


## CREDIT OPINION

8 July 2021

### Update

 **Rate this Research**

#### 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.*

#### Contacts

**Knut Slatten** +33.1.5330.1077  
 VP-Sr Credit Officer  
[knut.slatten@moodys.com](mailto:knut.slatten@moodys.com)

**Neil Griffiths-Lambeth** +44.20.7772.5543  
 Associate Managing Director  
[neil.griffiths-lambeth@moodys.com](mailto:neil.griffiths-lambeth@moodys.com)

**Baptiste Van Renterghem, CFA** +33.1.5330.3348  
 Associate Analyst  
[baptiste.vanrenterghem@moodys.com](mailto:baptiste.vanrenterghem@moodys.com)

## Vattenfall AB

### Update following change of outlook to stable

#### Summary

On 6 July 2021, we stabilised the outlook of Vattenfall reflecting our expectations of a strengthening of the company's credit metrics on the back of a combination of recovering power prices in the Nordics, the €2.1 billion the company will receive for the sale of its DSO grid in Berlin, and the approximately €1.1 billion of net proceeds that Vattenfall will receive as compensation from the German government because of early shutdown of its nuclear operations.

[Vattenfall AB's](#) (Vattenfall) A3 senior unsecured rating 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 in the high 20s as of 2020.

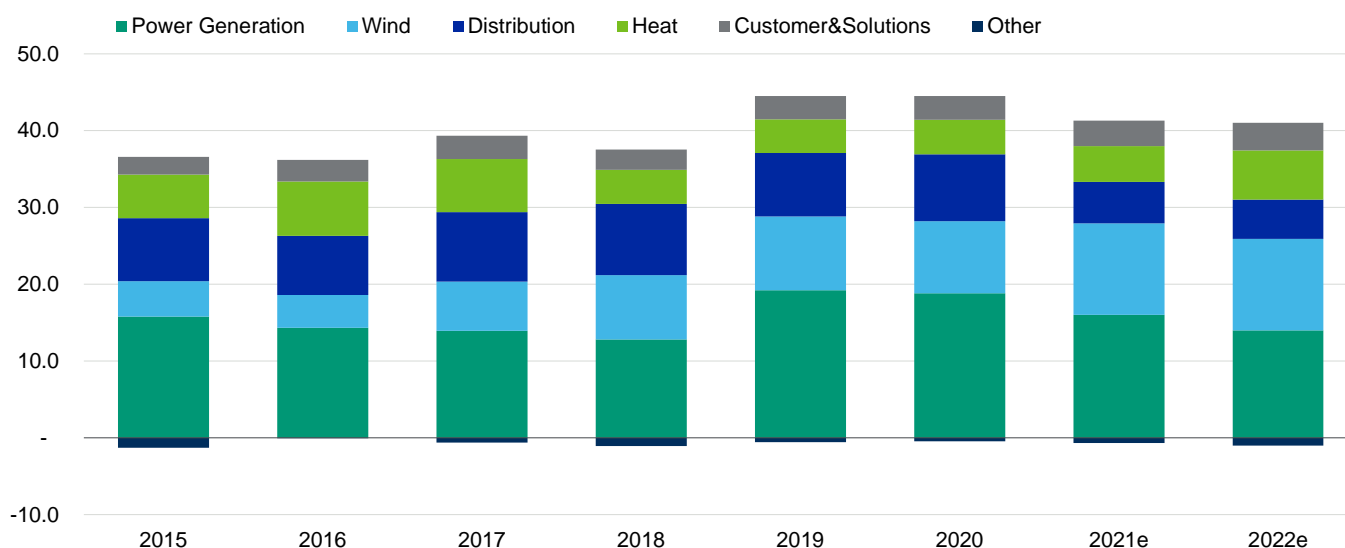
These factors are balanced by (1) Vattenfall's exposure to conventional power generation, which accounted for around 44% of underlying EBITDA in 2020; (2) the competitive environment in retail markets; (3) friction from cuts in allowed returns for the distributions networks; and (4) execution risk associated 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 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 and reduced earnings from distribution

Underlying EBITDA breakdown



The estimates represent Moody's forward view, not the view of the issuer.

Source: 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 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

Upward pressure on Vattenfall's ratings is unlikely in the medium term in view of Vattenfall's current portion of regulated earnings, its financial targets and anticipated large future capital expenditures.

