

# Rating Methodology

# Moody's Global Infrastructure Finance

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## Unregulated Utilities and Power Companies

### Summary

This rating methodology provides guidance on Moody's approach to assigning credit ratings for unregulated utilities and unregulated wholesale power companies worldwide.

The goal of this report is to help issuers, investors and other interested market participants understand how Moody's assesses credit risk for unregulated utility companies and wholesale power companies, and to explain how key quantitative and qualitative risk factors map to specific rating outcomes. Our objective is for users to be able to estimate the likely credit rating (senior unsecured rating for investment-grade and Corporate Family Rating for speculative-grade issuers) for an unregulated utility or wholesale power company to within two alpha-numeric rating notches in most cases.

Moody's analysis focuses on four key rating factors that are central to the assignment of ratings of unregulated utility and wholesale power companies. The four key rating factors encompass 11 specific elements or (sub-factors) for unregulated utilities and 10 specific sub-factors for wholesale power companies (See Appendix A). The four factors, which will be detailed in this report, are as follows:

1. Market Assessment, Scale and Competitive Position
2. Cash Flow Predictability of Business Model
3. Financial Policy
4. Financial Strength Metrics

In Appendix B we have included a detailed rating grid for the 39 companies covered in this methodology. For each company, the grid maps the key rating factors and sub-factors and shows the indicated alpha-numeric rating that is calculated from the overall combination of factors. We also include discussion of "outliers" – companies whose rating for a specific sub-factor differs significantly from the actual ratings, as companies will not always score consistently with their overall rating on every sub-factor.

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## Unregulated Utilities and Power Companies

The purpose of the rating grid is to provide a reference tool that can be used to approximate credit profiles within the unregulated utility and wholesale power sector. The grid provides summarized guidance on the factors that Moody's believes are most important in assigning ratings to issuers in this sector. The grid represents a summary that does not include every rating consideration and does not fit every business model equally well. In addition, the sub-factor mappings use historical financial results to illustrate the grid while our ratings also consider forward looking expectations. As such, the grid-indicated rating is not expected to always match the actual rating of each company. The text of the rating methodology provides insights on the key rating considerations that are not represented in the grid, as well as the circumstances in which the rating effect for a factor might be significantly different from the weight indicated in the grid. Further it must be recognized that ratings are prospective opinions on future relative credit risk. Event risk, including acquisitions that alter a firm's capital structure, liquidity profile, and cash flows continue to be major influences on Moody's ratings.

Readers should also note that this methodology does not attempt to provide an exhaustive list of every factor that can be relevant to unregulated utility and power company ratings. For example, our analysis covers factors that are common across all industries (such as operating income, coverage ratios, debt leverage, and financial policies) as well as factors that can be meaningful on a company specific basis (such as market position and diversification).

This publication includes the following sections:

- **About the Rated Universe:** An overview of the rated unregulated utility and power company universe
- **About this Rating Methodology:** A description of our rating methodology, including a detailed explanation of each of the key factors that drive ratings
- **Assumptions and Limitations:** Comments on the rating methodology's assumptions and limitations, including a discussion of other rating considerations that are not included in the grid

In the appendices, we also provide tables that illustrate the application of the methodology grid to 39 selected unregulated utility and power companies, a brief industry overview (Appendix D), and a discussion of key rating issues for the unregulated utility and wholesale power industry over the intermediate term (Appendix E).

### About the Rated Universe

The rating methodology covers unregulated utility companies whose principal business is the production and/or procurement of electricity and gas and the supply of such commodities to end users. Unregulated utilities operate in countries that have undergone a process of liberalization and deregulation of the upstream generation and wholesale markets and the downstream supply market. Generally, all of the rated unregulated utilities reside in Europe. In such countries, network activities continue to be regulated as monopoly businesses and many of the rated unregulated utilities may also own and operate regulated assets. However, these regulated assets do not represent their principal business.

The rating methodology also covers unregulated wholesale power companies worldwide, whose principal business is the production and sale of electricity in an unregulated or lightly regulated marketplace to wholesale customers such as utilities, supply companies, cooperatives, municipalities, and power marketers, which then resell the power to end-use customers. In some markets, wholesale power companies will produce and sell electricity directly to industrial customers. There may be a degree of oversight to prevent market manipulation through collusion or withholding power from the market but prices are generally set by market competition, an auction, or through bilateral contractual arrangements.

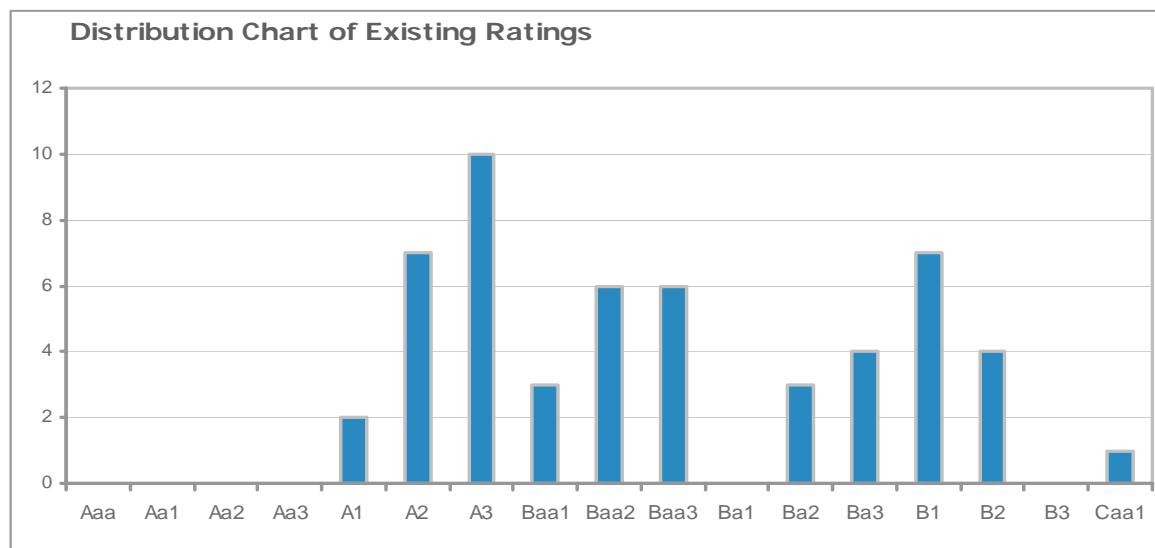
The rating methodology excludes regulated investor-owned utility companies, regulated transmission and distribution companies, municipal utilities, electric cooperatives, and power generation projects, each of which is covered under separate rating methodologies.

## Unregulated Utilities and Power Companies

Of the rated universe, all of the unregulated utilities are based in Europe and virtually all are rated investment grade, while a majority of the wholesale power companies are based in the US and rated both investment grade and speculative grade, reflecting the different history and evolution of electricity markets. Of the investment grade rated US power companies, many of the issuers own generating assets that were previously owned by a vertically integrated regulated utility system and have since been partially or fully deregulated. In most cases, the generation assets, which still represent a principal source of generation for the regional load-serving entities, were transferred to the newly formed generation affiliate at book value with relatively modest debt. On the other hand, the group of rated European unregulated utilities includes several previous national or regional incumbents, which have expanded beyond their domestic market as the process of liberalization and unbundling, i.e. the separation of different segments of the industry's value chain, has progressed. These companies have generally retained an integrated model.

Moody's rates 53 unregulated utilities and power companies globally, representing approximately \$395 billion in rated debt. Of this group, 23 are unregulated utility groups with \$266 billion in rated debt and 30 are unregulated power companies with \$129.3 billion in rated debt. Geographically, this methodology covers companies headquartered in the Americas and Europe although several of the companies in the methodology have operations in more than one country. Based upon country of domicile, 43% of the rated issuers are based in the Americas, and 57% are based in Europe. Within the rated universe, 68% are investment-grade and 32% are speculative-grade. Within the unregulated utility group, all but one issuer is investment grade. Among unregulated wholesale power companies, 47% are investment-grade and 53% are speculative-grade. The following chart and tables illustrates the distribution of ratings in the unregulated utility and power industry.

Ratings used in this methodology are the Senior Unsecured ("SU") rating for investment grade companies, the Corporate Family Rating ("CFR") for non-investment grade companies and the Baseline Credit Assessment ("BCA") for Government Related Issuers ("GRI"). BCA ratings are based on a scale of 1 to 21, where 1 represents the lowest credit risk and 21 represents the highest credit risk.



## Unregulated Utilities and Power Companies

Unregulated Utilities				
Company	Rating [BCA]	Outlook	Domicile	Rated Long-term Debt (\$B)
GDF SUEZ*	Aa3 [5]	Stable	France	28.3
EDF*	Aa3 [6]	Stable	France	48.4
RWE	A1	RUR Down	Germany	25.8
EVN*	A2 [7]	Negative	Austria	1.1
E.ON	A2	Stable	Germany	46.7
Scottish & Southern	A2	RUR Down	UK	5.5
EWE*	A2 [5-7]	Stable	Germany	2.8
EnBW*	A2 [6]	RUR Down	Germany	7.3
Nuon Power Generation	A3	RUR Down	Netherlands	--
Essent*	A2 [6]	RUR Down	Netherlands	--
Vattenfall*	A2 [7]	Stable	Sweden	17.1
Fortum*	A2 [7]	Stable	Finland	5.7
CEZ*	A2 [7]	Stable	Czech Republic	4.0
Enel*	A2 [7]	Negative	Italy	19.1
Centrica	A3	Stable	UK	6.5
Endesa	A3	Negative	Spain	3.6
Iberdrola	A3	Stable	Spain	21.0
EDP*	A3 [8]	Stable	Portugal	11.7
Dong*	Baa1 [8-10]	Stable	Denmark	3.7
Reykjavik Energy*	Baa1 [15]	Negative	Iceland	--
Gas Natural	Baa2	Stable	Spain	5.0
Edison	Baa2	Negative	Italy	2.7
DTEK	B2	Stable	Ukraine	--

\* GRI Issuer

## Unregulated Utilities and Power Companies

## Power Companies

Company	Rating [BCA]	Outlook	Domicile	Rated Long-term Debt (\$B)
Verbund *	A1 [5-7]	RUR-Down	Austria	2.8
Compagnia Valdostana delle Acque*	A1 [8-10]	Stable	Italy	--
Exelon Generation Company	A3	Stable	USA	7.5
PSEG Power LLC	Baa1	Stable	USA	2.7
Statkraft AS*	Baa1[10]	Stable	Norway	3.6
Landsvirkjun*	Baa1[14]	Negative	Iceland	1.7
FirstEnergy Solutions	Baa2	Stable	USA	5.0
PPL Energy Supply	Baa2	Stable	USA	8.5
TransAlta Corporation	Baa2	RUR Down	Canada	1.1
AES Gener	Baa3	Negative	Chile	0.4
Allegheny Energy Supply	Baa3	Stable	USA	2.7
AmerenEnergy Generating Company	Baa3	Stable	USA	0.8
Constellation Energy Group	Baa3	RUR-Down	USA	7.1
Endesa Chile	Baa3	Stable	Chile	1.1
AES Chivor	Ba2	Stable	Colombia	0.2
Covanta Holding Corporation	Ba2	Stable	USA	1.4
International Power Plc	Ba2	Stable	UK	--
Empresa Electrica del Norte Grande	Ba3	Positive	Chile	--
NRG Energy, Inc.	Ba3	Stable	USA	10.6
OGK-1	Ba3	Stable	Russia	--
RusHydro*	Ba3[13]	Stable	Russia	--
AEI	B1	Stable	USA	1.4
The AES Corporation	B1	Stable	USA	6.5
Edison Mission Energy	B1	Stable	USA	5.5
Mirant Corporation	B1	Stable	USA	4.3
RRI Energy, Inc.	B1	Stable	USA	2.7
Enel OGK-5*	B1[14]	Stable	Russia	--
Calpine Corporation	B2	Stable	USA	8.0
Dynegy Holdings, Inc	B2	Stable	USA	6.7
Energy Future Holdings Corp.	Caa1	Negative	USA	37.0

\* GRI Issuer

Of the companies listed above, several are not being examined in the text of the rating methodology due to case specific circumstances, most of which relate to the usefulness of historical financials. Three of the more noteworthy omissions are Calpine Corporation (Calpine), Energy Future Holdings Corp. (EFH) and Gas Natural. As discussed in the text, the financials in this methodology are examined based upon a three year historical average. Since Calpine was a debtor in bankruptcy for all of 2006 and 2007, the three year historical average is not a useful measure. Similarly, the historical results of EFH are not reflective of the company's current Caa1 rating as its historical results incorporate operations prior to the company's leverage buyout completed in late 2007. Also, Gas Natural's historical results reflect the structure of the group before its 2009 acquisition of Union Fenosa. For these reasons, these issuers are excluded from the sample companies in the methodology.

## Unregulated Utilities and Power Companies

### About This Methodology

Moody's unregulated utility and power company rating methodology consists of the six sections listed below. The first three sections pertain to the rating factor discussions. The fourth section (Mapping Issuers to the Grid and Discussion of Grid Outliers) is in Appendix C. The last two sections follow the rating factor discussions.

While the key factors that drive ratings for unregulated utilities and power companies are the same, some of the elements that measure these factors are different. This is due to regional and market structure differences that exist in various regions of the world. For example, in the US, the supply/retail business has not developed to the same degree as it has in Europe and in other deregulated markets. As such, unregulated power companies generally sell their electric output to other wholesale customers who then resell the product to the end-use customers. By contrast, unregulated utilities sell their electric output directly to the end-use customers thereby creating a more integrated model. For these reasons, the elements that influence the broad rating factors are in some cases modestly different to better capture the nuances of the characteristics of the two similar business models.

