

CREDIT OPINION

4 June 2020

Update

Rate this Research

RATINGS

Vattenfall AB

Domicile	Sweden
Long Term Rating	A3
Type	LT Issuer Rating
Outlook	Negative

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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Vattenfall AB

Update to credit analysis

Summary

Vattenfall AB's (Vattenfall) credit quality is supported by (1) the breadth and scale of the company's operations; (2) its clean generation portfolio in the Nordics; (3) a moderate contribution from regulated electricity distribution and district heating activities; (4) an increasing contribution from contracted renewables; and (5) its solid financial profile with funds from operations (FFO)/net debt close to 25% in 2019.

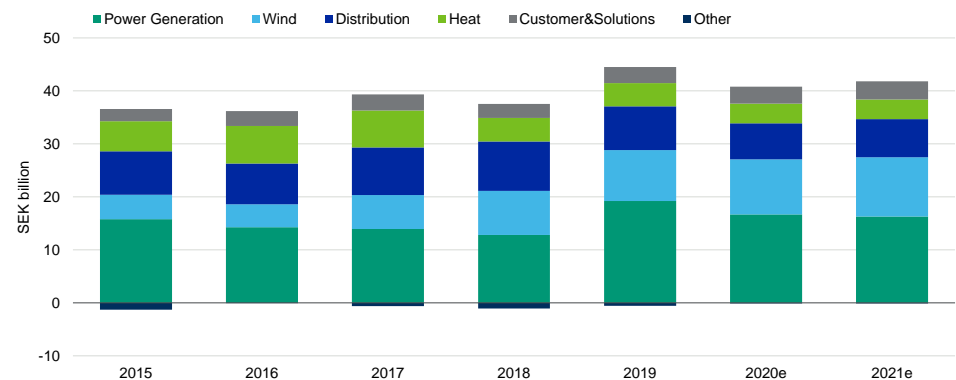
These factors are balanced by (1) Vattenfall's exposure to conventional power generation, which accounted for around 44% of underlying EBITDA in 2019; (2) the competitive environment in retail markets; (3) friction from cuts in allowed returns for the distributions networks; and (4) execution risk associated with Vattenfall's strategy to grow its renewable energy portfolio and adapt to the evolving industry of energy services.

Vattenfall's business plan builds upon the progress made in recent years in reshaping the group toward clean energy, with a major focus on investments in renewables and networks, as well as operational efficiency of the existing portfolio. However, the company still maintains a relatively high exposure to merchant power markets and competitive supply compared with the industry average. This is only partly mitigated by Vattenfall's moderate exposure to decarbonisation risks, given its clean generation in the Nordics.

Exhibit 1

Increased contribution from wind will only partly offset weaker performance in power generation

Underlying EBITDA breakdown



The estimates represent Moody's forward view, not the view of the issuer. Sources: Company's reports and Moody's Investors Service

Vattenfall's credit quality benefits from the presence of the [Government of Sweden](#) (Aaa stable) as the company's 100% shareholder.

Credit strengths

- » Predominantly clean generation mix in the Nordic region
- » Solid earnings contribution from regulated and contracted businesses
- » 100% state ownership, which supports credit quality

Credit challenges

- » Material earnings contribution from wholesale power markets
- » Large capital spending programme, which carries some execution risk
- » Competition for renewable assets and declining subsidies/move to merchant-based projects

Rating outlook

The negative outlook reflects our expectation that Vattenfall's financial metrics will be weakly positioned against the guidance for the current rating, which includes FFO/net debt around the mid-20s in percentage terms and RCF/net debt in the high teens in percentage terms.

Factors that could lead to an upgrade

Upward pressure on Vattenfall's ratings is unlikely in the medium term given the negative outlook. The outlook could be changed to stable if it appeared likely that Vattenfall will be able to maintain a financial profile consistent with the guidance for its A3 rating, which includes FFO/net debt around the mid-20s in percentage terms and RCF/net debt in the high teens in percentage terms. This would further consider any change in the company's business risk profile as Vattenfall continues to implement its strategy.

Factors that could lead to a downgrade

The ratings could be downgraded if Vattenfall's credit metrics appeared unlikely to meet our guidance for the A3 rating or the share of higher-risk cash flow were to increase without a commensurate strengthening of the company's financial profile. A change in the government support assumption could also result in a downgrade of Vattenfall's ratings.

Key indicators

Exhibit 2

Vattenfall AB

	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19
(CFO Pre-W/C + Interest) / Interest Expense	5.7x	5.1x	4.6x	5.1x	7.1x
(CFO Pre-W/C) / Net Debt	22.6%	19.1%	20.9%	22.6%	24.7%
RCF / Net Debt	22.0%	18.1%	20.0%	19.5%	21.6%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

Note: For definitions of Moody's most common ratio terms please see the accompanying [User's Guide](#).