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](http://www.moody's.com) for the most updated credit rating action information and rating history.

## 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-17	Dec-18	Dec-19	Dec-20	LTM Mar-21
(CFO Pre-W/C) / Net Debt	20.9%	22.6%	24.7%	29.2%	33.4%
RCF / Net Debt	20.0%	19.5%	21.6%	24.5%	28.4%
(FFO + Interest Expense) / Interest Expense	4.6x	5.1x	7.1x	8.4x	9.9x

[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](#).

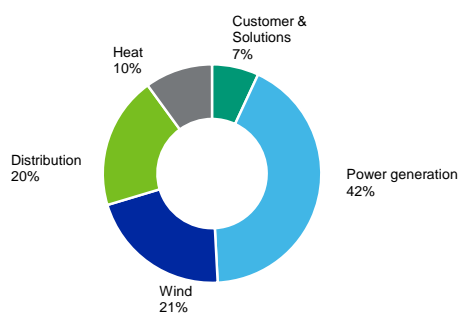
## Profile

Vattenfall AB (Vattenfall) is a 100% Swedish state-owned company. With 29 gigawatts (GW) of installed capacity and 113 terawatt hours (TWh) electricity output at the end of 2020, Vattenfall is one of the biggest European energy groups. The company's generation portfolio primarily includes hydro (11.5 GW) and nuclear power (6.3 GW), out of which 8.5 GW and all the nuclear output, respectively, are located in Sweden. In addition, Vattenfall has coal and gas operations in Germany and the Netherlands. Vattenfall also has a growing portfolio of wind assets (3.3 GW) and 9.5 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. On 1 July this year, it sold the electricity distribution grid in Berlin to the city of Berlin. The company's retail base includes around 6.9 million electricity and 2.5 million gas customers.

In 2020, Vattenfall derived most of its earnings from Sweden (61% of underlying operating profit, down from 70% in 2019), Germany (21%, down from 23% in 2019) and the Netherlands (9%, up from 2% in 2019 and mainly driven by changes to accounting for depreciation).

Exhibit 3

### Vattenfall has a diversified business mix Underlying EBITDA breakdown, in 2020

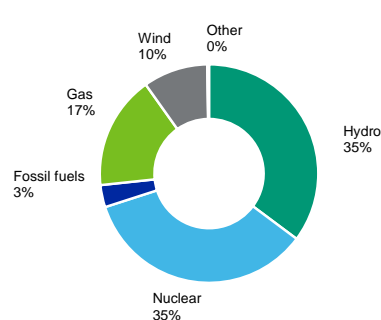


Total underlying EBITDA of SEK44.0 billion.

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

Exhibit 4

### Nuclear and hydro account for the bulk of generation Breakdown of output, in 2020



Total output of 113 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 SEK57 billion in 2021-22. Around SEK32 billion of this amount is earmarked for growth capital spending, primarily for expansion in onshore and offshore wind (SEK23 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.

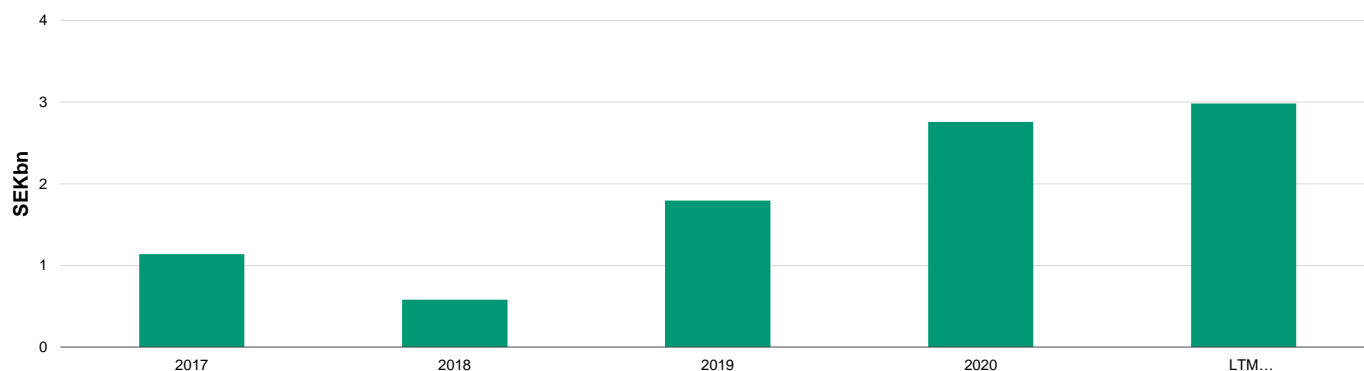
### Lower achieved prices and reduced capacity will hurt EBITDA in power generation

