

# Vattenfall Q1 Results 2020

29 April 2020

Magnus Hall, CEO

Anna Borg, CFO



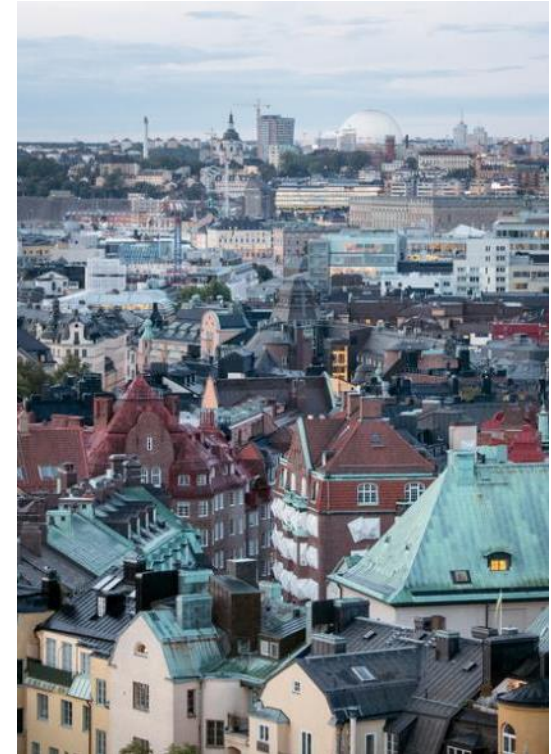
VATTENFALL

# Vattenfall Q1 Results 2020

## Opening remarks

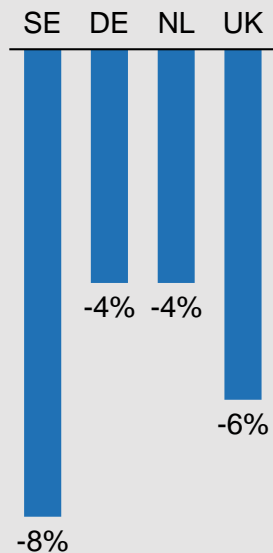
- Solid operational readiness for pandemic scenario - business continuity plans implemented
  - A stable quarter in spite of a clear impact from weakened market conditions
  - Covid-19 puts additional pressure on market, supply chain, operations and customers
- Underlying EBIT increased by SEK 0.5 bn to SEK 10.2 bn
    - Major impact from storm “Alfrida” in Q1 2019
    - Deteriorating electricity prices resulting in lower earnings in nuclear and hydro
    - Positive contribution from new wind capacity (mainly Horns Rev 3) and stronger winds
    - Higher earnings in sales business driven by German market
    - Continued margin pressure in fossil generation
- Profit for the period increased by SEK 0.5 bn to SEK 6.9 bn, mainly driven by the higher underlying operating result and a one-off effect from sale of nuclear production rights in Germany, partly mitigated by a lower return from the Swedish nuclear waste fund
- Dividend proposal from the Board of Directors revised from SEK 7.2 billion to SEK 3.6 billion due to uncertain market conditions. Approved at the Annual General Meeting.

FY 2019

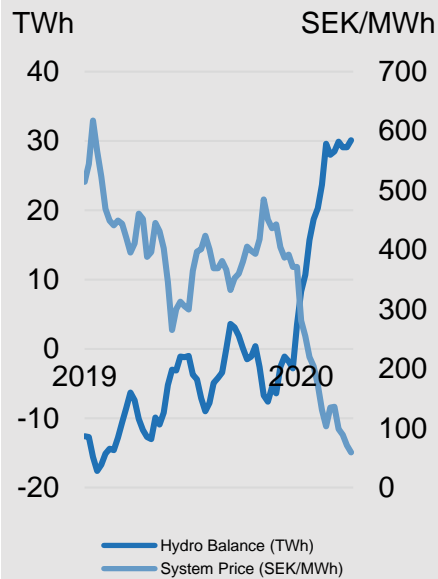


# Deteriorating market trends

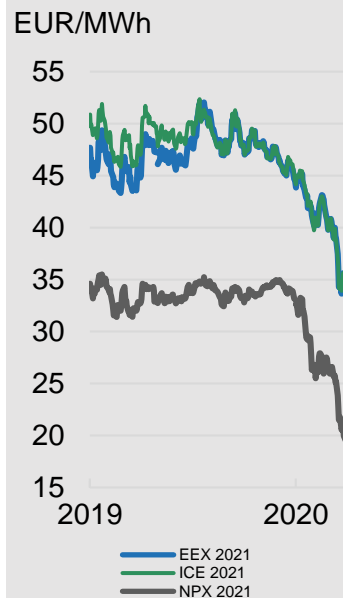
**Demand in core markets in Q1**  
4-8% below normal level<sup>1</sup>



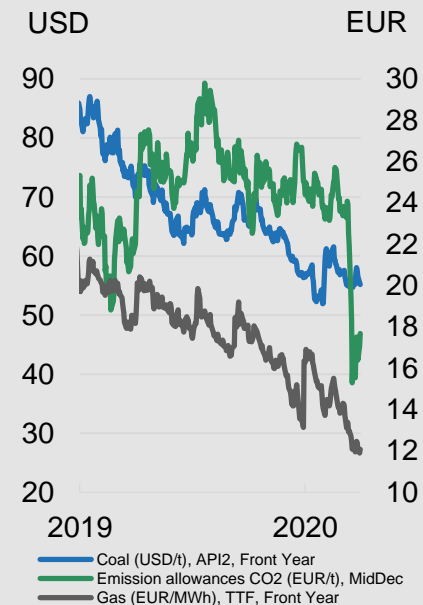
**Mild, wet and windy weather and sharply falling electricity spot prices in the Nordics**



**Electricity futures down over 40% in Nordics and 25% in Continental vs 2019 level**



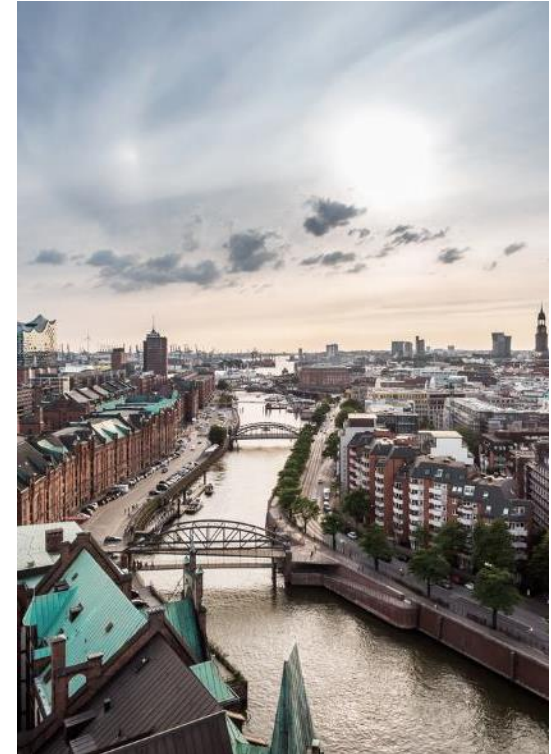
**Steep decline in commodity prices**



<sup>1</sup> Source: Wattsight. YTD deviation vs. level in a year with average demand.