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

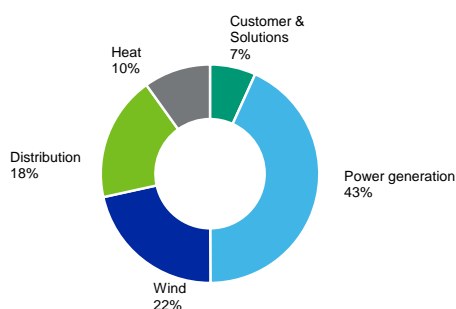
Profile

Vattenfall AB (Vattenfall) is a 100% Swedish state-owned company. With 31 gigawatts (GW) of installed capacity and 130 terawatt hours (TWh) electricity output at the end of 2019, Vattenfall is one of the biggest European energy groups. The company's generation portfolio primarily includes hydro (11.7 GW) and nuclear power (7.2 GW), out of which 8.7 GW and 2.9 GW, respectively, are located in Sweden. In addition, Vattenfall has coal and gas operations in Germany and the Netherlands. Vattenfall also has an increasing portfolio of wind assets (3.3 GW) and 8.9 GW in installed capacity in heat in Germany, Sweden and the Netherlands. In addition to power and heat generation, Vattenfall owns Sweden's largest electricity distribution network and the electricity distribution grid in Berlin. The company's retail base includes around 6.9 million electricity and 2.5 million of gas customers.

In 2019, Vattenfall derived most of its earnings in Sweden (70% of underlying operating profit), Germany (23%) and the Netherlands (2%).

Exhibit 3

Vattenfall has a diversified business mix Underlying EBITDA breakdown, in 2019

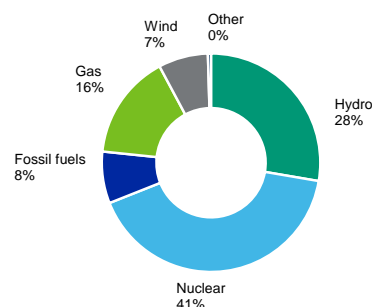


Total underlying EBITDA of SEK43.9 billion.

Sources: Company's reports and Moody's Investors Service

Exhibit 4

Nuclear and hydro account for the bulk of generation Breakdown of output, in 2019



Total output of 130 TWh.

Sources: Company's reports and Moody's Investors Service

Detailed credit considerations

Strategic focus on shift toward clean energy

Vattenfall's strategy is to drive a transition to a fossil-free society, supported by growth in renewables and maintenance of hydro and nuclear power as baseload capacity. This includes investments in both centralised and decentralised solutions.

In line with this strategy, the company plans investments of SEK58 billion in 2020-21. Around SEK35 billion of this amount is earmarked for growth capital spending, primarily for expansion in onshore and offshore wind (SEK25 billion). Other growth projects include expansion of networks and development of decentralised solutions, such as solar and e-mobility. Maintenance capital spending is mainly related to investments in distribution networks and modernisation of the heat portfolio, coupled with safety investments in the Swedish nuclear and hydropower plants.

Vattenfall has not provided a target for capital spending over the medium term. However, given the company's pipeline of offshore and onshore wind projects, and focus on efficiency and smart grid solutions, we expect most investments to continue to be directed into renewables and grids.

Depressed power prices in the Nordics will hurt the profitability of generation

With around 69% of 2019 output emanating from nuclear and hydro production, Vattenfall's generation fleet is predominantly fixed-cost in nature, making the company particularly exposed to prevailing wholesale power prices.

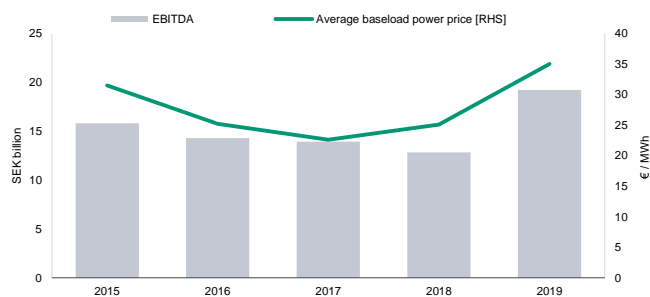
In 2019, Vattenfall managed to increase its achieved prices to €32/MWh, up from €30/MWh the prior year, thereby supporting an improvement in underlying EBITDA in the generation segment (around 44% of total EBITDA) to SEK19.2 billion (SEK12.8 billion in 2018). However, since the beginning of this year, power prices have declined substantially on the back of a warm winter with high precipitation leading to high reservoir levels in the Nordics. In addition, the coronavirus outbreak has put pressure on electricity

demand. Lastly, the severe decline in commodities and CO₂ prices observed since the beginning of the year have also fuelled negative pressure on the Nordic power prices. As a consequence, spot prices in the Nordics have declined with some 67% over the past year (as of end of the first quarter 2020), and the gap to German forward prices has widened. Generally, power prices in the Nordic market are fundamentally a function of European continental power prices, primarily in Germany. As of the end of May 2020, current forward prices in Germany are at around €37/MWh, while power prices in the Nordic region are at some €22/MWh.

