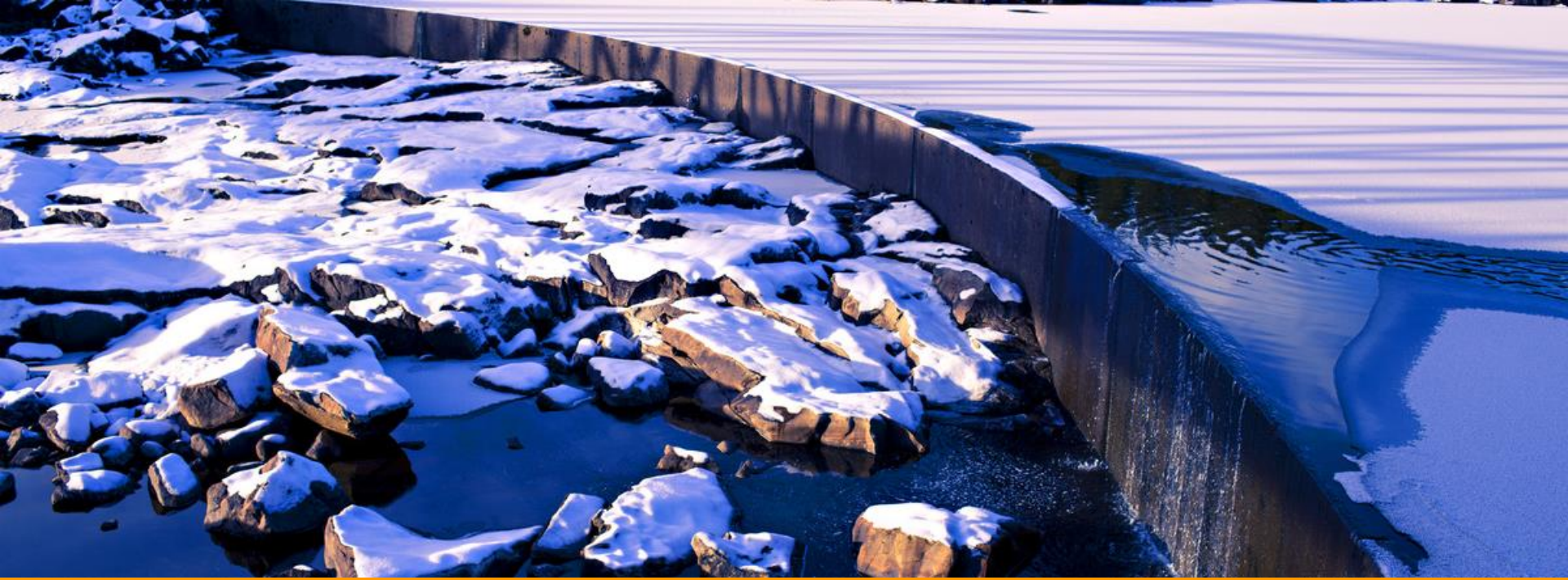


Vattenfall Full Year Results 2016

Magnus Hall, CEO and Stefan Dohler, CFO

Press Conference 7 February 2017

VATTENFALL

HIGHLIGHTS AND KEY FIGURES

Swedish energy agreement
- A deal enabling the future energy system and a prerequisite for a responsible transition towards a 100% renewable system
- Enabling strategic investments in independent core cooling in nuclear

Lignite divestment
- Reshaping the portfolio to concentrate on investments in sustainable energy production

German nuclear
- Transferring long-term responsibility for interim and final storage to the government along with financing

Renewables growth
- Construction start of Horns Rev 3 (400 MW), FID Aberdeen (92 MW), tender won and concession signed for Danish Near Shore (350 MW) and Danish Kriegers Flak (600 MW), commissioning of first large scale solar project and acquired development project Global Tech 2

Customer growth
- Entering the Danish consumer market, inaugurated first wireless bus stop charging in the Nordic region, launching of inCharge – a partner-based charging network in northern Europe

SEK bn	Continuing operations FY 2016	Total Vattenfall FY 2016
Net Sales	139.2 (143.6)	152.7 (164.5)
Underlying EBIT	21.7 (20.5)	21.7 (20.5)
EBIT	1.3 (-5.1)	-21.2 (-23.0)
Profit for the year	-2.2 (-5.2)	-26.0 (-19.8)
ROCE, %	0.5 (-1.8)	-8.5 (-8.2)
ROCE excl. IAC, %	8.7 (7.3)	8.7 (7.4)
FFO/adjusted net debt, %	21.6 (19.5)	22.6 (21.1)

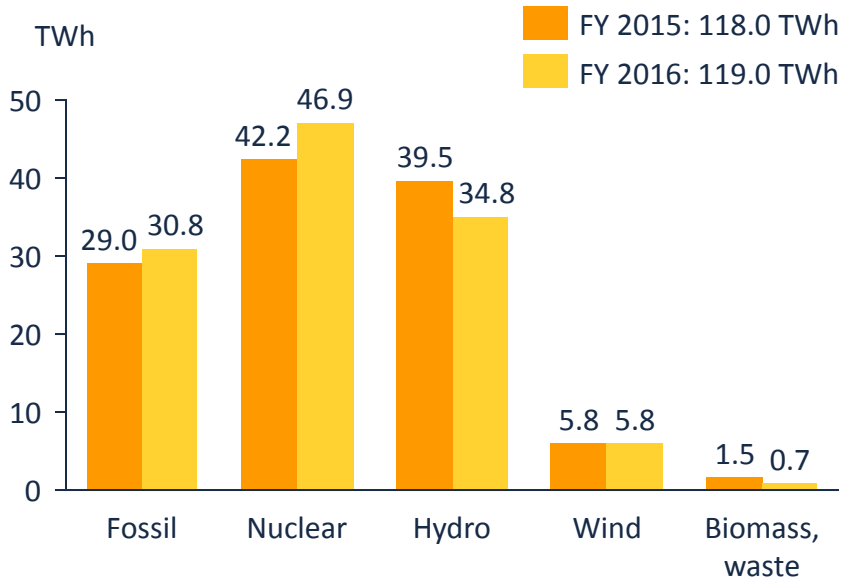
STRATEGIC TARGETS

Our strategic focus areas

Strategic targets to 2020	FY 2016	FY 2015
1. Customer engagement, NPS +2 (Net Promoter Score)	+7	-
2. Commissioned renewables capacity: ≥2,300 MW	297	375
3. Absolute CO_2 emissions, pro rata, continuing operations: ≤21 Mtonnes	23.1	23.6
Absolute CO_2 emissions, pro rata, Total Vattenfall:	67.6	83.8
4. ROCE: ≥9% (continuing operations)	0.5	-1.8
ROCE: ≥9% (Total Vattenfall)	-8.5	-8.2
5. Safety as LTIF (Lost Time Injury Frequency): ≤1,25	2.0	2.3
6. Employee Engagement Index: ≥70%	57	59

STABLE ELECTRICITY GENERATION

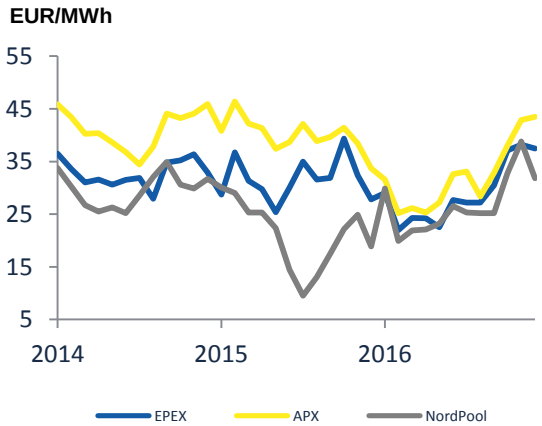
Electricity generation for continuing operations



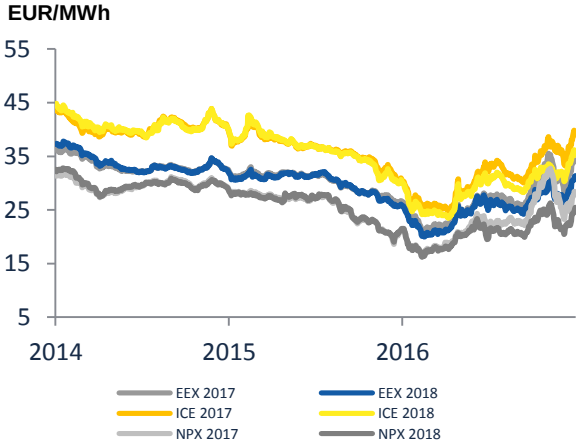
- Stable electricity generation for continuing operations, i.e. excluding lignite operations.
- Hydro power generation decreased as a result of lower reservoir levels. Nordic reservoir levels were 52% (74%) of capacity at the end of the year, which is 5 percentage points below normal.
- Nuclear power generation increased owing to higher availability. The Ringhals 2 reactor (R2) was restarted during the fourth quarter.
- Wind power generation at the same level as in 2015. Less favourable wind conditions offset by commissioning of new wind farms in 2016.
- Electricity generation for Total Vattenfall, including lignite operations, amounted to 159.8 TWh (172.7) for FY 2016.

