

CREDIT OPINION

19 July 2022

Update

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RATINGS

Vattenfall AB

| | |
|------------------|------------------|
| Domicile | Sweden |
| Long Term Rating | A3 |
| Type | LT Issuer Rating |
| Outlook | Stable |

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

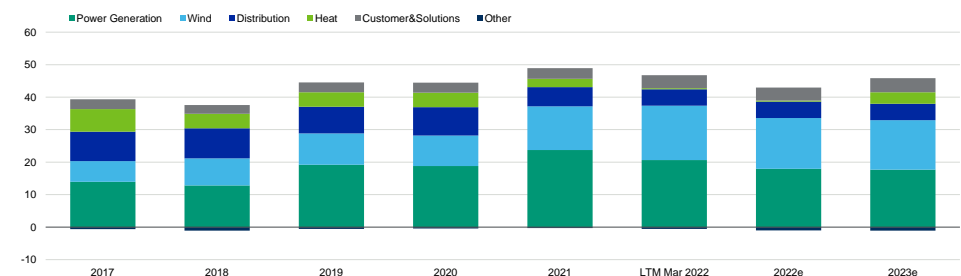
Update to credit analysis

Summary

Vattenfall AB's (Vattenfall) A3 senior unsecured rating is supported by the breadth and scale of the company's operations; its clean generation portfolio in the Nordics; a moderate contribution from regulated electricity distribution and district heating activities; an increasing contribution from contracted renewables; and its solid financial profile, with funds from operations (FFO)/net debt amounting to more than 160% (or low 40s in percentage terms excluding the temporary impact from positive margin calls on net debt).

These factors are balanced by Vattenfall's exposure to conventional power generation, which accounted for around 49% of its underlying EBITDA in 2021; the competition in retail markets; friction from cuts in allowed returns for the distribution networks; and execution risk associated with Vattenfall's strategy to grow its renewable energy portfolio and adapt to the evolving industry of energy services.

Exhibit 1
Increased contribution from wind will only partly offset weaker performance in power generation and reduced earnings from distribution
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

- » Significant 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 stable outlook reflects our expectation that Vattenfall will continue to meet our guidance for the current rating, which includes FFO/net debt above 25% and RCF/net debt in the high teens in percentage terms.

Factors that could lead to an upgrade

An upgrade of Vattenfall's ratings is unlikely in the medium term given the current portion of regulated earnings, its financial targets and expected large capital spending.

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-18 | Dec-19 | Dec-20 | Dec-21 | LTM Mar-22 | Dec-23F | Dec-24F |
|---|--------|--------|--------|--------|------------|---------|---------|
| (CFO Pre-W/C + Interest) / Interest Expense | 5.1x | 7.1x | 8.4x | 10.6x | 8.6x | 6.3x | 6.5x |
| (CFO Pre-W/C) / Net Debt | 22.6% | 24.7% | 29.2% | 169.4% | 112.5% | 76.6% | 56.0% |
| RCF / Net Debt | 19.5% | 21.6% | 24.5% | 149.3% | 97.0% | 25.8% | 36.6% |

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

Source: Moody's Financial Metrics™

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

Profile

Vattenfall AB (Vattenfall) is a 100% Swedish state-owned company. With 29 gigawatts (GW) of installed capacity and 111 terawatt hours (TWh) of electricity output as of year-end 2021, Vattenfall is one of the biggest European energy groups. The company's generation portfolio primarily includes hydro (11.5 GW) and nuclear power (5.5 GW), with 8.5 GW of the hydro output and all of the nuclear output located in Sweden. In addition, Vattenfall has coal and gas operations in Germany and the Netherlands. The company also has a growing portfolio of wind assets (4.0 GW) and 9.3 GW in installed capacity in heat in Germany, Sweden and the Netherlands. In addition to dealing in power and heat generation, Vattenfall owns Sweden's largest electricity distribution network. The company's retail base includes around 7.0 million electricity and 2.4 million gas customers.

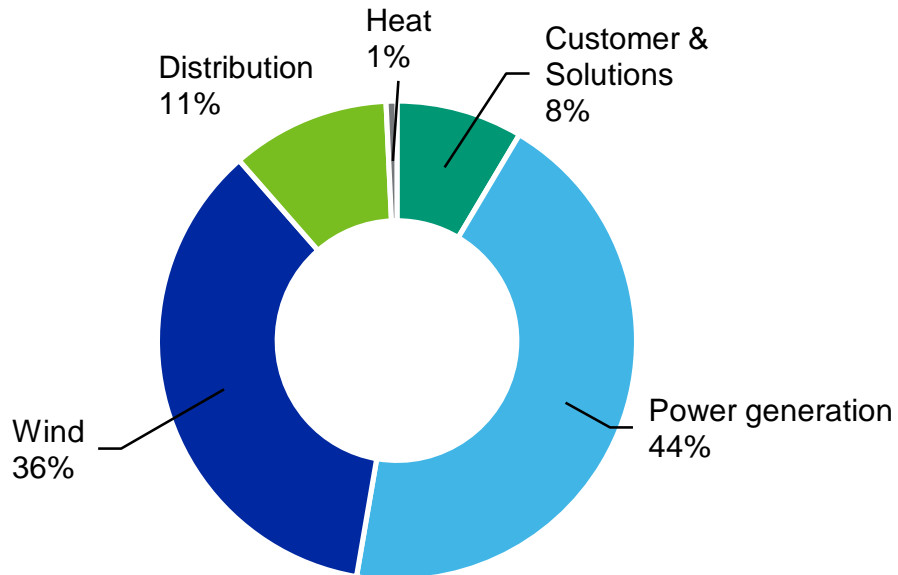
In 2021, Vattenfall derived most of its earnings from Sweden (37% of underlying operating profit, down from 61% in 2020), Germany (23%, up from 21% in 2020) and the Netherlands (23%, up from 9% in 2020, mainly driven by increased capacity and lower average temperatures in the Netherlands).