Exhibit 5

Vattenfall's earnings are sensitive to changes in power prices

Underlying EBITDA in SEK billion, power price in €/MWh

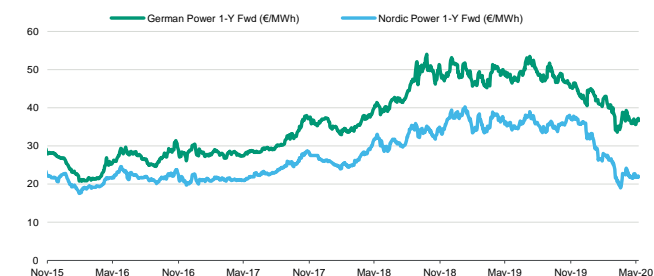


Sources: Company's reports, FactSet and Moody's Investors Service

Exhibit 6

Power prices have materially weakened over the past twelve months

One-year forward, in €/MWh



Source: FactSet and Moody's Investors Service

During the first quarter of 2020, Vattenfall's underlying EBIT increased by around SEK0.5 billion to SEK10.2 billion. As the company suffered losses amounting to around SEK0.8 billion following a storm in the first quarter of last year, the underlying performance was overall flattish. However, Vattenfall's power generation unit still saw its underlying EBITDA decrease by 16% to SEK5.5 billion mainly because of the low prices achieved on unhedged volumes. Whereas the company has locked in 65% of its 2020 output at €33/MWh, the achieved prices during the first quarter of this year came in at only €27/MWh, down from €36/MWh in the same quarter last year. As of the end of March 2020, the hedging ratios for 2021 and 2022 are 47% and 26%, with fixed prices of €32/MWh and €31/MWh, respectively. Taking into account Vattenfall's generation portfolio in the Nordic region, we estimate that a €1/MWh increase in wholesale power prices will boost operating profit by SEK900 million on an unhedged basis.

Absent a rebound in currently depressed power prices, we expect Vattenfall's earnings from its power division to come under pressure as hedges roll off. The profitability of this division will continue to be supported by the cuts in nuclear and hydro taxes in Sweden, although most of the savings have been already realised, as well as other cost-cutting initiatives, including in nuclear production with a management target of bringing the costs down to SEK190/MWh. This will, however, be offset by the expected decrease in output because of the decommissioning of Ringhals 1 and 2. Ringhals 2 was already decommissioned at the end of 2019, whereas Ringhals 1 is likely to move off the grid at the end of this year. More generally, the performance of this division will continue to be driven by the hydrological conditions.

Nuclear and hydro taxes in Sweden

In 2016, the Swedish government decided to phase out the nuclear capacity tax and cut hydro real estate taxes to support the country's path to free carbon generation and promote low carbon investments. Nuclear capacity tax of SEK70/MWh was cut by 90% from 1 July 2017 and abolished from 1 January 2018, resulting in annual savings to Vattenfall of around SEK3 billion a year. The cuts to hydro real estate tax, which amounted to SEK85/MWh, are gradually implemented over the 2017-20 period (the tax rate will decline from 2.8% to 0.5% over the period). We estimate the annual savings to Vattenfall at SEK2 billion.

Renewables growth will boost long-term contracted cash flow, but strategy carries some execution risk

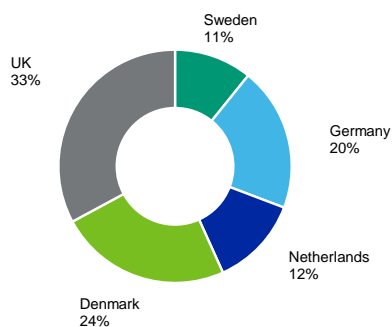
Vattenfall's installed renewables capacity, excluding hydro, amounts to around 3.4 GW, of which 2.1 GW is offshore wind and 1.2 GW is onshore wind. The renewables portfolio is spread over five European countries (Denmark, Sweden, Germany, the UK and the Netherlands), with the UK accounting for roughly one-third of the installed capacity.

The assets benefit from support schemes, which provide a degree of earnings stability and insulate Vattenfall from wholesale power price volatility. The company's merchant power price exposure is mainly related to wind farms, for which the subsidy period has expired, as well as Swedish wind farms operating under the certificate scheme and the UK wind farm projects operating under the renewable obligation certificates scheme. Over 75% of Vattenfall's revenue is, however, generated from the sale of power based on fixed tariffs, with a remaining subsidy-based contract life of around 10 years. The long-term contracted cash flow under supportive and well-established regulatory regimes underpins Vattenfall's credit quality.

Although renewable subsidies provide lower risk cash flow than merchant generation, wind farms are subject to output variability dependent on wind conditions. This is only partly mitigated by asset and geographical diversification.

Exhibit 7

Vattenfall has a diversified portfolio of renewables Breakdown of installed capacity, as of the end of December 2019

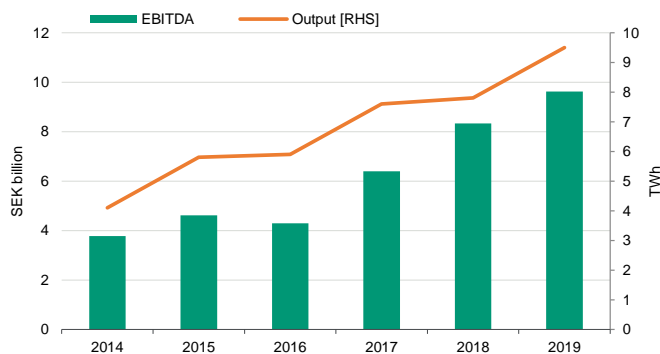


Total capacity of 3.4 GW.