INCREASED NORDIC SPOT PRICES BUT LOWER ELECTRICITY FUTURE PRICES

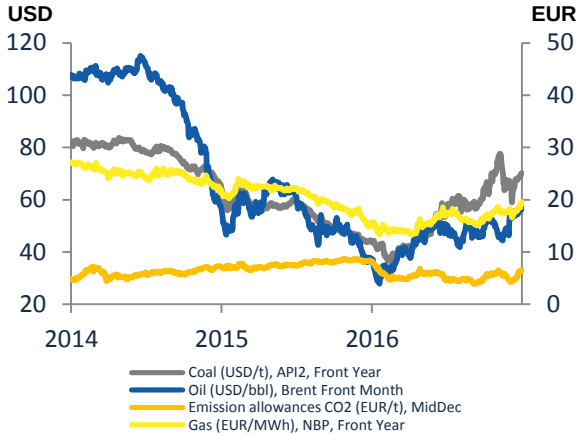
Spot power prices average



Electricity futures



Commodity prices



- Nordic spot prices 28% higher vs. FY 2015 mainly owing to weaker hydrological balance
- German and Dutch spot prices approx. 8% and 19% lower respectively vs. FY 2015
- Electricity futures prices lower in all of Vattenfall's markets but trending upwards
- Lower prices on oil (Brent crude), coal, gas and CO_2 allowances

ELECTRIFICATION IS AN ENABLER FOR SOLVING THE CLIMATE ISSUE

Vattenfall aims to play a leading role given our strong position in heating, renewable generation and our “Nordic” heritage coming from a low-emitting region

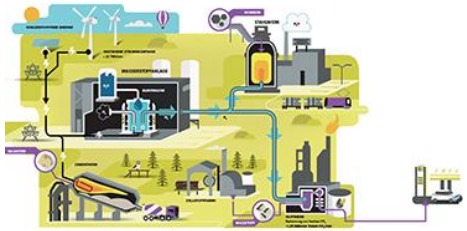
Electrification of the transport sector

- Supports e-mobility growth with resulting reduction of CO_2 as well as solving pollution and noise issues

Electrification of heating

- Energy efficiency achieved by switching from gas, oil or electric boilers to heat pumps or district heating
- Power to heat is an attractive solution to reduce the cost of heating

Electrification of the industry



- Greater use of electricity by industry can lead to fossil free steel, green concrete and boost the production of non-fossil diesel

ELECTRIFICATION OF THE TRANSPORT SECTOR

Electric vehicles (EV) can not only reduce CO_2 emissions, but also have the potential to transform our urban environments by solving pollution and noise issues - strong government support in Vattenfall's core countries. We are also switching our whole car fleet (>3500 vehicles) to EVs.

Sweden

Government ambition:

- 70% reduction in emissions from the transport sector by 2030

Key achievements in 2016:

- 408 charging solutions sold
- 0.5 GWh delivered through established units
- Launched "InCharge" and gained Göteborg Energi as a first partner
- Grew the Vattenfall Fast charging network to 30 stations
- Established ownership and operations of an inductive end-stop bus charger in Södertälje

Germany

Government ambition:

- 6 million EV's by 2025

Key achievements in 2016:

- Sale of charging solutions ramping up
- First sales successes with real estate companies

The Netherlands

Government ambition:

- 1 million EV's by 2025

Key achievements in 2016:

- 1,911 charging solutions sold
- 6.0 GWh delivered
- Enlarged our operations with 2,000 charging points, primarily in cities and with B2B customers
- 95% of charging points generate recurring revenues

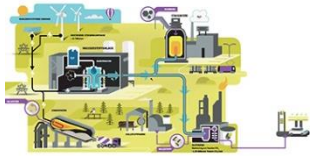
ELECTRIFICATION OF HEATING

In the heating sector, energy efficiency can be achieved by switching from gas, oil or electric boilers to heat pumps or district heating. With more renewable electricity in the system, heating can become virtually fossil-free.

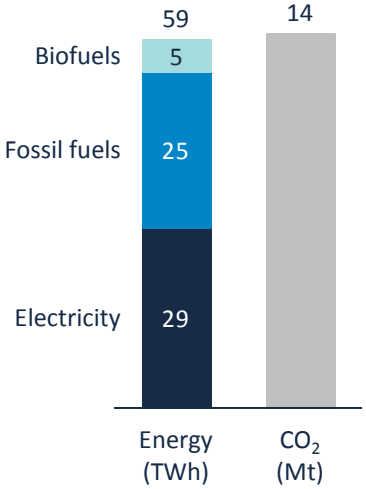
	Power to heat	Heat pumps
Concept	▪ Using excess electricity during periods of low/negative spot market prices to generate heat	▪ Using a small amount of electricity to deliver heat and cooling
Growth Potential	▪ Attractive solution to capitalize on periods of low electricity prices to reduce cost of heat generation ▪ In a more favorable regulatory environment, excess electricity from Renewables sources can be used for local Heat production	▪ Gradually replacing the gas/oil boiler mass market on the continent and potential of being the preferred solution within future new builds ▪ Mature market in Sweden with replacement growth potential
Objectives	▪ Scaling up capacity over time ▪ Cornerstone for reaching CO_2 reduction targets in the long-term	▪ Attend to customer needs and convenience in all markets, scale up business in DE and NL, benefit from cross-selling potential

ELECTRIFICATION OF THE INDUSTRY

Electrification can eliminate climate impact of production processes. In Sweden CO_2 emissions could drop by 15 Mtonnes per year. Vattenfall aims to contribute to increase the steel and cement industry's production of non-fossil diesel.



Climate impact today

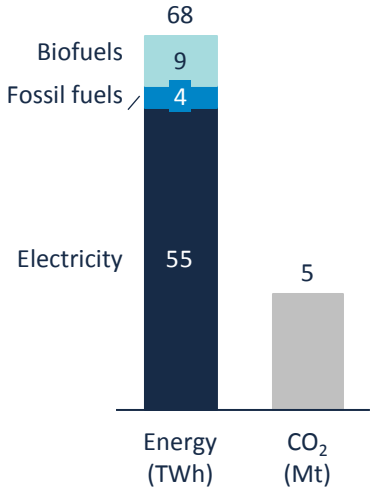


Steel: Hydrogen is replacing coal
Fossil carbon reduction: 5.25 Mtonnes/year

Cement: The use of green electricity in the furnace reduces CO_2 emissions by 40%
Fossil carbon reduction: 2.35 Mtonnes/year

Refineries: Green hydrogen instead of natural gas in the production of non-fossil diesel
Fossil carbon reduction: 1.25 Mtonnes/year

Climate impact 2030-2045



VATTENFALL

DIGITALIZATION WILL BE KEY TO DELIVER ON OUR TARGETS

Opportunities	CUSTOMER EXPERIENCE	OPERATIONAL EXCELLENCE	NEW BUSINESS MODELS
Examples	▪ InCharge ▪ Alltid	▪ O&M optimization ▪ Predictive maintenance	▪ Power peers ▪ Micro grids

Enablers

DIGITAL TALENT AND UTILITY KNOWLEDGE

CULTURE and GOVERNANCE

DIGITAL PLATFORM

A RESPONSIBLE TRANSITION TOWARDS A RENEWABLES BASED SYSTEM

Regulatory clarity

- ✓ **Swedish energy agreement** – The elimination of the nuclear capacity tax (~SEK 3bn p.a.) and substantial reduction of the real-estate tax for hydro power plants (~SEK 2bn p.a.) are essential for future competitiveness.
- ✓ **German law on nuclear waste** – liability for interim and final storage to be transferred to the state. Law passed by German parliament, EU approval pending.

Key focus areas

- ➢ **Continued safe, reliable and efficient** nuclear and hydro power. Focus on operational excellence across the fleet. Continue modernization program in hydro.
- ➢ **Increase flexibility** in the power plants.
- ➢ **Responsible decommissioning and dismantling** of R1 (2020) and R2 (2019) and German nuclear (all German reactors to be closed by 2022).

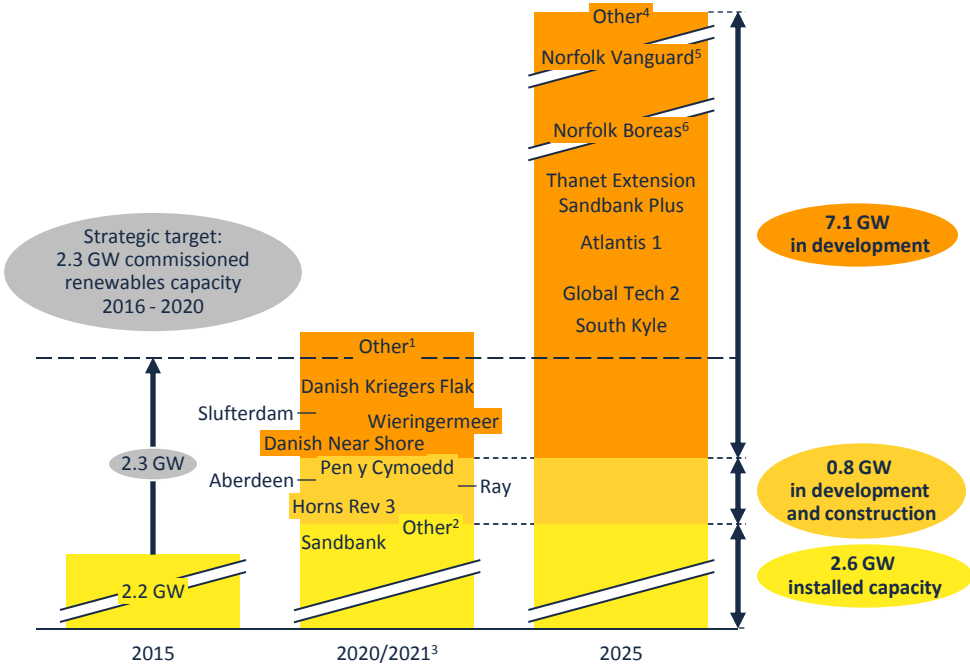
Highlights 2016

SIGNIFICANT WIND GROWTH AND STRENGTHENING OF THE PIPELINE

Key developments 2016

- Tender won and concession signed for Danish Near Shore (350 MW) and Danish Kriegers Flak (600 MW)
- Construction start of Horns Rev 3 (400 MW)
- FID Aberdeen (92 MW)
- Commissioning of first large scale solar project
- Acquired development project Global Tech 2

Continued growth ambitions



1) Blakliden, Forst Briesnig and Fäbodberget
2) Högabjär-Kärsås, Höge Väg and solar farm adjacent to Park Cynog
3) Danish Kriegers Flak expected commissioning 2021
4) Bruzaholm and Aultmore
5) Commissioning expected in 2025-2027
6) Commissioning TBD

VATTENFALL

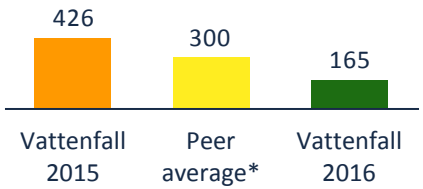
CO_2 REDUCTIONS REMAIN IN FOCUS

Portfolio transformation | **Continued CO_2 phase out & Supporting our partners**