### 1. Identification of the Key Rating Factors

The grid in this rating methodology focuses on four broad rating factors and weightings. For the unregulated utilities, the four broad factors are further broken down into 11 sub-factors

Rating Factor / Sub-Factor Weighting – Unregulated Utilities			
Broad Rating Factors	Broad Rating Factor Weighting	Rating Sub-Factor	Sub-Factor Weighting
Market Assessment, Scale and Competitive Position	25%	Size and scale	15.0%
		Competitive position and market structure	10.0%
Cash Flow Predictability of Business Model	25%	Fuel strategy and mix	5.0%
		Degree of integration and hedging strategy	5.0%
		Capital requirements and operational performance	5.0%
		Contribution from low-risk/high risk businesses	10.0%
Financial Policy	10%	Financial Policy	10.0%
Financial Strength Metrics	40%	Cash Flow Interest Coverage	10.0%
		Cash Flow / Debt	12.5%
		Retained Cash Flow/ Debt	12.5%
		Free Cash Flow/ Debt	5.0%
Total	100%		100.0%

## Unregulated Utilities and Power Companies

For the power companies, the four broad factors are further broken down into 10 sub-factors.

Rating Factor / Sub-Factor Weighting - Power Companies			
Broad Rating Factors	Broad Rating Factor Weighting	Rating Sub-Factor	Sub-Factor Weighting
Market Assessment, Scale and Competitive Position	20%	Market and competitive position	15.0%
		Geographic diversity	5.0%
Cash Flow Predictability of Business Model	20%	Hedging Strategy	10.0%
		Fuel strategy and mix	5.0%
		Capital requirements and operational performance	5.0%
Financial Policy	10%	Financial Policy	10.0%
Financial Strength Metrics	50%	Cash Flow Interest Coverage	15.0%
		Cash Flow / Debt	20.0%
		Retained Cash Flow/ Debt	7.5%
		Free Cash Flow/ Debt	7.5%
Total	100%		100.0%

While the grids are similar, as the broad rating factors and the quantitative sub factors are identical, there are some differences between the unregulated utility grid and the power company grid. The biggest difference is the fact that quantitative financial metrics make up 40% of the methodology determined rating in the unregulated utility grid and make up 50% in the power company grid. The 10% difference between the two grids is largely a function of the organizational differences between unregulated utilities and unregulated power companies as unregulated utilities may have a material component of their business that is lower risk and more predictable from an earnings and cash flow perspective. The most prominent example is unregulated utilities' ownership of distribution businesses. On the other hand, unregulated power companies are businesses whose margins are largely determined by the market resulting in the potential for volatile cash flows and earnings. To address this organizational difference, the quantitative financial metrics are collectively weighted more heavily in the power company grid due to an expectation of more volatile financial results caused by the commodity nature of the business. Moreover, the ranges for some of the quantitative factors for the power companies are tighter for the same rating category to reflect the higher expected volatility in cash flows anticipated from this capital intensive cyclical business. While unregulated utilities have a degree of volatility in their financial results and as such, are judged by the same broad factors as their unregulated power company peers, there is a sub-factor entitled contribution from low risk and high risk businesses, which is weighted at 10%, which recognizes the degree of more predictable cash flows often exhibited within the unregulated utility organization.

## 2. Measuring the Key Rating Factors

In this section we explain the measurements we use to assess performance for each of the rating factors and sub-factors. We explain the rationale for using specific rating factors and provide insights on the way these are applied in the rating decision process. Much of the information used in assessing performance for the sub-factors is found in or is derived from the company's financial statements; other assessments are calculated using data gathered from various sources, observations or estimates by Moody's analysts.

Moody's ratings are forward looking and incorporate our expectations of future financial and operating performance. We use both historical and projected financial results in the rating process. Historical operating results help us understand the pattern of a company's performance and how it compares to its peers. Historical data also assists us in, among other things, looking through the earnings volatility associated with the business cycle and evaluating whether projected future results are realistic. We utilize historical data to

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illustrate the application of the rating methodology grid. Specifically, the mapping examples, unless otherwise stated, use three-year averages of financial statement information with the latest period on a trailing 12 month basis in order to capture improving or deteriorating trends. The statement periods may not be identical for all issuers.

All of the quantitative credit measures incorporate Moody's standard adjustments to income statement, statement of cash flow, and balance sheet amounts for off-balance items, including underfunded pension obligations and operating leases, among other things. Please refer to the Rating Methodologies listed at the end of this report for further discussion of Moody's standard adjustments.

### **3. Mapping Factors to Rating Categories**

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After identifying the measurement criteria for each factor, we provide a chart that maps the sub-factors to specific alpha rating categories (Aaa, Aa, A, Baa, Ba, B and Caa).

### **4. Mapping Issuers to the Grid and Discussion of Grid Outliers**

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In this section (See Appendix B), we provide a table showing how each company maps within the specific sub-factors. The weighted average of the sub-factor ratings produces a grid-indicated rating for each broad factor. We also highlight companies (Appendix C) whose grid-indicated performance on a specific factor or sub-factor is higher or lower by two or more broad rating categories from the actual rating and discuss general reasons for such outliers with a given factor or sub-factor.

### **5. Discussion of Assumptions, Limitations, and Other Rating Considerations**

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This section discusses limitations in the use of the grid to map against actual ratings as well as limitations and key assumptions that pertain to the overall rating methodology.

### **6. Determining the Overall Grid-Indicated Rating**

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To determine the overall grid-indicated rating, the indicated rating category for each sub-factors (i.e. Aaa, Aa, A, Baa, Ba, B, or Caa) is converted into a numeric value based upon the scale below.



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## Ratings Scale

Aaa	Aa	A	Baa	Ba	B	Caa
1	3	6	9	12	15	18

Each sub-factor's numeric value is multiplied by an assigned weight and then summed. The total sum of the factors is then mapped to the ranges specified in the table below, and the indicated alpha-numeric rating is determined based on where the total score falls within the ranges.

Factor Numerics			
Composite Rating		Sub-Factor Rating	
Indicated Rating	Aggregate Weighted Factor Score	Indicated Rating	Factor Score
Aaa	< 1.5	Aaa	1
Aa1	1.5 < 2.5		
Aa2	2.5 < 3.5	Aa	3
Aa3	3.5 < 4.5		
A1	4.5 < 5.5		
A2	5.5 < 6.5	A	6
A3	6.5 < 7.5		
Baa1	7.5 < 8.5		
Baa2	8.5 < 9.5	Baa	9
Baa3	9.5 < 10.5		
Ba1	10.5 < 11.5		
Ba2	11.5 < 12.5	Ba	12
Ba3	12.5 < 13.5		
B1	13.5 < 14.5		
B2	14.5 < 15.5	B	15
B3	15.5 < 16.5		
Caa1	16.5 < 17.5		
Caa2	17.5 < 18.5	Caa	18
Caa3	> 18.5		

## Unregulated Utilities and Power Companies

### The Key Rating Factors

Moody's analysis of unregulated utilities and power companies focuses on four broad factors:

- Market Assessment, Scale and Competitive Position
- Cash Flow Predictability of Business Model
- Financial Policy
- Financial Strength Metrics

### Unregulated Utilities: Rating Factor 1: Market Assessment, Scale and Competitive Position (25%)

#### Why it Matters

- **Size and scale (15%)**

Size is important for unregulated utilities – as reflected in the recent evolution of European utility groups. Since the onset of liberalization in 1999 the significant challenges facing the industry have increased. These include: strong competition in generation and supply, the need to ensure security of supply and procure fuels, such as gas, with contracts of sufficient volume, diversity, flexibility and longevity; management of commodity price volatility (as a result of such factors as changing commodity and CO<sub>2</sub> pricing, weather variability and long-term supply/demand patterns); potential regulatory and political risk; huge investment needs in generation and network infrastructure, both to meet long-term demand growth as well as legislative requirements and incentives to upgrade and diversify generation portfolios towards “cleaner” energy.

The companies best placed to face such challenges are those with the scale and resources to generate substantial and regular cash flow through strong market share, large, diversified and flexible generation portfolios and efficient infrastructure to mitigate pricing and regulatory risk, as well as having the financial firepower to undertake large investments for the future.

In Europe, liberalization meant that large monopoly incumbents had to open up their markets to competition. However size continues to matter and many of these companies have engaged in significant cross-border merger and acquisition activity, or organic investments, to maintain or increase scale as EU antitrust authorities restricted market share in home markets. Some governments have actively supported national champions such as EDF and GDF SUEZ of France. We have also seen the emergence of strong regional players, while smaller players have resorted to more niche strategies.

- **Competitive position and market structure (10%)**

Moody's considers the utility's core business in assessing the relative strength of its competitive position. Three broad categories are considered in this methodology.

Most rated integrated utilities have developed their businesses from a core of power generation and networks by expanding along the energy value chain and across into gas markets. Rising investment in interconnection capacity between national markets is slowly moving the European power markets towards convergence. However competitive and pricing structures remain distinct from market to market. The degrees of concentration vary widely from the dominance of EDF with over 80% of French power generation to the more fragmented and competitive state of the UK power market. Moody's factors in as a credit positive where a generator controls over half the market; and as a credit negative where the structure of the market and a utility's position within it consign it to the role of price taker. Moody's overlays considerations of competitive intensity with an analysis of local market conditions. Certain factors - including for example the nuclear consensus in Germany, or the impact of the Large Combustion Plant Directive (LCPD) on the UK's ageing generation fleet - have created an imminent shortage of power

## Unregulated Utilities and Power Companies

capacity in those markets. Investment is usually directed at plugging these capacity shortfalls so long as the power price is right. In the meantime, however, it is likely that even relatively weak market participants will enjoy better pricing for their output than those in markets which have surplus capacity.

Also included in the rated universe are large incumbent gas companies like GDF SUEZ and Gas Natural which have sought to diversify by investing in power generation, and corporate activity. Although these will typically have modest shares in their domestic power markets, they continue to dominate their domestic gas supply markets, even if shares are eroding as market liberalization progresses.

Finally, Moody's methodology seeks to take account of the very different structures, regulatory frameworks and stages of market evolution in different countries; and it also recognizes the potential strength implied by a dominant position in the supply of energy across a large regional market where robust barriers to entry are expected to remain in place for the foreseeable future.

### How We Measure it for the Grid

#### ■ Size and scale

A simple measure of asset size is typically sufficient to provide a clear differentiation between predominantly unregulated utilities. In addition to capturing the flexibility and resources available to the largest enterprises, scale is usually also accompanied by diversification along the energy chain, across different geographical markets, and into power and gas, which Moody's believes should help mitigate the potential for earnings volatility which is a characteristic of commodity businesses.

The largest utilities (>\$100 billion = Aaa) count among the biggest non-financial entities in the world. These include a number of very large players with strong indigenous and/or pan-European positions such as EDF of France, Enel of Italy or E.ON of Germany. The companies in this group tend to have their domestic base in the largest economies in Europe, as well as sizeable positions outside their domestic markets. Still very sizeable regional players, often with significant positions in their own markets and with a fair degree of diversification outside their local markets, may belong to the Aa (>\$50 billion) and A (>\$25 billion) categories – with Vattenfall of Sweden in the former, and Fortum of Finland and EDP of Portugal in the latter.

Certain utilities – while smaller in scale (>\$5 billion -- >\$1 billion) – have focused on maintaining or building entrenched national or regional positions where they can capitalize on certain strengths such as a high market share in supply. In many instances these may be companies which enhance strong local ties via other services that they offer, such as the German EWE or the Austrian EVN. Here Moody's will differentiate on the basis of size and scale between those in the A to Ba rating categories.

#### ■ Competitive position and market structure

We measure competitive position by reference to each generator's share of the annual TWh output in its core market. This is compared to the shares of competitors on a sliding scale which ranges from markets with least competitive intensity where a single utility generates over 50% of annual output (eg EDF, which produces approximately 85% of output in France) to markets such as the UK's which are more fragmented such that no one generator enjoys significant pricing power. Where a large utility has positions in more than one substantial generation market we take the larger, usually home market as the reference, but will also factor the additional support implied by sizeable secondary market positions.

For gas supply companies we measure share of domestic market supply, and take account also of market trends. Where it is apparent that market liberalization is causing rapid erosion of an incumbent's share, the factor rating assigned might be discounted by one notch. A rating of Aa is the highest score achievable on the basis of an incumbent gas position, reflecting that liberalization of gas markets is some way behind power markets, and is expected to evolve rapidly.

Where a utility enjoys strong positions in both power and gas the score assigned may be increased from that implied by considering its position in a single market.

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The evaluation of the structure of each market is based upon data from each market's regulatory body, grid or other source and takes account of several factors including the number of generators, their market shares and the national reserve margin. We take account of likely near-term developments rather than point in time positions. Where reserve capacity is tight such as in Germany or the UK we consider that should help underpin power prices.

In assigning ratings under this sub-factor, we also incorporate the intrinsic volatility associated with certain markets, including those, for example, which are predominantly hydro-based.

Finally, when scoring regional supply companies under this sub-factor, we take into account their market share and customer churn rates as well as the size of their core operational market. In our assessment we will consider the overall structure of the supply market in the relevant jurisdiction and the relative position of the rated entity.