# Mitigating actions

- Health and safety measures in response to Covid-19 secured through rules and travel restrictions. Early actions aimed at limiting the spread of the disease and minimizing risk for our employees.
- Business continuity secured through a coordinated approach involving all operating segments. Actions range from reviewing operating shifts, increasing IT capacity and amending rules at the workplace.
- Output lowered at several nuclear power reactors. Delayed restart of Ringhals 1 until after summer.
- Ongoing work to align costs, investments and risks to dramatically deteriorated market conditions.



# Vattenfall Q1 Results 2020

## Overview

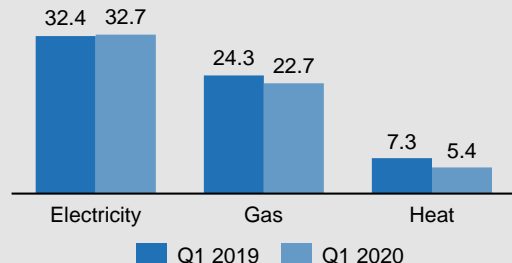
### Result development

SEK bn	Q1 2020	Q1 2019	Δ
Net Sales	48.2	49.6	-3%
EBITDA	16.9	12.6	+34%
Underlying operating profit (EBIT)	10.2	9.7	+5%
EBIT	12.3	8.2	+51%
Profit for the period	6.9	6.4	+7%

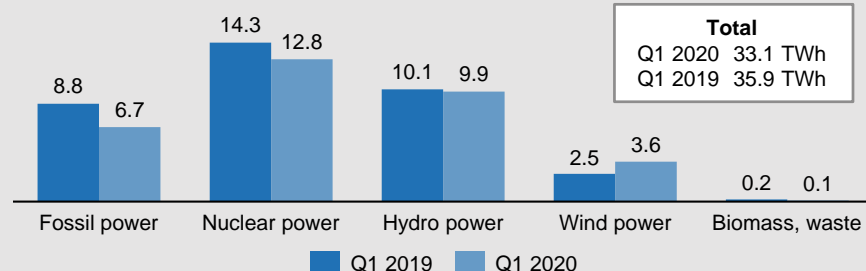
### Financial targets

	Q1 2020	Q1 2019
Return on capital employed <sup>1</sup> (≥8%)	9.4	7.1
FFO/adjusted net debt <sup>1</sup> (22-27%)	25.2	18.1

### Customer sales (TWh)



### Electricity production (TWh)



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

# Customers & Solutions

Improved earnings mainly driven by strong contribution from Germany

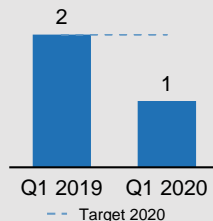
## Highlights

SEK million	Q1 2020	Q1 2019
Net Sales	26,280	26,687
Underlying operating profit	1,019	397

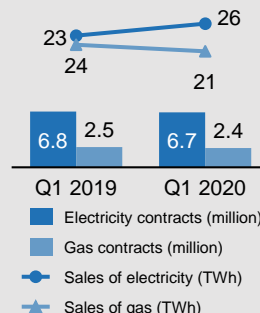
- Slight decrease in net sales following lower prices in the Nordics and the Netherlands as well as lower volumes on the same markets due to warmer weather
- Underlying operating profit increased mainly driven by a strong contribution from the German market and lower depreciation in the Netherlands (customer contracts from the Nuon acquisition fully depreciated)
- UK energy retail and e-mobility businesses sold to EDF and Statkraft, respectively
- E-mobility partnership with lubricant manufacturer Castrol in Germany
- Initiative launched in Germany to increase the share of green electricity contracts

## Key data

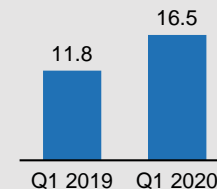
Net Promoter Score<sup>1</sup> (NPS) relative to peers



Retail sales development



Charging points for electric vehicles (thousand)



<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.



# Power Generation

Hydrological balance well above normal puts pressure on electricity prices

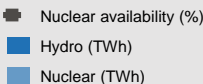
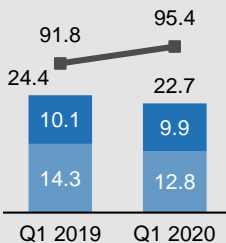
## Highlights

SEK million	Q1 2020	Q1 2019
Net Sales	26,244	34,479
Underlying operating profit	4,557	5,438

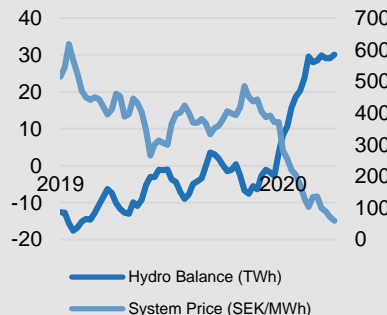
- Net sales decreased due to lower prices in the Nordic countries and lower internal sales partly offset by a positive hedge result and currency effects
- Underlying operating profit decreased mainly due to lower prices achieved in the Nordic countries, partly countered by higher realised earnings from the trading operations
- Down-regulation at several nuclear reactors and, following revision, restart of Ringhals 1 postponed until after summer
- Lower production mainly due to closure of Ringhals 2
- 11 TWh of nuclear production rights sold in Germany

