

# Vattenfall H1 and Q2 Results 2018

20 July 2018

Magnus Hall, CEO

Anna Borg, CFO

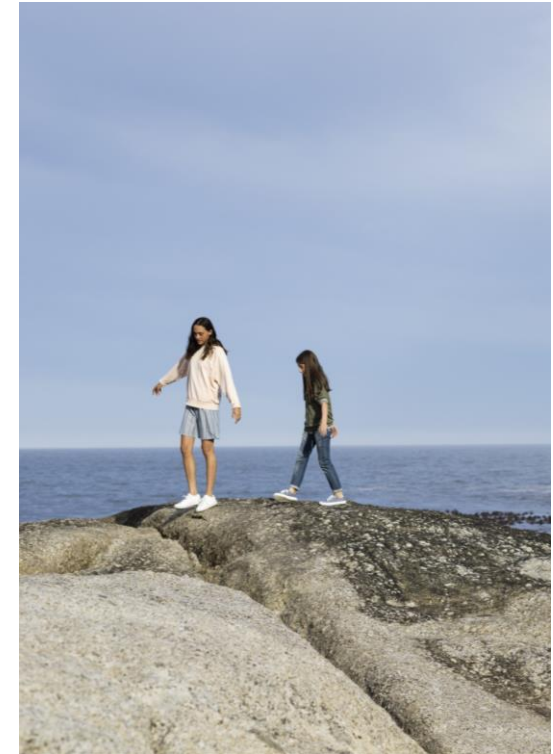


VATTENFALL

# Vattenfall H1 and Q2 Results 2018

## Opening remarks

- **Increased electricity generation, in particular from Swedish hydro, contributed strongly to a stable first half year**
- **A lowering of Sweden's corporate tax rate and a revaluation of the holdings in the Swedish Nuclear Waste fund supported an increase in profit for the period to SEK 7.1 bn (SEK 5.9 bn)**
- **Increased contributions mainly from Power Generation and Wind, offset by negative development in Heat, led to a stable Underlying EBIT of SEK 13.1 bn (SEK 13.2 bn)**
- **Renewables growth in Sweden and phase out of fossil fuels in the Netherlands**
- **Strategic partnerships and customer contracts** within charging solutions for e-mobility, balancing services and district heating
- **Increased investments in Distribution to modernise the grid and enable more electrification**



# Vattenfall H1 Results 2018

## Overview

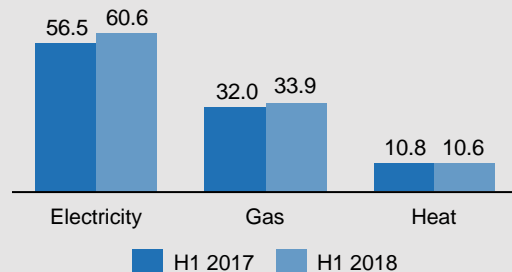
### Result development

SEK bn	H1 2018	H1 2017	Δ
Net Sales	76.3	69.4	6.9
EBITDA	17.8	18.5	-0.7
Underlying operating profit (EBIT)	13.1	13.2	-0.1
EBIT	9.8	10.5	-0.7
Profit for the period	7.1	5.9	1.2

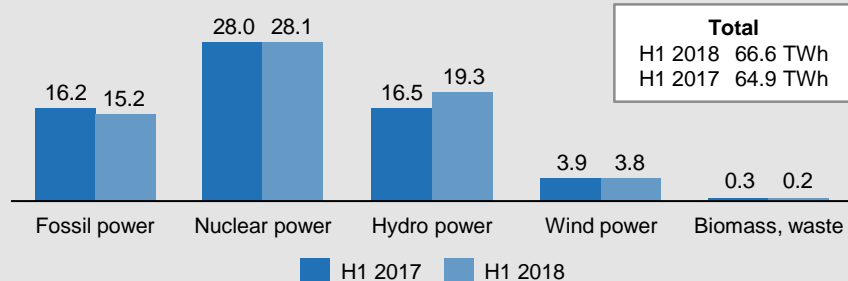
### Financial targets

	H1 2018	H1 2017
Return on capital employed <sup>1</sup> (≥8%)	7.1	4.2
FFO/adjusted net debt <sup>1</sup> (22-27%)	19.4	22.3

### Customer sales (TWh)



### Electricity production (TWh)



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

# Customers & Solutions

Renewable electricity for business customers and continued growth in e-mobility

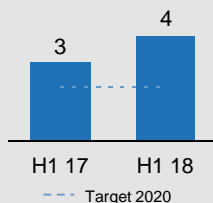
## Highlights – H1 2018

SEK bn	H1 2018	H1 2017
Net Sales	41,644	35,228
Underlying operating profit	1,213	1,137

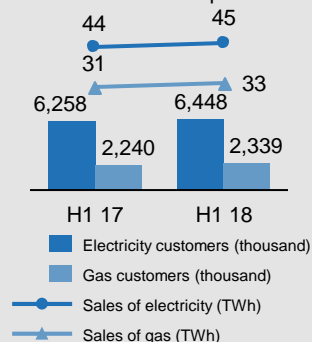
- Increase in net sales mainly due to increase in wholesale prices and higher volumes (coupled with FX effects) in DE, NL and FR as well as UK market expansion (iSupplyEnergy)
- Underlying operating profit supported by increased net sales and improved margins, offset by higher operating expenses and UK expansion
- Supply agreement with two Facebook data centres
- Agreement on installation of solar panels in the NL (9W to Merin)
- Continued growth in charging infrastructure with Volvo and Tanka partnerships and expansion of InCharge into the UK

## Key data

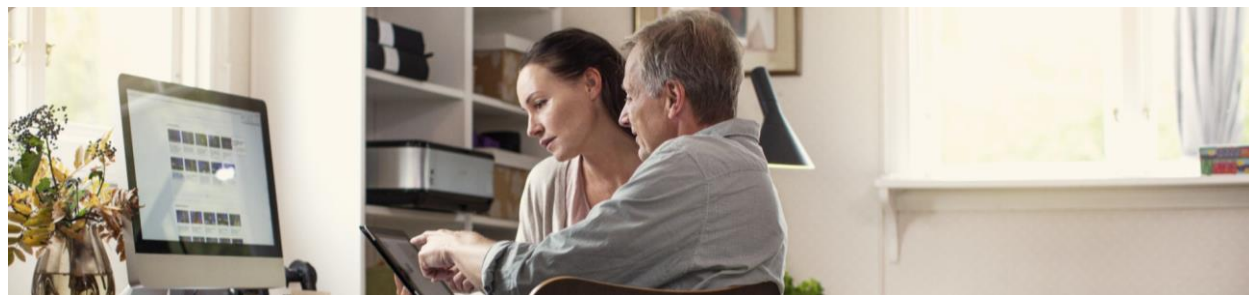
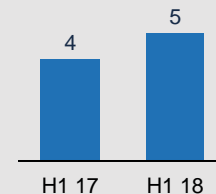
Net Promoter Score<sup>1</sup> (NPS) relative to peers



Retail sales development



Charging stations for electric vehicles (k)



<sup>1</sup> 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 +3 to +4 means that Vattenfall has improved more than its peers.