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## Unregulated Utilities

## Factor 1: Market Assessment, Scale and Competitive Position - 25%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Size and scale	Total assets > \$100 bn	Total assets > \$50 bn	Total assets > \$25bn OR Total assets > \$5.0bn and entrenched position in substantial national/regional market	Total assets > \$5bn OR Total assets > \$2.5bn and entrenched position in substantial national/regional market	Total assets > \$2.5bn OR Total assets > \$1.0bn and entrenched position in substantial national/regional market	Total assets > \$1.0bn OR Total assets < \$1.0bn and entrenched position in local market	Total assets < \$1.0bn	15.00%
Competitive position and market structure	Dominant operator generating > 50% of the output in a large national or supra regional market	1 of 2 leading operators together controlling > 50% of the power output in a large market OR dominant gas market incumbent > 70% market share	1 of 3 leading operators together controlling > 50% of the power output in a large market OR leading supplier in gas market with > 50% market share OR dominant energy supplier in a large regional market	1 of 4 leading operators together controlling > 50% of the power output in a large market OR large supplier in gas market with > 40% market share OR leading energy supplier in a large regional market	Market participant with limited price setting ability characterized by lower shares in power (<10%) and gas (<40%) markets OR modestly positioned power supplier in a large regional market	Shows some weakness as a market participant and price taker - characterized by small market shares in power (<5%) and gas (< 20%) markets OR weakly positioned power supplier in a large regional market	Very weak market participant and price taker	10.00%

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## Power Companies: Rating Factor 1: Market Assessment, Scale and Competitive Position (20%)

### Why it Matters

- **Market assessment and competitive position (15%)**

For a wholesale power company, the transparency of the market(s) that it operates in is important for assessing the predictability of future revenues, earnings and cash flow. Market frameworks are regionally different and are subject to change based upon events relevant to the region. In the end, typically, a national regulator establishes broad guidelines for the manner in which generators can be compensated. Often, the established framework is codified in law. Moody's ratings incorporate not only the differences that may exist between one market framework to another but also the transparency of that framework, the duration that the framework has been in place, the degree to which the framework has been tested both from a legal perspective and under different economic stress environments.

An equally important rating consideration is the competitive position of an asset or set of assets within a market. In most wholesale power markets, the cost competitiveness of an asset or fleet of assets, as measured by its marginal cost of production, determines how often an asset will operate. Base load generation assets tend to operate during most hours of the day as their marginal cost of production tends to be the lowest across generation units. Large hydro generation plants, nuclear power plants, large coal-fired generating stations, and geothermal plants tend to operate as base load units in most markets. Usually, a power plant operating base load will operate at least 75% of the time (capacity factor of at least 75%). Intermittent units operate during portions of most days and often have the ability to start-up and shut-down relatively quickly. These plants are typically called upon to run as regional load increases with greater customer usage. Many of the newest combined cycled natural gas-fired generation plants tend to operate as intermittent units. However, in regional markets that have an abundance of nuclear base load capacity, some of the smaller coal-fired plants will operate like an intermediate unit. In broad terms, the capacity factor for an intermittent unit ranges from 20% to 65%. Peaking units make up the remaining mix of power plants that exist in most regions. Peaking units, whose capacity factors are typically below 20%, tend to operate during periods of extreme electric demand and only for a few hundred hours per year. Most wholesale power generators own some combination of base load, intermittent, and peaking generation, although the breakdown varies across generation companies. Generally, generation fleets with higher capacity factors tend to indicate a stronger competitive position, as they have an opportunity to earn a positive margin during more hours of the day; however, depending upon the nuances around a particular region and the manner in which generators are compensated, it is possible that generators with mid-range capacity factors can be considered highly competitive for that specific region. For example, in New York City, a capacity-constrained region that faces difficulties building new plant and importing new generation from other regions, many of the older, less efficient natural gas-fired generation continue to enjoy a locational and competitive advantage, given the very high obstacles to entry.

- **Geographic diversification (5%)**

Diversification of overall business operations helps to mitigate the risk that any change in one factor, region, or customer will result in a severe negative impact on cash flow and credit quality. In general, a balance among several different businesses, geographic regions, market regimes, or generating plants diminishes concentration risk and lowers the chance that a company will experience a sudden or rapid deterioration in their overall creditworthiness because of an adverse development specific to any one part of their operations. Given the high correlation between electric usage and economic expansion, the degree of geographic diversity is a relevant consideration to a firm's competitive business and ability to withstand unplanned events.

## Unregulated Utility and Power Companies

### How We Measure it for the Grid

#### ■ Market and competitive position

For a wholesale power company, we implement a two-prong approach. We consider the transparency and effectiveness of the wholesale power market(s) as well as the competitiveness of the specific assets in its market(s). Factors to consider in determining the effectiveness of the market include the transparency of the market framework, the number of participants that operate in the market, the duration that the framework has been in place, the degree to which the framework has been tested in the courts, the manner in which the market performed under different economic stress environments, and the expectation for any material modifications to the markets' organization or composition.

Factors that affect the competitiveness of assets in a region are the capacity factors of the assets owned by the wholesale generators, the region's reserve margins and the prospects for new generation, the degree to which obstacles to entry exist, and the existence of legacy arrangements. Companies that operate competitive assets in more than one region are likely to score higher than a company that operates equally competitive assets in only one economic region. On the other hand, owning competitive assets that reside in a relatively new and untested wholesale power market is likely to negatively impact the company's score for this category.

In regions where a carbon emissions market is operating, such as Europe, an issuer's competitive position can be influenced by the degree to which the generation fleet is environmentally benign. Specifically, if the issuer is compensated for their environmentally green position and operates in a market where fossil-fuel assets set the price, and the competitive position is believed to be sustainable, discretion is given to score issuers at a better rating level than otherwise suggested under the grid for this sub-factor.

#### ■ Geographic diversification

For geographic diversification, we measure this rating sub factor against whether a company has business operations in several different uncorrelated regions, countries, or continents. Generally speaking, the greater the degree of geographic diversification, the higher the rating for this rating sub-factor, assuming the geographic diversification is across economic stable regions. Issuers that have operations in several different regions or countries which includes regions that are considered economically less stable will likely score lower for this sub-factor. Issuers that tend to operate in one concentrated geographic region are likely to be rated speculative grade in this sub-factor.

## Unregulated Utility and Power Companies

## Power Companies

## Factor 1: Market Assessment, Scale and Competitive Position – 20%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Market and Competitive Position	No competition, with unquestioned statutory or government protection of this competitive position	Very limited competition, with market position well protected and unlikely to experience material changes such as changes in law, market structure and regulation	<p>Competition exists within key markets.</p> <p>Company operates the majority of its fleet in liquid markets which have been functioning for an extended period time, and have an abundance of market participants.</p> <p>Fleet capacity factors are typically &gt; 75%.</p> <p>The cost structure for the majority of the fleet places it at the lowest quartile and subsequent changes to laws are unlikely to affect this position.</p> <p>The generation assets may benefit from legal protection or contracts in place for an extended period of time.</p>	<p>Competition exists within key markets.</p> <p>Company operates the majority of its fleet in a liquid wholesale power market that has been functioning in its current form for an extended period time, and has an abundance of market participants.</p> <p>Fleet capacity factors are typically &gt; 75%.</p> <p>The cost structure for the majority of the fleet generally places most of its assets at the lowest quartile. Subsequent changes to laws could affect this position.</p>	<p>Company operates the majority of its fleet in a relatively new market. The market framework continues to undergo modifications which could affect future cash flows.</p> <p>Fleet capacity factors range from 35% - 75%.</p> <p>Assets currently are among the lowest cost in the region but position could be challenged by new entrants or by changes in laws.</p> <p>Substantial licensing renewal or permitting required which could effect competitive position.</p>	<p>Company operates the majority of its fleet in a relatively new market. The market framework continues to undergo modifications which could affect cash flows.</p> <p>Fleet capacity factors are often &lt; 35%.</p> <p>Assets currently may enjoy locational value but position could be challenged by new entrants or by changes in laws.</p> <p>Competitive position is dependent upon certain legal or contracted protections which may erode over time.</p> <p>Assets operate in an extreme excess supply region.</p>	<p>Market framework is not developed or exhibits characteristics that are unfavorable to generators.</p> <p>No reliable independent third party to oversee market place environment.</p> <p>High risk of nationalization or other significant government intervention in operations or markets.</p> <p>Poor competitive position in a highly competitive market.</p> <p>A majority of the assets are vulnerable to being permanently shut down within the next five years.</p>	15.00%
Geographic Diversity	A high degree of multinational or regional diversification.	Material operations in 5 geographic or market regions.	Material operations in 3 or more geographic or market regions.	Material operations in more than one uncorrelated geographic region.	Operates in a single economic region with low volatility with some concentration.	Operates in a single market with greater volatility resulting in high concentration risk. Market may be untested or may be an emerging market.	Very high concentration risk. Market has experienced substantial volatility. Market is untested or an emerging market.	5.00%



## Unregulated Utility and Power Companies

### Unregulated Utilities Rating Factor 2: Cash Flow Predictability of Business Model (25%)

#### Why it Matters

- **Fuel strategy and mix (5%)**

This sub-factor is designed to capture:

(a) The relative advantage enjoyed by a utility whose generation fleet's fuel mix is closely aligned with the market average. Those generators whose fuel mix matches the merit order will typically benefit from higher load factors and a lower risk of mismatch between their cost drivers and the drivers of market prices. By contrast, a power generator whose generation fuel mix is significantly unbalanced in relation to the merit order will be at risk of under capacity utilization and/or more exposed to market price movements.

(b) The degree of exposure to the cost of carbon. The cost of CO<sub>2</sub> as reflected in the lower price of Energy Trading Certificates in Europe has come down as factory output has declined. However, EU power generators will be required to bear the full cost of carbon emissions from 2013 when the current system of allocating free carbon certificates ends. Moody's considers that those whose generation portfolios are relatively carbon neutral – such as EDF, whose output in France is more than 90% nuclear and hydro – will be advantaged relative to generators such as RWE, almost 60% of whose output is generated from lignite or hard coal.

- **Degree of integration and hedging strategy (5%)**

As markets across Europe have progressively deregulated, many of the large generators have sought also to secure a downstream customer asset base as one of the ways to help stabilize cash flows. Although intense competition compresses margins in many markets, the larger generators continue to see value in retaining the connection with the end user for two main reasons:

1. as a hedge against the volatility of power prices, through the smoothing mechanism implied by the delay in passing on price adjustments to the retail customer base; and
2. as protection against the unknown future direction which electricity and gas markets might take as they continue to evolve.

Moody's also takes account of the extent to which a generator is able to stabilize future cash flow from power generation through forward sales - whether on a bilateral basis with credit worthy counterparties or on power exchanges – and the extent to which it is able to secure its margin, including through any equity positions it might hold in primary fuel sources.

More generally, a utility whose principal asset is its supply base, and which has little or no generation capacity of its own, is likely to be relatively exposed to market access and prices. In such cases, Moody's will take account the extent to which such availability and price risks may be mitigated through power purchase agreements ("PPAs") although the degree of hedge that such PPAs can provide depends on the terms of each agreement.

- **Capital requirements and operational performance (5%)**

With this sub-factor we assess primarily the risk associated with a substantial capital expenditure program, which may expose a utility to execution risks and potential cost overruns. This sub-factor is intended to address the general operational risk of dealing with an extensive capital expenditure program and/or very complex investment projects. The financing risk that a significant capital expenditure program may pose, if it cannot be funded out of operating cash flows, is addressed as part of the quantitative measures through the ratio of free cash flow to debt.

## Unregulated Utility and Power Companies

Moody's considers this factor to be especially relevant given the scale of investment in new generation and networks planned by most rated integrated utilities in Europe in order to replace looming capacity reductions, to meet environmental targets and to improve connectivity between converging markets. By and large investment programs remain substantial even if some have been reduced. Companies facing a very large investment program compared to their asset base and/or projects of high technical complexity would score at the lower end of the spectrum. By contrast, utilities with a relatively low capital investment requirement compared to their existing asset base would be considered less risky and achieve a higher score for this sub-factor.

To avoid beneficial treatment of utilities which postpone maintenance investments and therefore achieve a low ratio of capital expenditures to net PP&E, we also consider the general age of a utility's generation fleet and its replacement requirements. Consequently fleets with significant replacement requirements might score lower on this sub-factor than the ratio of capital expenditures to net PP&E might appear to warrant.

### ■ Contribution from low/high risk businesses (10%)

Many of the unregulated utilities in Moody's rated universe – including Enel, E.ON and SSE - have grown and developed from a base which included ownership of the local monopoly transmission and distribution systems. Moody's methodology therefore considers that unregulated utilities with an integrated model may derive a material portion of their cash flows from regulated activities. When conducted within well established regulatory regimes and markets, these regulated businesses exhibit a materially lower business risk profile compared with the predominant unregulated activities and thus enhance the resilience of a utility's earnings and cash flows in the face of economic and commodity cycle downturns.

Other activities may also be considered lower risk than conventional generation, such as district heating, which is generally considered a relatively low risk business given high barriers to entry and hence quasi-monopoly characteristics. Generation from renewable sources, once in operation, can also be relatively low risk compared with conventional generation, given the considerable level of government and regulatory intervention aimed at promoting electricity production from these sources. Incentive mechanisms, as well as the existence of supportive tariff structures may result in fairly limited price and off-take risk and a floor in remuneration – although each regime, and company's portfolio within that, will need to be assessed on its merits. If this is the case (and it is observable), Moody's may regard renewable businesses as quasi-regulated and relatively lower risk compared with conventional generation.

Conversely, a significant contribution to earnings and cash flows from high risk operations, due to the nature of the activities (e.g. speculative energy trading) or their location (e.g. developing and unstable markets) is a credit negative. Over the last few years utilities have increasingly considered investment opportunities arising from the opening-up and privatizations of emerging markets, not necessarily limited to regulated operations, which, while presenting higher growth opportunities compared to more mature and developed countries, often incorporate elements of unpredictability. Companies may also invest in other activities that may be considered higher risk – such as investments in upstream oil and gas exploration and production. Moody's will consider on a case-by-case basis whether the higher operating risk and capital costs that may be associated with such activities are sufficiently counterbalanced by their benefits. The aim of such strategies is normally to provide a portion of "equity gas" that can be used in a company's gas-fired plant or to meet customer gas needs rather than fully rely on long-term contracts with gas suppliers.

