

# Credit Analysis

# Moody's Global Corporate Finance

October 2007

## Vattenfall AB

Stockholm, Sweden

### Corporate Profile

**Vattenfall is the largest vertically integrated utility in the Nordic region and the third largest in Germany**

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

- Vattenfall Nordic (Sweden, Finland, Denmark) - generation activities in the Nordic region, distribution and supply of power in Sweden and Finland, and district heating.
- Vattenfall Europe - power generation in Germany, distribution and supply in Hamburg and Berlin, and transmission activities in Hamburg and East Germany.
- Vattenfall Poland - mainly heating and electricity distribution and relatively small electricity generation business.

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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		Operating Profit (*)		Relative Contribution		Operating Margin (**)	
	2005	2006	2005	2006	2005	2006	2005	2006
Electricity Generation	14,470	34,169	16,742	19,776	68%	74%	29.2%	26.3%
Electricity Markets	62,786	73,992	1,171	169	5%	1%	1.6%	0.2%
Electricity Networks	36,207	36,571	5,373	3,985	22%	15%	10.6%	7.7%
Heat	14,101	14,833	3,540	4,251	14%	16%	16.9%	18.3%
Other businesses	1,594	1,598	(2,241)	(1,505)	-9%	-6%	-30.8%	-20.6%
Eliminations	0	(15,348)	0	0	0%	0%	0.0%	0.0%
<b>Group Total</b>	<b>129,158</b>	<b>145,815</b>	<b>24,585</b>	<b>26,676</b>	<b>100%</b>	<b>100%</b>	<b>19.0%</b>	<b>18.3%</b>
Nordic Countries	40,712	48,235	13,704	13,217	56%	50%	32.6%	26.9%
Germany	70,304	69,905	10,251	12,886	42%	48%	9.8%	11.5%
Poland	8,790	8,981	808	942	3%	4%	9.1%	10.0%
Other businesses	9,352	18,694	(178)	(413)	-1%	-2%	-0.4%	-0.7%
Eliminations	0	0	0	44	0%	0%	0.0%	-0.1%
<b>Group Total</b>	<b>129,158</b>	<b>145,815</b>	<b>24,585</b>	<b>26,676</b>	<b>100%</b>	<b>100%</b>	<b>19.0%</b>	<b>18.3%</b>

(\*) Excluding items affecting comparability. (\*\*) Operating margin includes sales between segments Source: Vattenfall's "Annual Report 2006" pg84-85

## 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 SEK7billion of external third-party bank loans at the German subsidiary level within the Vattenfall Europe group, which represented about 10% of total group debt at the end of December 2006. 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 SEK11billion (at December 2006) from affiliate companies that hold some of its nuclear assets.

## Key Rating Considerations

### A2 ratings reflect Vattenfall's medium business risk, solid financial profile and GRI uplift

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 one notch uplift for State support.

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

- Baseline credit assessment: 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.

### The BCA reflects a medium operating risk and a strong financial profile although mitigated by a degree of event risk

Vattenfall's BCA of 7 (equivalent to an A3 rating) reflects the company's medium core operating risk profile as a regulated electric utility<sup>2</sup> with a financial profile expected to remain solid-to-strong. We expect risks in its business profile to increase gradually. Despite a large organic capital expenditure programme, some pressure on margins in its networks and district heating business, and price volatility, Vattenfall is expected to demonstrate significant financial flexibility at the current rating level although it is likely to be reduced by the aforementioned factors. 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 in such a scenario, hence any large acquisition would very likely be funded by debt. If such opportunities do not materialise in the next 12/18 months, positive pressure could develop on the rating. The key factors underpinning the BCA rating are explored further in the Management Strategy, Core Business Risk and Financial Risks section.

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

**Support is medium** reflecting 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 which led to a number of other companies, considered less strategic by the government, being put on the slate for possible privatisation.

<sup>1</sup> 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. Please also see *Government Related Issuers: July 2006* for a description of the refinement of the BCA rating scale.

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

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## Management Strategy

### Investment strategy likely to shift Vattenfall's profile towards relatively volatile but profitable generation activities

Management strategy aims at developing Vattenfall as a leading European energy company. It 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 remain the Nordic and German markets, however Vattenfall has also made clear that it will examine closely opportunities in the markets that it believes will offer the most interesting growth possibilities through acquisition: UK, Eastern Europe, Benelux and France. Opportunities may be fairly limited however and the most attractive are likely to be hotly contested.

