Moody's Global
Corporate Finance

Credit Analysis

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Vattenfall AB

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Analyst Contacts:

London 44.20.7772.5454

Helen Francis
Vice President – Senior Credit Officer

Niel Bisset
Senior Vice President

Monica Merli
Team Managing Director

Corporate Profile

Vattenfall's A2 Rating Factors in its Strong Market Position as a Leading Utility in Northern Europe

Vattenfall AB (Vattenfall – A2 senior unsecured rating with a stable outlook) is the Swedish 100%-state-owned parent company of Scandinavia's largest and Germany's third-largest generator and a leader in district heating, with a strong market presence in Sweden, Denmark, Finland, Germany and Poland. As of 1 January 2008 the group is structured into the following two business groups:

- Vattenfall Nordic (Sweden, Finland, Denmark) – produces 23% of power in the Nordic sector. It has a strong presence in district heating as well as distribution and supply of power in Sweden and Finland with 1.3 million customers.
- Vattenfall Central Europe (Germany, Poland) – In Germany, Vattenfall produces 13% of power generation in Germany, and is active in district heating in the Berlin and Hamburg regions and distribution and transmission networks in Northern and Eastern Germany as well as supply in these regions. In Poland, Vattenfall is the biggest foreign investor in the Polish energy sector. Operations comprise mainly heating and electricity distribution and a relatively small electricity generation business. Vattenfall is Poland's biggest cogenerated heat producer with 21.5% market share.

  The tables below show the previous three business groups; Nordic, Germany and Poland. As from 2008 Germany and Poland are reported together under the heading" business group Central Europe".

This Credit Analysis provides an in-depth discussion of credit rating(s) for Vattenfall AB and should be read in conjunction with Moody's most recent Credit Opinion and rating information available on Moody's website. Click here to link.

Moody's Investors Service

Vattenfall AB

Figure 1

Operating Highlights

FY ended 31 December (SEK m)	External Net Sales		Net Sales*		Operating Profit **		Relative Contribution		Operating Margin **	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Electricity Generation	34,169	32,162	62,876	66,112	19,776	22,094	72%	78%	31.5%	33.4%
Electricity Markets	63,979	68,018	69,303	72,261	169	314	1%	1%	0.2%	0.4%
Electricity Networks	36,571	41,654	51,574	55,074	3,985	3,071	15%	11%	7.7%	5.6%
Heat	14,833	13,717	21,542	20,260	4,250	4,118	15%	14%	19.7%	20.3%
Other businesses	1,598	2,974	7,299	9,073	-732	-1,100	-3%	-4%	-10.0%	-12.1%
Eliminations	-15,348	-14,886	-76,792	-79,141	0	0	0%	0%	0.0%	0.0%
Group Total	**135,802**	**143,639**	**135,802**	**143,639**	**27,448**	**28,497**	**100%**	**100%**	**20.2%**	**19.8%**
Nordic Countries	48,235	44,429	40,118	46,713	13,217	12,418	48%	44%	32.9%	26.6%
Germany	69,905	77,471	101,538	112,460	13,711	15,440	50%	54%	13.5%	13.7%
Poland	8,981	9,265	9,449	9,796	942	1,077	3%	4%	10.0%	11.0%
Other businesses	8,681	12,474	29,185	41,439	-466	-438	-2%	-2%	-1.6%	-1.1%
Eliminations	0	0	-44,488	-66,769	44	0	0%	0%	-0.1%	0.0%
Group Total	**135,802**	**143,639**	**135,802**	**143,639**	**27,448**	**28,497**	**100%**	**100%**	**20.2%**	**19.8%**

**Total net sales including sales between segments ** Excluding items affecting comparability.*

Source: Vattenfall's "Annual Report 2007".

Key Rating Considerations

A2 Ratings Reflect Vattenfall's Medium Business Risk, Strong Financial Profile and GRI Uplift Balanced Against A Degree Of Event Risk

Vattenfall's A2 long-term issuer and senior unsecured debt ratings reflect the application of Moody's Government-Related Issuer (GRI) rating methodology. At the current rating level, Vattenfall's rating benefits from a one-notch uplift on the basis of a medium probability of state support.