# Power Generation

High and stable nuclear and hydro generation – Hydro balance unusually low

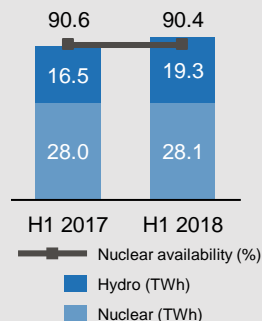
## Highlights – H1 2018

SEK bn	H1 2018	H1 2017
Net Sales	45,551	40,397
Underlying operating profit	6,487	5,632

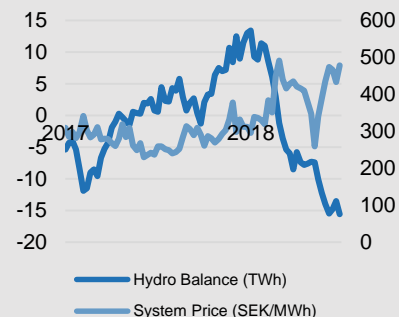
- Increased net sales and underlying operating profit mainly because of higher hydro generation, higher prices and abolished nuclear capacity tax
- Stable electricity generation and high availability
- Hedges largely offsetting impact of higher prices
- Hydro balance/projected inflow of water unusually low due to extremely warm and dry weather
- Balancing services agreement with Facebook

## Key data

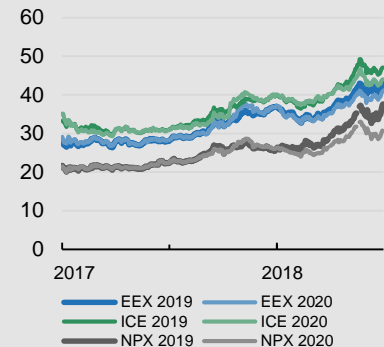
Production and availability



Hydro balance and system price



Electricity futures prices (EUR/MWh)



# Wind

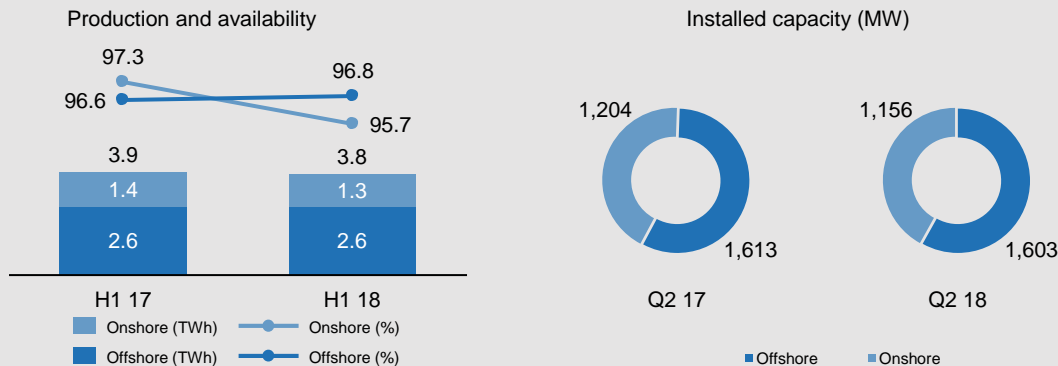
Positive earnings development despite unfavourable wind conditions

## Highlights – H1 2018

SEK bn	H1 2018	H1 2017
Net Sales	5,569	4,593
Underlying operating profit	1,638	1,051

- Increase in net sales and underlying profit as a result of new capacity, higher prices and currency effects
- Lower generation as a result of lower wind speeds across all markets
- Construction start of Blakliden/Fäbodberget (353 MW, onshore, SE). Vestas and PKA as partners. PPA with Norsk Hydro
- Final turbine installed at the European Offshore Wind Deployment Centre in Aberdeen, Scotland
- Installation of a 22 MW battery at Pen y Cymoedd onshore wind farm in the UK completed

## Key data



# Heat

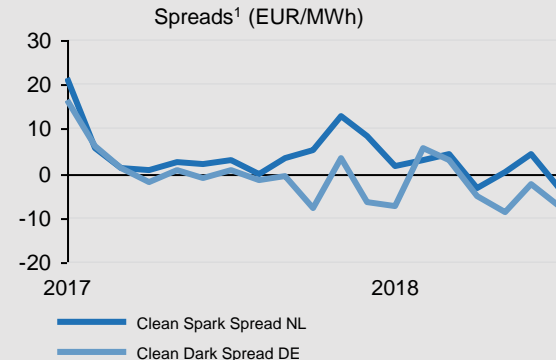
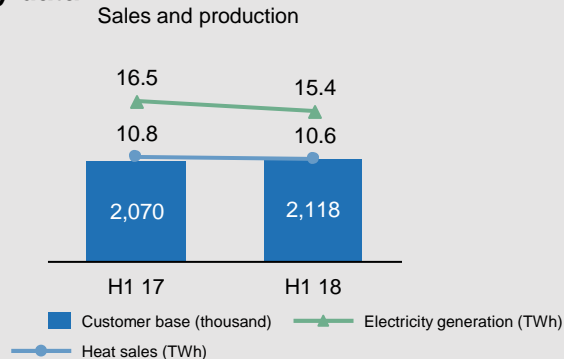
Higher costs for fuel and emission rights leading to lower electricity generation and downward pressure on result development. Slightly lower heat sales and ramp-up of strategic partnerships.

## Highlights – H1 2018

SEK bn	H1 2018	H1 2017
Net Sales	16,124	16,064
Underlying operating profit	1,025	2,717

- Slight increase in net sales as a result of higher prices for electricity and heat as well as positive currency effects
- Underlying operating profit negatively impacted by higher costs for fuels and certificates (~800 SEK bn), resulting in lower electricity generation. Further impacted by one-off items (~800 SEK bn) partly related to CHP subsidies
- Planned early closure of Hemweg 8 coal-fired power plant in the Netherlands
- Energy collaboration with Lindvalls Kaffe in Uppsala to capture excess heat
- Agreement with the City of Berlin on supply of heat to municipal buildings

## Key data



<sup>1</sup> CSS NL with 50% efficiency, CDS DE with 38% efficiency

# Distribution

Stable financial development and continued increase in investments to modernise the grid and enable more electrification

## Highlights – H1 2018

SEK bn	H1 2018	H1 2017
Net Sales	11,421	10,997
Underlying operating profit	3,434	3,341

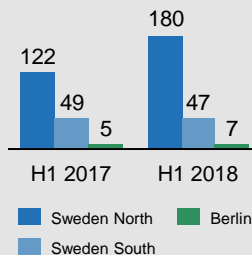
- Increased net sales mainly as a result of higher regulated network tariffs in SE and increased volumes due to cold weather in early 2018
- Slight increase in operating profit due to positive price and volume effects in Sweden, partially offset by higher operating expenses
- Investment report for 2018<sup>2</sup> highlights continued need for investments in the Swedish electricity grid. Vattenfall is progressing with a SEK 20bn investment programme over a five year period
- Development of smart grids. Large-scale test in Norrland, SE, to locate electricity outages faster

<sup>1</sup> Excl. storms and other major weather related outages. 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 H1 2018.