## Key data

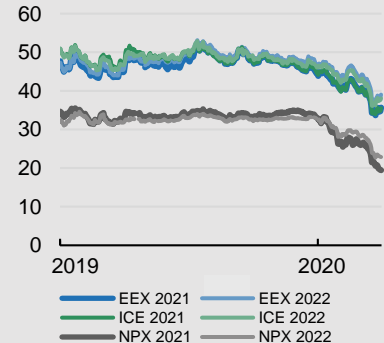
Production and availability



Nordic hydro balance and system price



Electricity futures prices (EUR/MWh)



# Wind

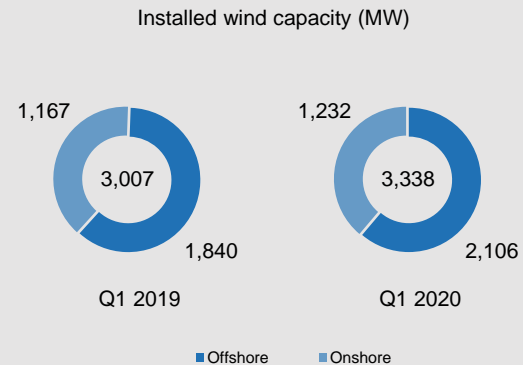
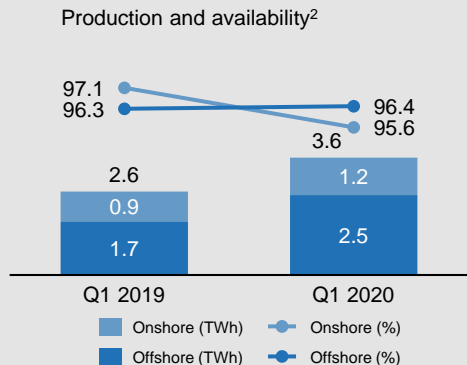
Significant result increase supported by record production and new wind farms

## Highlights

SEK million	Q1 2020	Q1 2019
Net Sales	4,732	3,657
Underlying operating profit	2,146	1,486

- Net sales and underlying operating profit increased as a result of additional capacity<sup>1</sup> and stronger winds
- The Danish Energy Agency (DEA) granted final permit for the Kriegers Flak offshore wind farm (605 MW), as the construction continues on schedule
- Construction of Wieringermeer onshore wind farm complex (303 MW) continuing on schedule
- Vattenfall decided not to participate in the Hollandse Kust Noord tender process
- First electricity generated from the large-scale solar energy project (7 MW) in Coevorden, Netherlands
- Post Q1: South Kyle onshore wind farm (240 MW, UK) FID and partnership with Greencoat, who will acquire the wind farm following its construction

## Key data



<sup>1</sup> New capacity mainly from Horns Rev 3 (407 MW)

<sup>2</sup> Revenue based availability



# Heat

Expansion of energy solutions and district heating parallel with margin pressure in condensing business

## Highlights

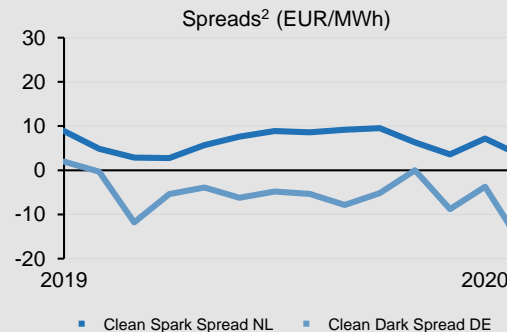
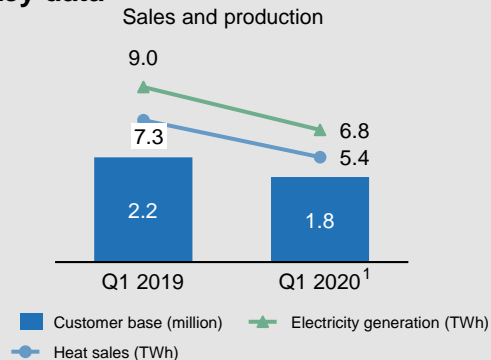
SEK million	Q1 2020	Q1 2019
Net Sales	7,052	10,537
Underlying operating profit	880	1,530

- Net sales and underlying operating profit decreased mainly due to sale of district heating operations in Hamburg and the closure of Hemweg 8. These effects impacted net sales by SEK 1.8 bn underlying operating profit by SEK 0.5 bn
- Unfavourable clean dark spreads and clean spark spreads contributed to lower electricity production
- Heat sales lower as a result of warmer weather
- Vattenfall selected as the preferred energy partner for a district heating project in Midlothian in Scotland
- Contract to build one of Sweden's largest solar parks in Uppsala
- Majority share (55%) in the Rugenberger Damm waste incineration plant in Hamburg sold to the plant's other partner, Stadtreinigung Hamburg. Closing expected in May, 2020

<sup>1</sup> Impacted by the sale of district heating operations in Hamburg

<sup>2</sup> CSS NL with 52% efficiency, CDS DE with 38% efficiency

## Key data



# Distribution

Mild winter storms brought operational costs back to normal level

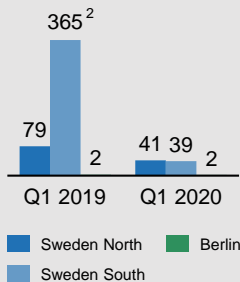
## Highlights

SEK million	Q1 2020	Q1 2019
Net Sales	6,144	6,132
Underlying operating profit	2,074	1,267

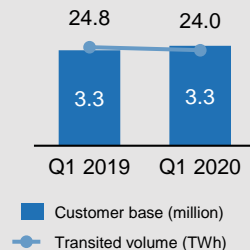
- Net sales largely unchanged as higher revenues from the Swedish regional network was offset by lower volumes in the local network as well as a lower contribution from Germany
- The underlying profit increased due to lower operating costs, that were elevated last year due to the impact of the storm “Alfrida”
- Investments increased by 44% compared to the same period last year
- Procurement finalised of smart meters meeting the new Swedish functional requirements
- Contract to build the largest battery storage facility in the Nordics, in Uppsala

## Key data

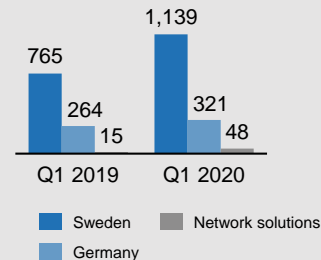
Service level (SAIDI, min)<sup>1</sup>



Customers and volumes



Investments (SEK million)



<sup>1</sup> All outages longer than 1 second in medium and low voltage networks are included  
City grid in Berlin results in lower SAIDI. Vattenfall's Swedish grid covers both urban areas and large rural areas.