Moody's classifies Vattenfall as a GRI because of its 100% ownership by the Swedish state. Under this GRI methodology,[1] Vattenfall's ratings are the result of the following inputs:

- Baseline credit assessment (BCA): 7 (on a scale of 1 to 21, where 1 corresponds to a Aaa rating and 7 to A3);
- Local currency rating of the Swedish government: Aaa
- Dependence: Low
- Support: Medium

Baseline Credit Assessment

Vattenfall's BCA of 7 (equivalent to an A3 rating) reflects the company's medium core operating risk profile as a regulated electric utility[2] with a strong financial profile. We expect risks in its business profile to increase gradually. Despite a large organic capital expenditure (capex) programme, some pressure on margins in its networks and district heating business, and price volatility, Vattenfall is expected to demonstrate significant

1 Please refer to Moody's Special Comment *The Application of Joint Default Analysis to Government-Related Issuers*, published in April 2005, and its accompanying press release. Please also refer to Moody's Special Comment entitled *Rating Government-Related Issuers in European Corporate Finance* for a detailed discussion of the application of the GRI rating methodology to corporate issuers in Europe and *Government-Related Issuers: July 2006* for a description of the refinement of the BCA rating scale.
GRIs are entities with full or partial government ownership or control, a special charter, or a public-policy mandate from a national or local government.

2 See Moody's "Rating Methodology: Global Regulated Electric Utilities", March 2005.

financial flexibility at the current rating level based on the current business plan. Moody's believes that the company will look for appropriate M&A opportunities that could absorb this financial flexibility and, given its 100% state ownership, Vattenfall would be unlikely to access the equity market under such a scenario; hence, any large acquisition would very likely be funded by debt. Given the company's active pursuit of appropriate opportunities, Moody's factors in a degree of flexibility for additional debt-funded acquisitions outside the current plan. The key factors underpinning the BCA rating are explored further in the Management Strategy, Core Business Risk and Financial Risks sections.

Dependence is low because of the high degree of geographic diversification in the revenue base – with European operations contributing over half of revenues at the group level – and, hence, a lower linkage than is normally seen for a utility between its performance and the country's (Sweden's) overall economic performance.

The probability of support is medium reflecting its 100% ownership by the Swedish state (Aaa, stable outlook) and the strategic importance of Vattenfall within Sweden, at the same time acknowledging the state's determinedly non-interventionist stance. Moody's believes that the authorities would hesitate to intervene in support of partially or even fully state-owned companies except in the most extreme circumstances, such as when the firm controls key strategic assets. This could be applied in the case of Vattenfall, which, given its size and importance, is a "flagship company" in Sweden with control over key nuclear and hydrological generating assets as well as sizeable parts of the network infrastructure.

The Swedish state exercises long-term active ownership over the company and views value creation as a paramount goal for Vattenfall. To this end, the state establishes market requirements on profits and returns based on the risk profile of the company. There are currently no plans for a privatisation of this strategic company despite a change to a conservative-led government in 2006 that resulted in a number of other companies, considered less strategic by the government, being put on the slate for possible privatisation.

Management Strategy

Investment strategy aimed at market share growth within Europe with focus on relatively volatile but profitable generation activities; sustainable energy development is key

Management strategy aims at developing Vattenfall as a leading European energy company with a long-term target of 10% market share[3] up from its current 5%. Vattenfall wants to remain vertically integrated along the value chain, but to focus growth on generation and heat. It aims to grow through increasing market share through M&A and organic capex. Its core markets are the Nordic, German and Polish markets. However, Vattenfall has also made it clear that it will closely examine opportunities in the markets that it believes will offer the most interesting growth possibilities through acquisition: these include the UK, Benelux, France, Austria, Switzerland and the Czech Republic. In particular, the markets that would seem to offer the largest opportunities for growth over the next 12 months would be the UK, where there is a clear need to invest in new nuclear capacity, and the Netherlands, where the shareholders of the two largest Dutch utilities, Nuon and Essent, have said that they would consider the sale of some, if not all, of their holding in the generation and supply assets as a result of "unbundling".

Vattenfall's management has also stepped up its organic growth objectives. Its target for the 2008-12 business plan is SEK173 billion (for the 2007-11 period it was SEK134 billion). The largest portion of these investments, SEK133 billion (SEK102 billion), will be used to strengthen Vattenfall's generation capacity, including new power plants[4] and refurbishment of existing plants in Germany to reduce carbon dioxide (CO_2) emissions, as well as nuclear capacity upgrade and lifetime extensions of generation assets in Sweden and Germany. In addition, Vattenfall plans to invest in German and Nordic renewables assets. In 2006 it had announced a target to increase renewable electricity generation in the Nordic countries by 10 terawatt hours by 2016 compared with 2002 levels in line with Swedish government targets.

[3] Vattenfall calculates market share as the total market for electricity and district heating in EU27+Norway and Switzerland. As of FYE 2007, Vattenfall's share totalled 5%.

[4] Including Boxberg power plant (675 megawatts (MW) in Germany) and Moorburg power plant (1,640 MW).

Some SEK40 billion (SEK30 billion) of total investments is expected to be spent on network improvements. Over 60% of these investments are expected to be made in Germany, with the balance mainly in the Nordic sector and a relatively small proportion in Poland.