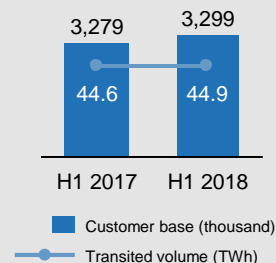
<sup>2</sup> [Link to investment report 2018](#) (Swedish)

## Key data

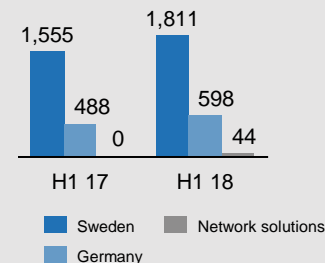
Service level (SAIDI, min)<sup>1</sup>



Customers and volumes



Investments (SEK mn)





# Financials

Anna Borg, CFO



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# Vattenfall H1 Results 2018

## Financial highlights

### Key data

SEK bn	H1 2018	H1 2017
Net Sales	76.3	69.4
EBITDA	17.8	18.5
Underlying operating profit (EBIT)	13.1	13.2
EBIT	9.8	10.5
Profit for the period	7.1	5.9
Funds from Operations (FFO)	12.8	15.1
Cash flow operating activities	16.5	5.6
Net debt	57.8	59.3 <sup>2</sup>
Adjusted net debt	125.2	124.4 <sup>2</sup>
Adjusted net debt/EBITDA (times) <sup>1</sup>	3.7	4.4
<b>Financial targets</b>		
ROCE (≥8%) <sup>1</sup>	7.1	4.2
FFO/adjusted net debt (22-27%) <sup>1</sup>	19.4	22.3

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

<sup>2</sup> As of December 2017

### Key developments

- Profit for the period increased by SEK 1.2 bn to SEK 7.1 bn
- Net sales increased by SEK 6.9 bn to SEK 76.3 bn due to increased sales volumes in the Netherlands, Germany, France and the UK, as well as higher wholesale prices (coupled with FX effects) and hydro generation in the Nordics
- Underlying EBIT stable at SEK 13.1 bn. Higher contributions mainly from Power Generation and Wind offset by lower contribution from Heat
- ROCE at 7.1%. H1 2018 affected by currency effects and fair value adjustments (ROCE excluding fair value adjustments 8.4%)
- FFO/Adjusted net debt at 19.4%. FFO decreased by SEK 2.4 bn mainly due to decreased EBITDA and higher tax paid during 2018