With around 70% of 2020 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 was vulnerable to the very challenging operating environment in the Nordics last year, which saw average spot electricity prices decreasing by around 65%. Yet, the power generation's underlying EBITDA held up very well and only showed a modest decline of 2% compared to 2019 and was tempered by a much stronger performance of Vattenfall's trading operations – adding roughly SEK1 billion to the division's underlying operating profit – as well as higher hydro output. Vattenfall's trading operations can be somewhat volatile and have an impact on the company's EBITDA and cash flow generation. For example, during 2020, its trading operations represented 11% 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

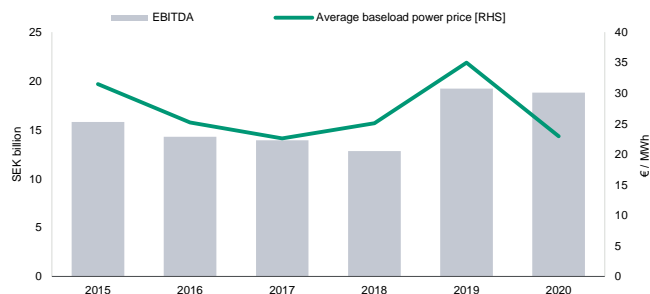


Source: Vattenfall annual reports and Q1 2021 interim report

In terms of pricing, Vattenfall saw its achieved prices decline to €31/MWh, down from €32/MWh the prior year. Whereas this contributed to the modest decline in the EBITDA of the power segment, Vattenfall had locked in prices thanks to its hedging policy and this limited the decline. Driven by a combination of cold winter months and steep increase in CO2 prices, spot power prices in the Nordics have recovered quite substantially and were up by 173% on average during the first quarter of 2021. As of end June 2021, the future prices were hovering around €31/MWh, which represents an increase of around 18% from one year ago. However, Nordic future prices have increased much less than power prices on the continent. This is mainly because water reservoirs in the Nordics, and Norway and Sweden in particular, continue to remain above average historical levels. In addition, power generation from renewables have also been strong since the beginning of 2021. As a consequence, the gap to German forward prices has widened further. Generally, power

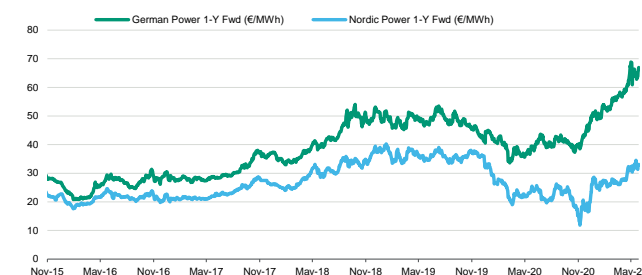
prices in the Nordic market are fundamentally a function of European continental power prices, primarily in Germany. As of the end of June 2021, current forward prices in Germany are at around €66/MWh, more than double the power prices in the Nordics.

**Exhibit 6**  
**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 7**  
**Power prices have been picking up since November 2020**  
One-year forward, in €/MWh



Source: FactSet and Moody's Investors Service

During the first quarter of 2021, Vattenfall's underlying EBITDA in the power segment increased by 33% to SEK7.4 billion, mainly driven by the higher achieved prices that the company achieved on unhedged volumes. For 2021, the company has locked in 69% of its 2021 output at €28/ MWh. Hedging ratios for 2022 and 2023 are 56% and 25%, with fixed prices of €28/MWh and €26/MWh, respectively. As such, Vattenfall's hedged prices are lower than they were during the first quarter of 2020 and we expect the company's achieved prices in the power segment to come down compared to 2020.

The power generation segment will also see its EBITDA come under pressure due to reduced generation capacity in nuclear. Whereas Ringhals 2 was already decommissioned at the end of 2019, Ringhals 1 moved off the grid at the end of 2020 and has reduced nuclear output by around 879 MWh. A further reduction in output is expected to occur in 2022. More generally, the performance of this division will continue to be driven by the hydrological conditions.