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

Exhibit 3

Vattenfall has a diversified business mix

Underlying EBITDA breakdown, for the 12 months that ended March 2022

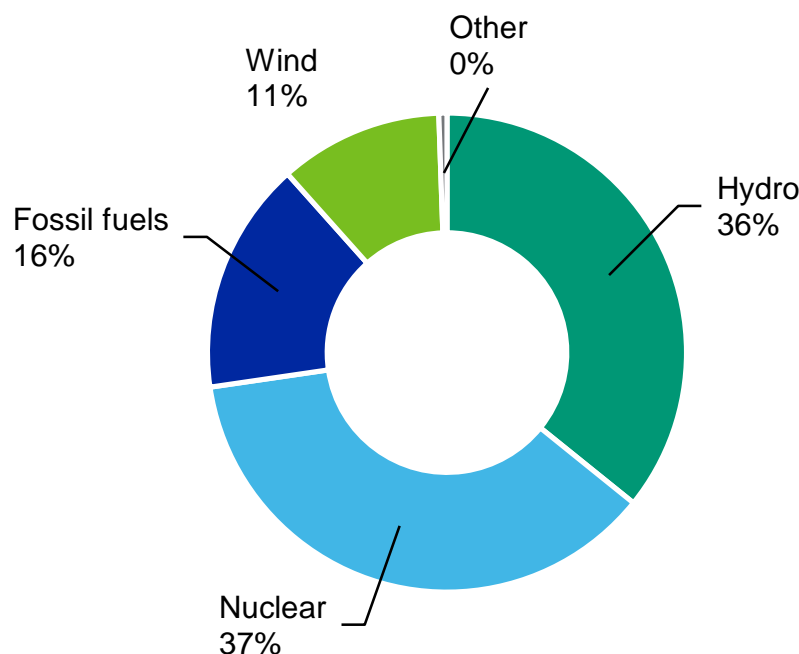


Total underlying EBITDA of SEK46.1 billion.

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

Exhibit 4

Nuclear and hydro account for the bulk of generation
Breakdown of output, for the 12 months that ended March 2022



Total output of 110 TWh.

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

Detailed credit considerations

Strategic shift towards clean energy

Vattenfall's strategy is to shift towards an increasingly fossil-free model by driving growth in renewables while maintaining hydro and nuclear power as baseload capacity. This includes investments in both centralised and decentralised solutions.

In line with this strategy, the company has planned investments of SEK55 billion in 2022-23. Around SEK34 billion of this amount is earmarked for growth capital spending, primarily for expansion in onshore and offshore wind (SEK23 billion). Other growth projects include development of electricity grids and district heating networks to connect new customers and areas. 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.

High-price power environment will only drive significant upside to EBITDA as hedges roll off

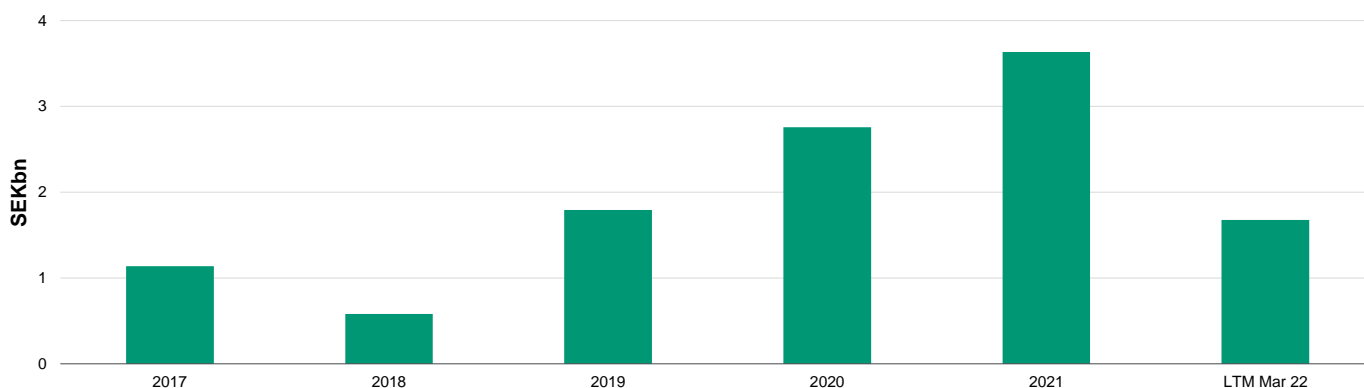
With around 70% of 2021 output emanating from nuclear and hydro production, Vattenfall's generation fleet is predominantly fixed cost in nature, making the company particularly exposed to prevailing wholesale power prices. As such, the company's power generation business delivered strong operating results because of increased nuclear and hydro power generation, and higher realised trading results. A lower average hedging price (€5/MWh lower) was countered by a higher spot price (€40/MWh higher) following the recent sharp rise in electricity prices. As a result, underlying EBITDA in power generation recorded a strong increase of 26% from 2020. The strong results were also boosted by the company's trading operations — adding about SEK900 million to the division's

underlying operating profit. Vattenfall's trading operations can be somewhat volatile and have an impact on its EBITDA and cash flow. For example, during 2021, its trading operations represented 12% of the company's underlying EBIT and 19% of underlying EBIT within the power generation unit.

Exhibit 5

Trading activities are volatile

EBIT contribution of realised trading activities



Source: Vattenfall annual reports and Q1 2022 interim report

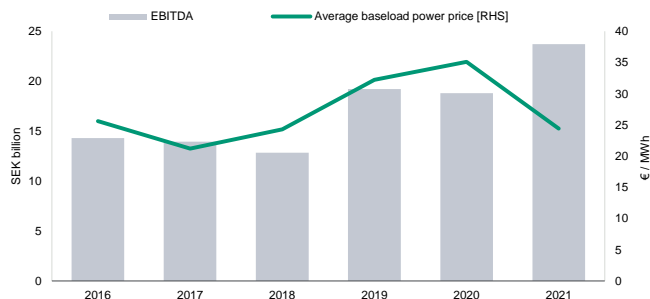
Similar to that in other European markets, electricity prices in Vattenfall's markets have risen significantly since the beginning of 2021. The average price for 2021 was five times higher than the previous year in the Nordics and three times higher on the Continent. However, the earnings impact from higher electricity prices has been limited because Vattenfall hedges its generation and the achieved prices in the Nordic region were at the same level as a year earlier. In terms of pricing, Vattenfall's achieved prices remained unchanged at €31/MWh, in line with the achieved prices of 2020.