<sup>2</sup> SAIDI in Q1'19 for Sweden South was driven by the storm “Alfrida”

# Financials

Anna Borg, CFO



VATTENFALL

# Vattenfall Q1 Results 2020

## Financial highlights

### Key data

SEK bn	Q1 2020	Q1 2019
Net Sales	48.2	49.6
EBITDA	16.9	12.6
Underlying operating profit (EBIT)	10.2	9.7
EBIT	12.3	8.2
Profit for the period	6.9	6.4
Funds from Operations (FFO)	12.2	9.8
Cash flow operating activities	-8.5	-11.0
Net debt	81.6	72.5
Adjusted net debt	148.3	134.4
Adjusted net debt/EBITDA <sup>1</sup> (times)	3.2	3.7
<b>Financial targets</b>		
ROCE <sup>1</sup> (≥8%)	9.4	7.1
FFO/adjusted net debt <sup>1</sup> (22-27%)	25.2	18.1

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

### Key developments

- Net sales decreased by SEK 1.4 bn to SEK 48.2 bn mainly attributable to lower spot prices and lower heat income
- Underlying EBIT increased by SEK 0.5 bn mainly due to the impact of the storm "Alfrida" in Q1 2019, a growing wind portfolio and stronger winds as well as improvement in the sales business driven by the German market. Partly countered by deteriorating electricity prices and continued margin pressure in fossil generation
- Profit for the period increased by SEK 0.5 bn to SEK 6.9 bn, mainly driven by the higher operating result and a one-off effect from sale of nuclear production rights in Germany
- ROCE at 9.4% mainly as a result of higher gross margin in Power Generation and Wind, capital gain from divestment of Hamburg district heating (SEK 3.1 bn) and sale of German nuclear production rights
- FFO/Adjusted net debt increased to 25.2%, mainly as a result of higher FFO due to higher EBITDA. Main drivers were positive effects from hedging activities, sale of German nuclear production rights, lower costs in Distribution and increased capacity in Wind