This sub-factor therefore seeks to balance the effect of credit supportive regulated businesses with the level of investment in more risky areas.

## How We Measure it for the Grid

### ■ Fuel strategy and mix

(a) Each utility's generation mix is compared with the average fuel mix of its principal market. Given that this will by definition fluctuate over time, it will be monitored regularly by Moody's. We assess three broad categories – (i) with large incumbents typically ranking as close to the market average – which applies to

## Unregulated Utility and Power Companies

most of the utilities in our universe, reflecting their relative size in their domestic markets; (ii) the marginal players with low market shares ranking as out of alignment; and (iii) those ranking somewhere in between.

(b) We measure three broad categories of generation portfolio mixes in considering exposure to CO<sub>2</sub> costs – (i) those with low emissions, where more than 50% of output is nuclear, hydro and other renewables, which score Aa; (ii) those with high CO<sub>2</sub> emissions – where over 50% of output is coal or lignite based, which score Baa; and (iii) those somewhere in the middle, which is the majority of the large European players and which score A.

The score assigned may be moderated for high levels of fuel concentration. Moody's may also moderate this score for companies with very low carbon portfolios, that are nonetheless strongly correlated with markets that have a high volatility – for example, via high exposure to hydrological sources of power.

### ■ Degree of integration and hedging strategy

We measure the extent of downstream integration by estimating the proportion of each utility's annual power output which is sold to its own retail or small to medium sized customer base. For example, those utilities which sell more than half of their annual power output to this customer base are considered to have a high degree of downstream integration and are scored Aa. Those which sell more than 30% are scored at A. Moody's recognizes that the structure of supply markets varies widely from country to country – from relatively consolidated markets like the UK, to much more fragmented ones like that in Germany, where some 800 suppliers are in operation thanks to the continued presence of Stadtwerke (small to medium-sized multi-utilities, which are usually majority-owned by local or regional governments). Factor ratings assigned may therefore also take account of the degree of competition, churn and profitability of a utility's supply business.

Moody's overlays its evaluation of downstream integration with an assessment of the extent of any forward hedging strategy – for example through power sales, or ownership of a fuel source - and may moderate the assigned score accordingly. While the opportunities to hedge will vary from market to market, the underlying assumption for most of the larger groups in Moody's rated universe at the higher end of the assessment range on this sub-factor (i.e. from Baa upwards) is that they pursue generally effective hedging policies.

We also consider the procurement strategy of predominantly supply businesses, whose smaller scale may not allow them to have adequate generation capacity of their own or whose focus on a single generation source may actually increase risks. In assessing this sub-factor, Moody's will therefore also take into account alternative arrangements to owned generation, such as PPAs.

### ■ Capital requirements and operational performance

This sub-factor is a quantitative assessment measuring total capital expenditure for property, plant and equipment (PP&E), and comprises investments in maintenance as well as expansion. We calculate the annual capital expenditures implied by the utility's published capital expenditures plan as a percentage of net fixed assets (i.e. PP&E) as reported in a company's statutory accounts. Where the percentage appears unusually high, Moody's will evaluate whether that owes more to an aggressive depreciation policy than the relative age of the asset base, and might consider adjusting the assigned factor rating.

Capital expenditure is measured gross of any government grants, construction subsidies or developers contributions, in order to assess the full scale of the investment program and potential execution risk.

While this sub-factor is essentially a quantitative assessment designed to capture the risk associated with large capital expenditure programs, Moody's will also consider whether the operational performance of the fleet should be reflected in the assigned score by adjusting the purely quantitative measure to factor in the operational performance of the fleet.

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- **Contribution from low/high risk businesses**

A typical low risk business for utilities is the ownership and operation of electricity and gas transmission and distribution networks under a well-established and transparent regulatory framework that allows a fair return on the capital invested. On the other hand, we see as high risk businesses, activities in less stable countries and developing regimes.

This methodology sub-factor is designed to adjust for the influence that contributions from lower- or higher-risk businesses may have on the overall stability of a utility's earnings and cash flows. Under the methodology grid, the strongest score is attributed to utilities presenting EBITDA contribution from regulated businesses, generated in developed countries and regimes, in the area 35%-49%. The lowest possible score is attributed to an operator with over 35% of EBITDA originating from high risk businesses and/or countries. Where an operator generates some contribution from both regulated activities in developed countries and higher risk operations, the factor assigned may require a "blended" approach of the different businesses.

## Unregulated Utility and Power Companies

## Unregulated Utilities

## Factor 2: Cash Flow Predictability of Business Model – 25%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Fuel strategy and mix	Generation portfolio is close to market average fuel mix AND Has very low CO2 emissions (>70% nuclear/hydro/ wind) AND Limited fuel concentration	Generation portfolio is close to market average fuel mix AND has low CO2 emissions (>50% nuclear/hydro/ wind)	Generation portfolio is close to market average fuel mix AND has average CO2 emissions	Generation portfolio is close to market average fuel mix & has high CO2 emissions (>50% coal/lignite) OR Generation portfolio is not well aligned with market average fuel mix & has low CO2 emissions	Generation portfolio is not well aligned with market average fuel mix AND has average CO2 emissions	Generation portfolio is not well aligned with market average fuel mix AND has high CO2 emissions	Generation portfolio is out of alignment from market average fuel mix AND has very high CO2 emissions (>70% coal/lignite)	5.00%
Degree of integration and hedging strategy	Well balanced vertically integrated position Predominantly retail supply base, fully covered by own production Effective forward hedging policy to moderate cash-flow volatility	Well balanced vertically integrated position Substantial downstream retail customer base (>50% of own production), in moderately competitive market Effective forward hedging policy to moderate cash-flow volatility	Well balanced vertically integrated position Sizeable retail customer base (>30% of own production) OR Substantial downstream retail customer base (>50%), but with significant competition Effective forward hedging policy to moderate cash-flow volatility	Moderately short generation versus customer base OR Moderate retail customer base (>20% of own production). Effective forward hedging policy to moderate cash-flow volatility	Substantial long or short generation position versus customer base  Limited downstream position, modest hedging ability	Very limited hedging ability	Hedging strategy is ineffective. Most assets in underdeveloped markets characterised by little transparency, poor liquidity and limited potential for hedging	5.00%
Capital requirements and operational performance	<3% future annual capX as % net PP&E  Extremely modest levels of capX for maintenance and for environmental related expenditures are needed	3-5% future annual capX as % net PP&E  Fleet with minimal age or replacement requirements	5-8% future annual capX as % net PP&E  Fleet with modest replacement requirements	8-12% future annual capX as % net PP&E  Fleet with average replacement requirements	12-15% future annual capX as % net PP&E  Fleet with significant replacement requirements	15-20% future annual capX as % net PP&E  Fleet with significant replacement requirements	>20% future annual capX as % net PP&E  Fleet with significant replacement requirements	5.00%
Contribution from low/high risk businesses	35-49% of EBITDA is from regulated businesses in well-established/ low-risk regulatory environments/ countries	Over 20%-35% of EBITDA is from regulated businesses in well-established/ low-risk regulatory environments/ countries	Over 10%-20% of EBITDA is from regulated businesses in well-established/ low-risk regulatory environments/ countries	No significant contribution from regulated businesses in well-established/ low-risk regulatory environments/ countries OR Broadly equivalent exposure to both low-risk/high-risk businesses	10%-20% of EBITDA is from high risk businesses/ countries	20%-35% of EBITDA is from high risk businesses/ countries	Over 35% of EBITDA is from high risk businesses/ countries	10.00%

## Unregulated Utility and Power Companies

### Power Companies Rating Factor 2: Cash Flow Predictability of Business Model (20%)

#### Why it Matters

- **Hedging strategy (10%)**

The predictability of cash flows is a core rating factor in determining default risk for any rated issuer. Companies with highly predictable cash flows can typically withstand higher leverage for any given rating category, while issuers with more volatile, less predictable cash flows typically need to have lower leverage for the same rating. Like any commodity business, cash flows for wholesale power companies often tend to be less predictable, exhibiting differing degrees of volatility due to the many factors that can affect revenues, operating expenses, net income, and cash flow. These factors include but are not limited to weather, fuel costs, the relationship between natural gas prices and the cost of other fuels, demand for electricity, the amount of excess capacity, operating performance for large plants within the region, and the cost of emissions credits.

One way to improve the predictability of cash flows may be through implementing an effective hedging/contracting strategy. Depending on market terms for wholesale power transactions between buyers and sellers in a region, wholesale power issuers may be able to enter into bilateral contracts for the delivery of power, or can be the successful bidder on power auctions for the delivery of product (energy or capacity) for a specific period. Additionally, since natural gas tends to be the marginal fuel cost in most regions, wholesale power companies can also hedge forward the relationship between natural gas prices and their fuel costs to lock-in, in part, their forward margins. While hedging and/or contracting will help to improve the predictability of power margins, it assumes that operating plant performance is strong and that such strategies are accompanied by robust liquidity arrangements due to the prospects of margin requirements. Most companies will hedge/contract for periods of eighteen months to as long as five years, with few companies having arrangements that are longer than five years. Companies that have a retail business can use those end-use customers as an effective hedge for their electric generation output. Some companies implement a short-term hedging strategies or have no hedging arrangements in place thus enabling them having higher earnings and cash flow during periods of margin expansion but lower earnings and cash flow during periods of margin compression. Notwithstanding the reduced collateral requirements that likely follow from a non-hedged or open-book portfolio, Moody's often views this strategy as being less credit supportive due to the resulting increased volatility in revenues, earnings, and cash flow that often accompanies this approach.

- **Fuel strategy and mix (5%)**

While a forward hedging strategy, power auction, or retail customers can help to provide some revenue stability, cash flow predictability can also be affected by managing fuel risk. To the extent that an issuer has greater control over the fuel costs over a longer period of time, their ability to manage margin erosion is enhanced. Similarly, fuel diversification can help to mitigate the exposure to changes in price or the availability of a particular fuel source.

Because of the likely implementation of carbon legislation in the US and the fact that there is an existing cap and trade system in place in Europe for carbon, we also evaluate an issuer's relative potential exposure to carbon. To the extent that carbon costs are not fully incorporated into the price of electricity, unregulated power companies are likely to experience varying degrees of margin compression.

## Unregulated Utility and Power Companies

### ■ Capital requirements and operating performance (5%)

For an essential commodity product that cannot be stored or easily replaced and where issuers may have forward commitments that must be honored, strong and sustainable operating performance is essential for any unregulated wholesale power company. Forced outages typically result in higher replacement power costs for the affected generator, particularly if they have to satisfy daily power commitments. Outage times for generation plants vary based upon their age, fuel type, operating history and type of plant (base load vs. peaker). Generally speaking, the industry's plant operating performance has been stronger over the past several years and is a primary reason for the sector's strengthened financial results. A key to strong operating performance is a complete on-going maintenance program that includes reinvesting capital into the business operations to maintain or enhance operating efficiencies. Additionally, certain plants, either because of their age or their environmental challenges, will require substantial capital in order to continue operating at an acceptable level.

In order for companies to maintain a competitive advantage as an unregulated wholesale power company, they may choose to invest in new generation to meet new or additional demand. Moody's observes that plant construction tends to occur over several years and the investments tend to be very lumpy, all of which can result in several years of negative free cash flow. Also, many of these capital investments can be quite substantial relative to the sector's or an individual company's market capitalization. For these reasons, the size of a company's future capital programs can negatively influence this sub-factor rating category.

### How We Measure it for the Grid

#### ■ Hedging strategy

We measure the effectiveness of a hedging strategy by assessing the predictability of year-over-year cash flow. In the end, we believe that the degree of cash flow predictability and year-over-year variability is the most relevant observation for this rating sub-factor. An issuer's ability to achieve highly predictable cash flows over an extended period of time is often, but not always, a function of the tenor and form of the contracts or hedging arrangements in place. For example, to the extent that an issuer has contractual arrangements that extend near or beyond the term of the rated debt and ensure long-term predictability of revenues while also mitigating fuel and other costs resulting in highly predictable and sustainable margins, the quality of that issuer's cash flow is considered quite strong. For the most part, the contractual arrangements for most wholesale power companies tend to range from one to five years with the amount of hedged output tending to decline on a total percentage basis with each passing year. As contracts or hedges expire, most issuers will layer in additional hedges in the outer years to maintain a rolling book of hedges. Moody's considers the characteristics of the market within which the unregulated power company conducts its business. For example, a hedging strategy in a market that has substantial hydro-electric base load generation is likely to be different both in terms of duration and the percentage hedged than a hedging strategy in a market that has substantial coal or nuclear generation due to potential for year-over-year variability in hydro-related resources.

Moody's recognizes that aside from customized bilateral contractual arrangements, it is generally very difficult and often expensive to effectively hedge beyond five years and that most of the market liquidity can deteriorate beyond three years. Notwithstanding this feature of the marketplace, the existence of this reset risk can greatly affect future revenues and cash flows, particularly in a period of declining natural gas prices. For that reason, issuers whose hedged portfolio expires within three years are often rated at the upper end of the speculative range. Issuers that choose not to hedge or hedge only for very short durations tend to be rated in the B rating category for this rating sub-factor as their cash flow can be substantially more volatile.

## Unregulated Utility and Power Companies

### ■ Fuel strategy and mix

For fuel diversification, we attempt to measure how reliant or concentrated an issuer's business is on a particular fuel source. Importantly, we evaluate this metric based upon the actual amount of electric generation produced from a particular fuel. As such, if a particular issuer owns coal-fired base load generation assets, natural-gas fired generation intermittent plants, and older oil fired plants (for peaking), we are likely to view them as being highly concentrated in coal because the coal assets tend to provide the majority of generation produced and resulting revenues and cash flows. For this reason, few wholesale generation companies are considered to be highly diversified from a fuel perspective.