Sources: Company's reports and Moody's Investors Service

Exhibit 8

Wind earnings have increased on the back of capacity additions EBITDA in SEK billion, output in TWh



Underlying EBITDA as reported.

Sources: Company's reports and Moody's Investors Service

Overall, Vattenfall has a good operational track record in its renewable portfolio. However, we still view construction of offshore wind farms as relatively risky compared with other well-established renewable technologies.

Vattenfall has some 1.4 GW of wind projects in construction. These include the Danish offshore wind farm Kriegers Flak (605 MW), which is scheduled to be commissioned in 2021, and other projects related to onshore wind in the Netherlands and Sweden. The pipeline of wind projects under development exceeds 5 GW, which includes the offshore wind project, Vesterhav Nord and Syd (344 MW), in Denmark that was originally scheduled to be commissioned in 2020, but is now delayed by three years because of the requirement for a new environmental study assessment. In the UK, Vattenfall is in the early stages (application submitted for a development consent order with UK authorities) for two very large offshore wind farms off the coast of Norfolk. Norfolk Vanguard and

Norfolk Boreas, both of which projected to have a total capacity of 1,800 MW each, will benefit from contracts for difference schemes and were initially projected to be commissioned by 2027 and 2028, respectively. Because of the coronavirus pandemic, a review of Vattenfall's application will likely be postponed by five months.

Overall, we expect earnings from the wind division to grow to some SEK10 billion-SEK12 billion over the medium term because of a step-up in installed capacity. We currently estimate that the share of revenue generated from the sale of power based on fixed tariff will not change significantly in the medium term, but will increase over time, given Vattenfall's pipeline of projects under development.

Merchant-based offshore wind projects bring additional risks

In July 2019, Vattenfall won a tender to construct the second phase of the build-out of Hollandse Kust Zuid in the Netherlands. The tender win came only a few months after Vattenfall was awarded a contract to build the first phase of the offshore wind farm. In total, the project Hollandse Kust Zuid 1-4 will have a total capacity of close to 1,500 MW when it is commissioned in 2022-23. Once completed, this will be the first offshore wind farm in Europe operating without any revenue-support framework.

We view merchant-based offshore wind projects as significantly higher risk than other types of generation. This is because of their exposure to both output and power price volatility. While Vattenfall may be able to mitigate some of the risks via power purchase agreements, which are becoming more common in Europe, these may not offer predictability equivalent to that of a fixed-tariff subsidy regime and will leave the company exposed to a counterparty risk.

In April 2020, Vattenfall pulled out of the tender for another large merchant-based project, Hollandse Kust Noord, given the uncertainty linked to the coronavirus outbreak and the company's satisfaction with the current pipeline.

Lower returns will reduce earnings from Swedish networks; uncertainty around the Berlin concession persists

In 2019, some 19% of Vattenfall's underlying EBITDA was derived from the regulated electricity distribution networks in Sweden and Germany. With EBITDA of SEK6.0 billion, Swedish grids accounted for close to 73% of the total earnings of this division last year. However, the Swedish distribution network incurred around SEK800 million of exceptional costs because of damage caused by the "Alfrida" storm at the beginning of the year. Adjusted for these costs, the proportion of distribution EBITDA emanating from Sweden would have been in excess of 82%.

In Sweden, where Vattenfall is the largest owner and operator of electricity distribution grids, tariffs are subject to a revenue cap model. For the current regulatory period spanning 2020-23, the weighted average cost of capital was initially cut to 2.16%, down from 5.85% in the prior regulatory period from 2016 to 2019 (certain court proceedings are ongoing and in a note from 28 May, the Swedish Energy Markets Inspectorate said that a slight increase to 2.35% would be appropriate following additional studies). While carry over of the revenue deficit from the previous regulatory period is allowed, we expect Vattenfall's earnings from the Swedish grids to fall to some SEK4.5 billion-SEK5 billion in the current regulatory period, which will affect the share of regulated earnings in the company's total EBITDA.

Vattenfall's network activities in Germany are solely based in the city of Berlin, where the company operates an electricity distribution grid under a concession. In this regard, in March 2019, the city decided to award the concession to another company, Berlin Energie. Vattenfall has challenged the city's decision, and a first court instance has found the city of Berlin's decision to be unlawful. Legal proceedings will continue this year with a final decision expected, which could trigger court proceedings. Their timing is, however, uncertain. The loss of the concession would likely trigger compensation, but it would also further reduce the share of regulated earnings in Vattenfall's business mix. In 2019, the Berlin grid generated some SEK2.2 billion in EBITDA.

We view regulated earnings from distribution grids as lower risk compared with conventional or renewable generation. In this regard, an expected decrease in distribution grid earnings weighs on our assessment of Vattenfall's credit quality.