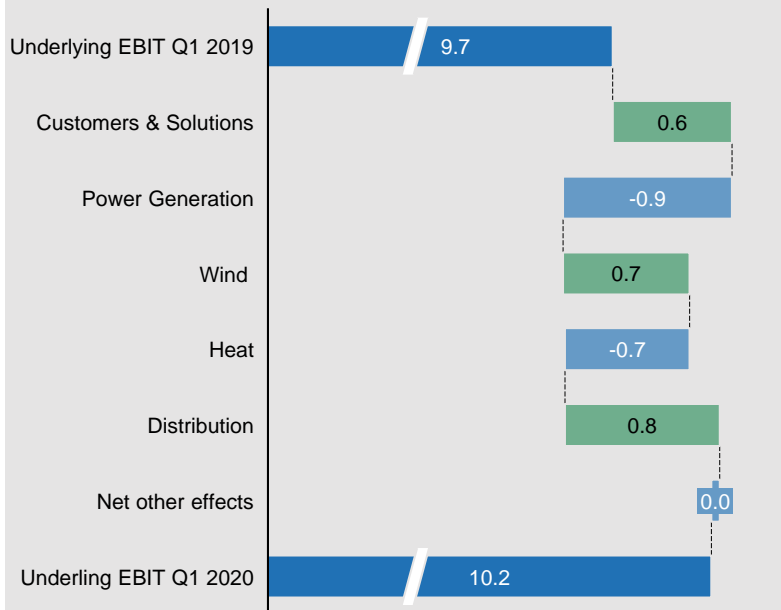


# Development of underlying EBIT Q1 2020

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

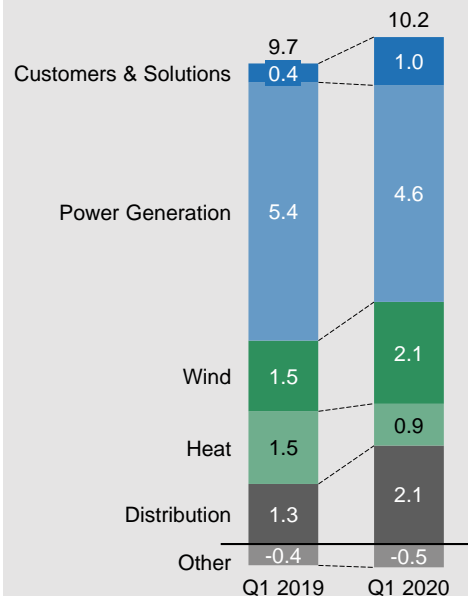
## Change in Q1 2020 vs. Q1 2019

SEK bn



## Breakdown per operating segment

SEK bn

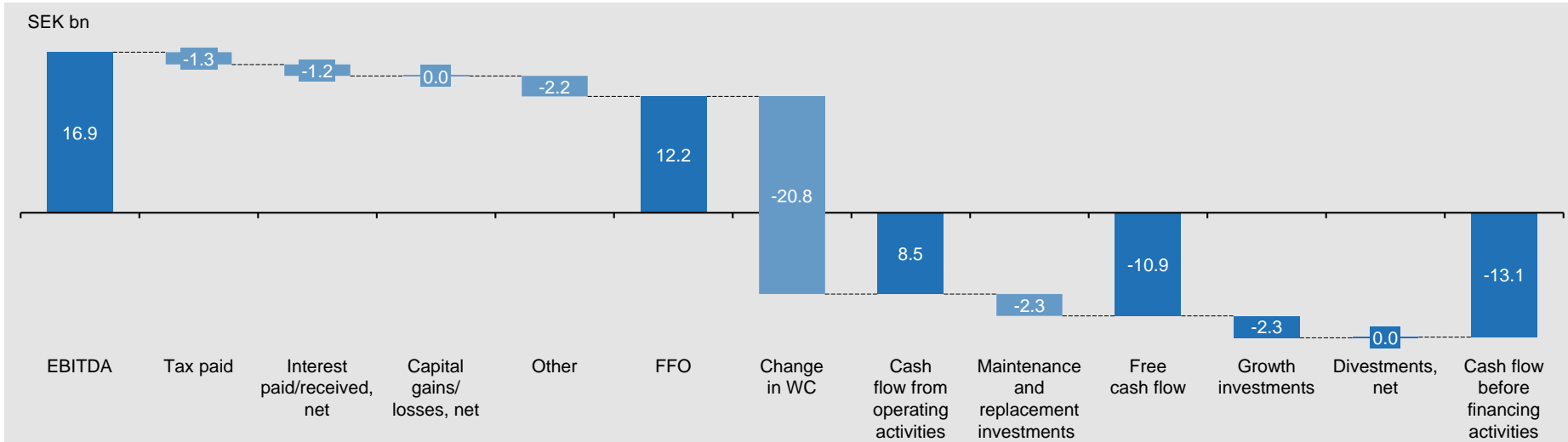


## Highlights

- Customers & Solutions: strong contribution from the German market and lower depreciation in the Netherlands (customer contracts from the Nuon acquisition fully depreciated)
- Power Generation: lower achieved prices, partly countered by higher realised earnings from trading operations
- Wind: additional capacity (Horns Rev 3) and strong winds
- Heat: effects from sale of district heating operations in Hamburg and the closure of Hemweg 8. Unfavorable clean dark and clean spark spreads contributed to lower electricity production. Heat sales lower as a result of warmer weather
- Distribution: lower operating costs following the storm "Alfrida" in Q1 2019

# Cash flow development Q1 2020

Change in working capital impacted by increased margin calls and seasonality effects



## Main effects

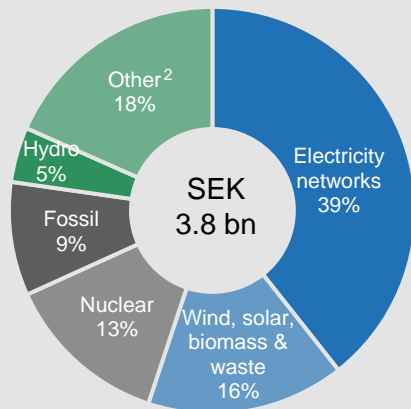
- Lower forward power prices was the main driver of increased margin calls (SEK -8.4 bn), i.e. marginal security covering the counterpart's credit risk
- Seasonality in net change in operating receivables and liabilities in the Customers & Solutions and Heat operating segments (SEK -6.6bn)
- Increased stock of CO2 emission allowances, to be handed in to authorities in April (SEK -5.1bn)



# Capital expenditures

Majority of investments directed to renewables and networks

Investments per category, Q1 2020



Detailed overview of investments, Q1 2020

SEK bn	Q1 2020	Q1 2019	Δ	FY 2019
Hydro	0.2	0.2	-5%	0.9
Nuclear	0.5	0.6	-17%	2.2
Fossil <sup>1</sup>	0.3	0.3	-6%	2.6
Wind, solar, biomass & waste	0.6	1.6	-60%	7.7
Electricity networks	1.5	1.0	44%	7.1
Other <sup>2</sup>	0.7	1.3	-48%	4.4
<b>Total</b>	<b>3.8</b>	<b>5.0</b>		<b>24.9</b>

<sup>1</sup> 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)

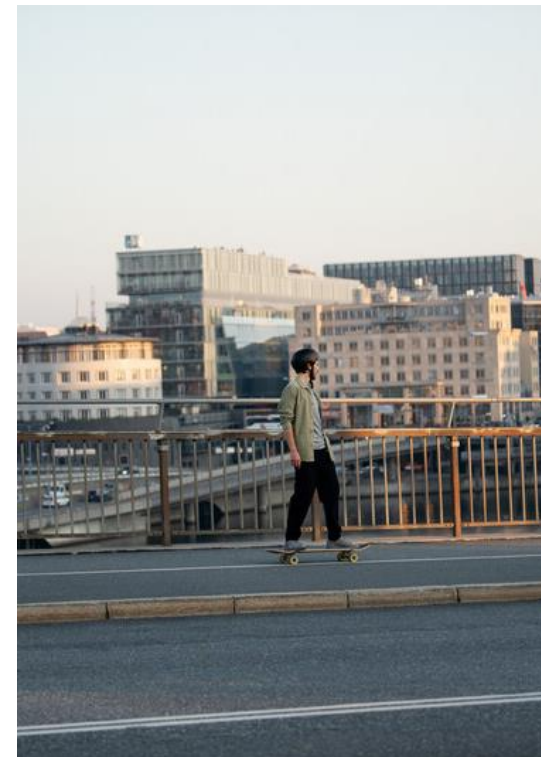
<sup>2</sup> Investments mainly related to Energy Solutions, infrastructure for district heating and Carpe Futurum.

# Overview of key figures Q1 2020

Amounts in SEK bn unless indicated otherwise	Q1 2020	Q1 2019	FY 2019	Last 12 months
Net sales	48.2	49.6	166.4	165.0
EBITDA	16.9	12.6	42.4	46.8
EBIT	12.3	8.2	22.1	26.3
Underlying operating profit (EBIT)	10.2	9.7	25.1	25.6
Profit for the period	6.9	6.4	14.9	15.3
Electricity generation (TWh)	33.1	35.9	130.2	127.4
Sales of electricity (TWh)	45.5	45.4 <sup>2</sup>	169.4	169.5
- of which, customer sales (TWh)	32.7	32.4	119.0	119.3
Sales of heat (TWh)	5.4	7.3	17.1	15.2
Sales of gas (TWh)	22.7	24.3	59.2	57.6
Return on capital employed (≥8%)	9.4 <sup>1</sup>	7.1 <sup>1</sup>	8.5	9.4
FFO/adjusted net debt (22-27%)	25.2 <sup>1</sup>	18.1 <sup>1</sup>	26.5	25.2

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

<sup>2</sup> The value has been adjusted compared with information previously published in Vattenfall's financial reports.