From 50% fossil power **To** Climate neutrality 2050
Climate neutrality Nordic 2030

Major shift in 2016 following lignite divestment

Specific CO_2 (g/kWh)



Ongoing initiatives support the targeted ambition

- Phase out of coal, e.g. Klingenberg conversion
- Efficient gas-fired CHPs
- New smart energy and heat solutions

Enabling customers to reach climate targets

- Electrification of industrial processes and transport
- Life Cycle Analysis and Environmental Performance Declarations
- Cooperate with partners, cities and customers to set joint CO_2 targets

Preliminary numbers for 2016 (incl. heat). Vattenfall absolute CO_2 2015: 84 MT, 2016: 23 MT
*Source: company reports 2015 - RWE, Enel, E.ON, EDP, EnBW, Iberdrola, DONG, Fortum, Centrica, EDF, Statkraft

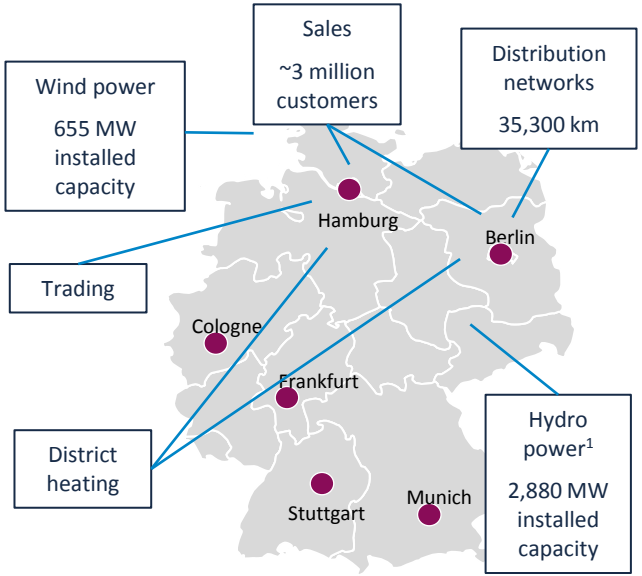
VATTENFALL

MARZAHN - INVESTING IN CHP NEW BUILD IN BERLIN

Marzahn project facts

- Base-load power plant for the district heating areas in the Eastern part of Berlin.
- Ensuring a climate-efficient and reliable district heating supply for the coming decades.
- 260 MW electrical and 230 MW thermal capacity. High efficiency of approx. 90%.
- Investment of 325 MEUR.
- Estimated running hours: between 6,000 and 8,000 hours/year.
- Construction start planned in April. Start of operation planned for summer 2020.

Sustainable growth of Vattenfall's German portfolio in 2016



1) Pump storage power plants.

- ✓ **Strong customer growth**
  Retail +105,000
  Gas +112,000
  Distribution +16,000
  Heat +30,000
- ✓ **Commissioning of Sandbank offshore wind farm**
- ✓ **Consolidation of continental trading in Hamburg**
- ✓ **Marzahn new build CHP**

FINANCIALS

Stefan Dohler, CFO

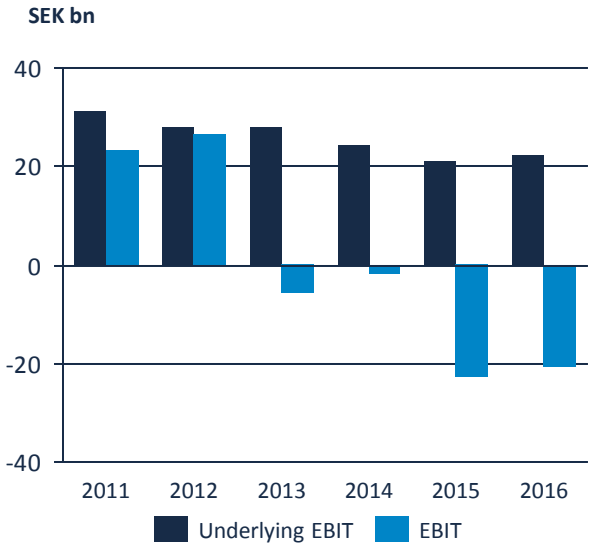
FY 2016 MAIN MESSAGE

- Improved capital structure and FFO/adjusted net debt within target range
- Impairments negatively impacting ROCE
- Lower merchant risk following the lignite divestment
- Successful implementation of cost reduction programme and continued focus on restructuring measures
- Recalculation of nuclear provisions
- New investment plan for 2017-2018

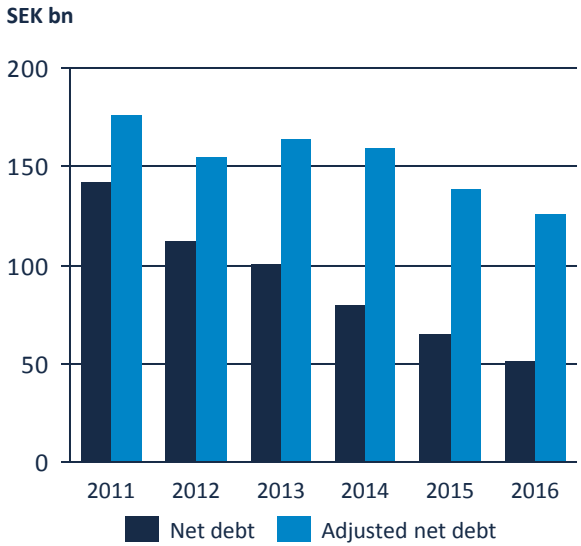
IMPROVEMENT IN UNDERLYING EBIT AND DEBT REDUCTION

Reduction in net debt and adjusted net debt mainly attributable to positive cash flow after investments. Increase in provisions having a negative impact on adjusted net debt.

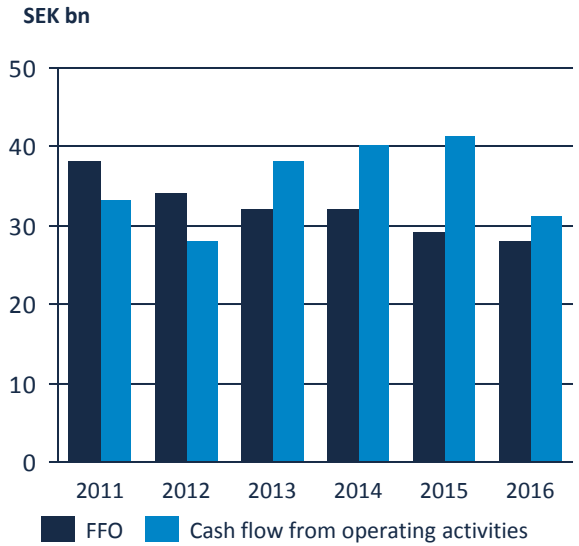
Underlying EBIT development[1]



Debt reduction



Positive cash flow[1]



1) Pertains to Total Vattenfall

FY 2016 FINANCIAL HIGHLIGHTS

SEK bn	Continuing operations FY 2016	Continuing operations FY 2015
Net Sales	139.2	143.6
EBITDA	27.2	30.6
Underlying EBIT	21.7	20.5
EBIT	1.3	-5.1
Financial items, net	-6.4	-4.8
Profit for the year	-2.2	-5.2
Cash flow (FFO)	26.9	26.8
Cash flow operating activities	28.6	43.1
Net debt	50.7	64.2
Adjusted net debt	124.7	137.6
FFO/adjusted net debt (%)	21.6	19.5
Adjusted net debt/EBITDA (times)	4.6	4.5

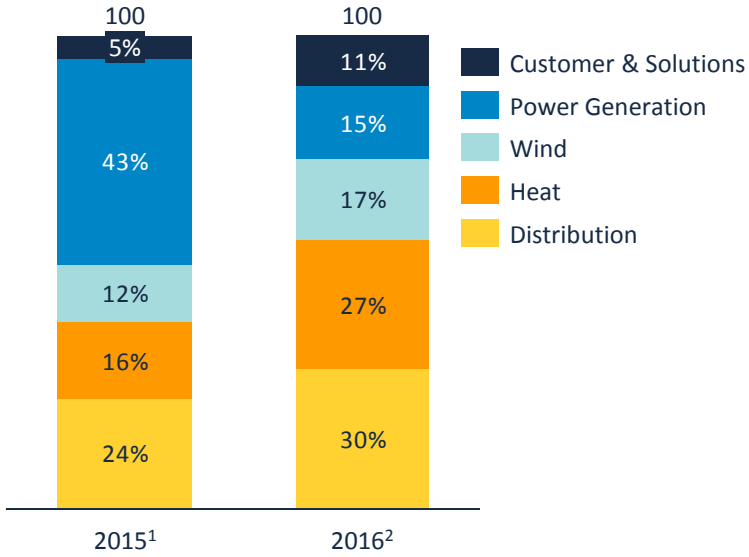
FINANCIAL TARGETS

Financial metric	Target	FY 2016	FY 2015
Return on Capital Employed (ROCE) – continuing operations (ROCE excl. items affecting comparability)	9%	0.5 (8.7)	-1.8 (7.3)
Return on Capital Employed – Total Vattenfall (ROCE excl. items affecting comparability)	9%	-8.5 (8.7)	-8.2 (7.4)
FFO/adjusted net debt – continuing operations	22-30%	21.6	19.5
FFO/adjusted net debt – Total Vattenfall	22-30%	22.6	21.1
Net debt/equity	50-90%	60.5	55.4
Dividend policy (% of the year's profit after tax)	40-60%	-	-

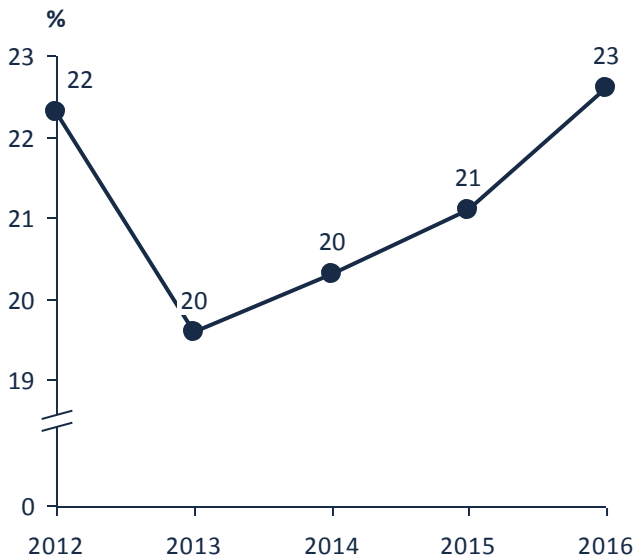
IMPROVED FINANCIAL CONDITIONS

A new Vattenfall is taking shape, both from a strategic and financial perspective