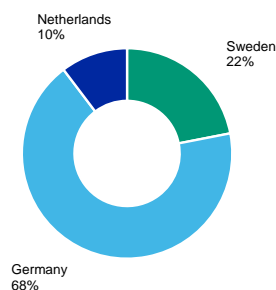
Heat activities add to diversification but profitability has significantly weakened

Vattenfall is one of Europe's largest producers and distributors of heat, supplying electricity and heat to growing metropolitan areas in Northwest Europe, including Berlin, Amsterdam and Uppsala. The district heating operations of Hamburg were sold in September 2019. The German market accounts for most of Vattenfall's heat sales — 12.3 TWh out of 17.1 TWh in total in 2019.

We estimate that heat accounted for the vast majority of this segment's EBITDA last year. The remainder of earnings were generated from sales of electricity from condensing plants and as a byproduct from Vattenfall's combined heat and power (CHP) plants. The share of heat was significantly higher than in the previous years, reflecting weak spreads affecting the profitability of electricity sales.

Exhibit 9

Heat activities are mainly located in Germany Production of heat, in 2019

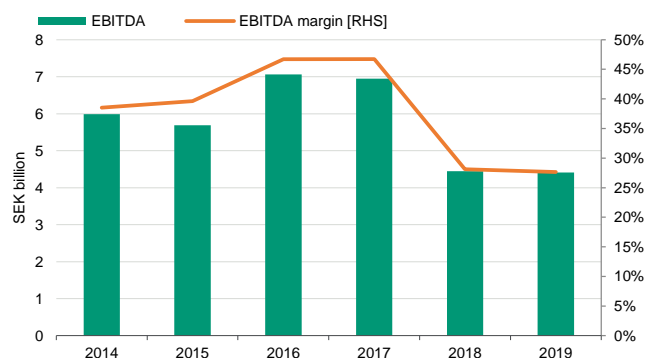


Total production of 15.5 TWh.

Sources: Company's reports and Moody's Investors Service

Exhibit 10

Heat earnings are subject to pressure from higher commodity costs EBITDA in SEK billion



Underlying EBITDA as reported.

Sources: Company's reports and Moody's Investors Service

District heating is not a regulated monopoly business but has high barriers to entry or is subject to long-term heat contracts. In Germany, a typical length of the contract is 10 years. This compares with the 15-30-year concessions in the Netherlands. In contrast, in Sweden, contracts are short term, but the company benefits from a strong market position with very low churn rates (less than 1%).

We expect the profitability of this division to improve as Vattenfall seeks to adapt its portfolio with the phaseout of fossil fuels and plant conversions to CHP eligible for subsidies. However, earnings will also be affected by the loss of the Hamburg concession following the city's decision last year to buy back the district heating system. The heat business in Hamburg contributed around SEK0.7 billion to Vattenfall's EBITDA in 2018.

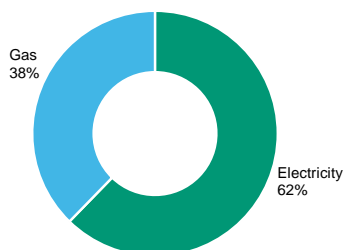
Retail segment provides a strong platform for development of energy solutions

In 2019, the Customers and Solutions segment contributed 7% to Vattenfall's underlying EBITDA. This segment includes supply of electricity and gas to residential, commercial and industrial customers. The company's customer base amounts to 10.2 million customers, with operations in the Nordic countries, the Netherlands, Germany, the UK and France.

Vattenfall's EBITDA margin in this segment was in excess of 4% in 2016-17. While this presented a significant increase on the 2015 level, the improvement in profitability was primarily because of a reallocation of contracts with resellers (B2B) from this division to the Power Generation segment. Other factors include reduction in administrative and sales costs. In 2018, the segment's profitability deteriorated mainly on the back of a difficult operating environment, given the intense competition and regulatory intervention. Vattenfall's EBITDA margin increased modestly in 2019 as the segment recorded SEK3 billion of EBITDA, up from SEK2.7 billion in 2018.

Exhibit 11

Electricity accounts for the bulk of Vattenfall's sales Sales volumes in 2019

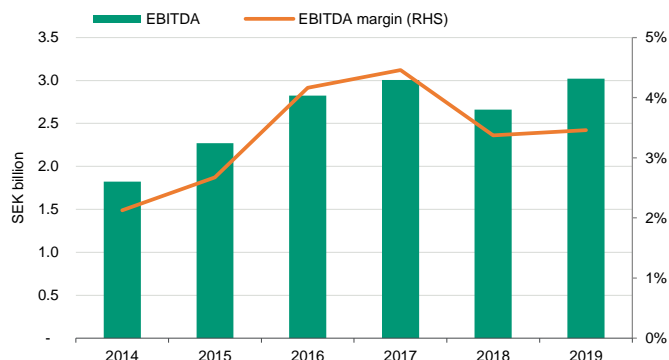


Total sales of 144 TWh.

Sources: Company's reports and Moody's Investors Service

Exhibit 12

EBITDA margin continues to be under pressure EBITDA in SEK billion



Underlying EBITDA as reported.