Additionally, an issuer's exposure to carbon can influence the resulting score for this rating sub-factor. Most generators who produce energy solely or predominantly from coal are likely to score in the B range for this rating sub-factor.

### ■ Capital requirements and operating performance

We measure this rating sub-factor based upon several components including the operating performance of the fleet, as well as the amount of ongoing maintenance capital required to maintain fleet operating performance. We also consider the amount of capital spending that is or may be required to satisfy current or future environmental standards. These capital requirements are less discretionary, in Moody's opinion. Finally, we assess the size of new capital projects relative to the size of the company as measured by assets, market capitalization or other near-term cash flow.



## Unregulated Utility and Power Companies

## Power Companies

## Factor 2: Cash Flow Predictability of Business Model – 20%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Effectiveness of hedging strategy	<p>Long-term contracts with highly rated counterparties exist that extend beyond the term of the debt.</p> <p>Contract terms allow unquestioned full and timely cost recovery assuring no margin erosion, with provisions in place to preclude the possibility of challenges caused by changes in laws.</p> <p>Contracts terms are typically at or below prevailing market rates.</p>	<p>Long-term contracts with highly rated counterparties exist that expire at or around the term of the debt.</p> <p>Although some margin compression is possible, the contracts have terms that allow for full and timely cost recovery.</p> <p>No challenge to the recovery mechanism exists.</p> <p>Contracts terms are typically at or below prevailing market rates.</p>	<p>Hedging strategy has resulted in highly predictable cash flows.</p> <p>Balanced portfolio of contracts/hedge in place include long-term contract portfolio which has limited margin compression as well as intermediate term contracts of 5 years or more augmented with some short-term arrangements of 1 year or less.</p> <p>The tenor of the long-term contracts expires at or near the final maturity of the company's debt, and such contracts provide at least 75% of the expected operating margin.</p>	<p>Hedging strategy has resulted in predictable cash flows.</p> <p>Portfolio of contracts typically consist of a blend of intermediate term (up to 5 years), and short-term contract arrangements.</p> <p>In total, contracts hedge forward more than 70% of the operating margin for the next three years.</p>	<p>Hedging strategy has resulted in some predictability in cash flow.</p> <p>Portfolio of contracts typically consists of intermediate term (up to 3 years) and short-term (less than 1 year) contract arrangements.</p> <p>In total, contracts in place hedge forward at least 40% of the company's operating margin for the next two years.</p>	<p>Hedging strategy has not reduced cash flow volatility.</p> <p>Portfolio of contracts typically consists of mostly short-term contracts (up to 18 months) but can include some intermediate arrangements.</p> <p>In total, contracts in place hedge forward 25% of the company's operating margin for the next two years.</p>	<p>Hedging strategy is ineffective.</p> <p>Portfolio has few contracts or hedges in place.</p> <p>Most of the assets are located in markets that are not developed resulting in little transparency, poor liquidity, and limited potential for contractual arrangements.</p>	10.00%
Fuel strategy and mix	<p>A very high degree of diversification in terms of fuel source, with not one fuel source representing more than 10% of the projected output and no exposure to carbon.</p>	<p>A high degree of diversification of fuel source, with not one fuel source representing more than 20% of projected output with modest exposure to carbon.</p>	<p>Diversification of fuel sources exist with not one fuel representing more than 40% of projected output and some exposure to carbon.</p>	<p>Diversification of fuel sources exist with not one fuel representing more than 60% of the projected output and some exposure to carbon.</p>	<p>Some diversification of fuel sources exist with not one fuel representing more than 75% of projected output.</p> <p>Dominant fuel source can have substantial year over year changes in supply, price or is exposed to incremental environmental costs.</p> <p>OR</p> <p>Some diversification of fuel sources exist with not one fuel representing more than 60% of electric output &amp; some exposure to carbon.</p>	<p>Limited Diversification of fuel source exists with one fuel representing not more than 90% of projected output.</p> <p>OR</p> <p>Some diversification of fuel sources exist with not one fuel representing more than 75% of projected output &amp; substantial exposure to carbon.</p>	<p>Very high concentration risk with little near-term supply arrangements secured.</p> <p>Fuel supply can be negatively affected by government actions.</p> <p>OR</p> <p>Limited Diversification of fuel source exist with one fuel representing not more than 90% of electric output &amp; substantial exposure to carbon.</p>	5.00%

## Unregulated Utility and Power Companies

## Power Companies

## Factor 2: Cash Flow Predictability of Business Model – 20%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Capital requirements and operating performance	Extremely modest levels of capX for maintenance and environmental related expenditures.	Very modest levels of capX for maintenance and environmental related expenditures.	Moderate levels of capX for maintenance and for environmental related expenditures.  While operating performance has been strong, most unplanned outages for the dominant generating resource lasts < 45 days.	Moderate level of capX is required for maintenance and for environmental related expenditures.  While operating performance has been strong, most unplanned outages for the dominant generating resource last > 45 days.	While operating performance has been strong, substantial capX is required for maintenance and for environmental related expenditures.  Required environmental capX is expected to materially increase in the next several years relative to historical levels.  Announced capX is expected to exceed historical capital investment by 33%.	Substantial level of capX is required for ongoing maintenance.  Required environmental capX is expected to materially increase in the next several years and may result in plant shutdowns of certain key assets.  Over the past three years, the company has experienced a material unplanned extended outage at a key plant.  Announced capX is expected to exceed historical capital investment by 66%.	Substantial level of capX is required to maintain minimum operating performance standards.  Environmental related capX is material and likely to result in plant shutdowns.  Fleet has experienced an unplanned material extended outage at its plants in each of the last three years.	5.00%

## Unregulated Utility and Power Companies

### Unregulated Utilities & Power Companies Rating Factor 3: Financial Policy (10%)

#### Why it Matters

Financial policies provide a guide to management's appetite for future financial risk and the likely future direction for the company's capital structure. Dividend and share buyback policies play a significant role in this factor. Important issues are a company's public commitments in this area, whether it has a track record of changing such commitments, and the degree to which its targets appear to be realistic.

Additionally, given the commodity nature of this business, a critical rating factor is the ability of an issuer to maintain adequate liquidity in the form of cash or bank line availability. Margin calls can be substantial given the volatility of the prices of electricity and certain fuel commodities, particularly natural gas. In addition, because of the capital intensive nature of this business and the long-lead time for constructing new plant, maintaining a sound financial policy is an important rating consideration.

#### How We Measure it for the Grid

Management's appetite for M&A activity and for sound capital management is assessed with a focus on the type of transactions (i.e. core competency or new business) and funding decisions that management is most likely to make. The frequency and materiality of acquisitions, the riskiness of growth strategies and previous financing choices are reviewed. We use a company's history as the basis for determining management's appetite for risk and, more importantly, in judging management's ability to integrate and enhance the acquired businesses. A history of debt-financed or credit-transforming acquisitions increases risk. We assess whether management has a track record that favors shareholder returns at the expense of bondholders.

From a liquidity perspective, we factor in an issuer's internal sources of cash relative to the issuer's expected calls on capital, including capital requirements, dividends, announced share repurchases and debt maturities. We also examine calls on capital based upon unforeseen developments including changes in commodity prices and rating triggers.

## Unregulated Utility and Power Companies

## Factor 3: Financial Policy – 10%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Financial policy	Very Conservative - stable metrics, no financially transforming events; management targets debt/ebitda < 0.5x.	Conservative - stable metrics, no financially transforming events; management targets debt/ebitda < 1.0x.	Predictable financial policy balanced between stockholders & creditors; track record of stable capital structure; minimal history of share buy-backs.	Financial policy balanced between stockholders & creditors; potential for rating migration following acquisitions; use of share buy-backs to optimize capital structure  Some reliance on external funding and liquidity is more likely to be affected by external events, good access to the capital markets, and adequate liquidity under most scenarios. Refinancing risk is manageable.	History of debt funded acquisitions and/or returns to shareholders; track record of downward rating migration following acquisitions. Likely to use debt to finance investments. Bank financing is often secured. Challenging refinancing risk exists.	Financial policies leave very modest financial cushion for debt holders. Liquidity position may be unable to withstand external shocks or unexpected events. Generally uses debt to finance investments. Asset sales central to liquidity plan. Bank financing is often secured.	Unmanageable debt burden; restructuring likely. May be heavily relying on asset sales or other extraordinary actions to finance ongoing operations.	10.0%

## Unregulated Utility and Power Companies

### Rating Factor 4: Financial Strength Metrics

#### Unregulated Utilities (40%)

#### Power Companies (50%)

##### Why it Matters

Financial strength is a key factor in maintaining the long-term viability of unregulated utilities and wholesale power companies. Sustainable cash flow generation is the most reliable determinant of credit quality in this sector given the cyclical and capital intensive nature of the business plus the inherent volatility that exists when examining other credit metrics. For this reason, cash flow metrics represent 40% of the overall rating for unregulated utilities and 50% of the overall rating for unregulated power companies.

In assessing the sustainability of operating cash flow, Moody's believes that analyzing an issuer's cash from operations less changes in working capital provides the best measure of sustainable cash flow. Cash from operations less changes in working capital is often referred to as Funds From Operations or "FFO".

Although other credit metrics may also be used in the actual assignment of ratings, we consider the following ratios in assessing coverage and leverage in the rating grid. For simplicity sake, whenever we reference Cash Flow in a financial ratio, we are referring to cash flow from operations less changes in working capital. For example, Cash Flow / Debt means cash flow from operations less changes in working capital divided by Debt.

**Cash Flow Interest Coverage:** This ratio is used to assess a company's ability to cover interest and other fixed charges from the cash it generates operating its business. A stronger ratio indicates greater capacity to absorb a decline in earnings and cash flow without impairing the company's ability to meet interest payments and payments on other fixed obligations on a timely basis.

**Cash Flow / Debt** is a key measure of a company's ability to generate sustainable cash flow relative to its outstanding debt. This ratio measures the ability of a company to have sustainable cash generation before working capital movements in relation to the level of outstanding debt. A higher percentage signals a greater capacity to service and repay the amount of outstanding debt.

**Retained Cash Flow (RCF) /Debt** is another way to measure a company's ability to repay principal on its outstanding debt. The ratio measures cash flow generation less working capital movements and after dividends in relation to outstanding debt. Companies that have higher level of retained cash flow generation are likely to be better able to repay debt over time.

**Free Cash Flow (FCF) / Debt** provides an indication of a company's ability to internally fund all of its cash expenditures. It is an important complement to the Cash Flow / Debt and RCF/ Debt metric in that it considers the need to fund capital expenditures which are necessary to maintain and grow the business. As such, it reflects the true residual cash flow available for debt repayment in relation to debt. Higher sustainable levels of free cash flow relative to debt indicate lower refinancing risk, which provides greater support to the rating.

Other metrics that are considered in rating committees include Total Debt to Total Capitalization, which is a measure of the issuer's leverage relative to their total capital base. While this is an important metric to consider, since it influences all of the other key cash flow to debt metrics, differing accounting standards in Europe and in the US often make the metric less useful in comparing global peer companies. Examples of other financial ratios that can be used to assess credit quality across peer companies are Debt to EBITDA, Debt/Kilowatt, and Debt/TeraWatt Hour produced.

## Unregulated Utility and Power Companies

### Debt - Net vs. Gross

Among the various cash flow to debt metrics (Cash flow / Debt, RCF / Debt or FCF / Debt), discretion is given to the analyst and to the rating committee to consider Net Debt, which would factor in the amount of cash and readily available marketable securities as a deduction to the total amount of debt. Generally speaking, such discretion is typically afforded to issuers that are investment grade rated. For issuers that are near speculative grade or speculative grade, Net Debt is not used to calculate the cash flow to debt metrics as the cash on the issuer's balance sheet is typically being used for collateral postings.

Additionally, there may be an analyst adjustment to debt for calculating this factor in cases in which a company has pre-funded debt maturities and holds a substantial amount of cash on its balance sheet that is expected to be used for business enhancing activities. Furthermore, the choice of keeping cash on hand is often a managerial decision. Analysts have the ability to adjust positively for cash and cash equivalents when calculating real debt burdens. Many companies have a long track record of maintaining those cash balances, i.e. they are not dedicated to a specific investment purpose but rather provide a safety cushion. Companies may maintain high cash balances due to:

1. less liquidity in local debt markets, leading companies to be more conservative in managing liquidity
2. tax reasons: there may be an advantage to keep debt in one region, while keeping cash in another
3. pre-funding of capital expenditures: gross debt has been increased in advance of the actual need.

### How We Measure it for the Grid

- **Cash Flow Interest Coverage:**

This metric is calculated as the ratio of consolidated Cash Flow from Operations less Changes in Working Capital + Interest Expense divided by Interest Expense + Capitalized Interest Expense

- **Cash Flow / Debt:**

This metric is calculated as the ratio of Cash from Operations less Changes in Working Capital divided by Total Debt

- **RCF / Debt:**

This metric is calculated as the ratio of Cash Flow from Operations less Changes in Working Capital less Common and Preferred Dividends divided by Total Debt

- **FCF/ Debt:**

This metric is calculated as the ratio of Cash Flow from Operations less Common and Preferred Dividends less Capital Expenditures divided by Total Debt.

All of the credit metrics described in this rating methodology incorporate all of the standard adjustments applied by Moody's when analyzing financial statements. These include adjustments for certain types of off-balance sheet financings and certain other reclassifications in the income statement and cash flow statement such as adjustments for operating leases, nuclear provisions, under-funded defined pensions liabilities, basket -adjusted hybrids, securitizations, guarantees, other debt-like items. Moody's standard adjustments are fully explained in the two February 2006 Special Comments referenced at the end of this methodology.