EBITDA split per segment



FFO/adjusted net debt[1]



1) Total Vattenfall
2) Continuing operations

VATTENFALL

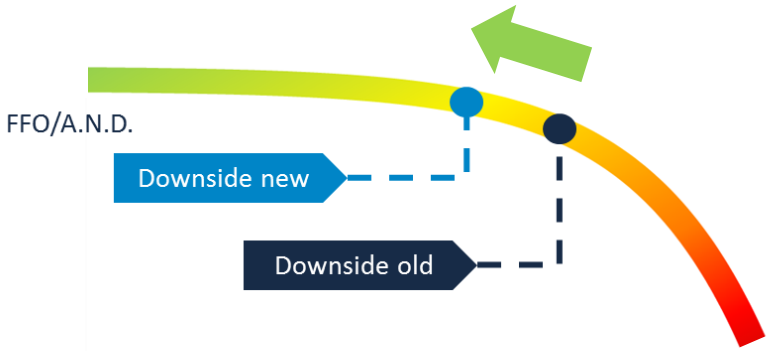
IMPROVED RISK PROFILE

The new Vattenfall is financially more resilient with a lower downside risk

Key contributing factors in 2016

- ✓ **Lignite divestment**
  - Reduced exposure to power prices, fossil generation and CO_2
- ✓ **German nuclear fund**
  - Regulatory clarity on the externalisation of liabilities for interim and final storage of nuclear waste
- ✓ **Swedish energy agreement**
  - Pending law change, capacity tax on nuclear to be abolished (~SEK 3bn EBITDA effect) and real-estate tax on hydro to be significantly reduced (~SEK 2bn EBITDA effect)

Risk on FFO/adjusted net debt (illustrative)

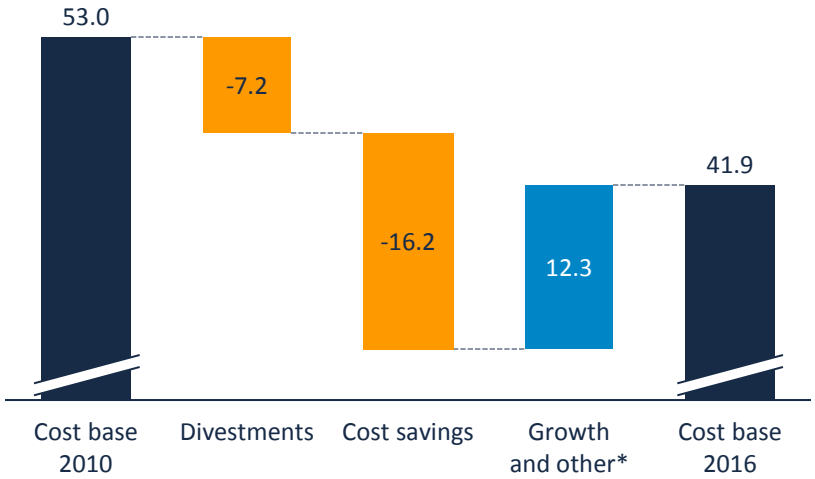


- The improved risk profile leads to a less utilized risk-bearing capability
- This allowed for a more risk tolerant hedge strategy implemented in autumn 2016, reducing cost and complexity

FURTHER IMPROVE COSTS AND IMPROVE OPERATIONAL EFFICIENCY

The cost savings programme of SEK 2.5bn for 2015-2016 has been completed

Cost reductions 2016 vs. 2010 of SEK 16.2bn (31%)



Vattenfall will continuously improve efficiency to further reduce costs

- Continue with outsourcing and overhead cost reductions, e.g., outsourcing of administration and IT operations and outsourcing of customer services in Germany
- Improvement of operational efficiency at Swedish nuclear for a lower generation cost, while maintaining high availability and a high level of safety
- Use of digitalisation across the company as an enabler for reducing costs and improving efficiency
- Automation of processes not only lower costs, but will also reduce process time and improve service quality for customers

* Including costs for growth, exchange rate effects and restructuring costs

LIABILITY FOR NUCLEAR WASTE COSTS IN GERMANY

Background

- Nuclear power operators to shift their liability for nuclear waste costs through payment into a public fund
- Approved law by German parliament
- EU approval of the law expected in Q2 2017
- Payment will happen once the fund has been implemented, not earlier than 1 July 2017
- Unrelated to the arbitration proceeding at the International Centre for Settlement of Investment Disputes (ICSID), where a decision is expected in mid 2017

Financial consequences for Vattenfall

- Expected transfer of EUR 1.8bn (SEK 17.0bn)
  - Base amount EUR 1.3bn (SEK 12.3bn)
  - Risk premium + interest EUR 0.5bn (SEK 4.7bn)

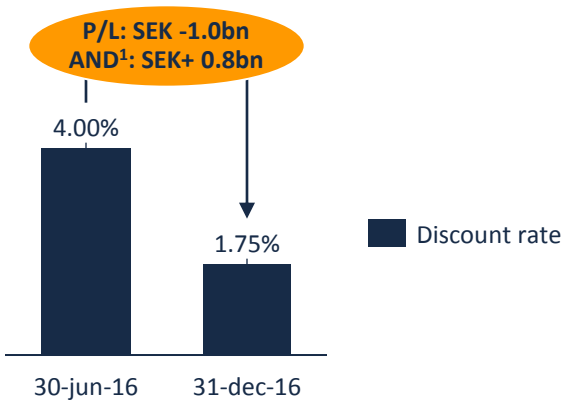
Impact in Vattenfall's accounts in Q4

- Negative impact on earnings of SEK 5.4bn[1], relating to the risk premium and interest
- Adjusted net debt increased by SEK 4.7bn[1]

1) The difference of SEK 0.7bn (5.4-4.7) is explained by the fact that EBIT effect includes 100% Brunsbüttel due to full consolidation, whereas adjusted net debt only considers the pro rata shares

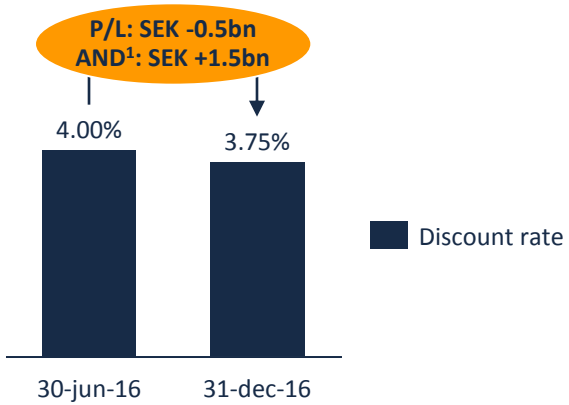
DISCOUNT RATES USED IN CALCULATION OF PROVISIONS[2] AS OF DECEMBER 2016

Nuclear provisions Germany



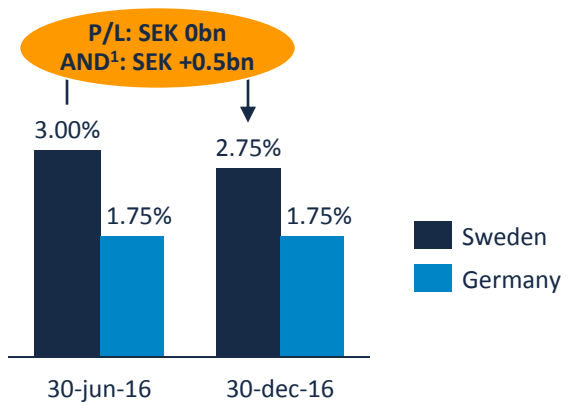
- Nuclear fund solution triggers new discount rate – remaining nuclear obligations in Germany have a duration of approx. 15 years rather than up to 80 years as previously

Nuclear provisions Sweden



- Due to declined market rates

Pension provisions



- Discount rate based on calculations by external actuaries in Q2 and Q4
- Impact on provision recognised directly in equity (other comprehensive income)

1) AND: Adjusted net debt
2) Only related to nuclear and pension provisions

ITEMS AFFECTING COMPARABILITY

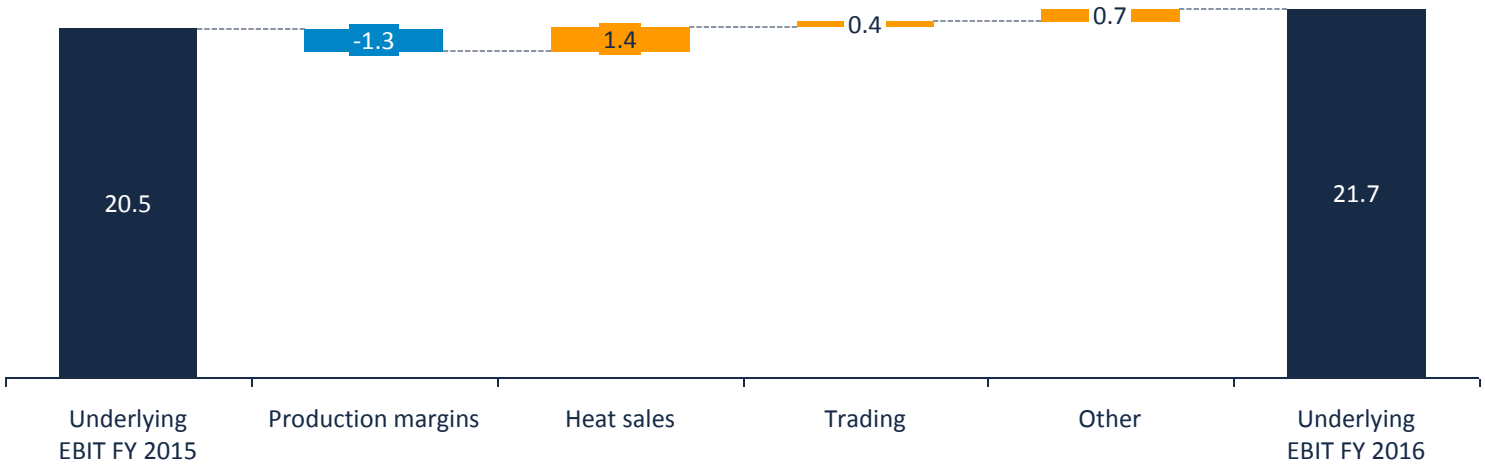
Continuing operations SEK bn	FY 2016	FY 2015	Q4 2016	Q4 2015
Capital gains	2.2	0.2	0.1	0.1
Capital losses	-0.4	-0.4	-0.3	-0.1
Impairment losses	-12.4	-21.5	-3.3	-0.3
Reversed impairment losses	0.9	0.5	0.9	0.0
Provisions	-8.2	-3.5	-8.4	-2.2
Unrealised changes in the fair value of energy derivatives	-2.4	1.6	1.0	0.5
Unrealised changes in the fair value of inventories	1.0	-0.7	0.4	-0.4
Restructuring costs	-0.8	-1.1	-0.5	-0.0
Other items affecting comparability	-0.3	-0.8	0.1	-0.4
Total	**-20.4**	**-25.6**	**-9.9**	**-2.8**