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

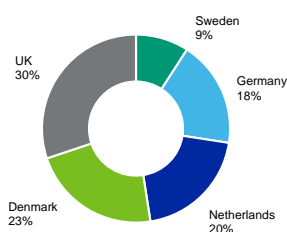
Vattenfall's installed renewables capacity, excluding hydro, amounts to around 3.5 GW, of which 2.1 GW is offshore wind and 1.4 GW is onshore wind. The renewables portfolio is spread over five European countries (Denmark, Sweden, Germany, the UK and the Netherlands), with the UK accounting for around 31% 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 close to 10 years. The long-term contracted cash flow under supportive and well-established regulatory regimes underpins Vattenfall's credit quality. Vattenfall has, however, also shown its interest in increasing merchant exposure. The 1.5 GW Hollandse Kust Zuid windfarm - which is expected to become operational in 2023 and be the world's largest offshore windfarm - will not benefit from subsidies and thereby increase Vattenfall's exposure to merchant generation. We note, however, that in June 2021 Vattenfall sold a 49.5% stake to BASF, which will contribute around €1.6 billion of capital expenditures 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 December 2020



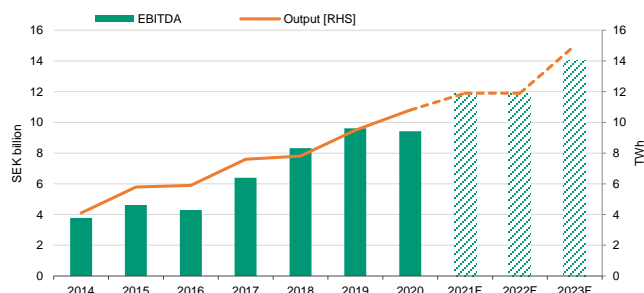
Total capacity of 3.4 GW.

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 renewable portfolio. However, we still view construction of offshore wind farms as relatively risky compared with other well-established renewable technologies.

Vattenfall has a pipeline amounting to more than 8GW in construction and under development. The vast majority of this is wind projects, but Vattenfall also has around 1GW of solar projects in development. In view of the pipeline of upcoming tenders, we expect Vattenfall to further increase its exposure to renewables in upcoming years.

Vattenfall has around 3.2 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 Kriegers Flak (605 MW), which will be commissioned later this year, and various onshore wind projects in the Netherlands and Sweden.

Wind projects under development, exceeding 4 GW, mainly comprise the 3.6 GW of projects off the coast of Norfolk, in the UK. Norfolk Vanguard and Norfolk Boreas, each of which are 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. The other larger project in development, Vesterhav Nord and Syd (344 MW), in Denmark was originally scheduled to be finalized in 2020, but commissioning will now only occur in 2023/24 because of a requirement for a new environmental study assessment.

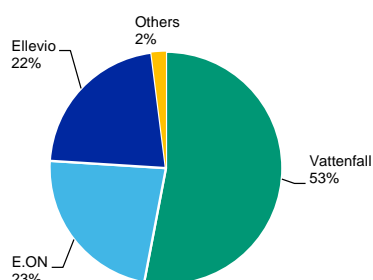
Wind generated some SEK7 billion in EBITDA in 2017. With continuing investment and commissioning of new projects, earnings should more than double by 2025. This growth will offset pressure from lower prices in conventional generation.

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

Vattenfall has more than 170 000 km of electricity grids. In 2020, the regulated electricity distribution networks in Sweden and Germany generated some 20% of Vattenfall's underlying EBITDA. Whereas the underlying EBITDA was up from 2019, this was mainly due to Vattenfall incurring around SEK800 million of exceptional costs because of damage caused by the "Alfrida" storm at the beginning of 2019. As such, the negative impact arising from lower tariffs in Sweden was not seen that much in the company's overall results. Vattenfall's regulated asset base (RAB) in Sweden was around SEK53 billion in 2020. The regulated distribution grid in Sweden is divided between regional and local markets. Whereas the regional market is heavily concentrated, the local market is fragmented with 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