## Unregulated Utility and Power Companies

## Unregulated Utilities

## Factor 4: Financial Strength Metrics – 40%

3-year Average	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
CFO pre-W/C + Interest/Interest	≥15.0x	9.0x - 14.9x	6.0x - 8.9x	3.5x - 5.9x	1.8x - 3.4x	1.0x - 1.7x	<1.0x	10.00%
CFO pre-W/C/ Debt	≥70%	45% - 69%	28% - 44%	17% - 27%	10% - 16%	5% - 9%	<5%	12.50%
RCF / Debt	≥50%	32% - 49%	20% - 31%	12% - 19%	7% - 11%	3% - 6%	<3%	12.50%
FCF / Debt	≥50%	20% - 49%	10% - 19%	0% - 9%	(15%) - 0%	(30%) - (16%)	<(30%)	5.00%

## Power Companies

## Factor 4: Financial Strength Metrics – 50%

3-year Average	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
CFO pre-WC + Interest /Interest	≥ 18.0x	12.0x - 18.0x	7.0x - 11.9x	3.6x - 6.9x	2.0x - 3.5x	1.0x -1.9x	< 1.0x	15.00%
CFO pre-WC/ Debt	≥90%	61% - 90%	36% - 60%	21% -35%	13% - 20%	5% -12%	< 5%	20.00%
RCF/ Debt	≥60%	45% - 60%	25% - 44%	15% -24%	8% - 14%	3% -7%	<3%	7.50%
FCF/Debt	≥ 50%	35% - 50%	22% - 34%	12% - 21%	0%-11%	(30%)-0%	< (30%)	7.50%

## Unregulated Utility and Power Companies

### Rating Methodology Assumptions and Limitations, and Other Rating Considerations

The rating methodology grid incorporates a trade-off between simplicity that enhances transparency and greater complexity that would enable the grid to map more closely to actual ratings. The four rating factors in the grid do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in the unregulated utility and power sector. In addition, our ratings incorporate expectations for future performance, while the financial information that is used to illustrate the mapping in the grid is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we can not publish. In other cases, we estimate future results based upon past performance, industry trends, competitor actions and other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

In choosing rating factors for this rating methodology grid, we did not include certain important factors that are common to all companies in any industry, such as the quality and experience of management, assessments of corporate governance, financial controls, and the quality of financial reporting and information disclosure. The assessment of these factors can be highly subjective and ranking them by rating category in a grid would in some cases suggest too much precision in the relative ranking of particular issuers against all other issuers that are rated in various industry sectors.

Ratings may include additional factors that are difficult to quantify or that only have a meaningful effect in differentiating credit quality in specific cases. Such factors include environmental obligations, nuclear decommissioning trust obligations, financial controls, and emerging market risk, or where ratings might be constrained by the uncertainties associated with the local operating, political and economic environment, including possible government intervention. Similarly, transitional changes can also affect the credit quality of the sector or companies in the sector, such as changes in the regulatory framework, the passage of new legislation, tax law changes that encourage the investment into certain types of generation resources and broad modifications to the market mechanics for determining the wholesale power price.

Actual assigned ratings may also reflect circumstances in which the weighting of a particular factor will be different from the weighting suggested by the grid. For example, although Factor 1 addresses competitive position, in some instances the effect of a company's financial metrics in Factor 4 or liquidity and financial policy in Factor 3 will be given greater consideration in an assigned rating than what is indicated by the weighting in the grid.

As an example of the limitations of the rating grid, ratings can be heavily affected by weak liquidity that magnifies default risk between two otherwise identical companies. This is particularly true for companies operating in the unregulated utility and power sector where a cyclical revenue downturn (on top of secular pressure) can create significant stress on liquidity for some issuers including diminished cushion under credit facility financial covenants. Similarly, changes in natural gas prices can dramatically alter an issuer's liquidity profile requiring substantial sources of additional counterparty collateral. Moreover, an extended plant outage at a key generating station can also quickly strain liquidity, particularly for an issuer whose assets are not as diversified. Historical financial metrics will be a lagging indicator of an extended plant outage. Heavy reliance on a single counterparty can quickly add liquidity pressure when the counterparty is experiencing extreme financial stress. Having a high proportion of maturing indebtedness relative to cash flow in any one period combined with limited sources of committed long-term liquidity heightens refunding risks. This is particularly true for speculative grade issuers. While Factor 3 of this Methodology captures certain more structural features of an issuer's liquidity profile, the assigned rating will therefore also incorporate more detailed considerations of liquidity including, for example, an analysis of covenants, maturity profile, and counterparty exposures.

A company's approach to managing liquidity could have implications for the unsecured rating, the CFR, or the BCA irrespective of the indicated rating from the methodology, the financial strength metrics, or the assessment of a company's qualitative rating factors. Having appropriate levels of liquidity to manage potential changes in commodity prices or potential rating changes (e.g. rating triggers) is a particularly important aspect of risk and liquidity management. Alternative approaches to managing liquidity and margining collateral have been implemented, particularly in light of the premium placed on capital at financial institutions. One alternative, right-way hedging, has increased in popularity among US unregulated power companies,



## Unregulated Utility and Power Companies

particularly among speculative grade issuers. Right-way hedging enables issuers to pledge a first or second lien on the power company's assets instead of posting more traditional forms of margin collateral, such as cash or letters of credit. While we believe that right-way can be a beneficial supplement to a company's sources of liquidity, a heavy reliance on right-way hedging could weaken an issuer's financial flexibility and negatively affect an issuer's unsecured rating, CFR, or BCA, irregardless of the other rating factors.

As discussed under Rating Factor 2, given the commodity nature of the business, many unregulated utilities and power companies utilize various forms of hedging as a tool to enhance earnings and cash flow predictability. To the extent that earnings volatility is reduced, this activity can enhance an issuer's credit profile. However, to the extent that an issuer engages in speculative trading as a core component of their hedging strategy without an appropriate reduction in leverage, the issuer's rating could be negatively affected.

## Power Purchase Agreements or Tolling Agreements

It is not uncommon for unregulated utilities and power companies to rely upon third party sources to satisfy some of their supply obligations. In some cases, it may be more economical to purchase electric output from a third party than to operate owned generation. In other cases, third party purchases may be required due to a forced outage of owned generation or due to substantial changes in demand caused by weather or by economic demand. The manner in which an issuer manages these issues is a function of the company's overall risk management strategy, the region or country in which the assets are located, the market framework, and the fuel source of the market's dominant assets, all of which are incorporated into the rating outcome.

Additionally, some unregulated utilities and power companies have entered into long-term PPAs or tolling agreements where they are required to make a capacity payment to a generation facility (often an intermittent unit or peaking unit) for the right to dispatch the plant and purchase electricity or for the right to deliver fuel to the plant for conversion into electricity. These capacity payments are required so long as the facility operates at certain predetermined measures which are outlined in the agreement between the unregulated company and the facility. Depending upon the nature of these arrangements, discretion is given to the analyst to consider whether all or a portion of these capacity payments should be considered debt-like and as such, capitalized onto the balance sheet of the issuer. For more information on Power Purchase Agreements and Tolling Agreements, see Appendix H of the Regulated Electric and Gas Rating Methodology.

## Parent – Subsidiary Considerations

Most of the unregulated utilities and power companies issue debt at the parent operating company or at the parent holding company with upstream guarantees from the operating companies to the holding company. There are a few issuers, mostly in the US, where debt exists at both the operating company and the holding company and there are no upstream guarantees from the operating company to the holding company, making the holding company debt structurally subordinate to the operating company debt. For issuers that are rated speculative grade, our Loss-Given Default Methodology will determine the outcome of the instrument ratings. For investment grade rated issuers, Moody's will consider the consolidated debt profile of the issuer in determining the fundamental rating of the issuer. The fundamental rating would typically be assigned to the operating company as the senior unsecured debt rating. For debt at the holding company, Moody's will generally notch the debt of the holding company downward by one rating notch to reflect the structural subordination of the holding company debt to that of the operating company debt.

The notching (or rating differential) between entities in a single family of companies depends on the degree of insulation or separateness that may occur among affiliate family members, the level of dependence or interrelationships that may exist among affiliates or between the parent and its subsidiaries, and the amount of holding company debt that exists relative to the amount of consolidated debt. In most legal structures, there is typically a one notch rating differential between the parent and the most dominant subsidiary or subsidiaries to reflect structural subordination of the parent company debt relative to the operating subsidiary debt. Situations that might give rise to two or more rating notches between the parent and the operating subsidiary would include scenarios where there is substantial insulation at the operating company level relative to the parent company or where a substantial amount of holding company debt exists when compared to the total consolidated debt.

## Unregulated Utility and Power Companies

### Regional Differences

#### United States & Canada

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As discussed in greater detail in Appendix D, the US unregulated power market remains highly fragmented as deregulation of the sector continues to be in transition in many markets and most regions remain fully regulated. Within the US, the generation component of the business is the most unregulated segment. Transmission and distribution segments remain regulated by federal and state regulators. Unlike other regions of the world, including Europe and certain Latin American countries, the retail supply business has not developed materially in the US. For one, the business has not proven to be terribly profitable and most consumers have opted to stay with the local utility or an affiliate of the local utility. Texas appears to be the most prominent exception to this rule.

Prospectively, the regions that have implemented deregulation are likely to remain so as it is very difficult to legally and operationally reintegrate the companies in a way that is beneficial to consumers. We do not believe that vertically integrated rate regulated companies will seek to adopt deregulation as the benefits of choice to end use consumers has been limited. Consequently, the sector is likely to continue to remain highly fragmented.

#### Europe

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The shape of energy markets across Europe has evolved substantially over the past decade in response to a sequence of European Union legislation designed to promote competition and a better deal for energy users through market liberalization and the progressive integration of regional markets. However, this has been happening at a different pace from country to country reflecting differences in the pace of adoption of legislation at the national level, as well as the wide range of structures in place at the start of the process. Local sovereign choices also help create and maintain regional differences – most obviously for example in the widely contrasting tolerance for nuclear power.

So although there are increasing areas in common, there remain significant differences between the structure of energy markets from country to country in Europe at each point in the value chain. These differences in turn help shape the scale, profitability and strategies of the main energy market participants in each country. The more striking differences include the following:

- Generation markets across Europe vary widely from the very highly concentrated, including for example France, where EDF has 85%, through to more fragmented markets like Germany, where the four largest generators have just under 70%, and the Nordic market.
- Supply market structures are similarly varied. They range from highly concentrated markets like France, to more fragmented ones, like Germany, where the longstanding role of Stadtwerke as energy suppliers is reflected in the enduring presence of hundreds of relatively small suppliers alongside the 'big four'.
- In as many as sixteen markets in the EU (according to the European Regulators' Group for Electricity and Gas) regulated end-user prices exist alongside competitive, market-based prices for electricity and gas. Spain and France, for example, continue to offer regulated tariffs at lower levels than implied by wholesale market prices. Competitive intensity in these markets tends to be lower than in wholly market-based models, like the UK, because independent suppliers lack the access to low-cost generation capacity or equivalent long-term generation contracts.
- There are wide differences between the fuel-mix of each country's generation fleet. Determining factors include topography, climate and fuel resources – but also national energy policy choices. Spain's fleet, for example, includes a higher proportion of renewables than any other in Europe reflecting the direction of the country's National Energy Plan and incentives to invest. France's generation fleet is 85% nuclear, reflecting earlier strategic choices. By contrast, nuclear energy has formed no part of Italy's generation fleet since the referendum of 1991.

## Unregulated Utility and Power Companies

- Government-ownership is an enduring feature of this strategic industry, with some 16 Government-related issuers in Moody's EMEA rated universe. However, the degree of state ownership varies greatly from country to country – from nil in the UK, through the 31% which the Italian state retains in ENEL, and to the 83% of EDF and 35% of GDF SUEZ held by France.

### Asia

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In Asia (ex-Japan), utility companies generally operate under a regulated regime; in most countries, including Korea, Malaysia, Taiwan and Indonesia, generation remains part of the operations of a fully-integrated utility.

At the same time, while our two rated credits in India (Tata Power and NTPC) are mainly power generation companies, their tariffs are regulated and set under a cost-plus rate of return structure, which enables them to pass on cost increases to customers and earn a stable rate of return. Hence, these companies are currently being covered by the Regulated Utilities Rating Methodology.

However, these companies have ambitious growth plans to take advantage of the structural energy deficit in India, and are progressively shifting to a business model based on competitive pricing. For example, Tata Power's investment in the 4,000MW Mundra Ultra Mega Power Project, which will not be commissioned until September 2011, does not enjoy a full pass through mechanism of the fuel costs and would face higher off-take risks, potentially exposing the company to more cash flow volatility. As such, over the long term, these companies could be covered by the Unregulated Utilities & Power Rating Methodology.

### Latin America

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In Latin America, Moody's rates generation companies headquartered or with operations in Chile, Brazil, Colombia, Argentina and Peru.

Except for Argentina, most of the power markets in Latin America have developed over the last decade relatively stable frameworks and share several common characteristics. These include the overall high reliance of the countries' energy mix on hydro resources, the merit order mechanisms for the facilities' dispatch, and the addition to the energy charges of some type of capacity payment to foster investments in new generation. Moreover, the bulk of the Latin American markets are transitioning into an auction based model requiring the regulated distribution companies to meet all their power needs beyond a certain date through supply contracts with the generation companies, albeit tenor requirements vary among the countries with long-term contracts in Chile or Brazil and shorter tenors in Colombia.