- Impairment losses of SEK -12.4bn in FY 2016 pertain mainly to:
  - Moorburg power plant Hamburg
  - Hydro power assets Germany
  - Fossil-based assets in the Netherlands
  - Shareholdings in the German nuclear power plants Brokdorf and Stade
- Increased provisions in 2016 pertain mainly to higher provisions for nuclear power in Germany (SEK -5.6bn) and Sweden (SEK -2.1bn)

DEVELOPMENT OF UNDERLYING EBIT FY 2016

Lower production margins fully offset by contribution from the heat and trading business. Underlying EBIT increased by SEK 1.2bn

Continuing operations, SEK bn



UNDERLYING EBIT PER OPERATING SEGMENT

Continuing operations SEK bn	FY 2016	FY 2015
Customers & Solutions	1.8	1.4
Power Generation	11.4	12.4
Wind	0.9	1.5
Heat	3.2	1.8
Distribution	4.9	5.5
Other[1]	-0.5	-1.9
Eliminations	-0.0	-0.0
Total	**21.7**	**20.5**

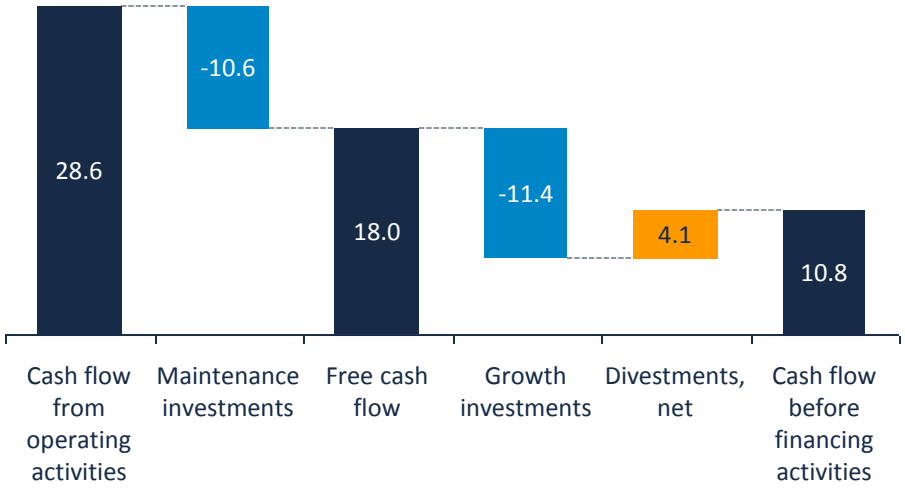
1) "Other" pertains mainly to all Staff functions, including Treasury and Shared Service Centres

- Customer & Solutions: Lower sales and administration costs
- Power Generation: Lower production margins resulting from average lower prices achieved
- Wind: Lower net sales from existing assets combined with higher depreciation and higher OPEX
- Heat: Higher gross margin mainly explained by lower fuel costs
- Distribution: Change in underlying EBIT impacted by the divested network operation in Hamburg

CASH FLOW DEVELOPMENT FY 2016

Cash flow before financing activities amounts to SEK 10.8bn from continuing operations

Continuing operations, SEK bn

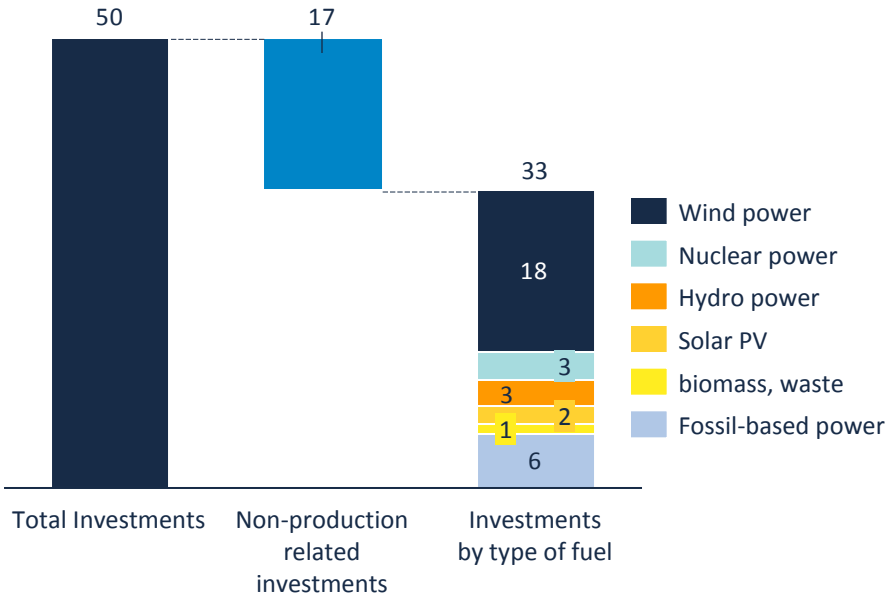


- Growth investments, mainly attributable to investments within wind power
- Divestments, mainly attributable to the divestments of network services operation in Hamburg, real estate in Hamburg and Berlin, and the Nordjylland combined heat and power station in Denmark

INVESTMENT PLAN 2017-2018

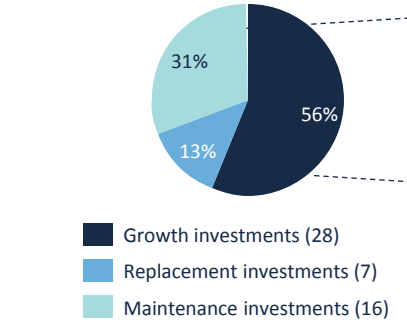
The investment plan reflects a clear shift in strategy, with the majority of growth investments in wind power, solar PV and distribution grids.

Total investments 2017-2018: SEK 50bn

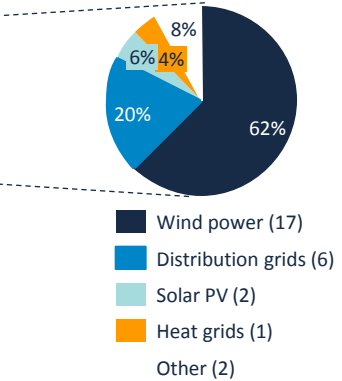


Geographical split (SEK bn)

Investment split by type (SEK bn)

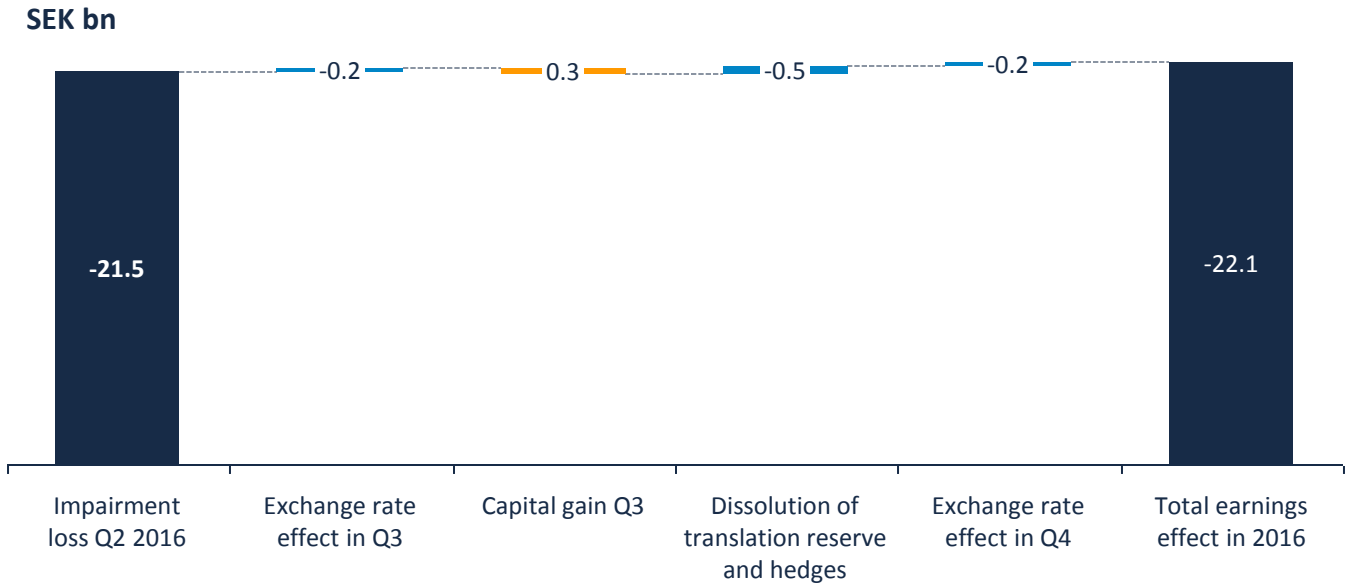


Growth investment by technology: SEK 28bn



APPENDIX

TOTAL EARNINGS EFFECT OF SALE OF LIGNITE OPERATIONS



IMPAIRMENT HISTORY 2009 - 2016

Impairments in 2016 amounted to SEK 33.8bn, where SEK 21.4bn is attributable to the lignite operations