This effort is expected to provide the group with continued growth in cash flows from generation activities, while regulated cash flows from distribution and transmission activities are expected to decline.

The EBITDA contribution from unregulated generation and sales activities has been gradually increasing – from around 62% in 2006 (68% by 2007) to around 70%-75% by 2010 on the current business plan. The relative proportions from an EBIT perspective are even higher. This represents a gradual shift in the group's business and earnings mix, with an increasing reliance on and exposure to wholesale power and commodity prices. It is noted, however, that the investments targeted, such as those designed to reduce CO2 emissions from existing plants, should also help to reduce environmental and pricing risks.

Vattenfall states that its financial targets include maintaining a single A category rating. In the context of a strengthening financial profile, Vattenfall has also indicated that its dividend payout ratios will correspond to 40%-60% of the profit for the year, an increase on the 33% of earlier years. Long-term profitability is targeted at 15% return on average equity after tax. In addition, it maintains an interest coverage ratio of cash flow interest coverage after maintenance investments of 3.5x-4.5x.

Moody's currently gives guidance of adjusted retained cash flow (RCF)/net debt of mid-to- high teens for the current rating category, recognising that Vattenfall's ratios are significantly in excess of these, but also factoring in the company's strategic intent to consider appropriate M&A transactions outside its current business plan, as noted earlier.

Core Business Risk

Medium Business Risk for a Regulated Electric Utility Although Business Risk is Expected to Gradually Increase

The BCA of 7 (equivalent to an A3 rating) reflects Vattenfall's overall medium risk business profile for a regulated electric utility.[5] This profile may shift outside the parameters for a regulated utility outlined in the methodology as its earnings from generation and supply increasingly dominate. Its credit profile reflects its exposure to regulated network and low-risk district heating activities, which contribute around 30%-35% of EBITDA at the group level, with the most significant proportion of profitability coming from generation businesses. Moody's normally considers regulated activities to be lower risk, because of their monopoly business position and generally stable regulated return on assets, than more volatile generation and supply. Moody's, however, recognises that in Vattenfall's two key markets, Sweden, and, in particular, Germany, there remains a degree of regulatory pressure, which is likely to affect earnings.

Generation is the most significant contributor to profitability and this is expected to increase over time given both strong cash flows on the back of high prices and, increasingly, significant investments planned for these areas (as noted above under Management Strategy).

Vattenfall has strong market positions in the monopoly and quasi-monopoly sectors…

Vattenfall maintains strong market positions in regulated networks and the district heating businesses. It is the second-largest network operator in the Nordic region, the third-largest transmission operator and the fourth-largest distribution system operator in Germany, while it has the largest district heating business in the region. District heating is not a regulated business, but it has quasi-monopoly characteristics given high barriers to entry and long-term contracts. Margins could well be lower in the heat business in the future given increasing fuel costs and lower subsidies. The profit contribution from the distribution and heat businesses in Poland is still relatively small, although Moody's regards this regulatory environment as slightly more risky (compared with Western Europe) as it is still in process of development.

[5] See rating methodology reference footnote #2.

…although relatively harsh regulatory developments in Germany have affected revenue and profit margins; Vattenfall is considering the sale of its high-voltage assets

Vattenfall's distribution and supply networks in the Berlin and Hamburg regions historically contributed a significant portion of cash flows in Germany. These regulated businesses have been affected by the energy law (EnWG), approved in July 2005, which lays the foundations of a more incentive-based regulated tariffs framework for transmission and distribution of electricity (and gas), replacing the current "cost plus"-based tariffs. This incentive-based regulation starts from 1 January 2009. Tariffs are now determined *ex ante*[6] requiring approval by the regulator, the BNA,[7] for 2008.

Since 2006, the BNA has applied swingeing cuts to network tariffs. In 2008, Berlin and Hamburg will experience a 16% and an 18% cut, respectively, on applied tariffs (therefore 10% lower for Berlin, but unchanged for Hamburg vis-à-vis 2007). For transmission, a 15% cut on applied tariffs would actually mean a 4% higher tariff vis-à-vis 2007. As a result of the new regulation, impairment charges of SEK1.019 billion and SEK462 million were incurred in 2006 and 2007, respectively. Moreover, the transmission business could come under margin pressure from increasing costs from additional wind power generation and related inefficiencies in power balancing although there are ongoing discussions with the Regulator to achieve an acceptable compensation mechanism for the transmission system operators impacted by these elements. An increase in the allowed return on equity [8] will be part of the adjusted revenues from 2009 which will allow for some improvement in revenues and the incentive based regulation does allow the company to keep any savings above the required efficiency levels.

In response to more challenging returns on the transmission system operator and network business, as well as the preference of the EC for ownership unbundling of the networks, Vattenfall publicly stated in July 2008 that it will consider a sale of its high-voltage transmission assets. This follows E.ON's statement professing similar intentions earlier in the year.