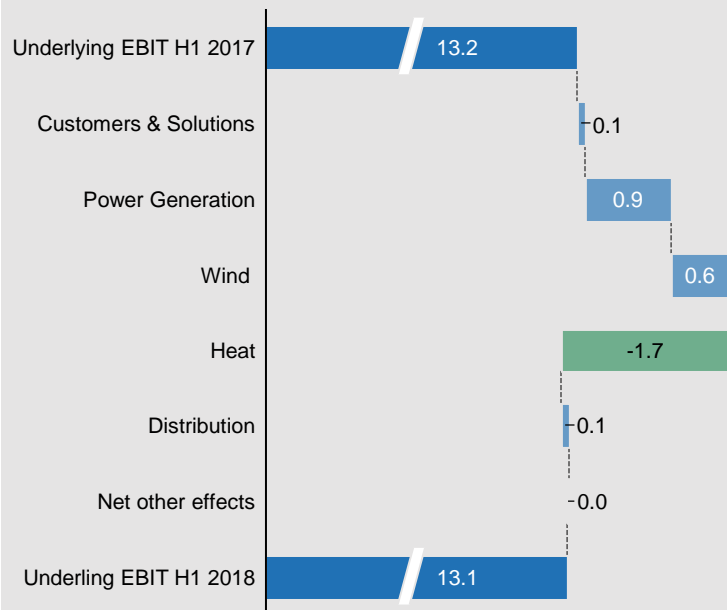


# Development of underlying EBIT H1 2018

Increase in Power Generation and Wind offset by decrease in Heat

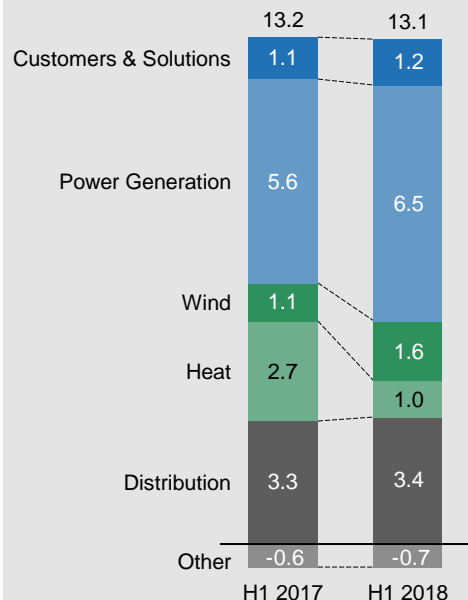
## Change in H1 2018 vs. H1 2017

SEK bn



## Breakdown per operating segment

SEK bn

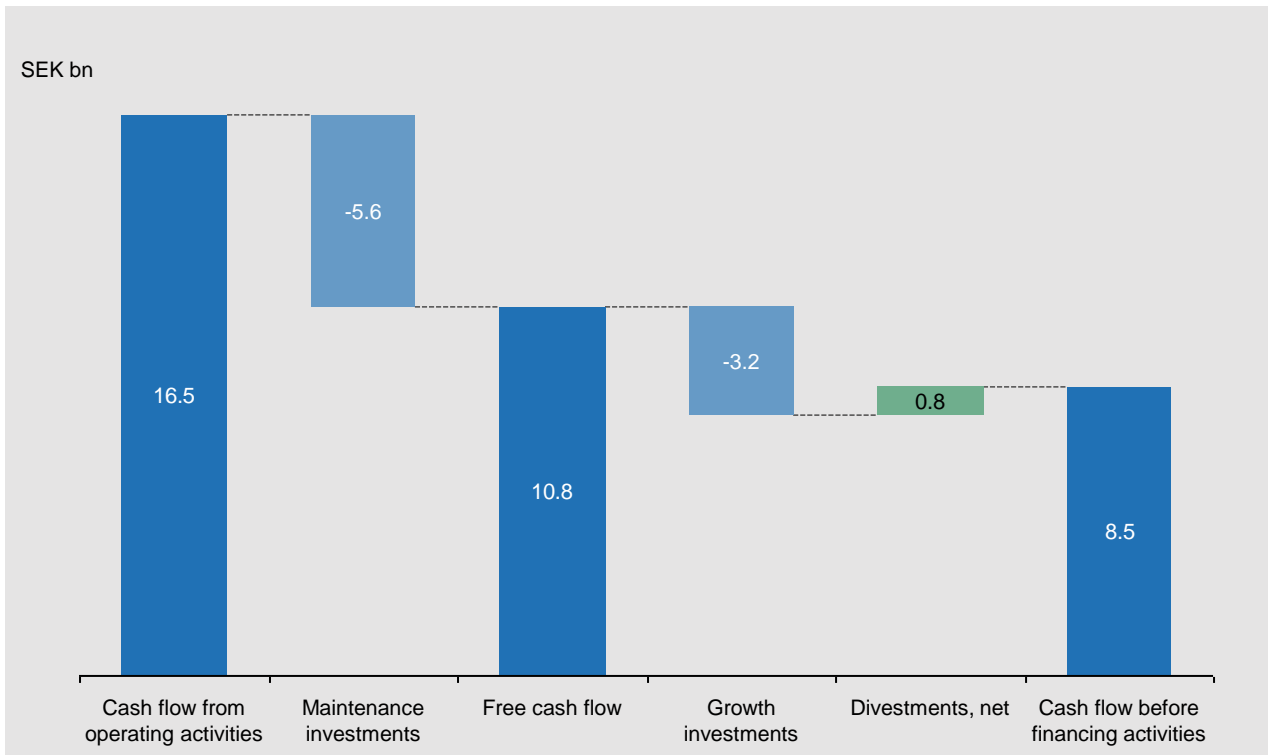


## Highlights

- Customers & Solutions: increased net sales and improved margins, offset by higher operating expenses and UK expansion
- Power Generation: higher hydro generation, higher prices and abolished nuclear capacity tax
- Wind: higher prices, currency effects and new capacity
- Heat: deteriorated spreads (higher costs for fuels and certificates), resulting in lower electricity generation. Further impacted by one-off items partly related to CHP subsidies
- Distribution: positive price and volume effects in Sweden, partially offset by higher operating expenses

# Cash flow development H1 2018

Operating cash flow financing investments with significant margin



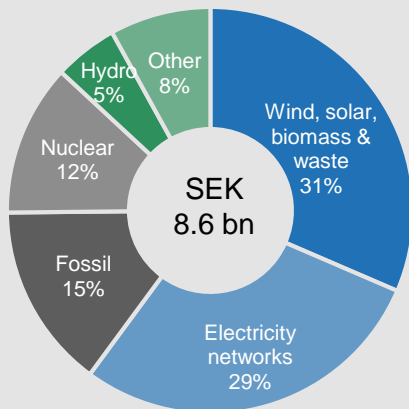
## Highlights

- Solid cash flow from operating activities at SEK 16.5 bn. Positive impact from change in working capital by SEK 3.7 bn, mainly attributable to changes in margin calls and cash development of net receivables/liabilities related to investments in wind power
- Cash flow before financing activities at a high level supported by generally lower investment levels in the first half year
- Growth investments mainly in wind

# Capital expenditures

~80% of investments in the first half year directed to networks and climate smart production technologies

Investments per category, H1 2018



Detailed overview of investments, H1 and Q2 2018

SEK bn	H1 2018	H1 2017	Δ	Q2 2018	Q2 2017	Δ
Hydro	0.4	0.5	-0.1	0.3	0.3	0.0
Nuclear	1.0	0.8	0.2	0.6	0.4	0.1
Fossil	1.3	0.8	0.5	0.6	0.5	0.1
Wind, solar, biomass & waste	2.7	2.7	0.0	1.9	1.7	0.2
Electricity networks	2.5	2.0	0.4	1.4	1.2	0.2
Other	0.7	1.3	-0.6	0.7	0.7	-0.1
<b>Total</b>	<b>8.6</b>	<b>8.1</b>	<b>0.5</b>	<b>5.4</b>	<b>4.9</b>	<b>0.6</b>

# Overview of key figures H1 and Q2 2018

Stable performance in H1 – Weaker underlying result in Q2 impacted by strained market conditions in Heat

Amounts in SEK bn unless indicated otherwise	H1 2018	H1 2017	Q2 2018	Q2 2017
Net sales	76.3	69.4	32.0	29.3
EBITDA	17.8	18.5	6.9	8.7
EBIT	9.8	10.5	2.8	4.4
Underlying operating profit (EBIT)	13.1	13.2	3.8	4.8
Profit for the period	7.1	5.9	3.0	2.1
Electricity generation (TWh)	66.6	64.9	29.4	28.3
Sales of electricity (TWh)	86.0	79.8	36.2	34.6
- of which, customer sales (TWh)	60.6	56.5	28.5	25.4
Sales of heat (TWh)	10.6	10.8	2.4	3.2
Sales of gas (TWh)	33.9	32.0	8.0	8.9
Return on capital employed ( $\geq 8\%$ ) <sup>1</sup>	7.1	4.2	7.1	4.2
FFO/adjusted net debt (22-27%) <sup>1</sup>	19.4	22.3	19.4	22.3