Sources: Company's reports and Moody's Investors Service

Vattenfall has been actively securing contracts for the supply of renewable electricity (for example, to a growing number of data centres in the Nordic countries) and other products (for example, solar panels). While development of new customer solutions supports revenue growth, markets will remain challenging with further pressure on the company's margins. In March this year, Vattenfall agreed to sell its electric vehicle charging network in the UK to Statkraft.

Adjusted debt affected by high nuclear and pension liabilities

As of the end of December 2019, Vattenfall's total adjusted debt (our definition) of SEK163 billion included around SEK79.5 billion in adjustments related to pension and nuclear liabilities. Some SEK19.7 billion of the total amount was related to German nuclear obligations. The German nuclear obligations have been significantly reduced following the payment of around SEK17.2 billion, of which SEK4.7 billion related to the risk premium required for the externalisation of the liabilities, in July 2017.

Vattenfall is pursuing a case at the Washington-based International Centre for Settlement of Investment Disputes concerning the financial losses caused by the early withdrawal of the operational permits for its German nuclear power plants. The company's claim amounts to €4.4 billion (excluding interest), although there is uncertainty regarding the timing of the decision and any potential benefit to Vattenfall.

Financial ratios will weaken throughout 2020 and will be weakly positioned against our guidance

In 2019, Vattenfall's underlying EBITDA of SEK43.9 billion increased strongly from SEK36.5 billion in 2018, underpinned by the strong earnings growth in the company's power generation segment. The strong EBITDA growth translated into a solid uptick in FFO, which more than offset the company's increased net debt levels, and thereby led to a strengthening in Moody's-adjusted FFO/net debt, which improved towards the mid-20s in percentage terms.

Given the current pressure on electricity prices in the Nordics, we expect Vattenfall's credit metrics to deteriorate in 2020 and be weakly positioned against our guidance, which takes account of the company's business risk profile, with the share of regulated, quasi-regulated and contracted earnings at some 50% of EBITDA. The company's decision to cut the annual dividend in half will partly offset the negative operating environment. We recognise the potential for the company to deliver stronger financial performance in 2021 once new renewable capacity is commissioned and the negative effects from the coronavirus outbreak potentially abate.

Vattenfall's ratios, as defined by management targets, include FFO/adjusted net debt (as defined by management) of 22%-27%. As of the end of March 2020, this ratio stood at 25.2%, which was only a slight deterioration from the 26.5% as of year-end 2019 (the first quarter of the year is often a low point in terms of net debt levels because of seasonal effects in the company's Customer & Solutions, and Heat Segment. In addition, procurement of CO₂ certificates and cash flow related to margin calls will create volatility in working capital). Management is committed to maintain this key metric within the stated levels, which would support distributions to Vattenfall's shareholder. The company's dividend policy assumes a payout ratio of 40%-70% of the consolidated net income.

Government ownership is supportive of credit quality

Vattenfall is the largest electric utility in Sweden, where it accounts for over 55% of domestic power generation, mainly based on hydro and nuclear, owns the largest electricity distribution grid and supplies over 874,000 retail electricity customers.

While we recognise the strategic importance of the company within Sweden, we also acknowledge the state's determinedly noninterventionist stance. We believe that the authorities would hesitate to intervene (such as through a direct capital injection) except in the most extreme circumstances, that is, where there is a threat to key strategic Swedish assets such as nuclear and hydropower plants, and its network infrastructure.

ESG considerations

The EU has committed to reduce greenhouse gas emissions by 40% from the 1990 levels and to increase the contribution of renewables to energy demand to 27% by 2030. These targets, agreed in 2014, formed the basis of the EU's Nationally Determined Contributions incorporated into the Paris Agreement, and are designed to significantly decarbonise the region's economies. We believe that unregulated utilities, which account for 40% of EU carbon emissions, will need to deliver a significant share of the reductions, and that this will create a variety of risks and opportunities for individual utilities.

We believe that Vattenfall is moderately well positioned to face carbon transition risks compared with peers given the fairly low-carbon intensity of its fleet (126 g/kWh in 2019), as well as the growing contribution of renewables and regulated activities to its earnings. This is mitigated by its large exposure to large-scale, centralised generation.

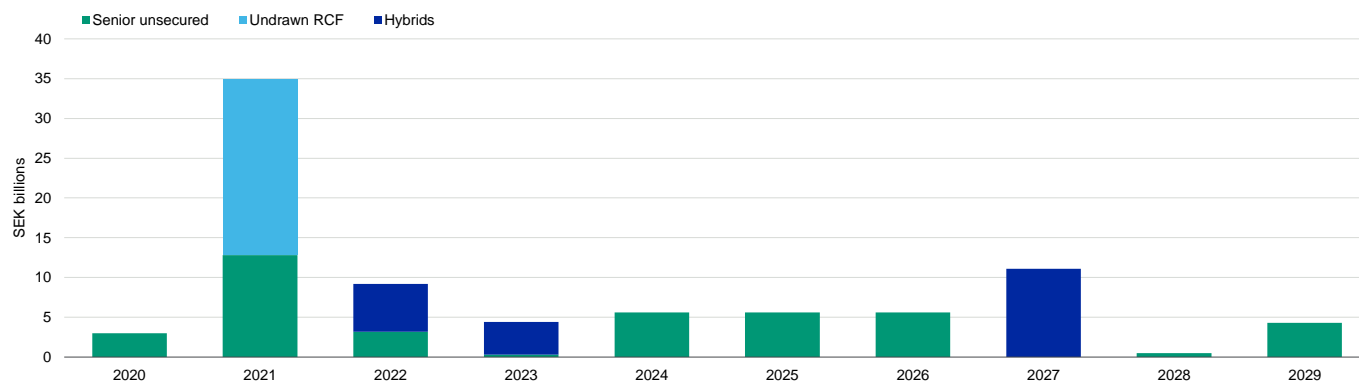
Our framework for assessing the risks associated with decarbonisation in this industry is set out in [Unregulated utilities and power companies - Global: Carbon transition brings risks and opportunities](#), published on 26 June 2018.