		2009	2010	2011	2012	2013	2014	2015	2016	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			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	3.8
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**	**164.7**
Reversed impairment losses		-1.3	-1.3	-0.4	0.0	0.0	0.0	-0.5	-0.9	-4.4
Impairments (net)		**4.2**	**9.8**	**10.9**	**12.3**	**30.1**	**23.8**	**36.3**	**32.9**	**160.3**

1) Impairment of goodwill
2) Impairment of assets and goodwill

FY 2016 AND Q4 FINANCIAL HIGHLIGHTS

SEK bn	Total Vattenfall FY 2016	Total Vattenfall FY 2015	Total Vattenfall Q4 2016	Total Vattenfall Q4 2015
Net Sales	152.7	164.5	37.9	45.5
EBITDA	28.2	32.8	3.3	8.8
Underlying EBIT	21.7	20.5	6.9	6.4
EBIT	-21.2	-23.0	-3.0	3.7
Financial items, net	-6.8	-5.2	-2.0	-1.2
Profit for the period	-26.0	-19.8	-4.2	2.5
Cash flow (FFO)	28.2	29.0	7.2	9.4
Cash flow operating activities	30.8	40.9	11.1	9.6
Net debt	50.7	64.2	50.7	64.2
Adjusted net debt	124.7	137.6	124.7	137.6
FFO/adjusted net debt (%)	22.6	21.1	22.6[1]	21.1[1]
Adjusted net debt/EBITDA (times)	4.4	4.2	4.4[1]	4.2[1]

VATTENFALL

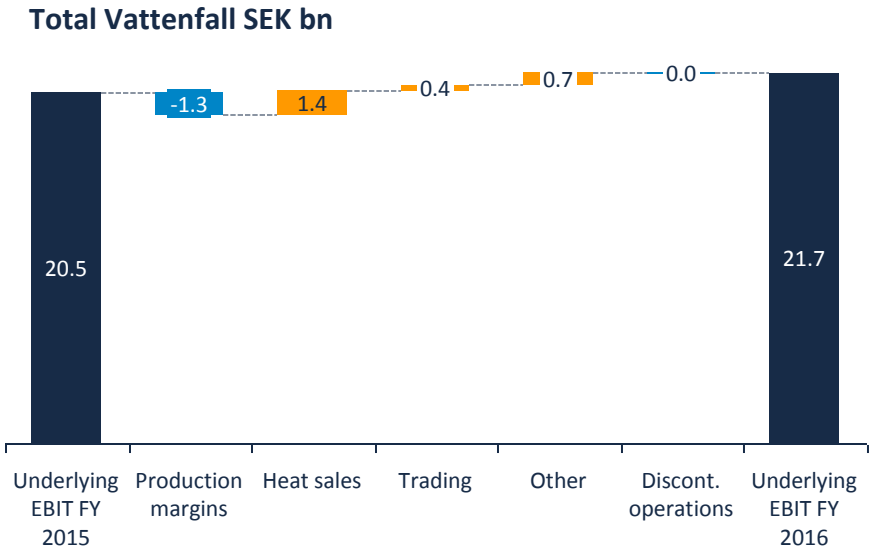
1) Last twelve months

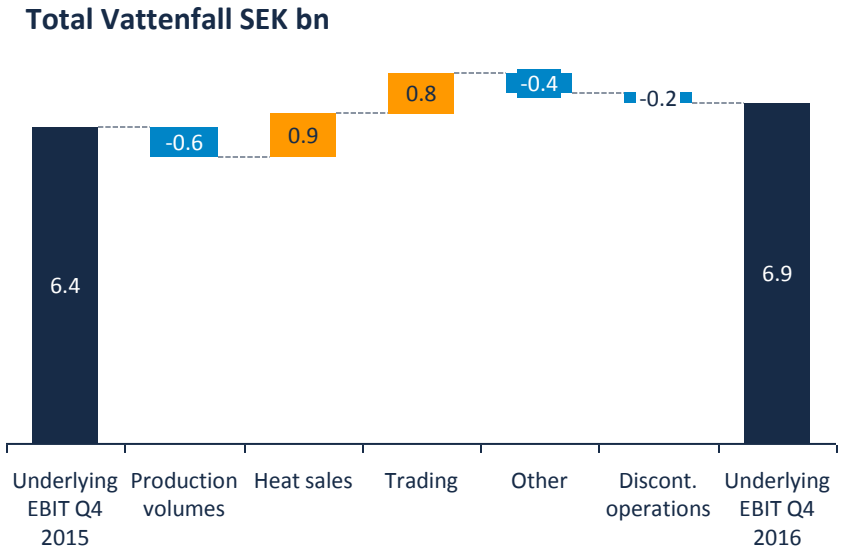
Q4 2016 FINANCIAL HIGHLIGHTS

SEK bn	Continuing operations Q4 2016	Continuing operations Q4 2015
Net Sales	37.8	42.4
EBITDA	3.3	7.7
Underlying EBIT	7.1	6.4
EBIT	-2.8	3.6
Financial items, net	-2.0	-1.1
Profit for the period	-4.0	4.6
Cash flow (FFO)	7.1	9.9
Cash flow operating activities	11.1	11.3
Net debt	50.7	64.2
Adjusted net debt	124.7	137.6
FFO/adjusted net debt (%)	21.6[1]	19.5[2]
Adjusted net debt/EBITDA (times)	4.6[1]	4.5[2]

1) Last twelve months
2) Q1 – Q4 2015

DEVELOPMENT OF UNDERLYING EBIT FY 2016 AND Q4 2016 (TOTAL VF)

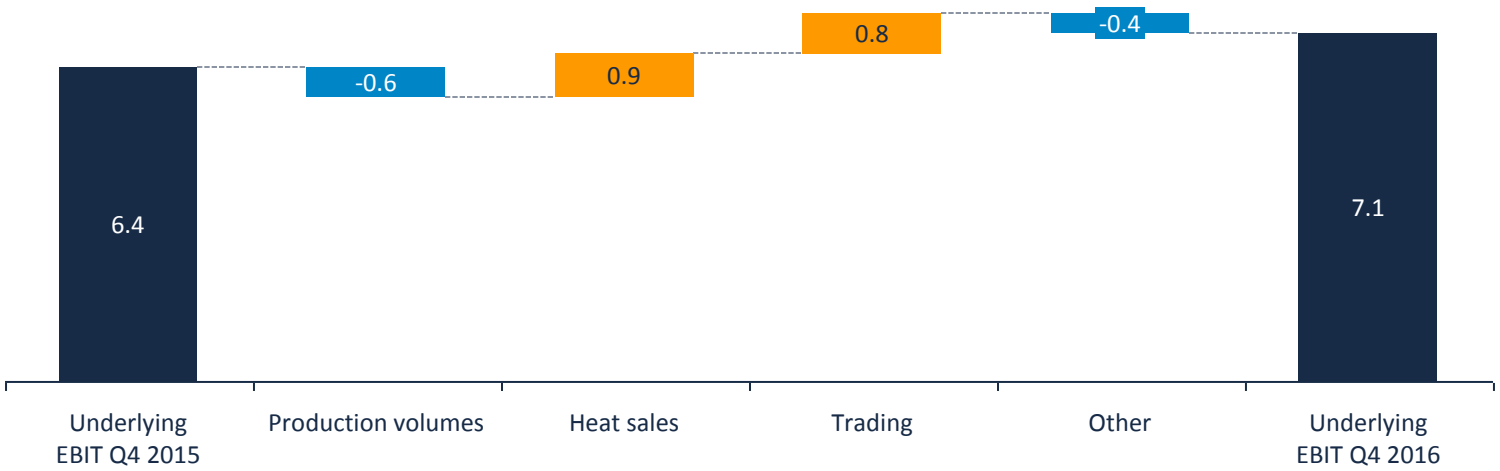




DEVELOPMENT OF UNDERLYING EBIT Q4 2016

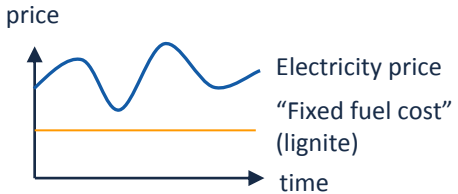
Lower production volumes fully offset by contribution from the heat and trading business. Underlying EBIT increased by SEK 0.7bn.

Continuing operations, SEK bn

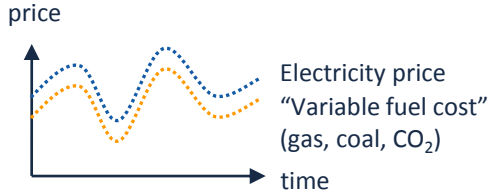


ADAPTING THE HEDGE STRATEGY TO CHANGING POWER PRICE EXPOSURE

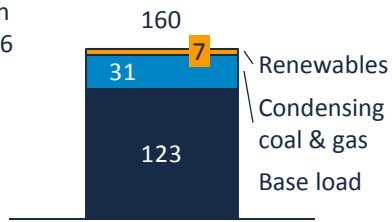
Before lignite divestment

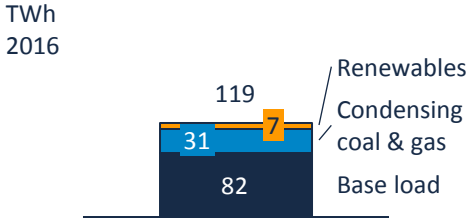


After lignite divestment

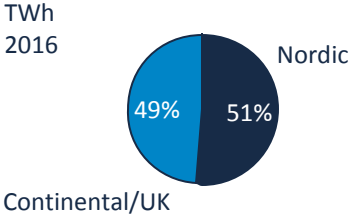


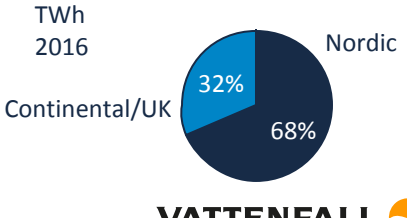
From fixed fuel to variable fuel dominated in Germany