The Swedish regulatory regime has also resulted in margin pressure although recent modifications indicate that returns should moderately improve

In Sweden and Finland, distribution has historically been a relatively low-risk business under a light-handed regulatory regime. Finnish regulation remains rather benign, despite having moved from an *ex post* to an *ex ante* model, and ensures fairly predictable cash flows and returns on investment

In 2003, the Swedish regulator introduced an *ex post* regulatory model – i.e. the "Performance Assessment Model" – aimed at improving efficiencies within the sector. This was deemed harsh by the industry given concerns that the Swedish model could lead to excessive pressure on tariffs while requiring higher investments to meet more stringent service-quality criteria. However, following dialogue with the industry, this *ex post* regulatory framework will be changed into an *ex ante* regulation, but not until 2012, and the new model will be based on the real electricity network, rather than the virtual one as present. In addition, the regulator's earlier demands for significant repayments to customers for previous bills have been lowered.

In recent times, the regulator also implemented a higher allowable weighted average cost of capital (an increase in pretax WACC in real terms to 6.2% from 4.8% for the year 2003) corresponding to a real WACC after tax of 4.5% – which was generally regarded as an improvement by the industry. Nonetheless, this evolving regulatory framework creates some uncertainty and could continue to have a moderately negative impact in term of cash flow stability and predictability for all network operators in Sweden.

Power generation and supply are considered medium risk given commodity price volatility and competitive pressures

Power generation accounts for circa 65% of the group's EBITDA. Vattenfall has a leading market position in Nordic generation, accounting for nearly half of Sweden's power and around 20% of the whole Nordic market's power. Vattenfall's Nordic electricity generation is primarily based on low-cost hydro and nuclear power.

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[6] The previous method of setting tariffs was based on self-determination by the network operators (association agreements). The regulator did not have the authority to approve network fees in advance (*ex ante*), while any *ex post* control of possible abuse was left with the competition authority.
[7] The BundesNetzAgentur.
[8] From 6.5% to 7.56% on existing assets and from 7.91% to 9.29% on new assets

Acquisition of some thermal Danish generation assets[9] in 2006 reduced somewhat Vattenfall's overall exposure to the Nordic weather system. In Germany, Vattenfall is the third-largest power generator, with a primarily thermal portfolio. With a 13% share of the market, it ranks after E.ON (rated A2 stable) and RWE (rated A1, negative).

Figure 2

Vattenfall's Power Generation Mix

TWh	2006	2007	2006	2007
Nordic Region:				
Hydro power	31.7	33.6	37.0%	36.9%
Nuclear power	49.2	48.8	57.4%	53.6%
Fossil fuel-based power	3.9	7.1	4.6%	7.8%
Wind power	0.5	1.2	0.6%	1.3%
Biofuel, waste	0.4	0.4	0.5%	0.4%
Total Nordic Region	85.7	91.1	100.0%	100.0%
Germany:				
Hydro power	3.4	3.1	4.5%	4.3%
Nuclear power	6.0	2.5	7.9%	3.4%
Fossil fuel-based power	66.6	66.9	87.4%	91.9%
Wind power	-	-	n/a	n/a
Biofuel, waste	0.2	0.3	n/a	0.4%
Total Germany	76.2	72.8	100%	100.0%

Vattenfall's "Annual Report 2007".

Moody's views Vattenfall's generation and supply businesses as medium risk. This recognises Vattenfall's sizeable market share, overall well-balanced fuel mix and the current strong outlook for generation prices in these markets. At the same time, Moody's recognises that, as commodities, there is a strong degree of volatility in power prices. In the Nordic sector, generation mix and power prices are influenced by variations in water levels and can therefore be less predictable. In Germany, prices are less volatile because of the much higher importance of coal and nuclear production in the fuel mix. However, high coal prices and the tighter CO_2 allowances pushing up prices, from 2008 onwards, will continue to create some additional volatility in German wholesale prices and put pressure on margins, although overall Vattenfall is well-placed compared with many European generators, given the high proportion of low marginal cost hydro and nuclear in its fuel mix. Nordic prices may continue to show a greater correlation to higher German prices from 2008 onwards, which could benefit Vattenfall.

However, uncertainties in price developments remain a factor for all generation companies. This may in particular affect the pace and scale of reinvestment. The risk of political interference, and possible windfall taxes, for generation companies, when generation prices are high cannot be ruled out either.

Moody's notes that Vattenfall has an active and prudent hedging programme through both Nord Pool and EEX, which mitigates the impact of short-term price movements. Overall, supply activities remain very low-margin in the Nordic and German regions albeit they provide some hedge to generation activities, although the Nord Pool and EEX electricity exchanges are the primary liquid outlets for wholesale generation.