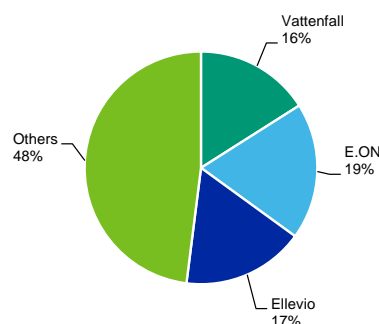
### Vattenfall has a high market share of regional grids in Sweden Regional market shares



Market shares based on volume transited excluding grid losses  
Source: Vattenfall distribution roundtable presentation (March 2021)

Exhibit 11

### Local grids remain a highly fragmented market Local market shares



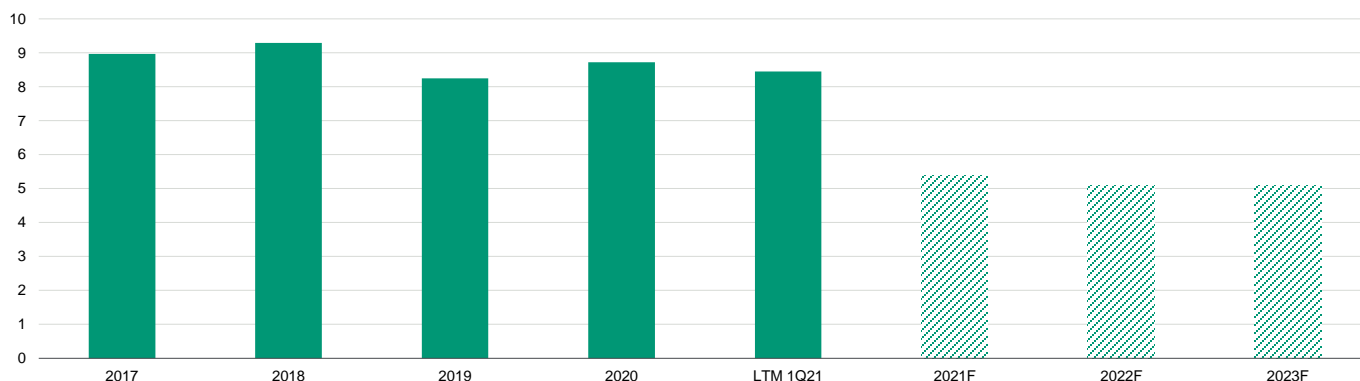
Market shares based on number of connections  
Source: Vattenfall distribution roundtable presentation (March 2021)

We expect earnings from Vattenfall's distribution segment to decrease substantially during 2021 and 2022. This is due to a combination of the disposal of the Berlin DSO grid on 1 July and the lower Swedish tariffs. In 2020, Vattenfall generated approximately SEK2.2 billion from its German distribution grid. While it will still consolidate around half of this amount for 2021, earnings from regulated distribution will fall this year and next.

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 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 from 2016 to 2019. 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 SEK5 billion for the remainder of the current regulatory period.

Exhibit 12

### Earnings stemming from distribution will reduce materially in 2021 and beyond Distribution underlying EBITDA (SEKbn)



Source: Vattenfall annual reports, Moody's estimates

We view regulated earnings from distribution grids as lower risk compared with conventional or renewable generation. In this regard, the decrease in distribution grid earnings weighs on our assessment of Vattenfall's credit quality. Having said that, the relative share of contracted and quasi-contracted earnings (including wind), will remain around 50%.

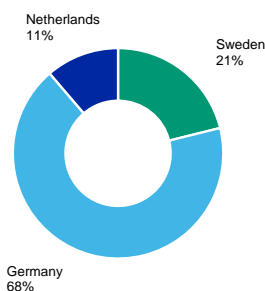
### Heat activities add to diversification but profitability has significantly weakened

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 district heating operations of Hamburg were sold in September 2019. The German market accounts for most of Vattenfall's heat sales — 9.6 TWh out of 14.2 TWh in total in 2020.

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 by-product 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 13

#### Heat activities are mainly located in Germany Production of heat, in 2020

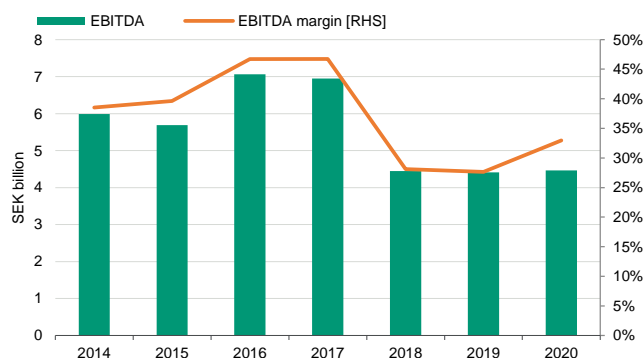


Total production of 15.5 TWh.