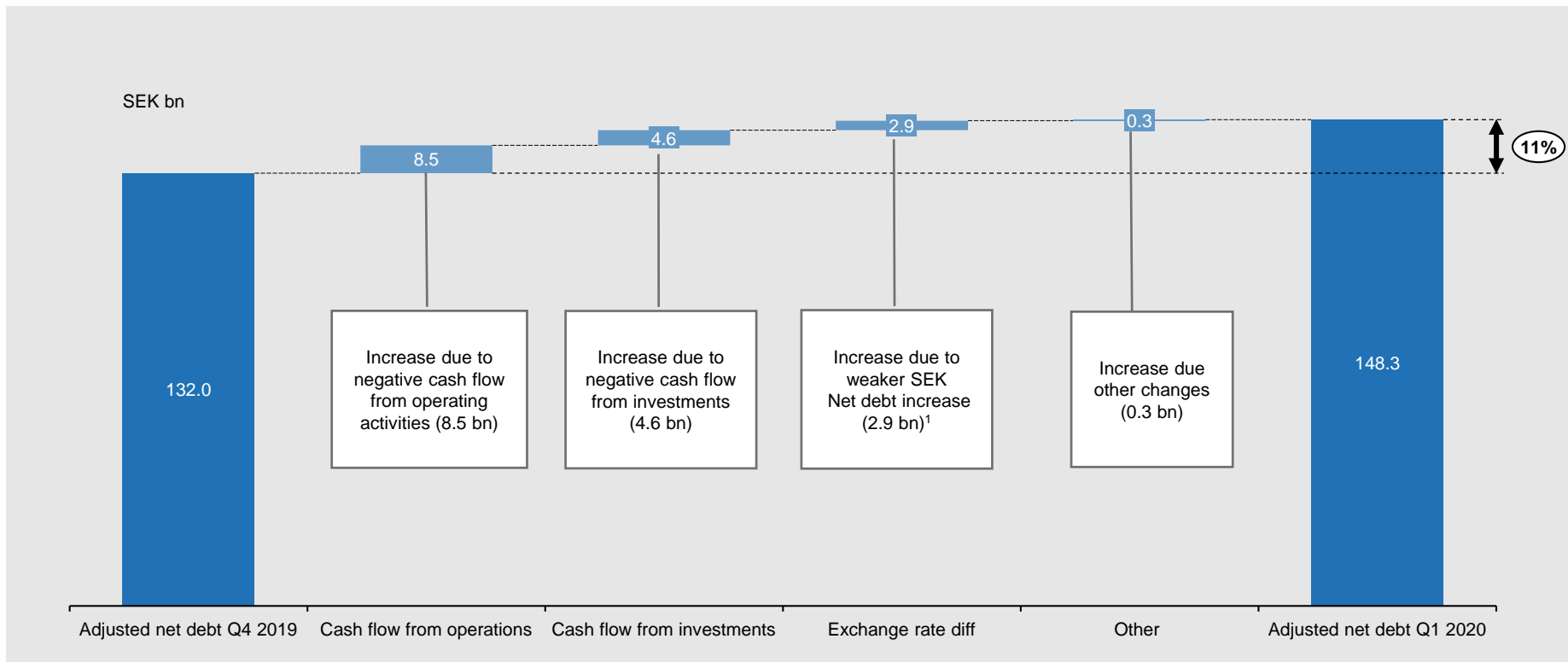


# Appendix



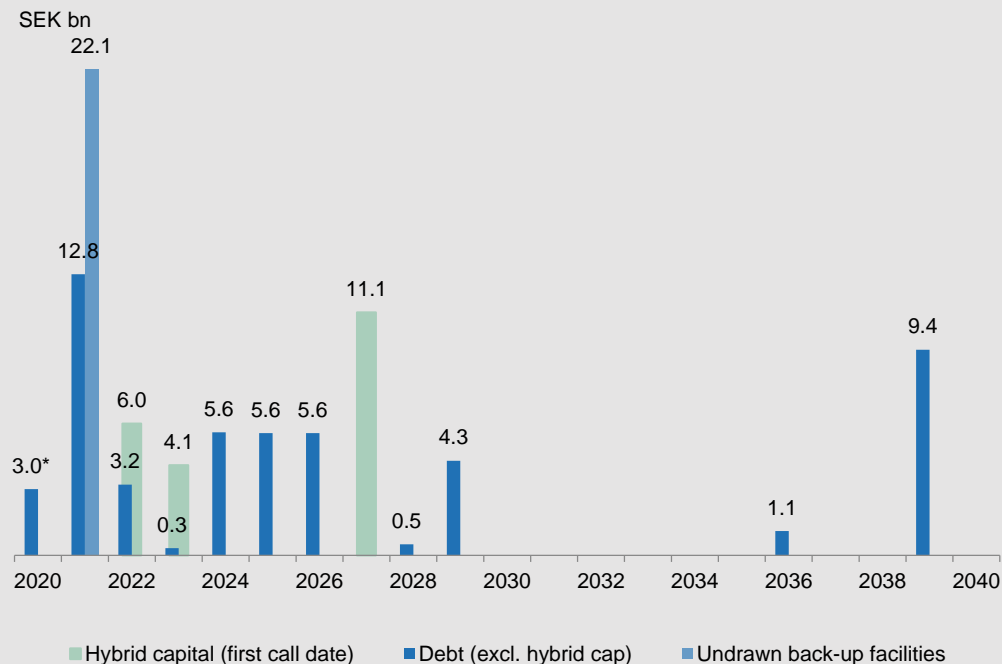
# Development of adjusted net debt YTD 2020

Adjusted net debt increase mainly due negative cashflow after investments and negative translation effects.



<sup>1</sup> SEK weakened against EUR (from 10.45 to 11.06); translation of EUR denominated net debt into SEK leads to increase in Adjusted net debt

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



\* Short term debt are excluded (Repo, ECP and SCP) (20,2)

<sup>1</sup> 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 Mar. 2020	31 Dec. 2019
Duration (years)	4.6	4.7
Average time to maturity (years)	6.2	6.8
Average interest rate (%)	3.6	4.0
Net debt (SEK bn)	81.6	64.3
Available group liquidity (MSEK)	27.8	29.3
Undrawn committed credit facilities (MSEK)	22.1	21.4