9 In 2005, Vattenfall acquired a 35.3% stake in Elsam, which it subsequently exchanged, under an agreement with DONG (Baa1, positive outlook), for around 24% of the assets in the combined Elsam and Energi E2. This represented around 2,400 MW of power and 2,100 MW of heat generation capacity, giving it, respectively, around a 20% share of generation and a 25% share of heat production in the Danish market. This agreement with DONG was finalised on 1 July 2006.

Vattenfall's strong focus on reducing emissions is a key plank of its strategic plan; nonetheless, it faces a number of environmental, political and technological challenges

Both in response to EU targets on reducing carbon emissions and increasing renewables production, and reflecting Vattenfall's own commitment to sustainable energy development, the company aims to cut its own carbon emissions by 3% by 2010 and has a long-term goal to cut emissions by half by 2030.Vattenfall's fuel mix in the Nordic sector is relatively CO2 light. However, Germany is very thermal-biased. Vattenfall's emissions in 2008 are expected to be over 80 million tonnes of CO2 (of which over 70 million in Germany), against which Moody's assumes it has been granted free allowances of approximately 65% under the 2008-12 National Allocation Plan.[10] Vattenfall aims to move towards achieving its goal through improvement of older plants, new power generation without fossil fuels and the development of innovative and expensive technologies such as carbon capture and storage (CCS).[11] The CCS pilot plant in Germany,(the first of its kind worldwide) was officially inaugurated on 9 September 2008. In addition there is a large demonstration plant planned, costing €1 billion, which is expected to be fully operational by 2015.

Despite the commitment to invest in new technologies, there are additional challenges for generators as many of these new plants are subject to prolonged planning and licensing processes. Vattenfall has received a preliminary permit to build the Moorburg combined heat and power (CHP) plant in Germany, which will be Europe's most technologically advanced coal-fired CHP plant. The final environmental review, which was to have taken place in June 2008, has been delayed until September.

In addition, the development of renewable energy (in particular wind) resources in core markets is a key objective, although Vattenfall starts from a very low base. Germany has a feed-in tariff for renewables that is considered attractive for investors. Investments in this region are likely to be mainly focused on offshore projects with growth expected via acquisitions. Wind power development is more challenging in the Nordic area, given its greater technological challenges – most projects under discussion are offshore – and potentially lengthy permissioning processes.

Nuclear power is a key part of this strategy, but remains a highly politically and environmentally sensitive issue

Nuclear power represents an important component of Vattenfall's overall generation mix, with the company owning shares in nuclear plants in both Sweden and Germany, but the political environment in these countries remains difficult. Since the closure of Barsebäck 2 nuclear plant in May 2005,[12] there has been no move towards full nuclear decommissioning in Sweden, but, at the same time, there are no plans to allow construction of new plant at this point, although discussions remain ongoing. Vattenfall will, however, continue to invest to prolong the life of its plants. In Germany, where, under current government plans, nuclear power should be phased out over time, Vattenfall co-owns three nuclear plants, which have planned closure dates between 2009 and 2019.

A rethink of the nuclear question, particularly in Germany, resulting in a prolongation of the life of the nuclear stations could be favourable to the company as it would lengthen the cash flow generation of past investments while reducing the present value of liabilities for decommissioning costs. On the other hand, large investments in a new generation of plants could be very capex intensive.

Problems with Vattenfall's nuclear plants in Germany and Sweden in 2006 and 2007 did not have any significant safety implications,[13] nor did they result in a significant loss of earnings, and Vattenfall has subsequently made management changes and improved certain operating procedures. Nonetheless, the high levels of attention from the media demonstrates the very sensitive political nature of nuclear technology.

[10] Generation assets in Germany (particularly the lignite-based VEAG) and Poland bring to the group certain environmental profiles and risks, in light of EU regulation requiring that combustion plants over a certain size must have allowances to cover their CO2 emissions.
[11] This involves converting the CO2 formed upon combustion of coal into liquid form and storing it in bedrock.
[12] This was in line with a parliamentary decision taken in 1997 to decommission both nuclear reactors of the Barsebäck plant (Barsebäck 1 was closed at the end of 1999).
[13] The Swedish incident was 2 on the International Nuclear Events Scale (INES) scale and the German events were 0

Financial Risk

Vattenfall continued to show strong financial flexibility in 2007 and 2008 thanks to strong cash flow generation and moderate debt levels

Figure 3

Key Financial Data

(in SEKm)	2006	2007
Revenue	135.80	143.60
EBIT	27.40	28.50
Interest Expense as adjusted	3.92	3.99
FFO as adjusted	35.14	33.05
RCF as adjusted	28.89	25.08
Total Debt as adjusted	86.59	79.82
Net Debt as adjusted	67.66	60.44
Adjusted FFO Interest Coverage	10.0x	9.3x
Adjusted FFO / Net Adjusted Debt	51.9%	54.7%
Adjusted RCF / Net Adjusted Debt	42.7%	41.5%

Source: Vattenfall's "Annual Report 2007".