Vattenfall's management has also stepped up its organic growth objectives. Its target for the 2007-11 period is SEK134billion, a significant increase over the previous, already large, SEK104billion for the 2006-10 period. The largest portion of these investments, SEK102 billion (SEK70billion for 2005), will be used to strengthen Vattenfall's generation capacity, including new power plants<sup>3</sup> and refurbishment of existing plants in Germany to reduce CO2 emissions as well as nuclear capacity upgrade and life time 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 10 TWh target for Sweden in line with Government targets.) Germany has a feed-in tariff for renewables which 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.

Some SEK30billion of total investments is expected to be spent on network improvements. Slightly over half 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, whilst regulated cash flows from distribution and transmission activities are expected to decline given tariff pressure, particularly in Germany.

Hence, over time, Moody's expects EBITDA contribution from generation activities to increase from some 60-65% to some 70-75%<sup>4</sup>. This represents a gradual shift in the group's business and earnings mix, with an increasing reliance 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 are to maintain an A 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 previous 30%. Long-term profitability is targeted at 15% return on average equity after tax. In addition it maintains an interest coverage ratio of cashflow interest coverage after maintenance investments of 3.5-4.5x.

<sup>3</sup> Including Boxberg power plant (675MW in Germany) and Moorburg power plant (1640MW)

<sup>4</sup> This proportion is somewhat higher on an EBIT basis as reflected in Figure 1

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## 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.<sup>5</sup> 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 today 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 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 impact 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 strong prices and increasingly, because of significant investments planned for these areas (as noted above under Strategy). Slightly lower returns from network activities will also have an impact.

### Vattenfall has strong market positions in monopoly and quasi-monopoly sectors...

Vattenfall maintains strong market positions in the regulated networks and district heating businesses. It is the second largest network operator in the Nordic region, the third largest transmission operator in and the fourth largest distribution system operator in Germany, whilst it has the largest district heating business in the region. Whilst district heating is not a regulated business, it has quasi monopoly characteristics given high barrier to entry and long-term contracts. However 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 to Western Europe) as it is still in process of development.

### ...however relatively harsh regulatory developments in Germany are impacting revenue and profit margins

Vattenfall's distribution and supply networks in the Berlin and Hamburg regions have historically contributed a significant portion of cash flows in Germany. These regulated businesses have been affected by the energy law (EnWG), passed 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. Tariffs are now determined *ex-ante*<sup>6</sup> requiring approval by the regulator, the BNA<sup>7</sup>.

In 2006, the BNA imposed a swingeing 17.9% cut in transmission tariffs, versus applied tariffs, applicable for the period July to December 2006. Tariffs cuts of 15% were also imposed on the distribution businesses in Hamburg and Berlin applicable until the end of 2007 and a 10% cut in the tariff applied to the Wemag subsidiary. The BNA ruling for transmissions tariffs was however much more satisfactory for 2007, with an increase of 26% compared with 2006. As a result of the new regulation, impairment charges of SEK1,019 million (EUR 110million) were incurred in 2006 and Moody's expects that further impairment charges are possible in 2007. Moreover, this business is expected to come under margin pressure from increasing costs from additional wind power generation and related inefficiencies in power balancing.

<sup>5</sup> See rating methodology reference footnote #3.

<sup>6</sup> 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), whilst any ex-post control of possible abuse was left with the Competition Authority.

<sup>7</sup> The BundesNetzAgentur.

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## The Swedish regulatory regime has also resulted in margin pressure although returns have recently improved

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, however in Sweden the regulator has taken on a harsher stance. In 2004, the Swedish regulator introduced an *ex-post* regulatory model – i.e., the “Performance Assessment Model,” which is aimed at improving efficiencies within the sector although this is in the process of being changed to an “*ex-ante*” model. There have been concerns that the Swedish model could lead to excessive pressure on tariffs whilst requiring higher investments to meet more stringent service quality criteria. Nonetheless the Regulator has recently implemented a revised allowable WACC – an increase from 4.8% to 6.2% corresponding to a real WACC after tax of 4.5% - which has been 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

Power generation accounts for circa 60-65% of the group 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 based on low-cost hydro (about 35% of production in 2006<sup>8</sup>) and nuclear power about 55%. Its share of thermal has increased to 8% since its acquisition of some Danish generation assets<sup>9</sup> reducing somewhat Vattenfall's overall exposure to the Nordic weather system.