Driven by the combination of higher electricity prices in Continental Europe and lower hydrological balance in the Nordics, spot power prices in the Nordics were up by 161% on average during the first quarter of 2022. As of end June 2022, future prices were hovering around €92/MWh, an increase of almost 150% from a year earlier. As a result, the gap to German forward prices has widened further. Generally, power prices in the Nordic markets are fundamentally a function of power prices in Continental Europe, primarily in Germany. As of the beginning of July 2022, current forward prices in Germany are at around €185/MWh, more than double the power prices in the Nordics.

Exhibit 6

Vattenfall's earnings are sensitive to changes in power prices

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

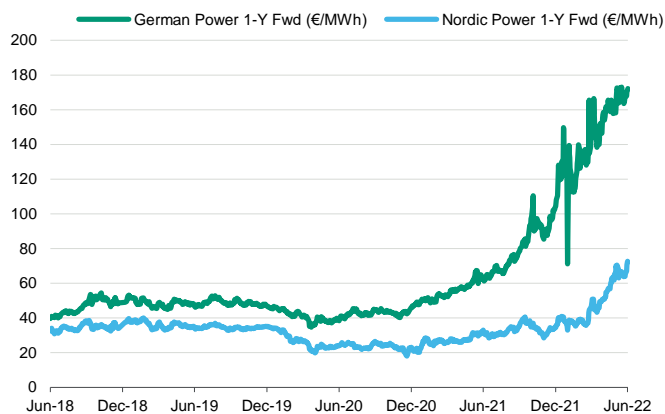


Sources: Company's reports, FactSet and Moody's Investors Service

Exhibit 7

Power prices have been picking up since November 2020

One-year forward, in €/MWh



Sources: FactSet and Moody's Investors Service

In Q1 2022, Vattenfall's underlying EBITDA in the power segment decreased by 42% to SEK4.3 billion, mainly driven by the lower realised trading result, lower achieved prices in the Nordic countries affected by major price differences between electricity price areas in Sweden and lower generation from hydro power. Unlike most other countries in Europe, Sweden has four different price areas. A lot of electricity is consumed in the south, whereas many hydro plants are located in the bidding areas in the north of Sweden. Because there are capacity constraints in terms of transmission of electricity from the north to the south, there can be substantial price differentials between the bidding zones. In terms of market liquidity, there is not enough liquidity to hedge output in various price zones and, under its hedging policy, Vattenfall hedges against the system price. When prices go up — as they have done throughout 2021 and into 2022 — Vattenfall pays the margin between the hedge price and the system price. However, because roughly 45% of its electricity production is in the price areas in the north of Sweden with transmission bottlenecks, this electricity has to be sold in these price areas. As a result, the company is not able to capture higher electricity prices for the volumes it had hedged. For example, during Q1 2022, Vattenfall's achieved prices were only €20/MWh in spite of the much higher power price environment overall.

In addition to pricing, hydrological conditions will continue to drive the performance of this division. In nuclear, the Ringhals 2 plant was already decommissioned at the end of 2019 and Ringhals 1 moved off the grid at the end of 2020 — reducing nuclear output by around 879 MWh.

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

Vattenfall's installed renewables capacity, excluding hydro, is around 4.2 GW, of which 2.6 GW is offshore wind and 1.6 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 around 25% of the installed capacity. Vattenfall is increasingly focused on wind and is expanding — on a selective basis — into new markets. For example, in early 2022, it was awarded a floating wind contract in Scotland, together with its partner Fred Olsen Seawind.

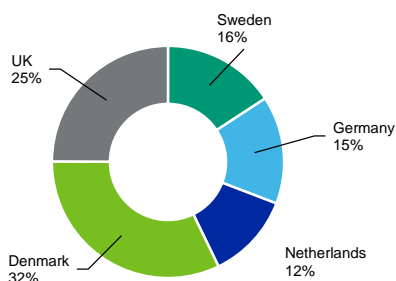
Vattenfall's assets benefit from support schemes, which provide a degree of earnings stability and insulate Vattenfall from wholesale power price volatility. The company's merchant power price exposure is mainly related to wind farms for which the subsidy period has expired, and to Swedish wind farms operating under the certificate scheme and UK wind farm projects operating under the renewable obligation certificates scheme. Over 75% of Vattenfall's renewables revenue is, however, generated from the sale of power based on fixed tariffs. The long-term contracted cash flow under supportive and well-established regulatory regimes underpins Vattenfall's credit quality. The company has, however, also shown interest in increasing merchant exposure. The 1.5 GW Hollandse Kust Zuid wind farm, which is likely to become operational in 2023-24, will not benefit from subsidies and thereby increase Vattenfall's exposure to merchant generation. However, in June 2021, Vattenfall sold a 49.5% stake in the wind farm to BASF, which will contribute around €1.6

billion of capital spending to the development of the wind farm and acquire electricity output proportional to its percentage ownership of the wind farm.

Exhibit 8

Vattenfall has a diversified portfolio of renewables

Breakdown of installed capacity, as of the end of March 2022



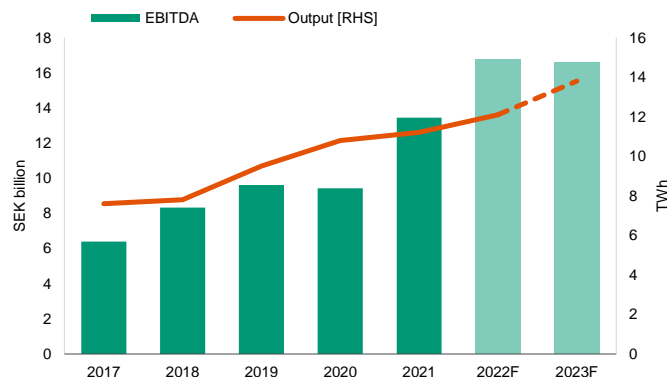
Total capacity of 4.2 GW.

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

Exhibit 9

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 renewables portfolio. However, construction of offshore wind farms is relatively risky compared with other well-established renewables technologies.