Liquidity analysis

As of the end of March 2020, Vattenfall's liquidity position was supported by SEK27.8 billion of cash and short term investments, and a committed revolving credit facility (RCF) of €2 billion (SEK22.1 billion). The RCF, which is fully undrawn, expires in December 2021.

Exhibit 13

Vattenfall has a fairly well-spread debt maturity profile As of the end of March 2020



Maturity of hybrids shown at first call dates.

Sources: Company's reports and Moody's Investors Service

Structural considerations

Vattenfall's capital structure includes a mix of senior unsecured bonds, bank debt and hybrid securities.

As of the end of March 2020, Vattenfall had four hybrids outstanding: €1 billion due March 2077, SEK3 billion due March 2077, SEK3 billion due March 2077 and \$400 million due November 2078.

Given the features of the hybrids, we treat them as 50% debt and 50% equity for financial leverage calculations.

Rating methodology and scorecard factors

Vattenfall is rated in accordance with the [Unregulated Utilities and Unregulated Power Companies](#) rating methodology, published in May 2017. The company's Baseline Credit Assessment (BCA) on a historical basis is in line with the scorecard indicated outcome.

Given the 100% ownership by the Swedish government, Vattenfall is considered a government-related issuer (GRI) under our [Government-Related Issuers](#) methodology, published in February 2020. Accordingly, and based on our estimate of moderate support in case of financial distress, the A3 rating factors in one notch of uplift from the company's BCA of baa1.

Exhibit 14

Rating factors Vattenfall AB

Unregulated Utilities and Unregulated Power Companies Industry Grid [1][2]	Current LTM 3/31/2020		Moody's 12-18 Month Forward View[3]	
	Measure	Score	Measure	Score
Factor 1 : Scale (10%)				
a) Scale (USD Billion)	A	A	A	A3
Factor 2 : Business Profile (40%)				
a) Market Diversification	Baa	Baa	Baa	Baa
b) Hedging and Integration Impact on Cash Flow Predictability	Baa	Baa	Baa	Baa
c) Market Framework & Positioning	Ba	Ba	Ba	Ba
d) Capital Requirements and Operational Performance	Baa	Baa	Baa	Baa
e) Business Mix Impact on Cash Flow Predictability	Aa	Aa	Aa	Aa
Factor 3 : Financial Policy (10%)				
a) Financial Policy	Baa	Baa	Baa	Baa
Factor 4 : Leverage and Coverage (40%)				
a) (CFO Pre-W/C + Interest) / Interest (3 Year Avg)	5.5x	Baa	4.0x - 5.0x	Baa
b) (CFO Pre-W/C) / Net Debt (3 Year Avg)	21.8%	Baa	20% - 22%	Baa
c) RCF / Net Debt (3 Year Avg)	19.6%	Baa	14% - 17%	Ba
Rating:				
a) Indicated Outcome from Scorecard		Baa1		Baa2
b) Actual Rating Assigned		A3		
Government-Related Issuer		Factor		
a) Baseline Credit Assessment		baa1		
b) Government Local Currency Rating		Aaa, stable		
c) Default Dependence		Moderate		
d) Support		Moderate		
e) Final Rating Outcome		A3		