**Figure 2. Vattenfall's Power Generation Mix.**

	2005	2006	2005	2006
<b>Nordic Region:</b>				
Hydro power	36.4	30.9	39.1%	35.0%
Nuclear power	52.9	49.2	56.8%	55.8%
Fossil fuel-based power	3.4	7.1	3.6%	8.0%
Wind power	0.1	0.6	0.1%	0.7%
Biofuel, waste	0.4	0.4	0.4%	0.5%
Total Nordic Region	93.2	88.2	100.0%	100.0%
<b>Germany:</b>				
Hydro power	3.5	3.4	4.6%	4.5%
Nuclear power	6.0	6.0	7.9%	7.9%
Fossil fuel-based power	66.4	66.5	87.5%	87.3%
Wind power	-	-	n/a	n/a
Biofuel, waste	-	0.3	n/a	0.4%
Total Germany	75.9	76.2	100.0%	100.0%

Vattenfall's "Annual Report 2006".

Nuclear and hydro are fixed-cost technologies that have contributed to boost Vattenfall's profitability in the current environment of strong wholesale power prices. In Germany, Vattenfall is the third largest power generator with a 14% share of the market, after E.ON (rated A2 stable) and RWE (rated A1, stable).

<sup>9</sup> 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 2,400MW of power and 2,100MW heat generation capacity, giving it respectively, round a 21% share of generation and 25% of heat production in the Danish market. This agreement with DONG was finalized on 1 July 2006

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Vattenfall's German generation business is primarily thermal, and also benefits from the current strong trend in wholesale prices.

Moody's views Vattenfall's generation and supply businesses as medium risk because of their large market share, well-balanced fuel mix and the current generally favourable conditions and 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 still relatively young emissions trading market are factors that may continue to create some additional volatility in German wholesale prices. These factors have also impacted Nordic prices which have started to show a greater correlation with German prices. From 2008 onwards, a period of tighter CO2 allowances, emission trading certificates are expected to push up prices in Germany and this is expected to also give upward pressure to Nordic wholesale prices.

Moody's notes that Vattenfall has an active and conservative 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.

### **Nuclear power 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 both in Sweden and Germany.

In December 2004, the Swedish government decided to close down the Barsebäck 2 nuclear plant by May 2005, for which Vattenfall was fully compensated. This was in line with a parliamentary decision taken back in 1997 to decommission both nuclear reactors of the Barsebäck plant (Barsebäck 1 was closed at the end of 1999). Sweden's energy policy is still somewhat unclear – discussions in 2005 between the government and the Swedish power companies with regard to reconsidering the future of nuclear power and extending the life of a number of nuclear plants, ended somewhat unsatisfactorily. However, Moody's does not believe this represents a decisive move towards full nuclear decommissioning in Sweden in the near term, given the country's dependence on nuclear power, which currently represents circa 50% of production, and the lack of viable alternatives. In Germany, where the government is currently planning to phase out nuclear power over time, Vattenfall 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 whilst 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. However, at present, there are no indications that such a reversal in policy is likely.

There have been a couple of events with regard to Vattenfall's nuclear plants in Germany and Sweden in 2006 and 2007. These have not related to any significant safety problems<sup>10</sup> nor significant loss of earnings and Vattenfall has subsequently made management changes and improved certain operating procedures. Nonetheless their high media profile reinforces the very sensitive political nature of this technology.

### **Vattenfall, as other generators, remains potentially exposed to a number of other environmental and political risks**

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 carbon dioxide (CO2) emissions.

In Germany, Vattenfall requires emission allowances owing to its thermal exposure, which is 89% circa of its total generation in that country. In Sweden the requirements are very low, given the high proportion of hydro

<sup>10</sup> the Swedish incident was 2 on the International Nuclear Events Scale (INES) scale and the German events were 0

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and nuclear generation. However, should Vattenfall construct new thermal power plant in the future, it could be short on allocations. Overall in the first CO<sub>2</sub> allocation period, Vattenfall's allowances were broadly in line with requirements.

For the second allocation period (2008-12), the EC decision has been harsher than expected in Germany. The German operations of Vattenfall face a deficit of 28-33million tonnes of CO<sub>2</sub> certificates which is expected to have a cash flow cost of Eur400-500million p.a. from 2008<sup>11</sup>. In Denmark Vattenfall's estimated deficit is approx. 1.8million tonnes with a net cost of Eur26-28million p.a. from 2008. In Poland, too, Vattenfall expects reduced allowances which will mean an increased pretax cost of Eur15-20 million p.a.

Nonetheless uncertainties in price developments remain a factor for all generation companies. This may in particular impact the pace and scale of reinvestment. The risk of political interference, given current high generation prices and possible windfall profits for generation companies, cannot be ruled out either.