Vattenfall has a pipeline amounting to more than 6.3 GW in construction and under development, and most of it is in wind projects. In view of the pipeline of upcoming tenders, we expect the company to further increase its exposure to renewables in the coming years.

Vattenfall has around 2.7 GW of wind projects in construction. In addition to Hollandse Kust Zuid, which accounts for almost half of the assets under construction, other key projects include the Danish offshore wind farm Vesterhav (344 MW) and the UK onshore wind farm South Kyle (240 MW), which will be commissioned in 2023-24 and 2022, respectively, and various onshore wind projects in the UK, the Netherlands and Sweden.

Wind projects under development mainly comprise the 3.6 GW of projects off the coast of Norfolk in the UK. Norfolk Vanguard and Norfolk Boreas, each of which is projected to have a total capacity of 1,800 MW, will benefit from contracts for difference schemes and were initially projected to be commissioned by 2027 and 2028, respectively.

Wind generated about SEK13.5 billion in EBITDA in 2021, an increase of 44% compared with 2020. The better operating results were mainly driven by higher power prices, particularly in the UK, and the addition of new capacity. This more than offset friction from lower average wind speeds. Continued investment and commissioning of new projects will support further growth in this segment over the next two years.

Network earnings to decrease further on the back of disposal of the Berlin grid and Swedish tariff pressure

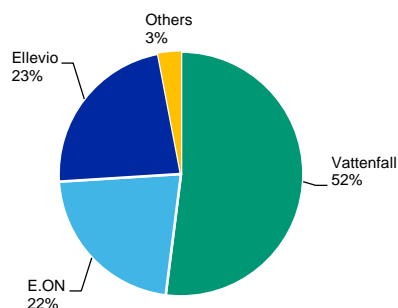
Vattenfall has more than 132,000 km of electricity grids. In 2021, the regulated electricity distribution networks in Sweden and Germany generated about 12% of Vattenfall's underlying EBITDA. While the underlying EBITDA declined by 32% compared with 2020, the decline was mainly because of the company's sale of Stromnetz Berlin on 1 July 2021, which hurt its underlying operating profit by around SEK600 million. Underlying operations were also hurt by lower gross margin in the Swedish operations caused by a combination of higher network losses, increased costs of the transmission network and price reductions in the local grid.

Vattenfall's regulated asset base (RAB) in Sweden was around SEK60 billion in 2021. The regulated distribution grid in the country is divided between regional and local markets. Whereas the regional market is heavily concentrated, the local market is fragmented and has more than 170 different players (although the three large players still control more than 50% of the market). Because of the energy transition, future market growth will essentially occur in the regional market.

Exhibit 10

Vattenfall has a high market share of regional grids in Sweden

Regional market shares

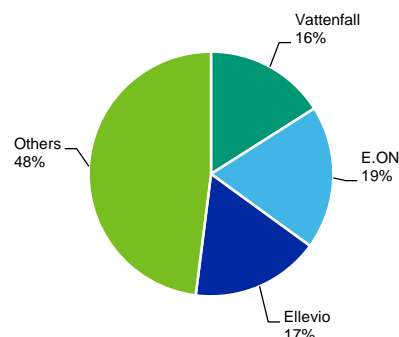


Market shares based on volume transited excluding grid losses.
Source: Vattenfall Corporate Factbook (May 2022)

Exhibit 11

Local grids remain a highly fragmented market

Local market shares



Market shares based on number of connections.
Source: Vattenfall Corporate Factbook (May 2022)

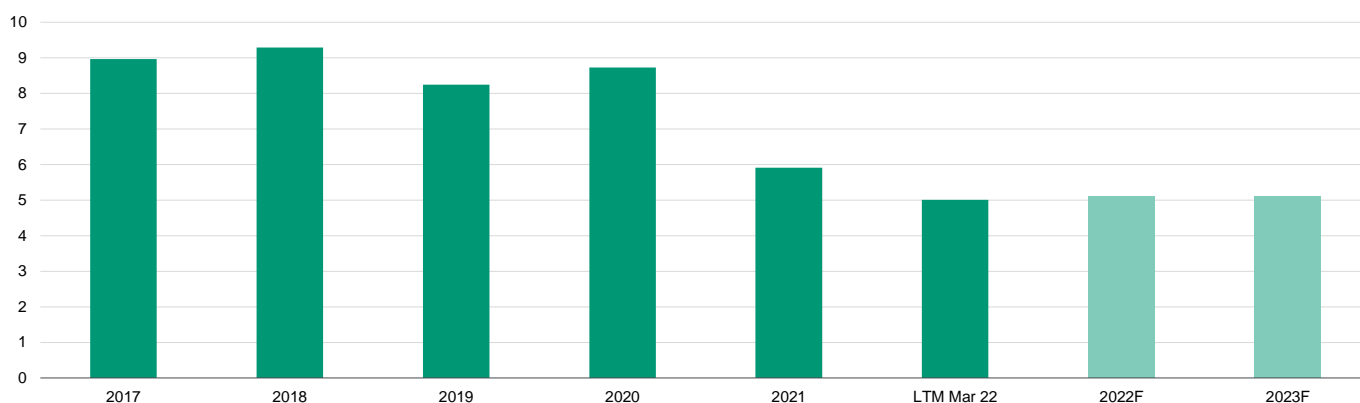
Earnings from Vattenfall's distribution segment will decrease in 2022, mainly because of the disposal of the Berlin DSO grid and the phasing in of lower tariffs

In Sweden, where Vattenfall is the largest owner and operator of electricity distribution grids, tariffs are subject to a revenue cap. For the current regulatory period spanning 2020-23, the weighted average cost of capital was cut to 2.16% (later revised upwards to 2.35% following additional studies from the Swedish Energy Markets Inspectorate), down from 5.85% in the prior regulatory period (2016-19). While carry over of revenue deficit from the previous regulatory period is allowed, we expect Vattenfall's earnings from the Swedish grids to fall to about SEK5 billion for the remainder of the current regulatory period.