Despite those common characteristics, Moody's ratings also capture certain specific differences, including the relative importance of the hydroelectric capacity within the energy mix and the resulting impact on power prices volatility. For instance, in Colombia where hydro facilities contribute around 80% of the power generation, prices are somewhat more volatile than in Chile, where hydroelectric plants are approximately 50% of the country's total installed capacity. In most countries, large (non-captive) customers can choose to enter into bilateral contracts directly with the generation companies. Large (non-captive) customers may also obtain their power supply from the spot market in some jurisdictions (Colombia) while in others, such as Chile, the only participants in the spot market are the power companies. There is also a wide range of possibilities in terms of ownership of the generation companies among the Latin American countries. In some cases, government related institutions play a significant role in the sector (like in Brazil) whereas in other countries all the participants are private companies (Chile).

The size and importance of the capital expenditure programs also differ from country to country. In some countries, new investments have been made to not only satisfy growing demand but to diversify away from certain fuel resources; such as Bolivian and Argentinean natural gas in the Brazilian and Chilean case, respectively. In particular, the Chilean market is in the middle of a transition process with significant investments in new hydro and thermal generation (coal or LNG regasification terminal) to overcome the country's previous substantial excessive reliance on Argentinean natural gas exports in light of the increasing curtailments since 2004.

## Unregulated Utility and Power Companies

### Conclusion: Summary of the Grid-Indicated Rating Outcomes

The methodology grid-indicated ratings map to current assigned ratings as follows (see Appendix B for the details<sup>1</sup>):

- 40% or 14 companies map to their assigned rating, or BCA where applicable
- 42.9% or 15 companies have grid-indicated ratings that are within one alpha-numeric notches of their assigned ratings, or BCA where applicable
- 18.9% or 7 companies have grid-indicated ratings that are within two alpha-numeric notches of their assigned ratings, or BCA where applicable
- 2.7% or 1 company has a grid-indicated rating that is more than two alpha-numeric notches from its assigned rating

Overall, the vast majority (97.3%) of the grid-indicated rating outcomes is within two alpha-numeric notches of their assigned ratings and 82.9% of the grid-indicated ratings are within one alpha-numeric notch of their assigned ratings. Within the sample group, one outlier exists, a small Chilean generator who has reported very strong financial results for the past few years. We also observe that the findings are based solely on historical results whereas the assigned ratings incorporate our expectation of future results.

### Unregulated Utilities – Conclusions

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The grid-indicated outcome for all 15 of the unregulated utilities included in the sample group<sup>2</sup> is within two alpha-numeric notches of their assigned ratings and 73% of the grid-indicated ratings are within one alpha-numeric notch of their assigned ratings. Strong financials explain those with grid-indicated ratings 2 notches higher than their assigned ratings, which incorporate Moody's expectations that their financial flexibility is likely to be utilized in the near term. Of those issuers with a higher assigned rating than their grid-indicated ratings, one is currently on review for downgrade. The differential in the case of the other reflects the positives which Moody's attributes to its business model and therefore reflects in its assigned rating, but which are not wholly captured in the grid.

### Power Companies - Conclusions

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The vast majority (19 out of 20) or 95.5% of the unregulated wholesale power companies<sup>3</sup> is within two alpha-numeric notches of their assigned ratings; 9 out of 20 or 45% map to the actual rating and 18 out of 20 or 90% map to within one alpha-numeric notch of their assigned ratings. The one issuer that maps to two alpha-numeric notches of its assigned rating, one is under review for possible downgrade. As described above, the only outlier, the Chilean generator, has very strong financial metrics but operates in a very isolated region of the market which has in the past experienced substantial overcapacity, leading to a high degree of cash flow volatility within their financial results.

<sup>1</sup> Please note, for the purposes of this analysis we have excluded the four entities for which we have published BCA ranges

<sup>2</sup> Please note, for the purposes of this analysis we have excluded EWE and DONG, for which we have published BCA ranges

<sup>3</sup> Please note, for purposes of this analysis, we have excluded Verbund and Compagnia Valdostana delle Acque, for which we have published BCA ranges

## Unregulated Utility and Power Companies

## Appendix A: Unregulated Utilities &amp; Power Companies Grids

## Unregulated Utilities Grid

## Factor 1: Market Assessment, Scale and Competitive Position - 25%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Size and scale	Total assets > \$100 bn	Total assets > \$50 bn	Total assets > \$25bn OR Total assets > \$5.0bn and entrenched position in substantial national/regional market	Total assets > \$5bn OR Total assets > \$2.5bn and entrenched position in substantial national/regional market	Total assets > \$2.5bn OR Total assets > \$1.0bn and entrenched position in substantial national/regional market	Total assets > \$1.0bn OR Total assets < \$1.0bn and entrenched position in local market	Total assets < \$1.0bn	15.00%
Competitive position and market structure	Dominant operator generating > 50% of the output in a large national or supra regional market	1 of 2 leading operators together controlling > 50% of the power output in a large market OR dominant gas market incumbent > 70% market share	1 of 3 leading operators together controlling > 50% of the power output in a large market OR leading supplier in gas market with > 50% market share OR dominant energy supplier in a large regional market	1 of 4 leading operators together controlling > 50% of the power output in a large market OR large supplier in gas market with > 40% market share OR leading energy supplier in large regional market	Market participant with limited price setting ability characterized by lower shares in power (<10%) and gas (<40%) markets OR modestly positioned power supplier in a large regional market	Shows some weakness as a market participant and price taker - characterized by a small market shares in power (<5%) and gas (< 20%) markets OR weakly positioned power supplier in large regional market	Very weak market participant and price taker	10.00%

## Unregulated Utility and Power Companies

## Factor 2: Cash Flow Predictability of Business Model – 25%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Fuel strategy and mix	Generation portfolio is close to market average fuel mix AND Has very low CO2 emissions (>70% nuclear/hydro/ wind) AND Limited fuel concentration	Generation portfolio is close to market average fuel mix AND has low CO2 emissions (>50% nuclear/hydro/ wind)	Generation portfolio is close to market average fuel mix AND has average CO2 emissions	Generation portfolio is close to market average fuel mix & has high CO2 emissions (>50% coal/lignite) OR Generation portfolio is not well aligned with market average fuel mix & has low CO2 emissions	Generation portfolio is not well aligned with market average fuel mix AND has average CO2 emissions	Generation portfolio is not well aligned with market average fuel mix AND has very high CO2 emissions	Generation portfolio is out of alignment from market average fuel mix AND has very high CO2 emissions (>70% coal/lignite)	5.00%
Degree of integration and hedging strategy	Well balanced vertically integrated position Predominantly retail supply base, fully covered by own production Effective forward hedging policy to moderate cash-flow volatility	Well balanced vertically integrated position Substantial downstream retail customer base (>50% of own production) in moderately competitive market Effective forward hedging policy to moderate cash-flow volatility	Well balanced vertically integrated position Sizeable retail customer base (>30% of own production) OR Substantial downstream retail customer base (>50%), but with significant competition Effective forward hedging policy to moderate cash-flow volatility	Moderately short generation versus customer base OR Moderate retail customer base (>20% of own production). Effective forward hedging policy to moderate cash-flow volatility	Substantial long or short generation position versus customer base Limited downstream position, modest hedging ability	Very limited hedging ability	Hedging strategy is ineffective. Most assets in underdeveloped markets characterised by little transparency, poor liquidity and limited potential for hedging	5.00%
Capital requirements and operational performance	<3% future annual capX as % net PP&E Extremely modest levels of capX for maintenance and for environmental related expenditures are needed	3-5% future annual capX as % net PP&E Fleet with minimal age or replacement requirements	5-8% future annual capX as % net PP&E Fleet with modest replacement requirements	8-12% future annual capX as % net PP&E Fleet with average replacement requirements	12-15% future annual capX as % net PP&E Fleet with significant replacement requirements	15-20% future annual capX as % net PP&E Fleet with significant replacement requirements	>20% future annual capX as % net PP&E Fleet with significant replacement requirements	5.00%
Contribution from low/high risk businesses	35-49% of EBITDA is from regulated businesses in well-established/ low-risk regulatory environments/ countries	Over 20%-35% of EBITDA is from regulated businesses in well-established/ low-risk regulatory environments/ countries	Over 10%-20% of EBITDA is from regulated businesses in well-established/ low-risk regulatory environments/ countries	No significant contribution from regulated businesses in well-established/ low-risk regulatory environments/ countries OR Broadly equivalent exposure to both low-risk/high-risk businesses	10%-20% of EBITDA is from high risk businesses/ countries	20%-35% of EBITDA is from high risk businesses/ countries	Over 35% of EBITDA is from high risk businesses/ countries	10.00%

## Unregulated Utility and Power Companies

## Factor 3: Financial Policy – 10%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Financial Policy	Very conservative - stable metrics, no financially transforming events; management targets debt/ EBITDA < 0.5x.	Conservative - stable metrics, no financially transforming events; management targets debt/ EBITDA < 1.0x.	Predictable financial policy balanced between stockholders & creditors; track record of stable capital structure; minimal history of share buy-backs.	Financial policy balanced between stockholders & creditors; potential for rating migration following acquisitions; use of share buy-backs to optimize capital structure  Some reliance on external funding and liquidity is more likely to be affected by external events, good access to the capital markets, and adequate liquidity under most scenarios. Refinancing risk is manageable.	History of debt funded acquisitions and/or returns to shareholders; track record of downward rating migration following acquisitions. Likely to use debt to finance investments. Bank financing is often secured. Challenging refinancing risk exists.	Financial policies leave very modest financial cushion for debt holders. Liquidity position may be unable to withstand external shocks/ unexpected events. Generally uses debt to finance investments. Asset sales central to liquidity plan. Bank financing is often secured.	Unmanageable debt burden; restructuring likely. May be heavily relying on asset sales or other extraordinary actions to finance ongoing operations.	10.0%

## Factor 4: Financial Strength Metrics: Unregulated Utilities – 40%

3-year Average	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
CFO pre-W/C + Interest/ Interest	≥15.0x	9.0x - 14.9x	6.0x - 8.9x	3.5x - 5.9x	1.8x - 3.4x	1.0x - 1.7x	<1.0x	10.00%
CFO pre-W/C / Debt	≥70%	45% - 69%	28% - 44%	17% - 27%	10% - 16%	5% - 9%	<5%	12.50%
RCF / Debt	≥50%	32% - 49%	20% - 31%	12% - 19%	7% - 11%	3% - 6%	<3%	12.50%
FCF / Debt	≥50%	20% - 49%	10% - 19%	0% - 9%	(15%) - 0%	(30%) - (16%)	<(30%)	5.00%

## Unregulated Utility and Power Companies

## Power Companies Grid

## Factor 1: Market Assessment, Scale and Competitive Position – 20%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Market and Competitive Position	No competition, with unquestioned statutory or government protection of this competitive position	Very limited competition, with market position well protected and unlikely to experience material changes such as changes in law, market structure and regulation	<p>Competition exists within key markets.</p> <p>Company operates the majority of its fleet in liquid markets which have been functioning for an extended period time, and have an abundance of market participants.</p> <p>Fleet capacity factors are typically &gt; 75%.</p> <p>The cost structure for the majority of the fleet places it at the lowest quartile and subsequent changes to laws are unlikely to affect this position.</p> <p>The generation assets may benefit from legal protection or contracts in place for an extended period of time.</p>	<p>Competition exists within key markets.</p> <p>Company operates the majority of its fleet in a liquid wholesale power market that has been functioning in its current form for an extended period time, and has an abundance of market participants.</p> <p>Fleet capacity factors are typically &gt; 75%.</p> <p>The cost structure for the majority of the fleet generally places most of its assets at the lowest quartile. Subsequent changes to laws could affect this position.</p>	<p>Company operates the majority of its fleet in a relatively new market. The market framework continues to undergo modifications which could affect future cash flows.</p> <p>Fleet capacity factors range from 35% - 75%.</p> <p>Assets currently are among the lowest cost in the region but position could be challenged by new entrants or by changes in laws.</p> <p>Substantial licensing renewal or permitting required which could effect competitive position.</p>	<p>Company operates the majority of its fleet in a relatively new market. The market framework continues to undergo modifications which could affect cash flows.</p> <p>Fleet capacity factors are often &lt; 35%.</p> <p>Assets currently may enjoy locational value but position could be challenged by new entrants or by changes in laws.</p> <p>Competitive position is dependent upon certain legal or contracted protections which may erode over time.</p> <p>Assets operate in an extreme excess supply region.</p>	<p>Market framework is not developed or exhibits characteristics that are unfavorable to generators.</p> <p>No reliable independent third party to oversee market place environment.</p> <p>High risk of nationalization or other significant government intervention in operations or markets.</p> <p>Poor competitive position in a highly competitive market.</p> <p>A majority of the assets are vulnerable to being permanently shut down within the next five years.</p>	15.00%
Geographic Diversity	A high degree of multinational or regional diversification.	Material operations in 5 geographic or market regions.	Material operations in 3 or more geographic or market regions.	Material operations in more than one uncorrelated geographic region.	Operates in a single economic region with low volatility with some concentration.	Operates in a single market with greater volatility resulting in high concentration risk. Market may be untested or may be an emerging market.	Very high concentration risk. Market has experienced substantial volatility. Market is untested or an emerging market.	5.00%