Operating profits were rather stable in 2007 compared with the previous year with a slight improvement in operating profit, of 2.7%. The earning improvement was primarily attributable to high availability of plant and better prices in Germany. This, and the company's hedging policy, helped to offset lower and volatile spot prices in the Nordic sector. Certain restructuring and impairment costs of SEK645 million were a burden on profits. Adjusted funds from operations (FFO) and RCF/net debt were slightly lower as a result of higher investments.

In H1 2008 results continued to be stable. Net sales rose by 9.4% to SEK80.6 billion while operating profit rose by 3.9% to SEK17.7 billion. This increase was mainly attributable to price rises in the Nordic business sector. Debt did increase, but this was partially due to larger investments and margin calls placed with the EEX, the energy exchange in Germany, through which Vattenfall conducts the hedging of its German electricity portfolio. Wholesale prices rose sharply due to rising fuel prices and an increase in prices for CO2 emission allowances over 2007.

Overall, the benefit of broader diversification of fuel and geographic mix to Vattenfall has also been borne out in the 2007-08 results. H1 2008 numbers showed weaker German profits (mainly as a result of nuclear outages) balanced by higher prices in the Nordic sector. In 2007, Nordic power prices were weaker, but higher German prices offset some of the financial impact.

Financial flexibility is expected to remain strong although debt protection measures will be affected by lower profits from regulated activities and potentially higher dividends

For the next two years, Moody's expects cash flow from operations in generation activities to grow. Generation spot prices, particularly in the Nordic region, are expected to remain volatile, and lower CO2 limits in Germany will have some impact on prices. Continued pressure on network tariffs, particularly in Germany, and some likely pressure on district heating margins as a result of higher fuel costs and a reduction in price subsidies are also likely to have some impact on profitability. Large organic investments and larger dividends than in the past (the target is 40%-60% of net profit after tax, from the 30% of earlier years) will absorb some free cash flow and net adjusted debt is likely to increase as Vattenfall's investment programme intensifies. Nonetheless, in the absence of any large acquisitions, Moody's anticipates that Vattenfall's financial profile will stay strong for the current rating category.

The A2 rating factors in the possibility of further acquisitions on a case-by-case basis. This event risk continues to be factored into the current rating and tempers the strong financial profile of the company

Moody's ratings assume that the management, in line with its stated strategy, will look to utilise available financial flexibility for external acquisitions, although the financial strategy of the group remains prudent overall with strict investment criteria, and the management targets maintaining a single-A rating.

Moody's also notes that, given Vattenfall's 100% state ownership, and hence limited access to further equity at this point, any sizeable investment will in all likelihood be debt-funded. Large-scale acquisition targets are relatively few and far between and Vattenfall has not been successful in any such large investment since it bought the Danish assets in 2006. However, some assets are likely to become available; for example, Vattenfall is expected to be interested in possible opportunities in the UK or the Netherlands in particular, as noted earlier. Hence, given the company's clear strategy to grow in Europe, Moody's assigns a stable outlook, despite the very strong financial profile at the current time. However if appropriate acquisitions did not materialise, positive pressure could develop on the rating.

As the company gradually moves its business risk mix towards a higher contribution from more volatile generation and supply, Moody's maintains its target ratio range of RCF to net adjusted debt of high teens (15% to 19%), for the current BCA of 7.

Structure and debt

The group's treasury funding arm, Vattenfall Treasury AB, under the guarantee of the parent Vattenfall AB, issues all public debt instruments for the group. Vattenfall controls the cash flow of its subsidiaries, which are managed through cash-pooling agreements. There are around SEK6.3 billion of external third-party bank loans and other loans at the German subsidiary level within the Vattenfall Europe group, which represented less than 10% of total group debt at the end of December 2007. This exposure has gradually diminished over time and Moody's expects it to be reduced still further as these loans mature and are replaced, as appropriate, by debt at the parent level. As such, this does not present a structural subordination issue of any significance. In addition, Vattenfall also includes within "group debt" loans of approximately SEK11 billion (at December 2007) from affiliate companies that hold some of its nuclear assets.