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, 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.

### Retail segment provides a strong platform for development of energy solutions

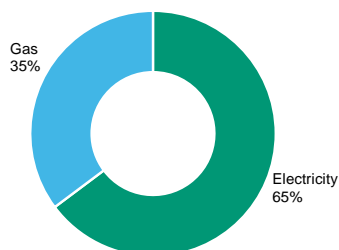
In 2020, the Customers and Solutions segment contributed 7% to Vattenfall's underlying EBITDA. This segment includes supply of electricity and gas to residential, commercial and industrial customers. The company's customer base amounts to 10.1 million customers, with operations in the Nordic countries, 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 2020 as the segment recorded SEK3.1 billion of EBITDA, up from SEK3.0 billion in 2019.



Exhibit 15

### Electricity accounts for the bulk of Vattenfall's sales Sales volumes in 2020

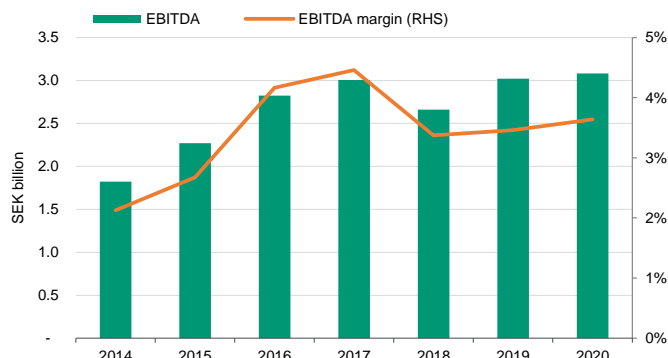


Total sales of 144 TWh.

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

Exhibit 16

### EBITDA margin is slightly improving 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.

### Credit metrics will remain strong in 2021 boosted by nuclear settlement and asset disposal

Vattenfall reported an adjusted FFO/Net debt (on the company's definitions) of 28.8% for 2020. Solid credit metrics were supported by a combination of (1) resilience in EBITDA generation; (2) the decision to halve dividend payment last year; and (3) a very favorable movement in margins calls affecting working capital, which subsequently improved the company's reported net debt figure (inflow of SEK12.6 billion during last year, whereas 2019 saw an outflow of SEK20.7 billion). Power prices remain at low levels and with the company having locked in 69% of its Nordic output for the year at €28/ MWh (against achieved prices of €31/ MWh during 2020).

On 5 March, the German Government announced it had reached agreement with the four nuclear operators Vattenfall (A3 stable), E.ON (Baa2 stable), RWE (Baa2 stable) and EnBW (Baa1 stable) regarding the legal settlement and financial compensation for the early shutdown of nuclear operations, following Germany's decision to exit from nuclear by 2022. The agreement will see Vattenfall receiving €1.1 billion net of payments that it will have to make to E.ON. Pro-forma for the settlement, we estimate that Vattenfall's FFO/ Net debt metric in 2020 would have improved by around 170 basis points to 28%. On top of this, Vattenfall's credit metrics will further strengthen this year on the back of the €2.1 billion proceeds that the company will receive for the disposal of the Berlin grid. For 2021, and absent larger acquisitions, we expect the company's FFO/ Net debt ratio to reach at least the mid 30s. However, we expect ratios to weaken in 2022 on the back of heavy capital expenditure and higher dividend payouts, in line with the company's policy of distributing 40-70% of net income provided Vattenfall is within their targeted corridor of FFO/ Net Debt ratio of 22%-27%. In 2022, dividend payment to the Swedish Government is likely to be much higher in view of the increased net income that the company will record for 2021, and which forms the basis for its dividend payment.

### Adjusted debt affected by high nuclear and pension liabilities

As of the end of December 2020, Vattenfall's total adjusted debt (our definition) of SEK172.7 billion included around SEK81.6 billion in adjustments related to pension and nuclear liabilities. Some SEK18.6 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 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 55% 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 (97 g/kWh in 2020), 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.