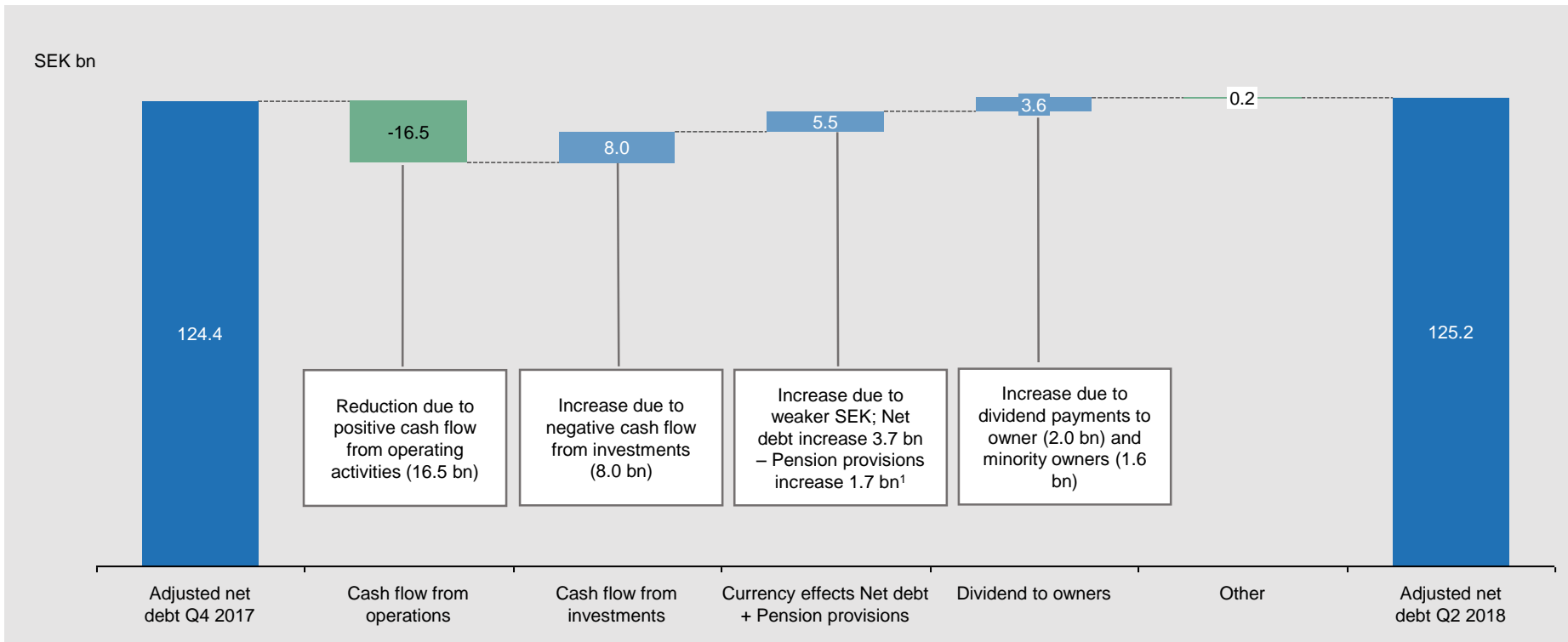
<sup>1</sup> Last 12-month values

# Appendix



# Development of adjusted net debt H1 2018

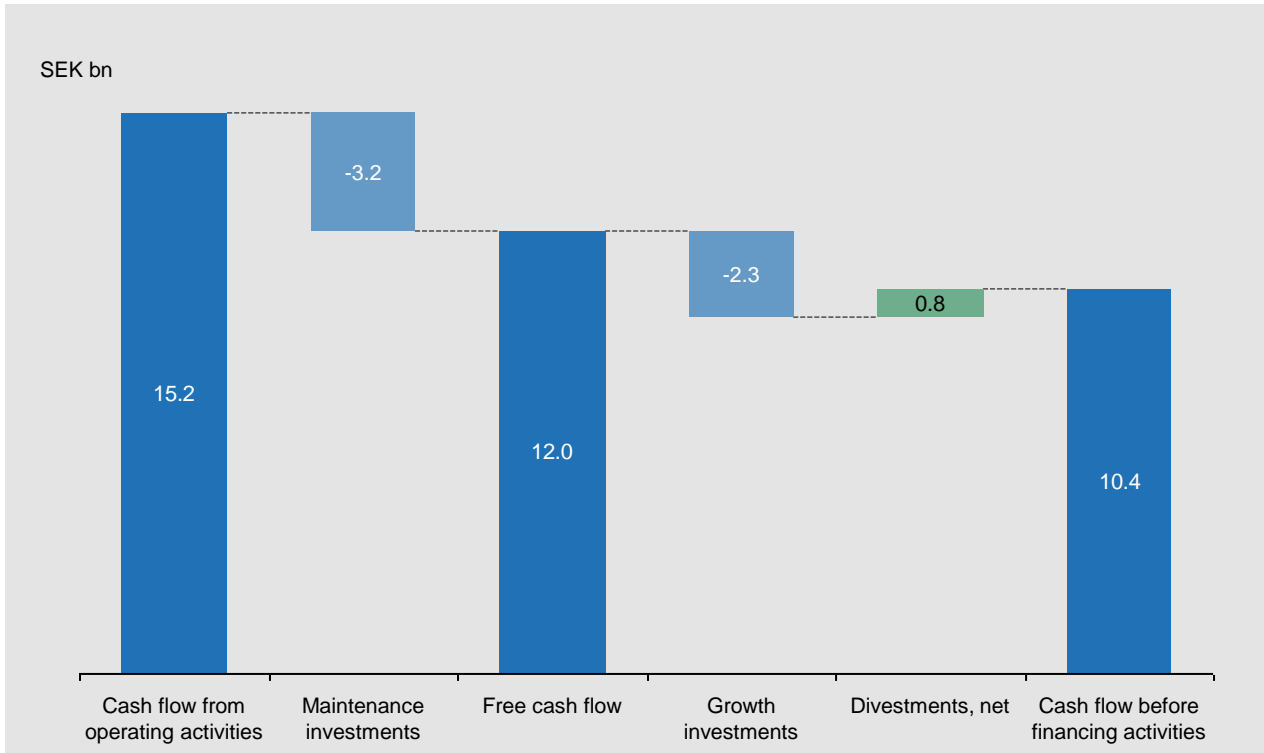
Adjusted net debt negatively affected by a weaker SEK



<sup>1</sup> SEK weakened against EUR (from 9.84 to 10.45); translation of EUR denominated net debt and pension provisions into SEK leads to increase in Adjusted net debt



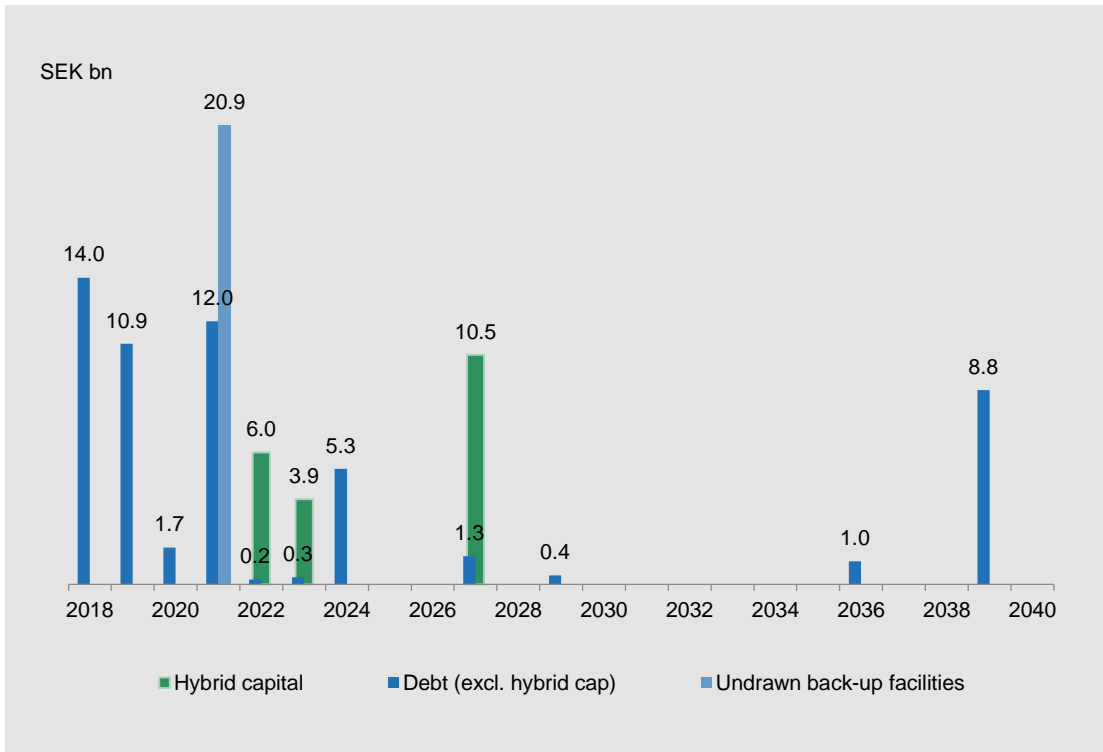
# Cash flow development Q2 2018



## Highlights

- Cash flow from operating activities at SEK 15.2 bn, change in working capital has a positive impact by SEK 11.2 bn mainly attributable to changes in margin calls and cash development of net receivables/liabilities in the Customers & Solutions and Heat operating segments following seasonal patterns, and from investment activities in wind farms

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



	31 Jun. 2018	31 Dec. 2017
Duration (years)	4.7	4.3
Average time to maturity (years)	6.9	6.9
Average interest rate (%)	4.4	4.4
Net debt (SEK bn)	57.8	59.3
Available group liquidity (MSEK)	28.2	19.9
Undrawn committed credit facilities (MSEK)	20.9	19.7