Exhibit 12

Earnings from distribution will stabilise

Distribution underlying EBITDA (SEK billion)



Sources: Vattenfall annual reports and Moody's Investors Service estimates

Regulated earnings from distribution grids carry lower risk than conventional or renewable generation. In this regard, the decrease in distribution grid earnings weighs on our assessment of Vattenfall's credit quality. However, the relative share of contracted and quasi-contracted earnings (including wind) will remain around 50%.

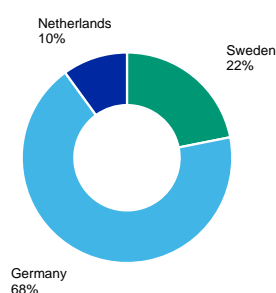
Heat activities add to diversification but profitability has significantly weakened

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 German market accounts for most of Vattenfall's heat sales — 10.5 TWh out of 15.6 TWh in total in 2021.

In an average year, we estimate that heat accounts for most of this segment's EBITDA, with the remainder of earnings generated from sale of electricity from condensing plants and as a by-product from Vattenfall's combined heat and power (CHP) plants. In 2021, the share of heat was higher than in previous years as a result of lower temperatures and a growing customer base. However, the underlying EBITDA of the segment decreased by 42% in 2021, reflecting the substantially higher gas and CO₂ prices. This mainly affected negatively the clean spark spreads of Vattenfall's heat operations in Berlin.

Exhibit 13

Heat activities are mainly located in Germany Production of heat, in 2021

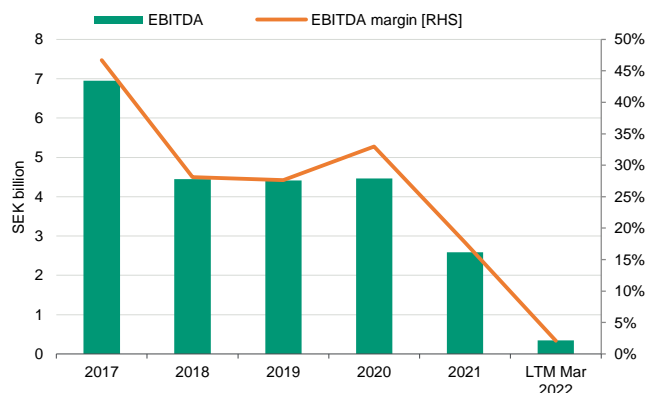


Total production of 16.1 TWh.

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

Exhibit 14

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

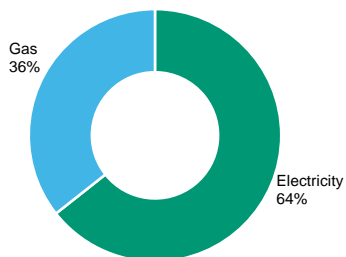
District heating is not a regulated monopoly business but has high barriers to entry or is subject to long-term heat contracts. In Germany, the typical length of a contract is 10 years. This compares with the 15-30-year concessions in the Netherlands. In contrast, in Sweden, contracts are short term,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

We expect this division's profitability to take a hit in the short term because of higher gas prices which led to lower clean spark spreads. In March 2022, Vattenfall inaugurated the new biofuel-fired heat plant Carpe Futurum in Uppsala; this plant will lower CO₂ emissions by about 200,000 tonnes per year. The plant has a heating capacity of 110 MW and is a significant part of a long-term SEK3.5 billion investment programme to phase out fossil fuels.

Retail segment provides a strong platform for development of energy solutions

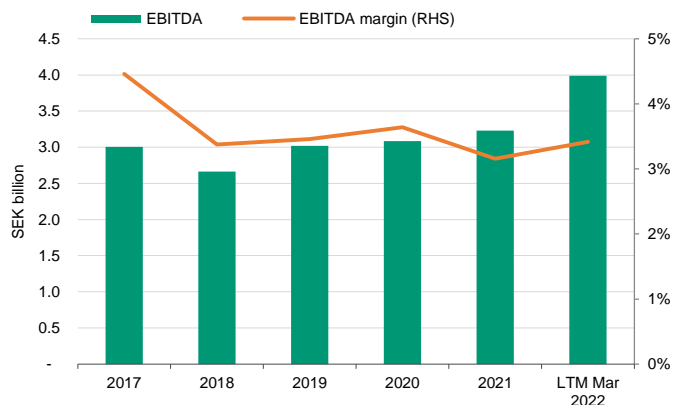
In 2021, the Customers and Solutions segment contributed 7% to Vattenfall's underlying EBITDA. This segment includes supply of electricity and gas to residential, commercial and industrial customers. The company has 10.5 million customers, with operations in the Nordic countries, the Netherlands, Germany, the UK and France. Vattenfall's EBITDA margin increased modestly in 2021 as the segment recorded SEK3.2 billion of EBITDA, up from SEK3.1 billion in 2020.

Exhibit 15
Electricity accounts for the bulk of Vattenfall's sales
 Sales volume for the 12 months that ended March 2022



Total sales for the 12 months that ended March 2022: 148 TWh.
 Sources: Company's reports and Moody's Investors Service

Exhibit 16
EBITDA margins have been under some pressure
 EBITDA in SEK billion



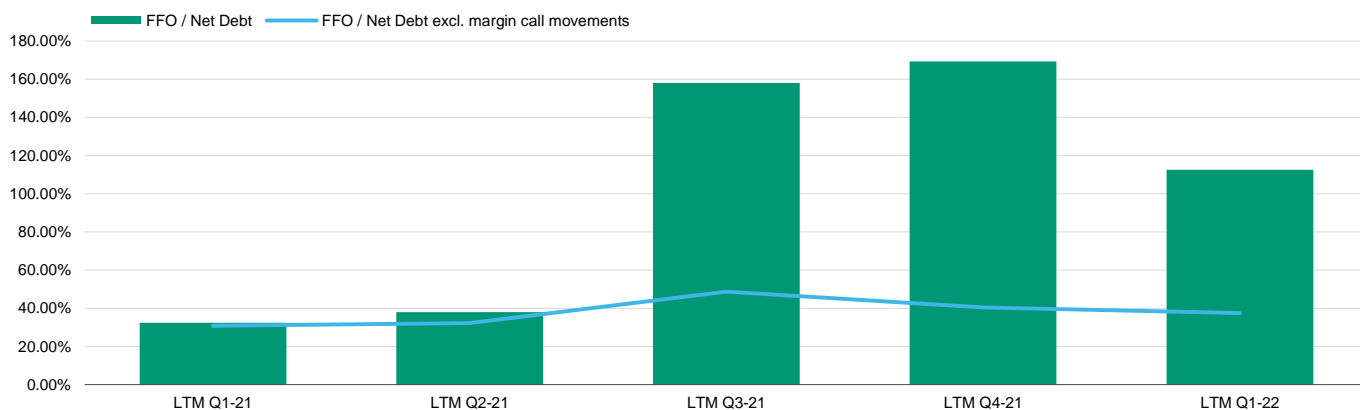
Underlying EBITDA as reported.
 Sources: Company's reports and Moody's Investors Service

