	-42.0
Liabilities to minority shareholders	-10.4	-10.4	Wind & other environmental provisions	-7.7	-6.5
Other liabilities	-7.2	-5.1	Provisions for nuclear power (net)	-31.9	-30.7
Total interest-bearing liabilities	-88.3	-87.2	Margin calls received	3.4	3.3
Reported cash, cash equivalents & short-term investments	40.1	26.9	Liabilities to minority owners due to consortium agreements	9.2	9.2
Loans to minority owners of foreign subsidiaries	0.5	1.0	Adjustment related to assets/liabilities held for sale	-1.7	0.0
Net debt	-47.7	-59.3	= Adjusted gross debt	-146.8	-144.3
			Reported cash, cash equivalents & short-term investments	40.1	26.9
			Unavailable liquidity	-5.6	-7.0
			= Adjusted cash, cash equivalents & short-term investments	34.5	19.9
			= Adjusted net debt	-112.3	-124.4

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: 30.7	Total Ringhals: 30.7¹	
Forsmark 1	984	1980	66.0			
Forsmark 2	1,120	1981	66.0			
Forsmark 3	1,170	1985	66.0	Total Forsmark: 26.5	Total Forsmark: 17.5	
Total Sweden	6,974	-		59.9²	49.3²	35.3³
Brunsbüttel	771	1977	66.7	11.1	7.4	
Brokdorf	1,410	1986	20.0	0	3.3	
Krümmel	1,346	1984	50.0	6.7	6.7	
Stade ⁴	640	1972	33.3	0	1.0	
Total Germany	4,167	-	-	17.8	18.3	
Total SE & DE	11,141			77.7	67.6	

¹ Vattenfall is 100% liability of Ringhals decommissioning, while owning only 70.4%

² Total provisions in Sweden (IFRS accounting) include provisions of SEK 0.4 bn (pro rata SEK 0.2 bn considering share in Studsviksfonden) related to Ägesta, and SEK 2.3 bn (pro rata SEK 0.9 bn considering share in Studsviksfonden) related to SVAFO

³ Vattenfall's share of the Nuclear Waste Fund. IFRS consolidated value is SEK 42.0 bn.

⁴ Stade is being dismantled

Impairment history 2009 – 2018



SEK bn		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
The Netherlands	Thermal assets		4.3 ¹	0.4 ²	8.6 ²	14.7	2.6		2.8			33.4
	Trading					6.5 ¹	10.0 ¹		0.7			17.2
	Other	1.2	1.2			1.5 ²	1.9				0.1	5.9
Germany	Thermal assets			0.3		4.3	5.7	19.2	26.1			55.6
	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			1.5
	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				1.3
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	165.2
Reversed impairment losses		-1.3	-1.3	-0.4	0.0	0.0	0.0	-0.5	-0.9	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	160.8

¹ Impairment of goodwill













² Impairment of assets and goodwill

Wind - Installed capacity (MW¹) Q4 2018

	Onshore ²	Offshore	Total
United Kingdom	395	687	1.082
Denmark	243	158	401
The Netherlands	241	108	349
Sweden	244	110	355
Germany	19	636	655
Total (MW)	1,143	1,699	2,842

	Offshore
	Onshore

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 incl. Solar ²	9
	Pendine	5















Installed capacity (MW) 1,082

Sweden – certificate scheme

	Lillgrund	110
	Stor-Rotliden	78
	Högabjär-Kårsås (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
	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) 401

Germany – EEG scheme

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

Installed capacity (MW) 655

The Netherlands – MEP/SDE(+)

	NoordzeeWind (50%)	108
	Princess Alexia	122
	Eemmeerdiijk	17
	Irene Vorrink	17
	Jaap Rodenburg	17
	Windpoort (40%)	13
	Hoofdplaatpolder (70%)	10
	Reyndersweg (50%)	9
	Echteld	8
	De Bjirmen	6
	Oom Kees (12%)	6
	Oudendijk	5
	Mariapolder	5
	Hiddum Houw	4
	Enkhuizen	2