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

[2] As of 3/31/2020; Source: Moody's Financial Metrics™

[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

Source: Moody's Investors Service

Appendix

Exhibit 15

Peer comparison

(in EUR million)	Vattenfall AB A3 Negative			Iberdrola S.A. (P)Baa1 Stable			EnBW (P)A3 Negative			Statkraft AS A3 Stable		
	FYE	FYE	FYE	FYE	FYE	FYE	FYE	FYE	FYE	FYE	FYE	
	Dec-17	Dec-18	Dec-19	Dec-17	Dec-18	Dec-19	Dec-17	Dec-18	Dec-19	Dec-17	Dec-18	Dec-19
Revenue	14,019	14,833	15,726	31,263	35,076	36,438	21,974	20,815	18,765	5,441	5,923	4,414
EBITDA	3,532	3,585	3,685	6,870	9,236	9,570	4,092	2,013	2,512	2,277	1,858	2,168
Total Assets	42,142	46,234	42,852	111,727	114,245	122,146	39,207	39,950	43,207	17,330	18,531	17,973
Total Debt	15,550	15,129	15,537	40,385	41,339	43,960	18,554	18,504	20,099	4,338	3,965	3,438
Net Debt	13,098	11,421	12,574	37,175	38,537	41,846	9,497	10,509	12,888	2,807	1,572	1,753
FFO / Net Debt	20.9%	22.6%	24.7%	14.5%	18.5%	18.5%	33.1%	17.7%	16.4%	31.1%	95.5%	74.3%
RCF / Net Debt	20.0%	19.5%	21.6%	9.5%	13.2%	14.0%	31.7%	14.4%	13.7%	19.9%	56.4%	24.5%
(FFO + Interest Expense) / Interest Expense	4.6x	5.1x	7.1x	5.3x	5.7x	6.3x	5.4x	3.7x	4.6x	7.0x	13.4x	15.6x

All figures and ratios calculated using Moody's estimates and standard adjustments. FYE = Financial year-end. LTM = Last 12 months. RUR* = Ratings under review, where UPG = for upgrade and DNG = for downgrade.
Source: Moody's Financial Metrics™

Exhibit 16

Moody's adjusted debt breakdown

Vattenfall AB

(in SEK million)	FYE Dec-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19
As Reported Total Debt	110,585	96,667	87,154	88,275	97,627
Pensions	37,152	40,644	41,962	39,686	44,026
Leases	5,604	4,212	6,198	6,984	0
Hybrid Securities	(9,273)	(9,582)	(9,559)	(9,916)	(10,082)
Non-Standard Public Adjustments	25,329	37,935	27,404	28,550	31,815
Moody's Adjusted Total Debt	169,397	169,876	153,159	153,579	163,386
Cash & Cash Equivalents	(41,577)	(40,751)	(24,148)	(37,635)	(31,151)
Moody's Adjusted Net Debt	127,820	129,125	129,011	115,944	132,235

All figures are calculated using Moody's estimates and standard adjustments.
Source: Moody's Financial Metrics™

Exhibit 17

Moody's adjusted FFO breakdown

Vattenfall AB

(in SEK million)	FYE Dec-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19
As Reported Funds from Operations (FFO)	29,009	28,186	26,643	23,275	34,949
Leases	737	551	830	875	0
Capitalized Interest	(735)	(374)	(253)	(254)	(137)
Hybrid Securities	486	486	312	345	357
Alignment FFO	2,447	(3,932)	(582)	1,995	(2,565)
Unusual Items - Cash Flow	(3,028)	(238)	0	0	0
Moody's Adjusted Funds from Operations (FFO)	28,916	24,679	26,950	26,236	32,604

All figures are calculated using Moody's estimates and standard adjustments.
Source: Moody's Financial Metrics™

Exhibit 18

Select historical adjusted financial data

Vattenfall AB

(in SEK million)	FYE Dec-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19
INCOME STATEMENT					
Revenue	143,576	139,208	135,114	152,091	166,360
EBITDA	33,513	26,532	34,044	36,764	38,982
EBIT	18,119	12,462	17,773	19,303	20,137
Interest Expense	6,179	6,025	7,562	6,411	5,336
Net income	(2,916)	(18,149)	6,723	9,616	10,823
BALANCE SHEET					
Net Property Plant and Equipment	249,432	220,974	233,202	245,531	256,563
Total Assets	467,186	413,098	415,077	469,338	450,643
Total Debt	169,397	169,876	153,159	153,579	163,386
Cash & Cash Equivalents	41,577	40,751	24,148	37,635	31,151
Net Debt	127,820	129,125	129,011	115,944	132,235
Total Liabilities	350,470	335,536	328,630	371,524	347,038
CASH FLOW					
Funds from Operations (FFO)	28,916	24,679	26,950	26,236	32,604
Cash Flow From Operations (CFO)	41,422	31,446	26,617	42,020	16,939
Dividends	819	1,368	1,177	3,644	4,071
Retained Cash Flow (RCF)	28,097	23,311	25,773	22,592	28,533
Capital Expenditures	(28,995)	(23,659)	(20,634)	(22,757)	(26,995)
Free Cash Flow (FCF)	11,608	6,419	4,806	15,619	(14,127)
INTEREST COVERAGE					
(FFO + Interest Expense) / Interest Expense	5.7x	5.1x	4.6x	5.1x	7.1x
LEVERAGE					
FFO / Debt	17.1%	14.5%	17.6%	17.1%	20.0%
RCF / Debt	16.6%	13.7%	16.8%	14.7%	17.5%
FFO / Net Debt	22.6%	19.1%	20.9%	22.6%	24.7%

All figures and ratios are calculated using Moody's estimates and standard adjustments. Periods are financial year-end unless indicated. LTM = Last 12 months.

Source: Moody's Financial Metrics™

Ratings

Exhibit 19

<u>Category</u>	<u>Moody's Rating</u>
VATTENFALL AB	
Outlook	Negative
Issuer Rating	A3
Senior Unsecured	A3
Jr Subordinate	Baa2
Commercial Paper	P-2

Source: Moody's Investors Service

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