**Cumulative maturities excl. undrawn back-up facilities**

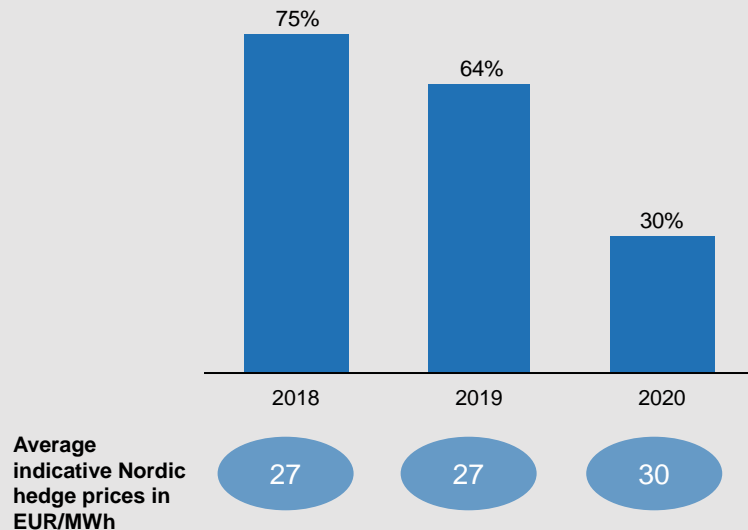
	2018- 2020	2021- 2023	From 2024
Debt incl. hybrid capital	26.6	22.4	27.4
<i>% of total</i>	35%	29%	36%

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



Sensitivity analysis – Continental<sup>2</sup> portfolio

Market quoted	+/- 10% price impact on future profit before tax, MSEK <sup>3</sup>			Observed yearly volatility
	2019	2020	2021	
Electricity	+/- 1,513	+/- 1,397	+/- 1,449	15% - 19%
Coal	-/+ 360	-/+ 303	-/+ 268	20% - 28%
Gas	-/+ 768	-/+ 713	-/+ 652	14% - 16%
CO <sub>2</sub>	-/+ 278	-/+ 318	-/+ 347	35% - 47%

<sup>1</sup> Nordic: SE, DK, NO, FI

<sup>2</sup> Continental: GE, NL, UK

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

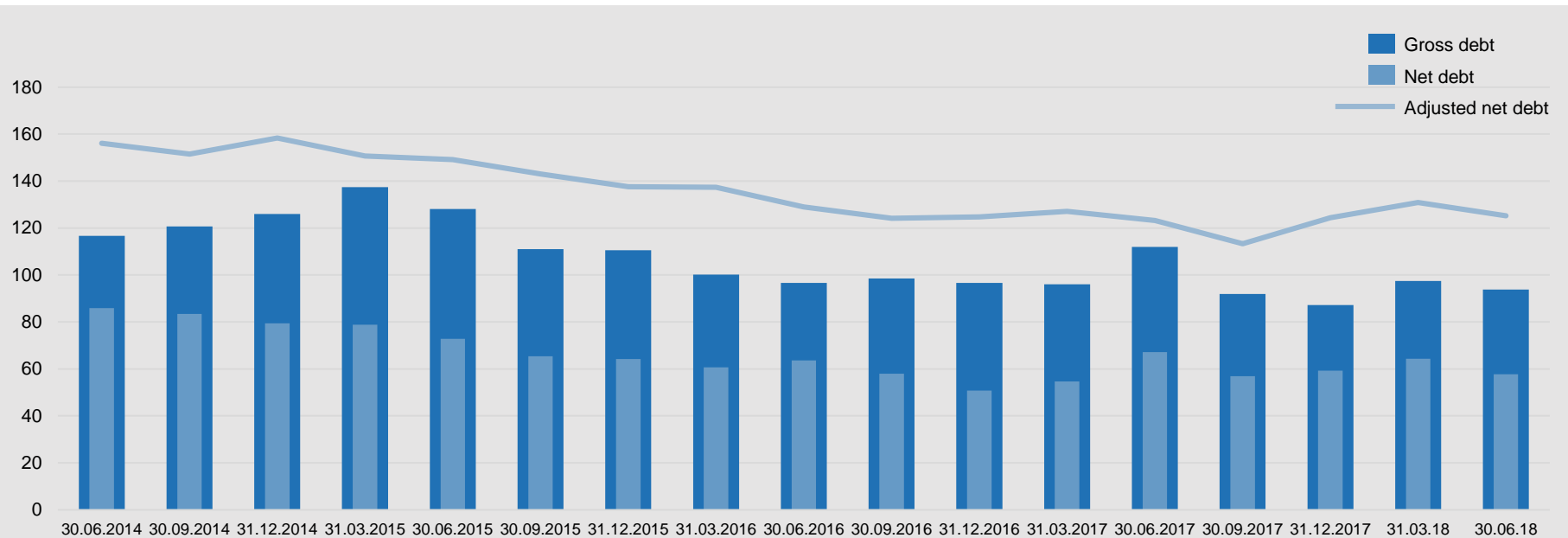
# Liquidity position

<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	15.7	RCF (maturity Dec 2021)	2.0	20.9
Short term investments	19.8	Total undrawn		20.9
<b>Reported cash, cash equivalents &amp; short term investments</b>	<b>35.4</b>	<b>Debt maturities<sup>2</sup></b>		<b>SEK bn</b>
Unavailable liquidity <sup>1</sup>	-7.3	Within 90 days		13.4
<b>Available liquidity</b>	<b>28.2</b>	Within 180 days		14.0

<sup>1</sup> German nuclear "Solidarvereinbarung" 3.8 SEK bn, Margin calls paid (CSA) 2.6 SEK bn, Insurance "Provisions for claims outstanding" 0.9 SEK bn

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

# Debt development

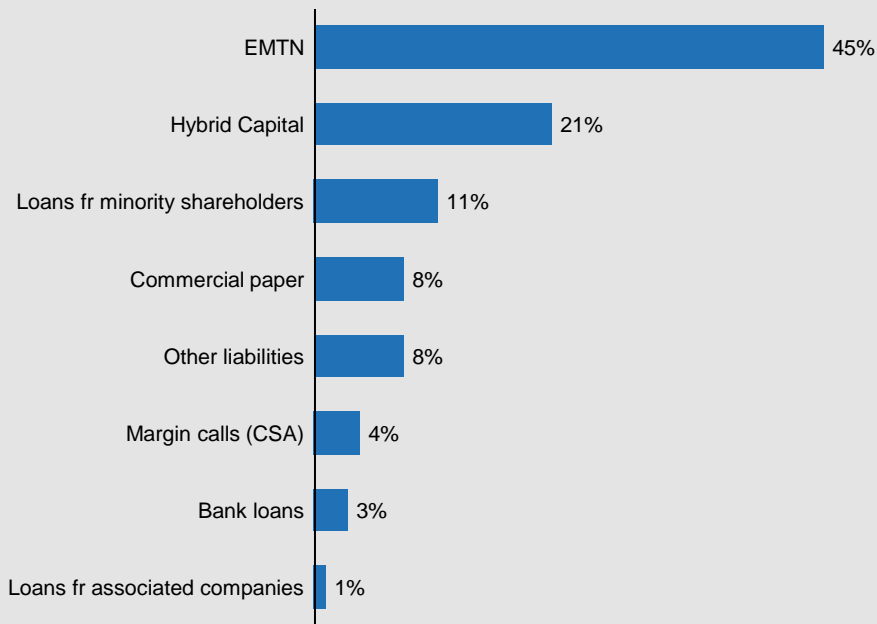


Net debt improved by SEK 1.5 bn compared with the level at 31 Dec. 2017. Adjusted net debt increased by SEK 0.8 bn to SEK 125.2 bn at 30 June 2018. For the calculation of adjusted net debt, see slide 23.