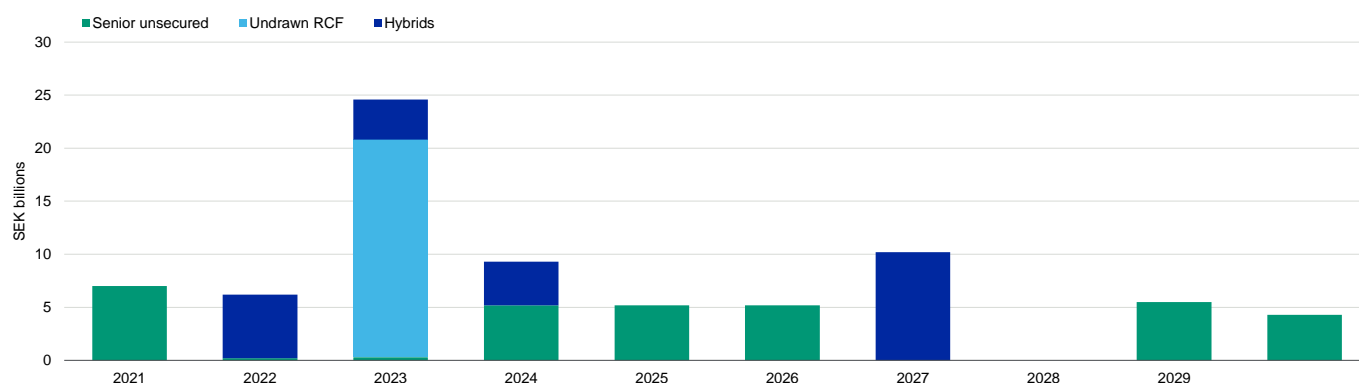
### Liquidity analysis

As of the end of March 2021, Vattenfall's liquidity position was supported by SEK29.3 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 2023.

Exhibit 17

#### Vattenfall has a fairly well-spread debt maturity profile

As of the end of March 2021



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 18

## Rating factors

Vattenfall AB

Unregulated Utilities and Unregulated Power Companies Industry [1][2]			Current LTM 3/31/2021		Moody's 12-18 Month Forward View As of July 2021 [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)	7.2x	Baa	7x - 8x	Baa	7x - 8x	Baa
b) (CFO Pre-W/C) / Net Debt (3 Year Avg)	25.5%	Baa	25% - 30%	Baa	25% - 30%	Baa
c) RCF / Net Debt (3 Year Avg)	22.2%	Baa	15% - 17%	Baa	15% - 17%	Baa
b) (CFO Pre-W/C) / Debt (3 Year Avg)		NA		NA		NA
c) RCF / Debt (3 Year Avg)		NA		NA		NA
Rating:						
a) Scorecard-Indicated Outcome		Baa1		Baa1		Baa1
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) Actual Rating Assigned	A3					

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

[2] As of 3/31/2021; 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 19

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

Source: Moody's Investors Service

## Appendix

Exhibit 20

### Peer comparison

(in EUR million)	Vattenfall AB A3 Negative			Iberdrola S.A. (P)Baa1 Stable			EnBW AG (P)Baa1 Stable			Statkraft AS A3 Stable		
	FYE	FYE	LTM	FYE	FYE	FYE	FYE	FYE	LTM	FYE	FYE	LTM
	Dec-19	Dec-20	Mar-21	Dec-18	Dec-19	Dec-20	Dec-19	Dec-20	Mar-21	Dec-19	Dec-20	Mar-21
Revenue	15,726	15,152	15,133	35,076	36,438	33,145	19,436	19,694	20,942	4,414	3,161	3,836
EBITDA	3,685	4,401	4,825	9,230	9,569	9,556	2,512	2,610	3,131	2,157	940	1,559
Total Assets	42,852	45,962	46,534	114,245	122,146	122,369	43,207	45,965	46,870	18,000	17,241	18,543
Total Debt	15,537	17,133	15,540	41,339	43,959	44,204	20,089	21,248	22,256	3,465	3,876	3,729
Net Debt	12,574	11,886	10,892	38,537	41,846	40,777	12,878	14,211	13,232	1,780	2,817	2,514
FFO / Net Debt	24.7%	29.2%	33.4%	18.5%	18.5%	19.6%	16.4%	17.0%	17.7%	73.2%	34.7%	71.2%
RCF / Net Debt	21.6%	24.5%	28.4%	13.2%	14.0%	11.4%	13.7%	13.9%	14.4%	24.3%	12.0%	44.7%
(FFO + Interest Expense) / Interest Expense	7.1x	8.4x	9.9x	5.7x	6.3x	7.3x	4.6x	5.7x	5.8x	15.6x	16.8x	37.4x
Debt / Book Capitalization	55.1%	55.5%	50.3%	44.3%	44.4%	45.0%	66.1%	65.2%	64.2%	23.5%	27.3%	25.2%