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 difficult with further pressure on the company's margins.

Credit metrics boosted by margin payments and will remain strong in 2022

Vattenfall's FFO/net debt (per our definition) was 169% for 2021. Its solid credit metrics were supported by a combination of strong EBITDA growth and a highly favourable movement in margin calls affecting working capital, which subsequently improved the company's reported net debt (inflow of SEK88.0 billion during last year, compared with an inflow of SEK12.6 billion in 2020). The substantial reduction in net debt caused by margin payments is temporary and will unwind over time. The movements were particularly pronounced in 2021 and we estimate that its FFO/net debt would have been closer to 40% if it was corrected for the reduction in net debt caused by the inflow on the back of margin calls.

Exhibit 17
Impact of movement in margin calls



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

Last year, Vattenfall's net debt was also helped by the nuclear settlement it entered into with the German government regarding the legal settlement and financial compensation for the early shutdown of nuclear operations, following Germany's decision to exit nuclear

by 2022. As a result, Vattenfall received €1.1 billion net of payments that it had to make to E.ON. On top of this, Vattenfall's net debt also decreased on the back of the proceeds worth €2.1 billion that the company received for the disposal of the Berlin grid.

Throughout 2022, we expect credit metrics to weaken, driven mainly by a high dividend payment (SEK23.2 billion) and a gradual unwinding of the inflow that Vattenfall has seen materialising through margin payments. Increasing capital spending will also affect credit metrics. In spite of the substantially higher power prices in the Nordics, we do not expect a significant increase in Vattenfall's achieved prices in the short term. Indeed, the company has locked in 72% of its Nordic output for the year at €28/MWh as at March 2022 (against achieved prices of €31/MWh in 2021).

On balance, however, we expect Vattenfall to continue to have very strong credit metrics this year and into 2023. Notably, its power generation unit will increasingly benefit from a higher price environment as its hedges roll off.

Adjusted debt affected by high nuclear and pension liabilities

As of the end of December 2021, Vattenfall's total adjusted debt (our definition) of SEK196.8 billion included around SEK80.6 billion in adjustments related to pension and nuclear liabilities. Some SEK19.0 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.

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 900,000 retail electricity customers.

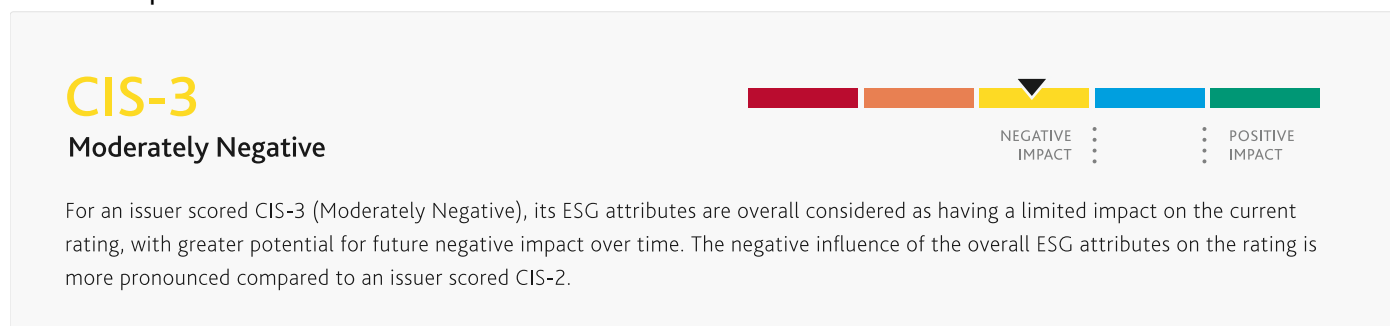
While we recognise the strategic importance of the company within Sweden, we also acknowledge the state's determinedly noninterventionist stance. The authorities would hesitate to intervene (such as through a direct capital injection) except in the most extreme circumstances, that is, where there is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

ESG considerations

VATTENFALL AB's ESG Credit Impact Score is Moderately Negative CIS-3

Exhibit 18

ESG Credit Impact Score



Source: Moody's Investors Service

Vattenfall's ESG Credit Impact Score is moderately negative (**CIS-3**), indicating that its ESG attributes are overall considered as having a limited impact on the current rating, with greater potential for future negative impact over time. The CIS-scoring reflects moderately negative environmental and social risks, partly offset by low to neutral governance risks.

Exhibit 19

ESG Issuer Profile Scores

Source: Moody's Investors Service

Environmental

Vattenfall's exposure to environmental risks is moderately negative (**E-3** issuer profile score). In addition to a moderately high carbon transition risk, Vattenfall's environmental score also incorporates a degree of resource risks linked to its 11.5 GW of hydro operations. It also incorporates a degree of physical climate risks related to its network operations in Sweden where flooding is a risk factor. As a nuclear operator with close to 6 GW of capacity, Vattenfall's nuclear operations is also exposed to both a degree of physical climate risk and waste and pollution given the costs associated with nuclear decommissioning and nuclear waste treatment.

Social

Vattenfall's exposure to social risks is moderately negative (**S-3** issuer profile score) and reflects the risk that demographics and societal trends could include public concerns over affordability, including public expectation that utilities should act as a public service. These pressures could turn into adverse political intervention.