Liquidity

Vattenfall AB (A2/P-1) is the guarantor of Vattenfall Treasury AB (its treasury management arm). Vattenfall has a healthy liquidity position due to strong cash flow and significant liquid assets, as well as ample back-up lines. Over the next 12 months, Moody's expects Vattenfall to generate cash from operations in the region of around EUR4 billion. In addition, the company had approximately EUR2 billion of cash and liquid funds available at the end of H1 2008 – not including a minimum EUR0.35 billion (SEK3.1 billion) that must be held by Vattenfall Europe to cover its nuclear operations (under the so-called "Solidarity Agreement"). This, together with availability under committed credit facilities as noted below, should in large measure be sufficient to meet committed capital expenditure and dividends over the next 12 months. Moody's notes, however, that Vattenfall is likely to access the capital or bank markets in 2009 to refinance SEK8 billion of which EUR630 million of bonds mature in 1H2009.

Vattenfall's general policy is to keep no less than 10% of group turnover in cash or committed back-up lines. Should the next 90 days of debt maturities exceed this amount, then this sets the minimum level of cash and committed lines.

Vattenfall has two commercial paper (CP) programmes: a Euro CP programme of US$2 billion and a domestic programme of SEK15 billion. Usage of the programmes varies, depending largely on pricing and need. External sources of liquidity include mainly a seven-year committed €1 billion revolving credit facility, syndicated with 12 banks, which matures in 2013. Drawings under the facility are subject to representations that no adverse change in the group's financial condition has occurred.

In addition, Vattenfall has committed 364 bilateral credit lines of EUR400million and a SEK100million overdraft facility.

Vattenfall AB

Rating Positioning and Peer Comparison

In Moody's view, Vattenfall belongs to the category of utilities that show a low-medium to medium business risk characteristics, and is towards the higher end of this category along with Fortum in Finland. Vattenfall is a large regional player, but, nonetheless, on a smaller scale and less diversified than the largest European utilities such as E.ON and Electricité de France.

Vattenfall and Fortum both face a fairly high degree of exposure to wholesale generation prices (in particular, the more volatile Nord Pool system), although these companies do enter into hedging techniques that mitigate the risks. In addition, they have a fair degree of lower risk monopoly or quasi-monopoly activities (networks and district heating). Given these factors of scale, diversification and exposure to generation prices, they are considered slightly higher risk than E.ON or RWE. Nonetheless, the extra diversification afforded to Vattenfall due to its exposure to both Nordic and German prices does reduce volatility. Vattenfall is considered somewhat less risky from a business risk perspective than another Nordic utility, DONG Energy, which is smaller, has less regulated business in its business mix and has exposure to riskier exploration and production activities.

Nonetheless, as described earlier, Vattenfall has very strong metrics for its rating category, but Moody's factors in the potential for fairly significant acquisitions.

Likewise, Moody's factors in the expectation that E.ON is going to absorb a significant amount of its current financial flexibility through the €60 billion of capex in its current strategic plan and hence is likely to adapt its financial profile to its target ratio guidance – which is 15%-20% RCF/adjusted debt for the current A2 rating category. Fortum's financial profile is also expected to weaken in 2008[14] to be in line with guidance for its current rating, (RCF/net debt of mid-to-high teens, similar to Vattenfall) following the acquisition of the Russian utility TGC-10.

Figure 4

2007 Peer Comparisons – Key Financial Indicators

Company	Rating*	RCF/ Net Debt	FFO Interest Cover	FFO/ Net Debt
E.On AG	A2/St.	24.8%	5.8x	34.8%
RWE AG	A1/St.	22.8%	2.3x	34.5%
Endesa S.A.	A3/Urd.	12.8%	5.1x	22.8%
Vattenfall AB	A2(7) / St.	43.3%	10.1x	52.5%
Fortum Oyj	A2 (7)/ St.	7.9%	8.9x	26.9%
Centrica	A3 / St.	99.9%	5.4x	125.6%
DONG Energy A/S	Baa1 (8-10)/ Pos.	42.3%	7.5x	50.4%
Edison S.p.A.	Baa2 / St.	27.4%	5.3x	35.6%

Source: Moody's.

**Moody's. Senior Unsecured / Issuer Rating and, for government-related issuers, in brackets Baseline Credit Assessment with 1 representing Aaa, 2 Aa1, 3 Aa2 etc.*

[14] RCF/net debt was over 20% in 2007 with a "normalised" dividend

Appendix 1: Moody's adjustments

Moody's makes a number of standard analytical adjustments to the accounts of non-financial corporate debt issuers.[15] Our objective is to better reflect – for analytical purposes – the underlying economics of transactions and events, and to improve the comparability of a company's accounts with those of its peers. Moody's does not perform forensic or audit procedures and these adjustments do not imply that the accounts fail to comply with accounting standards. Indeed, many of Moody's adjustments are inconsistent with IFRS. Our goal is to enhance the analytical value of financial data rather than to assess compliance with laws or regulations governing financial reporting.

The following tables show how the adjustments made by Moody's have affected certain key credit metrics for Vattenfall. The adjustments detailed below are already incorporated in our rating analysis for the company.