Installed capacity (MW) 349

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

² 5 MW Solar

Pipeline of key wind farms in our 5 core countries

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Construction	DK	Horns Rev 3	407	FIT	X	50,000hrs	100	2019	Under construction, first MWh produced
	DK	Kriegers Flak	605	FIT	X	50,000hrs	100	2021	Under construction
	NL	Slufterdam	29	SDE+	X	15 yrs	100	2019	Under construction, first MWh produced
	NL	Wieringermeer	180	SDE+	X	15 yrs	100	2019/2020	Under construction
	NL	Wieringermeer ext.	118	SDE+	X	15 yrs	100	2020	Under construction
	NL	Moerdijk	27	SDE+	X	15 yrs	100	2020	Under construction
	NL	Haringvliet	22	SDE+	X	15 yrs	100	2020	Under construction
	SE	Blakliden + Fäbodberget	353	Certs	N/A	-	30	2021/2022	Under construction

Total 1,741 MW

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Development	NL	Nieuwe Hemweg	~20	SDE+	X	15 yrs	100	2021	Procurement
	UK	South Kyle	~200	-	N/A	-	100	2022	Procurement
	DK	NK II	~120	-	N/A	-	100	2021	Permit application ongoing, subsidy bid expected Q1 2019
	DK	Nørre Økse Sø	~50	-	N/A	-	80%	2021	Permits received, subsidy bid Q4 2018
	NL	Hollandse Kust Zuid 1 & 2	~700	-	X	-	100	2022	Procurement
	DK	Danish Near Shore	344	FIT	X	50,000hrs	100	2020/2021	Procurement
	UK	Thanet Extension	272	CFD		15 yrs	100	2024/2025	Early planning, application for a Development Consent Order submitted
	UK	Norfolk Vanguard	1,800	CFD		15 yrs	100	2026/2027	Early planning, application for a Development Consent Order submitted
Onshore	UK	Norfolk Boreas	1,800	CFD		15 yrs	2027/2028	Concept/Early planning	

Total
>5GW

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	Velsen	2.3	SDE+	X	15 full-load yrs	100	2018	Handover to O&M delivery
	NL	Eemshaven	5.5	SDE+	X	15 full-load yrs	100	2019	Commissioning phase
	NL	Hemweg	2.4	SDE+	X	15 full-load yrs	100	2019	Construction phase
Total 10.2 MW									

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Batteries	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
	UK	Battery @ PyC	22	EFR and CM	X	1-4 yrs EFR 5-15 CM	100	2019	Handover to O&M delivery
	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	Contracts signed
	NL	E-Mobility	0.25	No support scheme			0	2019	Contracts signed
	SWE	Åre	1	No support scheme → Peak shaving			0	2019	Construction phase
Total 30.25 MW									

PCR – Primary Control Reserve

CM – Capacity Mechanism

EFR – Enhanced Frequency response

FCR - Frequency Response Regulation

Solar & batteries

Decentral solar installed capacity and pipeline

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Decentral solar Commissioned	DE	Tenant electricity/ Mieterstrom	0.7	EEG (small scale)	X	20 years	100	2018	Last projects will be delivered in Q1 2019
	DE	B2B customers – direct sale	0.1	EEG / own consumption	X	20 years	0	2018	
	NL	B2B customers – direct sale / Leasing	0.7	SDE+		15 Full-load yrs	0	2018	
Total 1.5 MW									

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Decentral solar Construction	DE	PV@VF sites	1.2	EEG (small scale)	X	20 years	100	2019	
	DE	Tenant electricity/ Mieterstrom	0.2	EEG / Tenant electricity	X	20 years	100	2019	
	NL	Direct sale / Leasing	11.9	SDE+	X	15 Full-load yrs	0	2019	
Total 13.3 MW									