Governance

Vattenfall's governance risk is neutral-to-low (**G-2**). As a government-owned company, we assess that the independence of Vattenfall's board is relatively weak and that management may face competing priorities. However, its board has also shown a track record of creditor-friendly decisions. For example, during the COVID-19 outbreak, the board took the decision to halve dividend payments. Governance risks are also balanced by other considerations associated with government ownership, including transparent reporting and oversight.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

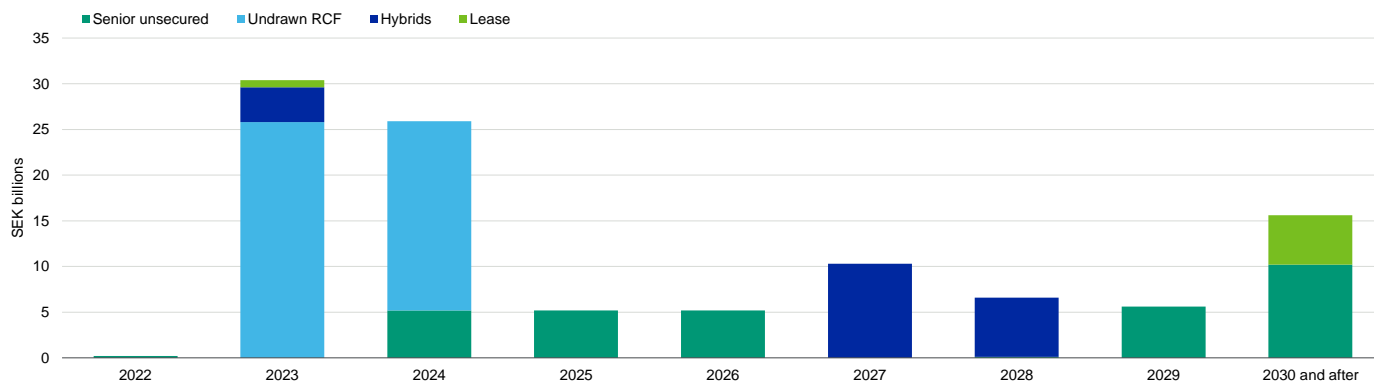
Liquidity analysis

As of the end of March 2021, Vattenfall's liquidity was supported by SEK173.7 billion of cash and short-term investments, and a committed revolving credit facility (RCF) of €2 billion (SEK20.5 billion). The RCF, which is fully undrawn, expires in November 2024.

Exhibit 20

Vattenfall has a fairly well-spread debt maturity profile

As of the end of March 2022



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. 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 21

Rating factors

Vattenfall AB

| Unregulated Utilities and Unregulated Power Companies Industry Grid [1][2] | | | Current LTM 3/31/2022 | | Moody's 12-18 Month Forward View As of July 2022 [3] | |
|--|---------|-------|--------------------------|-------|---|-------|
| Factor 1 : Scale (10%) | Measure | Score | Measure | Score | Measure | Score |
| a) Scale (USD Billion) | Aa | Aa | Aa | Aa | Aa | Aa |
| Factor 2 : Business Profile (40%) | | | | | | |
| a) Market Diversification | Baa | Baa | Baa | Baa | Baa | Baa |
| b) Hedging and Integration Impact on Cash Flow Predictability | Baa | Baa | Baa | Baa | Baa | Baa |
| c) Market Framework & Positioning | Ba | Ba | Ba | Ba | Ba | Ba |
| d) Capital Requirements and Operational Performance | Baa | Baa | Baa | Baa | Baa | Baa |
| e) Business Mix Impact on Cash Flow Predictability | Aa | Aa | Aa | Aa | Aa | Aa |
| Factor 3 : Financial Policy (10%) | | | | | | |
| a) Financial Policy | Baa | Baa | Baa | Baa | Baa | Baa |
| Factor 4 : Leverage and Coverage (40%) | | | | | | |
| a) (CFO Pre-W/C + Interest) / Interest (3 Year Avg) | 8.6x | A | 6.5x - 7.5x | Baa | | |
| b) (CFO Pre-W/C) / Net Debt (3 Year Avg) | 112.5% | Aaa | 60% - 80% | Aa | | |
| c) RCF / Net Debt (3 Year Avg) | 97.0% | Aaa | 25% - 35% | A | | |
| Rating: | | | | | | |
| a) Indicated Outcome from Scorecard | | A1 | | | A3 | |
| 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 3/31/2022; 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

Ratings

Exhibit 22

| Category | Moody's Rating |
|----------------------|----------------|
| VATTENFALL AB | |
| Outlook | Stable |
| Issuer Rating | A3 |
| Senior Unsecured | A3 |
| Jr Subordinate | Baa2 |
| Commercial Paper | P-2 |

Source: Moody's Investors Service

Appendix

Exhibit 23

Peer comparison

| (in EUR million) | Vattenfall AB A3 Stable | | | Iberdrola S.A. (P)Baa1 Stable | | | EnBW Energie Baden-Wuerttemberg AG (P)Baa1 Stable | | | Statkraft AS A3 Stable | | |
|---|----------------------------|--------|--------|----------------------------------|---------|---------|--|--------|--------|---------------------------|--------|--------|
| | FYE | FYE | LTM | FYE | FYE | FYE | FYE | FYE | LTM | FYE | FYE | FYE |
| | Dec-20 | Dec-21 | Mar-22 | Dec-19 | Dec-20 | Dec-21 | Dec-20 | Dec-21 | Mar-22 | Dec-19 | Dec-20 | Dec-21 |
| Revenue | 15,152 | 17,762 | 18,951 | 36,438 | 33,145 | 39,114 | 19,694 | 32,148 | 39,045 | 4,414 | 3,161 | 8,329 |
| EBITDA | 4,401 | 5,762 | 5,398 | 9,569 | 9,555 | 11,644 | 2,610 | 2,898 | 3,379 | 2,157 | 940 | 3,017 |
| Total Assets | 45,962 | 76,295 | 83,389 | 122,146 | 122,369 | 141,607 | 45,965 | 71,273 | 82,109 | 18,000 | 17,241 | 31,025 |
| Total Debt | 17,538 | 19,188 | 20,599 | 43,959 | 44,230 | 48,382 | 21,248 | 22,759 | 25,855 | 3,465 | 3,871 | 4,926 |
| Net Debt | 12,291 | 2,684 | 3,450 | 41,846 | 40,803 | 44,349 | 14,211 | 10,526 | 11,276 | 1,780 | 2,813 | 1,239 |
| FFO / Net Debt | 28.3% | 169.4% | 112.5% | 18.5% | 19.7% | 21.7% | 17.0% | 25.0% | 25.1% | 73.2% | 34.7% | 105.3% |
| RCF / Net Debt | 23.7% | 149.3% | 97.0% | 14.0% | 11.5% | 15.8% | 13.9% | 19.5% | 20.0% | 24.3% | 12.0% | 76.2% |
| (FFO + Interest Expense) / Interest Expense | 8.4x | 10.6x | 8.6x | 6.3x | 7.4x | 7.6x | 5.7x | 6.4x | 6.5x | 15.6x | 16.8x | 18.7x |
| Debt / Book Capitalization | 56.1% | 44.9% | 44.9% | 44.4% | 45.1% | 43.4% | 65.2% | 66.9% | 66.2% | 23.5% | 27.3% | 29.0% |