Figure 5

Summary Table

	As reported by Vattenfall		As adjusted by Moody's	
SEK billion	2007	2006	2007	2006
Interest expense	3.33	3.32	3.99	3.92
Gross debt	67.19	71.58	79.82	86.59
Net debt*	44.53	49.41	60.44	67.66
Funds from operations (FFO)	34.05	35.67	33.05	35.14
Dividends paid	7.61	5.89	7.97	6.26
Retained cash flow (RCF) (note 1)	26.44	29.78	25.08	28.89

Note 1: RCF equals FFO minus dividends paid.

Moody's does not include loans to minority shareholders which Vattenfall.shows netted off gross debt

Source: Vattenfall Annual Report 2007 and Moody's Adjustments

Figure 6

Moody's Adjustments

2007 *SEK billion*	Interest expense	Dividends paid	Gross debt	Net debt
As reported (note 1)	**3.33**	**7.61**	**67.19**	**44.53**
Pensions (note 2)	0.84	-	16.16	16.16
Operating leases	0.19	-	3.48	3.48
Hybrid securities (note 3)	-0.37	0.37	-7.01	-7.01
Funds blocked as security for trading on energy exchanges	-	-	-	0.05
Funds set aside as security for nuclear accidents	-	-	-	3.22
As adjusted (note 4)	**3.99**	**7.97**	**79.82**	**60.44**

15 Moody's Approach to Global Standard Adjustments in the Analysis of Financial Statements for Non-Financial Corporations – Part II, Rating Methodology published in February 2006 (#96729).

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Moody's Adjustments (continued)

2006 SEK billion	Interest expense	Dividends paid	Gross debt	Net debt
As reported (note 1)	**3.32**	**5.89**	**71.58**	**49.41**
Pensions (note 2)	0.79	-	18.49	18.49
Operating leases	0.18	-	3.20	3.20
Hybrid securities (note 3)	-0.36	0.36	-6.68	-6.68
Funds blocked as security for trading on energy exchanges	-	-	-	0.04
Funds set aside as security for nuclear accidents	-	-	-	3.20
As adjusted (note 4)	**3.92**	**6.26**	**86.59**	**67.66**

Note 1: Gross debt as reported includes loans from minority-owned German power companies totalling SEK 11.08bn (2006, SEK 10.95bn). Moody's understands that this liability effectively equals Vattenfall's share of the total nuclear waste management obligation in Germany, after taking into account the company's share of the cash held by the German companies. There is consequently no adjustment to debt for nuclear waste management in Germany. Moody's does not net off loans to minority owners in foreign subsidiaries

Note 2: Pension adjustments are made both for underfunded portion of prefunded obligations and unfunded obligations. For the latter case, the obligation is reduced by the recognition of an equity credit. This is based on a target 50% equity/debt+equity capital structure after deducting excess cash that could be available to be used to prefund the liability.

Note 3: Basket D (75% equity) treatment by Moody's for €1bn (SEK 8.911bn) of Capital Securities issued in June 2005 (5.25% coupon fixed until 2015, three month Euribor plus 2.95% thereafter).

Note 4: Moody's would normally adjust debt by reallocating derivatives accounted for as fair value hedges of debt, but the necessary information is not disclosed.

Source: Vattenfall Annual Report 2007 and Moody's Adjustments.

Figure 7

Calculation of FFO

SEK billion	2007	2006
CFO as reported	32.33	35.21
Working capital outflow as reported	1.72	0.47
FFO as reported (CFO before working capital outflow)	**34.05**	**35.67**
Working capital movement related to interest and taxes (note 1)	-1.75	-0.01
FFO as standardised by Moody's	**32.30**	**35.66**
Two-thirds of lease rental expense reclassified as depreciation	0.39	0.36
Hybrid securities financing cost reclassified (note 2)	0.37	0.36
One-off tax credit due to change in legislation in Germany	0.00	-1.24
FFO as adjusted by Moody's	**33.05**	**35.14**

Note 1: When the change in working capital excludes timing differences between current tax expense and tax paid, and between net interest expense and net interest paid, Moody's includes these additional elements in working capital.

Note 2: Moody's re-allocates 75% of interest expense to preferred dividends (see footnote 2 in Figure 2).

Source: Vattenfall Annual Report 2007 and Moody's Adjustments.

Moody's Related Research

Analyses

- Iberdrola S.A, February 2008 (107470)
- Fortum Oyj, April 2008 (108472)

Rating Methodologies:

- Global Regulated Electric Utilities, February 2005 (91696)
- The Application of Joint Default Analysis to Government-Related Issuers, April 2005 (92432)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

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Author	Editor	Senior Production Associate
Helen Francis	Daniel Ward	Kerstin Thoma

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