# Breakdown of gross debt

Total debt: SEK 93.8 bn (EUR 9.2 bn)

External market debt: SEK 82.7 bn (EUR 8.1 bn)



Debt issuing programmes	Size (EUR bn)	Utilization (EUR bn)
EUR 10bn Euro MTN	10.0	3.7
EUR 2bn Euro CP	2.0	1.0
SEK 15bn Domestic CP	1.4	0.0
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

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

# Reported and adjusted net debt

Reported net debt (SEK bn)	31 Jun. 2018	31 Dec. 2017	Adjusted net debt (SEK bn)	31 Jun. 2018	31 Dec. 2017
Hybrid capital	-20.0	-19.1	Total interest-bearing liabilities	-93.8	-87.2
Bond issues and commercial papers and liabilities to credit institutions	-51.6	-52.1	50% of Hybrid capital	10.0	9.6
Liabilities to associated companies	-0.6	-0.5	Present value of pension obligations	-43.7	-42.0
Liabilities to minority shareholders	-10.6	-10.4	Wind & other environmental provisions	-7.1	-6.5
Other liabilities	-11.0	-5.1	Provisions for nuclear power (net)	-31.4	-30.7
<b>Total interest-bearing liabilities</b>	<b>-93.8</b>	<b>-87.2</b>	Margin calls received	3.3	3.3
Reported cash, cash equivalents & short-term investments	35.4	26.9	Liabilities to minority owners due to consortium agreements	9.3	9.2
Loans to minority owners of foreign subsidiaries	0.6	1.0	<b>= Adjusted gross debt</b>	<b>-153.4</b>	<b>-144.3</b>
<b>Net debt</b>	<b>-57.8</b>	<b>-59.3</b>	Reported cash, cash equivalents & short-term investments	35.4	26.9
			Unavailable liquidity	-7.3	-7.0
			<b>= Adjusted cash, cash equivalents &amp; short-term investments</b>	<b>28.2</b>	<b>19.9</b>
			<b>= Adjusted net debt</b>	<b>-125.2</b>	<b>-124.4</b>

# 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	<b>Total Ringhals: 30.4</b>	<b>Total Ringhals: 30.4<sup>1</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: 26.1</b>	<b>Total Forsmark: 17.2</b>	
<b>Total Sweden</b>	<b>6,974</b>	<b>-</b>		<b>56.7<sup>2</sup></b>	<b>47.9<sup>2</sup></b>	<b>35.0<sup>3</sup></b>
Brunsbüttel	771	1977	66.7	11.9	7.9	
Brokdorf	1,410	1986	20.0	0	3.2	
Krümmel	1,346	1984	50.0	7.0	7.0	
Stade <sup>4</sup>	640	1972	33.3	0	1.0	
<b>Total Germany</b>	<b>4,167</b>	<b>-</b>	<b>-</b>	<b>18.9</b>	<b>19.1</b>	
<b>Total SE &amp; DE</b>	<b>11,141</b>			<b>75.6</b>	<b>67.0</b>	

<sup>1</sup> Vattenfall is 100% liability of Ringhals decommissioning, while owning only 70.4%

<sup>2</sup> Total provisions in Sweden (IFRS accounting) include provisions of SEK 0.2 bn related to Ågesta

<sup>3</sup> Vattenfall's share of the Nuclear Waste Fund (book value). IFRS consolidated value is SEK 41.7 bn.

<sup>4</sup> Stade is being dismantled










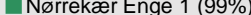


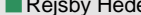


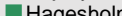


























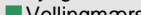


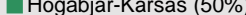



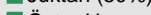

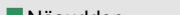
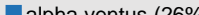
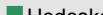
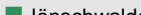



# Impairment history 2009 – H1 2018



SEK bn		2009	2010	2011	2012	2013	2014	2015	2016	2017	H1 2018	Total
The Netherlands	Thermal assets		4.3 <sup>1</sup>	0.4 <sup>2</sup>	8.6 <sup>2</sup>	14.7	2.6		2.8			33.4
	Trading					6.5 <sup>1</sup>	10.0 <sup>1</sup>		0.7			17.2
	Other	1.2	1.2			1.5 <sup>2</sup>	1.9					5.8
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
<b>Impairments</b>		<b>5.5</b>	<b>11.1</b>	<b>11.3</b>	<b>12.3</b>	<b>30.1</b>	<b>23.8</b>	<b>36.8</b>	<b>33.8</b>	<b>0.4</b>	<b>0.0</b>	<b>165.1</b>
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
<b>Impairments (net)</b>		<b>4.2</b>	<b>9.8</b>	<b>10.9</b>	<b>12.3</b>	<b>30.1</b>	<b>23.8</b>	<b>36.3</b>	<b>32.9</b>	<b>0.4</b>	<b>0.0</b>	<b>160.7</b>

<sup>1</sup> Impairment of goodwill

<sup>2</sup> Impairment of assets and goodwill

# Wind - Installed capacity (MW<sup>1</sup>) H1 2018

	Onshore <sup>2</sup>	Offshore	Total						
United Kingdom	396	590	986	 Thanet	300	 Horns Rev 1 (60%)	158	 NoordzeeWind (50%)	108
Denmark	245	158	403	 Ormonde (51%)	150	 Klim (98%)	67	 Princess Alexia	122
The Netherlands	241	108	349	 Kentish Flats	90	 Nørrekær Enge 1 (99%)	30	 Eemmeerdiik	17
Sweden	255	111	366	 Kentish Flats Extension	50	 Rejsby Hede	23	 Irene Vorrink	17
Germany	19	636	655	 Pen Y Cymoedd	228	 Hagesholm	23	 Jaap Rodenburg	17
<b>Total (MW)</b>	<b>1,156</b>	<b>1,603</b>	<b>2,759</b>	 Ray	54	 Nørre Økse Sø	17	 Windpoort (40%)	13
				 Edinbane	41	 Tjæreborg Enge	17	 Hoofdplaatpolder (70%)	10
				 Clashindarroch	37	 Hollandsbjerg	17	 Reyndersweg (50%)	9
				 Swinford	22	 Bajlum (89%)	15	 Echteld	8
				 Parc Cynog incl. Solar <sup>2</sup>	9	 DræbyFed	9	 De Bjirmen	6
				 Pendine	5	 Ryå	8	 Oom Kees (12%)	6
				<b>Installed capacity (MW)</b>	<b>986</b>	 Ejsing (97%)	7	 Oudendijk	5
						 Nordjyllandsværket	6	 Mariapolder	5
				<b>Sweden – certificate scheme</b>		 Lyngmose	5	 Hiddum Houw	4
				 Lillgrund	111	 Vellingmærsk	1	 Enkhuizen	2
				 Stor-Rotliden	78	<b>Installed capacity (MW)</b>	<b>403</b>	<b>Installed capacity (MW)</b>	<b>349</b>
				 Högabjär-Kärsås (50%)	38				
				 Höge Väg (50%)	38	<b>Germany – EEG scheme</b>			
				 Hjuleberg (50%)	36	 DanTysk (51%)	288		
				 Juktan (50%)	29	 Sandbank (51%)	288		
				 Östra Herrestad	16	 alpha ventus (26%)	60		
				 Näsudden	11	 Jänschwalde	12		
				 Hedeskoga	6	 Westküste (20%)	7		
				 Other assets <sup>3</sup>	3	<b>Installed capacity (MW)</b>	<b>655</b>		
				<b>Installed capacity (MW)</b>	<b>366</b>				