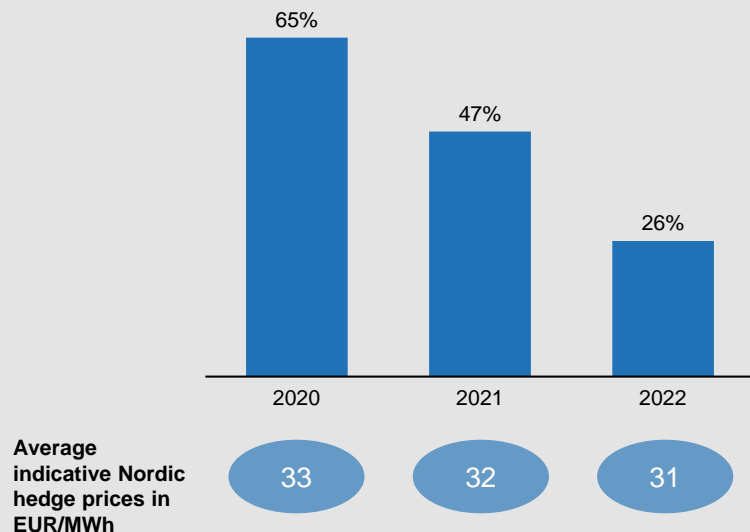
## Cumulative maturities excl. undrawn back-up facilities

	2020- 2022	2023- 2025	From 2026
Debt incl. hybrid capital	25.0	15.6	32.0
<i>% of total</i>	34%	22%	44%

# 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



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

	Q1 2020	Q1 2019	FY 2019
	27	36	32

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

Market quoted	+/- 10% price impact on future profit before tax, MSEK <sup>3</sup>			Observed yearly volatility
	2020	2021	2022	
Electricity	+/- 846	+/- 1,311	+/- 1,343	18% - 22%
Coal	-/+ 77	-/+ 137	-/+ 120	19% - 22%
Gas	-/+ 433	-/+ 538	-/+ 694	20% - 26%
CO <sub>2</sub>	-/+ 175	-/+ 303	-/+ 292	41% - 42%

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

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

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



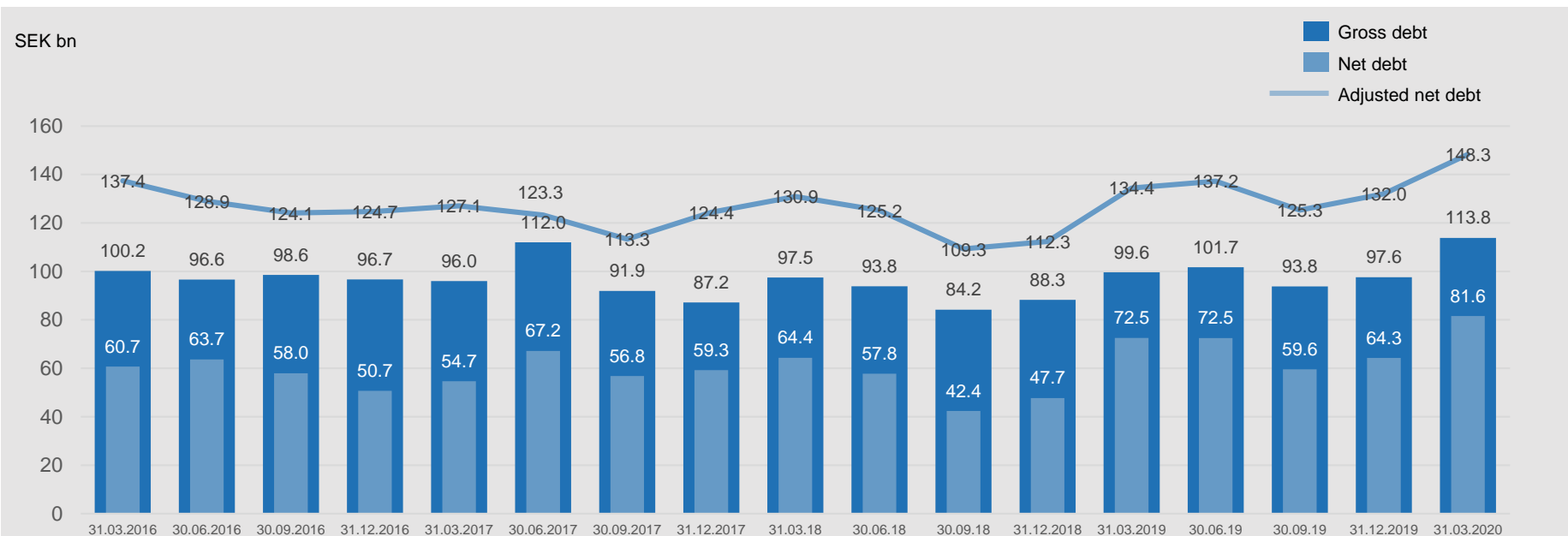
# Liquidity position

<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	8.7	RCF (maturity Dec 2021)	2.0	21.1
Short term investments	23.0	Total undrawn		21.1
<b>Reported cash, cash equivalents &amp; short term investments</b>	<b>31.7</b>	<b>Debt maturities<sup>2</sup></b>		<b>SEK bn</b>
Unavailable liquidity <sup>1</sup>	-3.9	Within 90 days		19.8
<b>Available liquidity</b>	<b>27.8</b>	Within 180 days		20.6

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

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

# Debt development

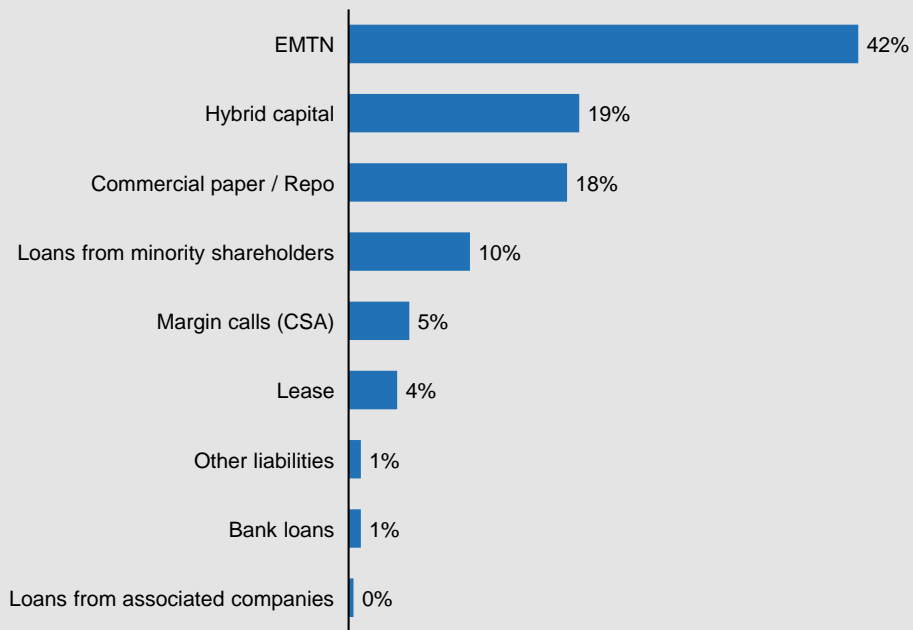


Net debt increased by SEK 17.3 bn compared with the level at 31 December 2019. Adjusted net debt increased to SEK 148.3 bn, SEK 16.3 bn higher compared with the level at 31 December 2019. For the calculation of adjusted net debt, see slide 24.