Group base load production hours reduced by ~33%





C/UK power production share reduced from 49% to 32%

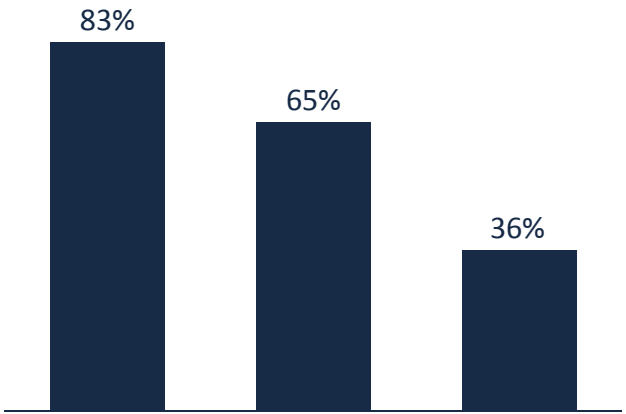
- Lower hedge ratio
- Hedging primarily Nordic exposure
- Hedging closer to delivery

VATTENFALL

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 hedge ratio (%) and indicative prices



Average indicative Nordic hedge prices

2017	2018	2019
29	27	30

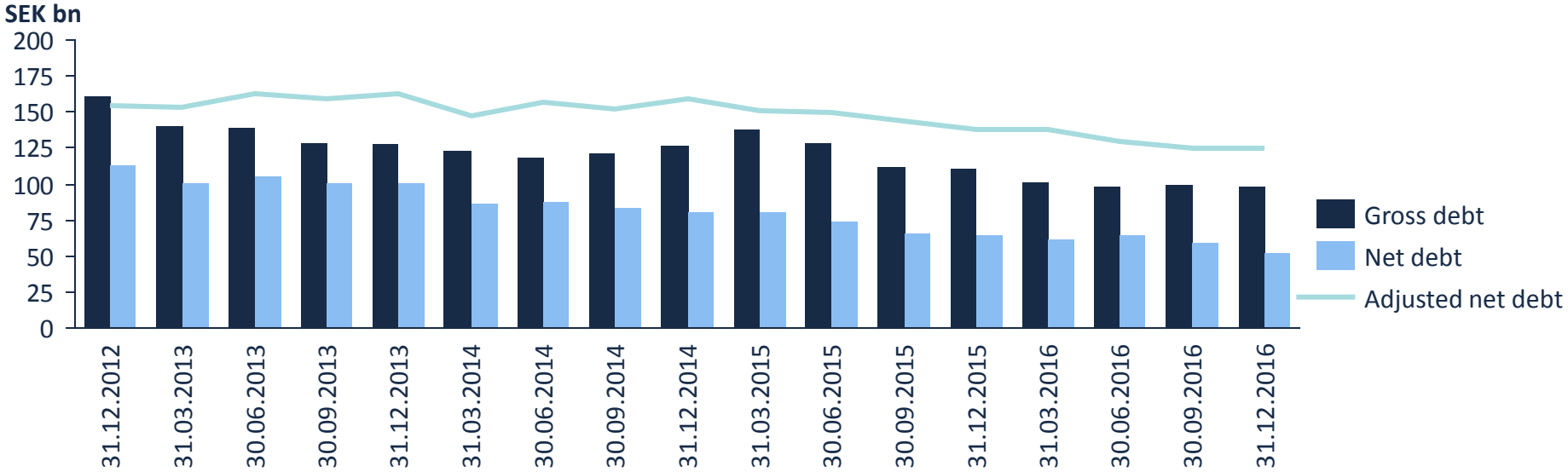
Sensitivity analysis – Continental portfolio

Market quoted	+/- 10% impact on future profit before tax, MSEK[1]			Observed yearly volatility
	2017	2018	2019	
Electricity	+/- 399	+/- 401	+/- 820	22% - 23%
Coal	-/+ 11	-/+ 241	-/+ 244	31% - 32%
Gas	-/+ 240	-/+ 412	-/+ 412	25% - 27%
CO_2	-/+ 15	-/+ 79	-/+ 94	54% - 55%

1) The denotation +/- entails that a higher price affects operating profit favourably, and -/+ vice versa

DEBT DEVELOPMENT

Net debt reduction mainly attributable to a positive cash flow after investments. Adjusted net debt affected by higher nuclear power provisions in both Germany and Sweden.



Net debt decreased by SEK 13.5bn compared with the level at 31 Dec 2015. Adjusted net debt decreased by SEK 12.8bn, compared with the level at 31 Dec 2015. For the calculation of adjusted net debt, see slide 43.

CONTINUED STRONG LIQUIDITY POSITION

Group liquidity	MSEK
Cash and cash equivalents	19,995
Short term investments	23,297
Reported cash, cash equivalents & short term investments	**43,292**
Unavailable liquidity[1]	-6,995
Available liquidity	**36,297**

Committed credit facilities	Facility size	MSEK
RCF (maturity Dec 2021)	2,000 MEUR	19,105
Total undrawn		19,105

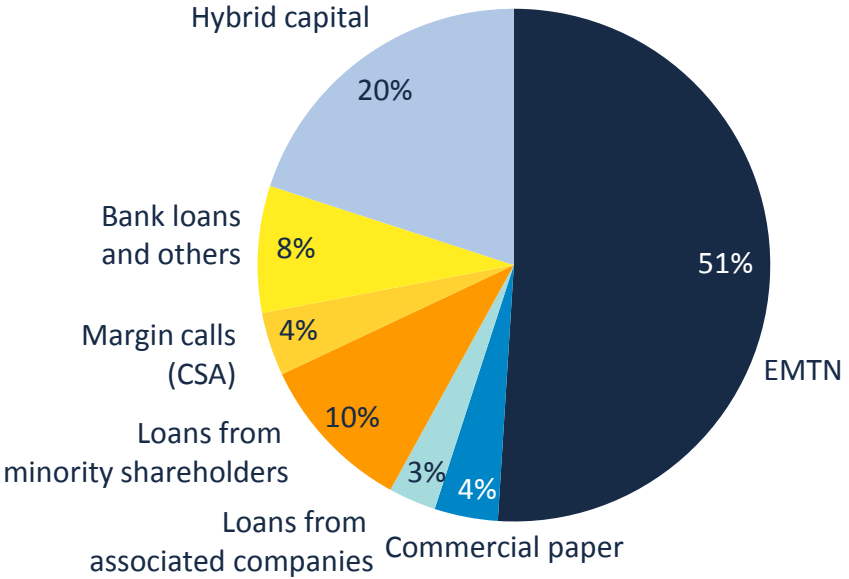
Debt maturities[2]	MSEK
Within 90 days	3,652
Within 180 days	3,813

1) German nuclear ”Solidarvereinbarung” 3,252 MSEK, Margin calls paid (CSA) 2,541 MSEK, Insurance “Provisions for claims outstanding” 1,202 MSEK
2) Excluding loans from minority owners and associated companies

BREAKDOWN OF GROSS DEBT

Total debt: SEK 97bn (EUR 10bn)

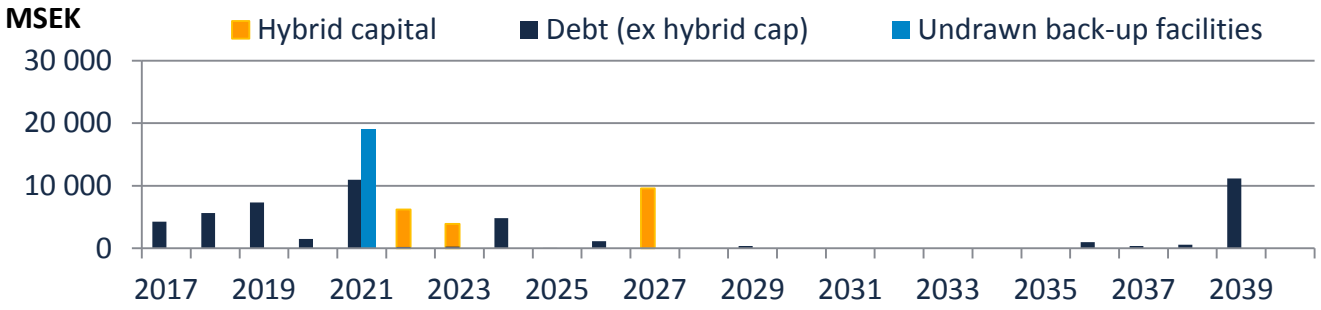
External market debt: SEK 84bn (EUR 9bn)



Debt issuing programmes	Size (MEUR)	Utilization (MEUR)
EUR 10bn Euro MTN	10,000	4,610
EUR 2bn Euro CP	2,000	377
SEK 15bn Domestic CP	1,570	0
Total	**13,570**	**4,987**

- 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

DEBT MATURITY PROFILE[1]



	31 Dec. 2016	31 Dec. 2015
Duration (years)	5.6	3.9
Average time to maturity (years)	8.5	8.1
Average interest rate (%)	4.4	3.9
Net debt (SEK bn)	50.7	64.2
Available group liquidity (MSEK)	36,297	37,443
Undrawn committed credit facilities (MSEK)	19,105	18,379