 Offshore  
 Onshore  
 % Vattenfall ownership

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

Minority shares included as 100%

<sup>2</sup> 5 MW Solar

<sup>3</sup> Kulle (1 MW), Stenkyrka (1 MW), Ruuthsbo (1 MW)

# 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	UK	Aberdeen	93	ROC	X	20 yrs	100	2018	Under construction, commissioning ongoing, first power to grid on Jul-02.
	DK	Horns Rev 3	406	FIT	X	50.000hrs	100	2019	Under construction
	NL	Slufterdam	29	SDE+	X	15yrs	100	2019	Under construction
	NL	Wieringermeer	180	SDE+	X	15yrs	100	2020	Under construction
	SE	Blakliden + Fäbodberget	353	Certs	N/A	15yrs	100	2021/2022	Under construction
<b>Total 1,061 MW</b>									
Development	NL	Wieringermeer ext.	~115	SDE+	X	15 yrs	100	2020	Procurement
	NL	Moerdijk	~21	SDE+	X	15 yrs	100	2020	Procurement
	NL	Haringvliet	~21	SDE+	X	15 yrs	100	2020	Procurement
	NL	Nieuwe Hemweg	~19	SDE+	X	15 yrs	100	2020	Procurement
	UK	South Kyle	~200	-	N/A	-	100	2022	Procurement
	DK	NK II	~120	-	N/A	-	100	2022	EIA expected in Q3 2018
	NL	Hollandse Kust Zuid 1 & 2	~700	-	X	-	100	2022	Permit awarded Q1 -18, preparing for procurement
	DK	Danish Near Shore	344	FIT	X	50.000hrs	100	2020	Procurement
	DK	Kriegers Flak	605	FIT	X	50.000hrs	100	2021	Procurement
	UK	Thanet Extension	272	CFD		15 yrs	100	2024	Early planning, application for a Development Consent Order submitted
Offshore	UK	Norfolk Vanguard	1.800	CFD		15 yrs	100	2027	Early planning, application for a Development Consent Order submitted
Onshore	UK	Norfolk Boreas	1.800	CFD		15 yrs	100	2028	Concept/Early planning
<b>Total &gt;6GW</b>									

# Solar & batteries

## Large scale solar pipeline

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status	
Construction	NL	Velsen	2.3	SDE+	X	15 full-load yrs	100	2018	Construction started	
	NL	Eemshaven	5.5	SDE+	X	15 full-load yrs	100	2018	Preparing for construction	
	NL	Hemweg	2.4	SDE+	X	15 full-load yrs	100	2018	Preparing for construction	
Development	NL	Haringvliet	38	SDE+	X	15 full-load yrs	100	2019	Subsidy received and working towards TG2	
	NL	Floriade	4	SDE+	X	15 full-load yrs	100	2019	Subsidy received and working towards TG2	
	NL	Wieringermeer	28	SDE+		15 full-load yrs	100	2020	Preparing for permit and bid submission	
	NL	Oudendijk	15	SDE+		15 full-load yrs	100	2019	Preparing for permit and bid submission	
	NL	Echteld1	5	SDE+		15 full-load yrs	100	2019	Preparing for permit and bid submission	
	NL	Diemen	1.9	SDE+		15 full-load yrs	100	2019	Preparing for permit and bid submission	
	NL	Kooypunt	12	SDE+		15 full-load yrs	100	2019	Preparing for permit and bid submission	
	NL	Bijrmen	15	SDE+		15 full-load yrs	100	2019	Preparing for permit and bid submission	
	DE	Kogel West	10	EEG auction	X	20 yrs	100	2019	Preparing for permit and bid submission	
			TG0 projects	> 350				100	>2019	Early development and preparing for permit
<b>Total</b>			<b>~500 MW</b>							

# Solar & batteries

## Decentral solar pipeline

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Construction	DE	PV@VF sites	Max. 5.6	EEG (small scale)	X	20 years	100	2018	FID for program / not all sites permitted yet / profitability check per site
	DE	Tenant electricity/ Mieterstrom	Max. 1.2	EEG / Tenant electricity	X	20 years	100	2018	FID / Framework agreement signed / BA Heat will be asset owner
	DE	B2B customers – direct sale	Max. 2	EEG / own consumption	X	20 years	0	2018	FID for program / not all contracts signed yet
	DE	B2B customers – roof rent	Max. 2	EEG / own consumption	X	20 years	100	2018	FID for program / not all contracts signed yet
	NL	B2B customers – direct sale / Leasing	Max. 2	SDE+		15 Full-load yrs	0	2018	FID for program / not all contracts signed yet
	NL	Merin / Direct sale	9	SDE+	X	15 Full-load yrs	0	2018 / 2019	Contract signed
Development	DE	Tenant electricity/ Mieterstrom		EEG / Tenant electricity		20 years	100	2018 / 2019	Product sales
	DE	B2B customers – direct sale		EEG / own consumption		20 years	0	2018 / 2019	Product sales
	DE	B2B customers – roof rent		EEG / own consumption		20 years	100	2018 / 2019	Product sales
	NL	B2B customers – direct sale / Leasing		SDE+		Full-load yrs	0	2019	Product sales
			<b>Total ~21 MW</b>						

# Solar & batteries

## Batteries – installed capacity and pipeline

	Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Ownership (%)	Commissioning	Current status
Installed	UK	Battery @ PyC	22	EFR and CM	X	1-4 yrs EFR 5-15 CM	100	2018	Operational since May 2018
	NL	Battery @ Alexia	3	FCR	weekly	15 years	100	2018	Preparing for commissioning
Construction	DE	Hafenbatterie	1	Cooperation with BMW and Bosch; FCR	weekly		100	2018	Preparing for commissioning
	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	Construction ongoing
	DE	Decentral - Pilot project	1	No support scheme → Peak shaving			100	2018	Construction ongoing
	DE	Decentral		No support scheme → Peak shaving			100	2018 / 2019	Sales of product
Development	NL	Alexia extension	9	FCR	weekly	16 years	100	2019	Prepare for TG2 decision
	NL	Battery @ Haringvliet	3	FCR	weekly	16 years	100	2020	Prepare for TG2 decision
			<b>Total</b>						
			<b>~40 MW</b>						

PCR – Primary Control Reserve

CM – Capacity Mechanism

EFR – Enhanced Frequency response

FCR - Frequency Response Regulation