# Breakdown of gross debt

Total debt: SEK 113.8 bn (EUR 10.3 bn)

External market debt: SEK 102.5 bn (EUR 9.3 bn)



Debt issuing programmes	Size (EUR bn)	Utilization (EUR bn)
EUR 10bn Euro MTN	10.0	3.7
EUR 4bn Euro CP	4.0	1.3
Total	14.0	5.0

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

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

# Reported and adjusted net debt

Reported net debt (SEK bn)	31 Mar. 2020	31 Dec. 2019	Adjusted net debt (SEK bn)	31 Mar. 2020	31 Dec. 2019
Hybrid capital	-21.1	-20.2	Total interest-bearing liabilities	<b>-113.8</b>	<b>-97.6</b>
Bond issues and liabilities to credit institutions	-49.3	-38.8	50% of Hybrid capital	10.5	10.1
Commercial papers and Repos	-20.2	-17.2	Present value of pension obligations	-42.7	-44.0
Liabilities to associated companies	-0.6	-0.7	Wind & other environmental provisions	-9.0	-8.6
Liabilities to minority shareholders	-10.8	-10.6	Provisions for nuclear power (net)	-37.8	-35.5
Lease liabilities	-4.5	-4.6	Margin calls received	5.8	3.7
Other liabilities	-7.3	-5.2	Liabilities to minority owners due to consortium agreements	10.8	10.6
<b>Total interest-bearing liabilities</b>	<b>-113.8</b>	<b>-97.6</b>	<b>= Adjusted gross debt</b>	<b>-176.1</b>	<b>-161.3</b>
Reported cash, cash equivalents & short-term investments	31.7	33.2	Reported cash, cash equivalents & short-term investments	31.7	33.2
Loans to minority owners of foreign subsidiaries	0.6	0.2	Unavailable liquidity	-3.9	-3.9
<b>Net debt</b>	<b>-81.6</b>	<b>-64.3</b>	<b>= Adjusted cash, cash equivalents &amp; short-term investments</b>	<b>27.8</b>	<b>29.3</b>
			<b>= Adjusted net debt</b>	<b>-148.3</b>	<b>-132.0</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: 33.9</b>	<b>Total Ringhals: 33.9<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: 29.5</b>	<b>Total Forsmark: 19.4</b>	
<b>Total Sweden</b>	<b>6,974</b>	<b>-</b>		<b>66.0<sup>2</sup></b>	<b>54.6<sup>2</sup></b>	<b>37.3<sup>3</sup></b>
Brunsbüttel	771	1977	66.7	12.7	8.5	
Brokdorf	1,410	1986	20.0	0	3.7	
Krümmel	1,346	1984	50.0	7.9	7.9	
Stade <sup>4</sup>	640	1972	33.3	0	1.0	
<b>Total Germany</b>	<b>4,167</b>	<b>-</b>	<b>-</b>	<b>20.6</b>	<b>21.1</b>	
<b>Total SE &amp; DE</b>	<b>11,141</b>			<b>86.6</b>	<b>75.7</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 0.5 bn (pro rata SEK 0.3 bn considering share in Studsviks-fonden) related to Ågesta, and SEK 2.3 bn (pro rata SEK 0.9 bn considering share in Studsviks-fonden) related to SVAFO

<sup>3</sup> Vattenfall's share of the Nuclear Waste Fund. IFRS consolidated value is SEK 44.3 bn.

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

# Impairment history 2009 – 2019

SEK bn		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	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				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
<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>0.1</b>	<b>0.0</b>	<b>165.2</b>
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
<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>0.1</b>	<b>0.0</b>	<b>160.8</b>

<sup>1</sup> Impairment of goodwill

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



# Wind & Solar - Installed capacity (MW<sup>1</sup>) Q1 2020

	Solar	Onshore	Offshore	Total
United Kingdom	5	391	687	1.083
Denmark	0	237	565	802
The Netherlands	29	341	108	478
Sweden	0	244	110	355
Germany	3	19	636	658
<b>Total (MW)</b>	<b>37</b>	<b>1.232</b>	<b>2.106</b>	<b>3.375</b>



## 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	407
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
Lyngmose	5

**Installed capacity (MW) 802**

## 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	101
Slufterdam	29
Eemmeerdijk	17
Irene Vorrink	17
Hoofdplaatpolder (70%)	10
Reyndersweg (50%)	9
Echteld	8
Coevorden	7
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) 478**

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

# 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	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
	NL	Jaap Rodenburg	38	SDE+	X	15 yrs	100	2021	Procurement
	SE	Blakliden + Fäbodberget	353	Certs	N/A	-	30	2022	Under construction
<b>Total 1774 MW</b>									
Development	UK	South Kyle	240	-	N/A	-	100	2022	Construction starting 2020
	DK	NK II	~150	-	N/A	-	100	2021	Permitting phase
	DK	Nørre Økse Sø	~40	-	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 projects	3.600	CFD		15 yrs	100	2027	Early planning, application for a Development Consent Order submitted
<b>Total &gt;5GW</b>									

■ 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	In operation
	NL	Coevorden	6.5	SDE+	X	15 full-load yrs	100	2019	Handover to O&M
	NL	Haringvliet	37.9	SDE+	X	15 full-load yrs	100	2020	Construction started
	<b>Total 54.4 MW</b>								
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
	<b>Total 14.5 MW</b>								
Decentral solar Construction	DE	PV@VF sites	6.7	EEG	X	20 years	100	2020	
	NL	Direct sale / Leasing	18.9	SDE+	X	15 Full-load yrs	0	2020 / 2021	Contracts signed
<b>Total 25.6 MW</b>									

# 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	Operating
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	Construction started

**Total 42.5 MW**

PFC – Primary Frequency Control

FCR - Frequency Response Regulation

CM – Capacity Mechanism

EFR – Enhanced Frequency response