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

REPORTED AND ADJUSTED NET DEBT

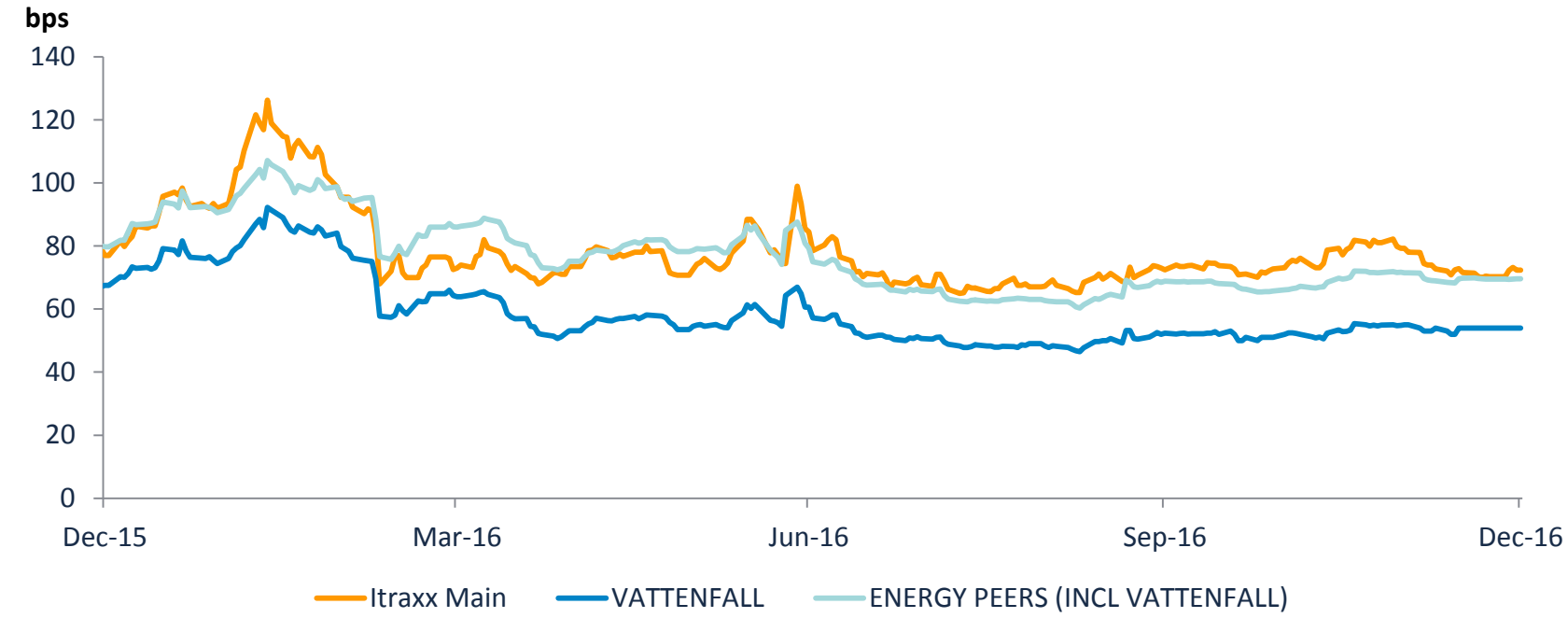
Reported net debt (SEK bn)	31 Dec. 2016	31 Dec. 2015
Hybrid capital	-19.2	-18.5
Bond issues and commercial papers and liabilities to credit institutions	-55.8	-68.9
Liabilities to associated companies	-2.8	-2.8
Liabilities to minority shareholders	-10.1	-13.0
Other liabilities	-8.8	-7.3
Total interest-bearing liabilities	**-96.7**	**-110.6**
Reported cash, cash equivalents & short-term investments	43.3	44.3
Loans to minority owners of foreign subsidiaries	2.7	2.1
Net debt	**-50.7**	**-64.2**

Adjusted net debt (SEK bn)	31 Dec. 2016	31 Dec. 2015
Total interest-bearing liabilities	-96.7	-110.6
50% of Hybrid capital	9.6	9.3
Present value of pension obligations	-40.6	-38.9
Wind & other environmental provisions	-4.4	-19.1
Provisions for nuclear power (net)	-41.9	-32.9
Margin calls received	4.0	5.3
Liabilities to minority owners due to consortium agreements	9.0	11.9
= Adjusted gross debt	**-161.0**	**-175.0**
Reported cash, cash equivalents & short-term investments	43.3	44.3
Unavailable liquidity	-7.0[1]	-6.8
= Adjusted cash, cash equivalents & short-term investments	**36.3**	**37.4**
= Adjusted net debt	**-124.7**	**-137.6**

1) Of which: German nuclear ”Solidarvereinbarung” 3.3, Margin calls paid (CSA) 2.5, Insurance “Provisions for claims outstanding” 1.2

STABLE CDS SPREAD DEVELOPMENT

CDS spread 5-years



NUCLEAR PROVISIONS

Reactor	Net capacity (MW)	Start (year)	Vattenfall share (%)	Vattenfall provisions, MSEK (IFRS accounting)	Vattenfall provisions, MSEK (pro rata)	Sw nuclear waste fund MSEK (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: 25,545**	**Total Ringhals: 25,545[1]**	
Forsmark 1	984	1980	66.0			
Forsmark 2	1,120	1981	66.0			
Forsmark 3	1,170	1985	66.0	**Total Forsmark: 21,944**	**Total Forsmark: 14,483**	
Total Sweden	**6,974**	-		**47,719[2]**	**40,257[2]**	**30,353[3]**
Brunsbüttel	771	1977	66.7	20,124	13,416	
Brokdorf	1,410	1986	20.0	0	5,630	
Krümmel	1,346	1984	50.0	13,045	13,045	
Stade[4]	640	1972	33.3	0	2,697	
Total Germany	**4,167**	-	-	**33,169**	**34,788**	
Total SE & DE	**11,141**			**80,888**	**75,045**	

1) Vattenfall is 100% liability of Ringhals decommissioning, while owning only 70.4%
2) Total provisions in Sweden (IFRS accounting) include provisions of 230 MSEK related to Ågesta
3) Vattenfall's share of the Nuclear Waste Fund (book value). IFRS consolidated value is 36,199 MSEK.
4) Stade is being dismantled

CAPITAL EXPENDITURES FY 2016

Continuing operations SEK bn	FY 2016	FY 2015	Change
Electricity generation	13.1	16.0	-18%
CHP/Heat	3.1	3.3	-8%
Electricity networks	5.2	4.7	12%
Other	0.5	1.7	-70%
Total	**21.9**	**25.8**	**-15%**
- of which maintenance and replacement	*10.6*	*12.3*	*-14%*
- of which growth	*11.4*	*13.4*	*-15%*

WIND - INSTALLED CAPACITY (MW[1])

	Onshore	Offshore	Total
United Kingdom	114	590	703
Denmark	245	160	405
The Netherlands	306	108	414
Sweden	255	120	375
Germany	19	636	655
Total (MW)	**939**	**1614**	**2553**

United Kingdom	
Thanet	300
Ormonde (51%)	150
Kentish Flats	90
Kentish Flats Extension	50
Edinbane	41
Clashindarroch	37
Swinford	22
Parc Cynog[2]	8
Pendine	5
Installed capacity (MW)	**703**

Sweden	
Lillgrund	110
Stor-Rotliden	78
Högabjär-Kärsås (50%)	38
Höge Väg (50%)	38
Hjuleberg (50%)	36
Juktan (50%)	29
Östra Herrestad	16
Näsudden	10
Utgrunden	10
Hedeskoga	6
Other assets[3]	3
Installed capacity (MW)	**375**

Denmark	
Horns Rev 1 (60%)	160
Klim (98%)	67
Nørrekær Enge 1 (99%)	30
Rejsby Hede	23
Hagesholm	23
Nørre Økse Sø	18
Tjæreborg Enge	17
Hollandsbjerg	17
Bajlum (89%)	15
DræbyFed	9
Ryå	8
Ejsing (97%)	7
Nordjyllandsværket	6
Lyngmose	5
Velling Maersk	1
Installed capacity (MW)	**405**

Germany	
DanTysk (51%)	288
Sandbank (51%)	288
alpha ventus (26%)	60
Jänschwalde	12
Westküste (20%)	7
Installed capacity (MW)	**655**

The Netherlands	
Prinses Alexia	122
Egmond aan Zee (50%)	108
Oudelandertocht (50%)	20
Eemmeerdijk	18
Irene Vorrink	17
Jaap Rodenburg	17
Waterkaaptocht (50%)	14
Windpoort (40%)	13
Groettocht (50%)	12
Hoofdplaatpolder (70%)	10
Reyndersweg (50%)	9
Waardtocht (50%)	9
Echteld	8
DE Bjirmen	6
Oom Kees (12%)	6
Ulketocht	6
De Horn (42%)	5
Oudendijk	5
Mariapolder	5
Hiddum Houw	4
Enkhuizen	2
Installed capacity (MW)	**414**

Onshore

Offshore

% Vattenfall ownership

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

2) Including 5 MW solar

3) Kulle (1 MW), Stenkyrka (1 MW), Suorva (1 MW), Ruuthsbo (1 MW)

VATTENFALL

PIPELINE OF WIND FARMS

In development and construction

	Country	Name	No. of Turbines	Capacity (MW) [1]	Ownership (%)	Commissioning	Current status
	UK	Pen y Cymoedd	76	228	100	2017	Under construction
	UK	Ray	16	54	100	2017	Under construction
	UK	Aberdeen	11	92	100	2018	Under construction
	DK	Horns Rev 3	49	407	100	2019	Under construction
				Total 781			

In development

	Country	Name	No. of Turbines	Capacity (MW)[1]	Ownership (%)	Commissioning	Current status
	NL	Slufterdam	8	~25	100	2018	Preparing for investment decision
	NL	Wieringermeer	50	165	100	2019	Preparing for investment decision
	DE	Forst Briesnig	5	16	100	2018	Preparing for investment decision
	SE	Fäbodberget	34	122	100	2020	Preparing for grid investment decision
	SE	Blakliden	50	180	100	2020	Preparing for grid investment decision
	SE	Bruzaholm	≤25	≤75	100	2022	Permitting activities
	UK	South Kyle	50	170	100	2020-2022	Permitting activities
	UK	Aultmore	13	~25	100	2020-2022	Permitting activities
	DK	Danish Near Shore	35-44	350	100	2020	Tender won & concession signed
	DK	Danish Kriegers Flak	60-75	600	100	2021	Tender won & concession signed
	DE	Sandbank Plus	~15	<250	100	2024	Preparing for tender
	DE	Atlantis 1	≤73	<600	100[2]	2025	Preparing for tender
	DE	Global Tech 2	≤79	<600	100	2025	Preparing for tender
	UK	Thanet Extension	34	340	100	2021	Concept/Early planning
	UK	Norfolk Vanguard	120-180	1,800	100	2025-2027	Concept/Early planning
	UK	Norfolk Boreas	120-180	1,800	100	TBD	Concept/Early planning
				Total >7,000			

Onshore
Offshore

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

2) Pending closing of transaction

VATTENFALL