## Financial Risk

### Vattenfall continued to show strong financial flexibility in 2006 thanks to strong cash flow generation

Vattenfall continued to show solid profits in 2006. Overall sales rose by 12.9% to SEK145.8billion.

Generation whilst still strong, declined marginally over 2005, due to low water supply for most of the year in the Nordic sector and a disruption at the Forsmark nuclear power plant. However this was mitigated by the fact that thermal-based power increased as did heat production - this was mainly attributable to the Danish assets acquired, and consolidated by, Vattenfall on 1 July 2006. Hedging also played its part in mitigating the significant swings in Nordic pool prices in 2006. As a result of the BNA's decision on lower distribution tariffs, Vattenfall distribution networks were written down by SEK1.019billion. FFO was nonetheless very strong in 2006 and exceeded the previous year's mainly due to strong power prices although there were a number of one-off movements.

Overall investments were lower than 2005 by 17% to SEK17.2billion, mainly due to lower growth investments (Vattenfall acquired the stake in the Danish Elsam<sup>12</sup> in 2005 and completed the asset swap with DONG in 2006.) Free cash flow hence allowed a reduction in adjusted debt from SEK81billion to SEK67.5billion.

**Figure 3. Key Financial Data**

(in SEKm)	2005	2006
Revenue	129,158	145,815
EBIT	26,672	28,575
Interest Expense as adjusted	3,491	3,920
FFO as adjusted	27,350	35,489
RCF as adjusted	21,390	29,232
Total Debt as adjusted	89,709	86,590
Net Debt as adjusted	81,086	67,539
Adjusted FFO Interest Coverage	8.8x	10.1x
Adjusted FFO / Net Adjusted Debt	33.7%	52.5%
Adjusted RCF / Net Adjusted Debt	26.4%	43.3%

Source: Vattenfall's "Annual Report 2006".

<sup>11</sup> based off a price of Eur20 per tonne

<sup>12</sup> Under the agreement with DONG, Vattenfall exchanged its 35.3% equity interest in Elsam for a 24% of the combined generation capacity of assets of Elsam and E2. The total financial effects of this transaction included, in addition to the SEK10.3 billion in cash (paid in 2005), the consolidation of approximately SEK 1.5 billion of assumed debt on completion of the acquisition in 2006, as well as a further cash payment of SEK1.5 billion to DONG corresponding to Vattenfall's share of Elsam and E2's original debt position.

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**Vattenfall continues to demonstrate a strong financial profile in 1H2007, despite a number of negative pressures**

Significant price drops in the Nordic sector due to a warm wet winter and low prices for CO2 emission allowances for 2007 did not significantly impact earnings given hedges that are in place. Operating profit in 1H2007 declined moderately with a drop of 10% in EBIT. However profits after tax rose by 18.5% to SEK13.5billion due to a reduction of Germany corporate tax. Overall net debt decreased by SEK2.6billion over FYE 2006. Prices for 2008 and 2009 are expected to recover, based off more normalised weather conditions and higher costs for CO2 emission allowances for the new 2008 period.

**...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 from generation activities to grow, after factoring the contribution from the plants acquired in Denmark. 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. Lower 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. Vattenfall also expects to pay larger dividends – the target has been raised from 30% of net profit after tax to 40-60% which will absorb some free cash flow. Net adjusted debt may also increase as Vattenfall's investment programme intensifies.

These factors, taken together, could well mean that the company's debt protections will weaken from current high 2006 levels. Nonetheless despite a likely weakening, absent any large acquisitions, Moody's anticipates that Vattenfall's financial profile will stay strong for the current rating category.

To offset the migration of Vattenfall's business risk profile, as the company gradually moves its business risk mix towards a higher contribution from more volatile generation and supply, in 2006 Moody's shifted the target ratio range of Retained Cash Flow-to-Net Adjusted Debt from previously mid-to-high teens (13% to 17%) to high teens (15% to 19%), for the current BCA of 7 (equivalent to an A3 rating).

**The A2 rating factors the possibility of further acquisitions on a case-by-case basis. Absent acquisitions a continuing strong financial profile could lead to positive rating pressure.**

Vattenfall's financial profile is nonetheless strong for its rating category today but Moody's expects that strong FFO will be absorbed in part by a large organic growth investment plan and larger dividends. However, Moody's ratings assume that the management, in line with its stated strategy, will look to utilise any 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. Nonetheless large-scale acquisitions targets are relatively few and far between and Moody's comments that given Vattenfall's very strong financial profile, positive rating pressure could occur if Vattenfall does not use its considerable financial flexibility within the next 12-18 months.