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 21

### Moody's adjusted debt breakdown

#### Vattenfall AB

(in SEK million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	LTM Mar-21
<b>As Reported Total Debt</b>	87,154	88,275	97,627	104,775	91,825
Pensions	41,962	39,686	44,026	43,824	43,824
Leases	6,198	6,984	0	0	0
Hybrid Securities	(9,559)	(9,916)	(10,082)	(9,652)	(9,866)
Non-Standard Public Adjustments	27,404	28,550	31,815	33,713	33,034
<b>Moody's Adjusted Total Debt</b>	153,159	153,579	163,386	172,660	158,818
Cash & Cash Equivalents	(24,148)	(37,635)	(31,151)	(52,879)	(47,507)
<b>Moody's Adjusted Net Debt</b>	129,011	115,944	132,235	119,781	111,311

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

Source: Moody's Financial Metrics™

Exhibit 22

### Moody's adjusted EBITDA breakdown

#### Vattenfall AB

(in SEK million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	LTM Mar-21
<b>As Reported EBITDA</b>	36,907	37,014	44,920	49,122	52,761
Unusual Items - Income Statement	(2,180)	(176)	(4,334)	(1,519)	(1,343)
Leases	1,033	1,164	0	0	0
Non-Standard Public Adjustments	639	1,001	693	701	653
Interest Expense - Discounting	(2,355)	(2,239)	(2,297)	(2,165)	(2,142)
<b>Moody's Adjusted EBITDA</b>	34,044	36,764	38,982	46,139	49,929

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

Source: Moody's Financial Metrics™

Exhibit 23

## Select historical adjusted financial data

Vattenfall AB

(in SEK million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	LTM Mar-21
<b>INCOME STATEMENT</b>					
Revenue	135,114	152,091	166,360	158,847	156,598
EBITDA	34,044	36,764	38,982	46,139	49,929
EBIT	17,773	19,303	20,137	27,888	31,910
Interest Expense	7,562	6,411	5,336	4,713	4,183
Net income	6,723	9,616	10,823	15,338	18,764
<b>BALANCE SHEET</b>					
Net Property Plant and Equipment	233,202	245,531	256,563	249,060	253,021
Total Assets	415,077	469,338	450,643	463,188	475,569
Total Debt	153,159	153,579	163,386	172,660	158,818
Cash & Cash Equivalents	24,148	37,635	31,151	52,879	47,507
Net Debt	129,011	115,944	132,235	119,781	111,311
Total Liabilities	328,630	371,524	347,038	355,859	352,218
<b>CASH FLOW</b>					
Funds from Operations (FFO)	26,950	26,236	32,604	35,032	37,182
Cash Flow From Operations (CFO)	26,617	42,020	16,939	41,961	61,611
Dividends	1,177	3,644	4,071	5,627	5,620
Retained Cash Flow (RCF)	25,773	22,592	28,533	29,405	31,562
Capital Expenditures	(20,634)	(22,757)	(26,995)	(22,311)	(23,209)
Free Cash Flow (FCF)	4,806	15,619	(14,127)	14,023	32,782
<b>INTEREST COVERAGE</b>					
(FFO + Interest Expense) / Interest Expense	4.6x	5.1x	7.1x	8.4x	9.9x
<b>LEVERAGE</b>					
FFO / Net Debt	20.9%	22.6%	24.7%	29.2%	33.4%
RCF / Net Debt	20.0%	19.5%	21.6%	24.5%	28.4%
Debt / EBITDA	4.5x	4.2x	4.2x	3.7x	3.2x
Net Debt / EBITDA	3.8x	3.2x	3.4x	2.6x	2.2x

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™

© 2021 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody.com](http://www.moody.com) under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

REPORT NUMBER

1292960