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 24

Moody's-adjusted debt breakdown

Vattenfall AB

| (in SEK million) | FYE | FYE | FYE | FYE | LTM |
|------------------------------------|----------|----------|----------|-----------|-----------|
| | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Mar-22 |
| As Reported Total Debt | 88,275 | 97,627 | 104,775 | 126,408 | 140,490 |
| Pensions | 39,686 | 44,026 | 43,824 | 40,328 | 40,328 |
| Leases | 6,984 | 0 | 0 | 0 | 0 |
| Hybrid Securities | (9,916) | (10,082) | (9,652) | (10,211) | (10,309) |
| Non-Standard Public Adjustments | 28,550 | 31,815 | 37,794 | 40,233 | 42,599 |
| Moody's Adjusted Total Debt | 153,579 | 163,386 | 176,741 | 196,759 | 213,108 |
| Cash & Cash Equivalents | (37,635) | (31,151) | (52,879) | (169,239) | (177,418) |
| Moody's Adjusted Net Debt | 115,944 | 132,235 | 123,862 | 27,520 | 35,690 |

All figures are calculated using Moody's estimates and standard adjustments.

Source: Moody's Financial Metrics™

Exhibit 25

Moody's-adjusted EBITDA breakdown

Vattenfall AB

| (in SEK million) | FYE | FYE | FYE | FYE | LTM |
|----------------------------------|---------|---------|---------|----------|----------|
| | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Mar-22 |
| As Reported EBITDA | 37,014 | 44,920 | 49,122 | 80,719 | 76,191 |
| Unusual Items - Income Statement | (176) | (4,334) | (1,519) | (21,162) | (20,054) |
| Leases | 1,164 | 0 | 0 | 0 | 0 |
| Non-Standard Public Adjustments | 1,001 | 693 | 701 | 910 | 1,078 |
| Interest Expense - Discounting | (2,239) | (2,297) | (2,165) | (2,033) | (2,017) |
| Moody's Adjusted EBITDA | 36,764 | 38,982 | 5951 | 58,434 | 55,198 |

All figures are calculated using Moody's estimates and standard adjustments.

Source: Moody's Financial Metrics™

Exhibit 26

Select historical adjusted financial data

Vattenfall AB

| (in SEK million) | FYE Dec-18 | FYE Dec-19 | FYE Dec-20 | FYE Dec-21 | LTM Mar-22 |
|---|---------------|---------------|---------------|---------------|---------------|
| INCOME STATEMENT | | | | | |
| Revenue | 152,091 | 166,360 | 158,847 | 180,119 | 193,787 |
| EBITDA | 36,764 | 38,982 | 46,139 | 58,434 | 55,198 |
| EBIT | 19,303 | 20,137 | 27,888 | 40,993 | 37,646 |
| Interest Expense | 6,411 | 5,336 | 4,713 | 4,843 | 5,281 |
| Net income | 9,616 | 10,823 | 15,338 | 28,460 | 25,193 |
| BALANCE SHEET | | | | | |
| Net Property Plant and Equipment | 245,531 | 256,563 | 249,060 | 252,828 | 253,469 |
| Total Assets | 469,338 | 450,643 | 463,188 | 782,358 | 862,695 |
| Total Debt | 153,579 | 163,386 | 176,741 | 196,759 | 213,108 |
| Cash & Cash Equivalents | 37,635 | 31,151 | 52,879 | 169,239 | 177,418 |
| Net Debt | 115,944 | 132,235 | 123,862 | 27,520 | 35,690 |
| Total Liabilities | 371,524 | 347,038 | 355,859 | 591,438 | 657,968 |
| CASH FLOW | | | | | |
| Funds from Operations (FFO) | 26,236 | 32,604 | 35,032 | 46,620 | 40,163 |
| Cash Flow From Operations (CFO) | 42,020 | 16,939 | 41,961 | 100,476 | 85,091 |
| Dividends | 3,644 | 4,071 | 5,627 | 5,534 | 5,538 |
| Retained Cash Flow (RCF) | 22,592 | 28,533 | 29,405 | 41,086 | 34,625 |
| Capital Expenditures | (22,757) | (26,995) | (22,311) | (26,132) | (25,654) |
| Free Cash Flow (FCF) | 15,619 | (14,127) | 14,023 | 68,810 | 53,899 |
| INTEREST COVERAGE | | | | | |
| (FFO + Interest Expense) / Interest Expense | 5.1x | 7.1x | 8.4x | 10.6x | 8.6x |
| LEVERAGE | | | | | |
| FFO / Net Debt | 22.6% | 24.7% | 28.3% | 169.4% | 112.5% |
| RCF / Net Debt | 19.5% | 21.6% | 23.7% | 149.3% | 97.0% |
| Debt / EBITDA | 4.2x | 4.2x | 3.8x | 3.4x | 3.9x |
| Net Debt / EBITDA | 3.2x | 3.4x | 2.7x | 0.5x | 0.6x |

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™

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