**Rating positioning and peer comparison**

In Moody's view, Vattenfall and Fortum in Finland are generally in the medium risk category for regulated utilities. These companies face a fairly high degree of exposure to commodity prices although this is mitigated by a fair degree of lower risk monopoly or quasi-monopoly activities (networks and district heating.) Given their higher and growing exposure to the more volatile Nord Pool system they are considered slightly higher risk than some of the more central European vertically integrated utilities such as E.On or RWE, where there tends to be less volatility in generation prices. 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

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business mix and has exposure to riskier E&P activities. Centrica and Edison are also higher risk as they are more exposed to commodity pricing.

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 Eur60billion 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. Note also that E.On is a significantly larger entity than Vattenfall (and indeed most of the European players) and hence has greater financial strength.

Fortum actually has a degree of flexibility in its current rating category for potential acquisitions or share buybacks, but to a much lesser degree than Vattenfall. (Note also that RCF/debt numbers in 2006 for Fortum, as for Endesa, were exceptionally depressed by a special dividend relating to significant capital gains on the sale of assets.)

**Figure 4: 2006 Peer Comparisons - Key Financial Indicators**

Company	Rating*	RCF/ Net Debt	FFO Interest Cover	FFO/ Net Debt
E.On AG	A2/St.	25.7%	5.7x	50.0%
RWE AG	A1/St.	24.0%	4.2x	29.3%
Endesa S.A.	A3/Urd.	8.3%	4.9x	21.8%
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.	33.3%	5.4x	47.3%
DONG Energy A/S	Baa1 (8-10)/ St.	29.3%	7.5x	30.3%
Edison S.p.A.	Baa2 / St.	19.7%	5.3x	23.9%

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.

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## APPENDIX 1: Moody's adjustments

Figure 1: Summary Table

SEK billion	As reported by Vattenfall		As adjusted by Moody's	
	2006	2005	2006	2005
Interest expense	3.32	2.96	3.92	3.49
Gross debt	71.58	78.66	86.59	89.71
Net debt	49.41	64.34	67.66	81.09
Funds from operations (FFO)	35.67	31.39	35.49	27.35
Dividends paid	5.89	5.78	6.26	5.96
Retained cash flow (RCF) (note 1)	29.78	25.61	29.23	21.39

Note 1: RCF equals FFO minus dividends paid.

Source: Vattenfall Annual Report 2006 and Moody's Adjustments.

Figure 2: Moody's Adjustments

SEK billion	Interest expense	Dividends paid	Gross debt	Net debt
<b>2006</b>				
As reported (note 1)	3.32	5.89	71.58	49.41
Pensions	0.79	-	18.49	18.49
Operating leases	0.18	-	3.2	3.2
Hybrid securities (note 2)	-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	-	-	-	3.2
<b>As adjusted (note 4)</b>	<b>3.92</b>	<b>6.26</b>	<b>86.59</b>	<b>67.66</b>
<b>2005</b>				
As reported (note 1)	2.96	5.78	78.66	64.34
Pensions	0.5	-	14.22	14.22
Operating leases	0.21	-	3.78	3.78
Hybrid securities (note 2)	-0.18	0.18	-6.95	-6.95
Loans to minority owners in foreign subsidiaries (note 3)	-	-	-	0.25
Funds blocked as security for trading on energy exchanges	-	-	-	2.25
Funds set aside as security for nuclear accidents	-	-	-	3.2
<b>As adjusted (note 4)</b>	<b>3.49</b>	<b>5.96</b>	<b>89.71</b>	<b>81.09</b>

Note 1: Gross debt as reported includes loans from minority-owned German power companies totalling SEK 10.95bn (2005, SEK 13.73bn). 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.

Note 2: Basket D (75% equity) treatment by Moody's for €1bn (SEK 9.268bn) of Capital Securities issued in June 2005 (5.25% coupon fixed until 2015, three month Euribor plus 2.95% thereafter).

Note 3: Included in net debt by Vattenfall, but excluded by Moody's because the funds are not immediately available to pay down debt.

Note 4: In 2006, derivative assets and liabilities are reported within "trade and other receivables" and "trade and other liabilities", respectively. Moody's would normally adjust debt by reallocating derivatives accounted for as fair value hedges of debt.

Source: Vattenfall Annual Report 2006 and Moody's Adjustments.

## Vattenfall AB

## Moody's Related Research

### Analyses:

- E.On, July 2007 (104052)
- Enel, September 2007 (104525)
- Dong Energy, August 2007(104548)

### Rating Methodologies:

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

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