## Unregulated Utility and Power Companies

## Factor 2: Cash Flow Predictability of Business Model – 20%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Effectiveness of hedging strategy	<p>Long-term contracts with highly rated counterparties exist that extend beyond the term of the debt.</p> <p>Contract terms allow unquestioned full and timely cost recovery assuring no margin erosion, with provisions in place to preclude the possibility of challenges caused by changes in laws.</p> <p>Contracts terms are typically at or below prevailing market rates.</p>	<p>Long-term contracts with highly rated counterparties exist that expire at or around the term of the debt.</p> <p>Although some margin compression is possible, the contracts have terms that allow for full and timely cost recovery.</p> <p>No challenge to the recovery mechanism exists.</p> <p>Contracts terms are typically at or below prevailing market rates.</p>	<p>Hedging strategy has resulted in highly predictable cash flows.</p> <p>Balanced portfolio of contracts/hedge in place include long-term contract portfolio which has limited margin compression as well as intermediate term contracts of 5 years or more augmented with some short-term arrangements of 1 year or less.</p> <p>The tenor of the long-term contracts expires at or near the final maturity of the company's debt, and such contracts provide at least 75% of the expected operating margin.</p>	<p>Hedging strategy has resulted in predictable cash flows.</p> <p>Portfolio of contracts typically consist of a blend of intermediate term (up to 5 years), and short-term contract arrangements.</p> <p>In total, contracts hedge forward more than 70% of the operating margin for the next three years.</p>	<p>Hedging strategy has resulted in some predictability in cash flow.</p> <p>Portfolio of contracts typically consists of intermediate term (up to 3 years) and short-term (less than 1 year) contract arrangements.</p> <p>In total, contracts in place hedge forward at least 40% of the company's operating margin for the next two years.</p>	<p>Hedging strategy has not reduced cash flow volatility.</p> <p>Portfolio of contracts typically consists of mostly short-term contracts (up to 18 months) but can include some intermediate arrangements.</p> <p>In total, contracts in place hedge forward 25% of the company's operating margin for the next two years.</p>	<p>Hedging strategy is ineffective.</p> <p>Portfolio has few contracts or hedges in place.</p> <p>Most of the assets are located in markets that are not developed resulting in little transparency, poor liquidity, and limited potential for contractual arrangements.</p>	10.00%
Fuel strategy and mix	<p>A very high degree of diversification in terms of fuel source, with not one fuel source representing more than 10% of the projected output and no exposure to carbon.</p>	<p>A high degree of diversification of fuel source, with not one fuel source representing more than 20% of projected output with modest exposure to carbon.</p>	<p>Diversification of fuel sources exist with not one fuel representing more than 40% of projected output and some exposure to carbon.</p>	<p>Diversification of fuel sources exist with not one fuel representing more than 60% of the projected output and some exposure to carbon.</p>	<p>Some diversification of fuel sources exist with not one fuel representing more than 75% of projected output.</p> <p>Dominant fuel source can have substantial year over year changes in supply, price or is exposed to incremental environmental costs.</p> <p>OR</p> <p>Some diversification of fuel sources exist with not one fuel representing more than 60% of electric output &amp; some exposure to carbon.</p>	<p>Limited Diversification of fuel source exists with one fuel representing not more than 90% of projected output.</p> <p>OR</p> <p>Some diversification of fuel sources exist with not one fuel representing more than 75% of projected output &amp; substantial exposure to carbon.</p>	<p>Very high concentration risk with little near-term supply arrangements secured.</p> <p>Fuel supply can be negatively affected by government actions.</p> <p>OR</p> <p>Limited Diversification of fuel source exist with one fuel representing not more than 90% of electric output &amp; substantial exposure to carbon.</p>	5.00%

## Unregulated Utility and Power Companies

## Factor 2: Cash Flow Predictability of Business Model – 20%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Capital requirements and operating performance	Extremely modest levels of capX for maintenance and environmental related expenditures.	Very modest levels of capX for maintenance and environmental related expenditures.	Moderate levels of capX for maintenance and for environmental related expenditures.  While operating performance has been strong, most unplanned outages for the dominant generating resource lasts < 45 days.	Moderate level of capX is required for maintenance and for environmental related expenditures.  While operating performance has been strong, most unplanned outages for the dominant generating resource last > 45 days.	While operating performance has been strong, substantial capX is required for maintenance and for environmental related expenditures.  Required environmental capX is expected to materially increase in the next several years relative to historical levels.  Announced capX is expected to exceed historical capital investment by 33%.	Substantial level of capX is required for ongoing maintenance.  Required environmental capX is expected to materially increase in the next several years and may result in plant shutdowns of certain key assets.  Over the past three years, the company has experienced a material unplanned extended outage at a key plant.  Announced capX is expected to exceed historical capital investment by 66%.	Substantial level of capX is required to maintain minimum operating performance standards.  Environmental related capX is material and likely to result in plant shutdowns.  Fleet has experienced an unplanned material extended outage at its plants in each of the last three years.	5.00%

## Unregulated Utility and Power Companies

## Factor 3: Financial Policy – 10%

	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
Financial Policy	Very Conservative - stable metrics, no financially transforming events; management targets debt/ebitda < 0.5x.	Conservative - stable metrics, no financially transforming events; management targets debt/ebitda < 1.0x.	Predictable financial policy balanced between stockholders & creditors; track record of stable capital structure; minimal history of share buy-backs.	Financial policy balanced between stockholders & creditors; potential for rating migration following acquisitions; some use of share buy-backs to optimize capital structure  Some reliance on external funding and liquidity is more likely to be affected by external events, good access to the capital markets, and adequate liquidity under most scenarios. Refinancing risk is manageable.	History of debt funded acquisitions and/or returns to shareholders; track record of downward rating migration following acquisitions. Likely to use debt to finance investments. Bank financing is often secured. Challenging refinancing risk exists.	Financial policies leave modest financial cushion for debt holders. Liquidity position may be unable to withstand external shocks or unexpected events. Generally uses debt to finance investments. Management's actions enhance shareholders at the expense of creditors. Asset sales are an active part of the company's liquidity plan. Bank financing is secured.	Unmanageable debt burden; restructuring likely. May be heavily relying on asset sales or other extraordinary actions to finance ongoing operations.	10.0%

## Factor 4: Financial Strength Metrics: Power Companies – 50%

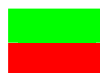
3-year Average	Aaa	Aa	A	Baa	Ba	B	Caa	Sub-Factor Weighting
CFO pre-WC + Interest / Interest	≥ 18.0x	12.0x - 18.0x	7.0x - 11.9x	3.6x - 6.9x	2.0x - 3.5x	1.0x -1.9x	< 1.0x	15.00%
CFO pre-WC / Debt	≥90%	61% - 90%	36% - 60%	21% -35%	13% - 20%	5% -12%	< 5%	20.00%
RCF / Debt	≥60%	45% - 60%	25% - 44%	15% -24%	8% - 14%	3% -7%	<3%	7.50%
FCF/ Debt	≥ 50%	35% - 50%	22% - 34%	12% - 21%	0%-11%	(30%)-0%	< (30%)	7.50%

## Unregulated Utility and Power Companies

## Appendix B: Methodology Grid-Indicated Ratings

## Methodology Grid-Indicated Ratings – Unregulated Utilities

Sub-Factor Weights				15.0%	10.0%	5.0%	5.0%	5.0%	10.0%	10.0%	10.0%	12.5%	12.5%	5.0%
	Rating [BCA]	Outlook	Indicated Rating	Size and scale	Competitive position and market structure	Fuel strategy and mix	Degree of integration and hedging strategy	Capital requirements and operational performance	Contribution from low / high-risk businesses	Financial policy	Cash Flow + Interest/ Interest	Cash Flow / Debt	RCF / Debt	FCF / Debt
EDF*	Aa3 [6]	Stable	A2	Aaa	Aaa	Aa	Aa	Baa	Aa	Baa	Baa	Baa	Baa	Ba
GdF Suez*	Aa3 [5]	Stable	A3	Aaa	Aa	A	Baa	Ba	Aa	Baa	Baa	Baa	Baa	Ba
RWE	A1	RUR Down	A2	Aaa	Aa	Baa	Baa	B	Aa	Baa	Baa	A	A	Baa
CEZ*	A2 [7]	Stable	A1	A	A	Baa	A	Ba	Baa	Baa	Aa	Aaa	Aaa	Aa
E.ON	A2	Stable	A2	Aaa	Aa	A	A	B	Aa	Baa	Baa	A	A	Ba
EVN*	A2 [7]	Negative	Baa1	A	Baa	Baa	Baa	Ba	A	Baa	Baa	Baa	A	Baa
EnBW*	A2 [6]	RUR Down	A3	A	A	Aa	A	B	Aa	Baa	Baa	A	A	Baa
Enel*	A2 [7]	Negative	Baa1	Aaa	Aa	A	A	Baa	A	Baa	Baa	Ba	Ba	Ba
EWE*	A2 [5-7]	Stable	Baa1	A	Baa	Baa	Ba	Ba	Aa	A	Baa	Baa	Baa	Ba
Fortum*	A2 [7]	Stable	A3	A	Baa	Aa	Baa	A	Aa	Baa	A	A	Ba	Ba
Scottish & Southern	A2	RUR Down	Baa1	A	Baa	A	Aa	B	Aa	Baa	Baa	Baa	Baa	Ba
Vattenfall*	A2 [7]	Stable	A1	Aa	A	Aa	Baa	B	Aa	Baa	A	Aa	Aa	Baa
Centrica	A3	Stable	A3	A	Baa	Baa	Ba	B	Baa	Baa	A	Aaa	Aaa	Ba
EDP*	A3 [8]	Stable	A3	A	A	Aa	Aa	Baa	Aaa	Baa	Baa	Ba	Baa	Ba
Iberdrola	A3	Stable	A3	Aaa	Aa	Aa	Aa	Ba	Aa	Baa	Baa	Ba	Ba	Ba
Dong*	Baa1 [8-10]	Stable	Baa1	Baa	Baa	Ba	Baa	B	A	Baa	A	A	Aa	Ba
Edison	Baa2	Negative	Baa1	Baa	A	Baa	Ba	Baa	Baa	Baa	A	A	A	Baa



Positive Outlier

Negative Outlier

\* GRI Issuer

## Unregulated Utility and Power Companies

## Methodology Grid-Indicated Ratings – Power Companies

Sub-Factor Weights				15.0%	5.0%	10.0%	5.0%	5.0%	10.0%	15.0%	20.0%	7.5%	7.5%
	Rating [BCA]	Outlook	Indicated Rating	Market & competitive position	Geographic diversity	Effectiveness of hedging strategy	Fuel strategy and mix	Capital requirements and operational performance	Financial policy	Cash Flow + Interest /Interest	Cash Flow / Debt	RCF/ Debt	FCF/ Debt
Verbund*	A1 [5-7]	RUR Down	A3	Aa	Baa	Baa	Ba	A	Baa	Baa	A	A	Baa
C. Valdostana delle Acque*	A1 [8 - 10]	Stable	A2	A	Ba	Baa	B	A	A	A	Aa	Aaa	Aa
Exelon Generation	A3	RUR Down	A3	A	Baa	Ba	Ba	Baa	Baa	Aa	Aa	A	Baa
PSEG Power LLC	Baa1	Stable	Baa2	Baa	Ba	Baa	Ba	Baa	Baa	Baa	A	Baa	Ba
Statkraft AS*	Baa1 [10]	Stable	Baa3	Baa	Ba	Baa	Ba	A	Baa	Baa	Baa	B	B
FirstEnergy Solutions	Baa2	Stable	Baa3	Baa	Ba	Baa	Ba	Baa	Baa	Baa	Ba	Baa	B
PPL Energy Supply	Baa2	Stable	Baa3	A	Baa	Baa	Ba	Baa	Baa	Baa	Ba	B	B
TransAlta Corporation	Baa2	RUR Down	Baa2	A	Baa	Baa	B	Baa	Baa	Baa	Baa	Baa	B
AES Gener	Baa3	Negative	Ba1	Ba	Baa	Baa	Ba	Ba	Ba	Baa	Baa	Baa	B
Allegheny Energy Supply	Baa3	Stable	Baa3	Baa	Ba	Baa	B	Ba	Baa	Baa	Baa	Baa	Ba
AmerenEnergy Generating	Baa3	Stable	Baa3	Baa	Ba	Ba	B	Baa	Baa	Baa	Baa	Ba	B
Constellations Energy Group	Baa3	RUR Down	Ba2	Baa	Baa	Ba	Ba	Baa	B	Ba	Ba	Ba	B
Endesa Chile	Baa3	Stable	Baa3	Baa	A	Baa	Ba	Baa	Ba	Baa	Baa	Baa	Ba
Covanta Holding Corp	Ba2	Stable	Ba1	Ba	Baa	A	B	Baa	Ba	Ba	Ba	Ba	Ba
AES Chivor	Ba2	Stable	Ba1	Ba	Ba	B	B	Baa	B	Baa	A	Baa	Baa
International Power plc	Ba2	Stable	Ba2	Ba	Aa	Baa	Baa	Ba	Ba	Ba	B	Ba	Ba
Edelnor	Ba3	Positive	Baa3	B	B	Ba	B	Ba	Ba	A	A	A	Baa
NRG Energy	Ba3	RUR Up	Ba1	Baa	Baa	Baa	Ba	B	B	Ba	Ba	Ba	Ba
Edison Mission Energy	B1	Stable	B1	Ba	Ba	B	B	B	B	Ba	B	B	Ba
Mirant Corporation	B1	Stable	Ba3	Ba	Ba	Ba	B	B	B	Ba	Ba	Baa	B
RRI Energy	B1	Stable	Ba3	Ba	Ba	B	B	B	B	B	B	Ba	Baa
Dynegy Holdings	B2	Stable	B1	Ba	Ba	B	B	B	B	B	B	B	B



Positive Outlier

Negative Outlier

\* GRI Issuer

## Unregulated Utility and Power Companies

## Appendix C: Observations and Outliers for Grid Mapping

## Factor 1: Ratings Mapping

The following table details the mapping for Market Assessment, Scale and Competitive Position:

## Unregulated Utilities

## Factor 1: Market Assessment, Scale and Competitive Position

Sub-Factor Weights			15.0%	10.0%
	Rating [BCA]	Outlook	Size and scale	Competitive position and market structure
EDF*	Aa3 [6]	Stable	Aaa	Aaa
GdF Suez*	Aa3 [5]	Stable	Aaa	Aa
RWE	A1	RUR Down	Aaa	Aa
CEZ*	A2 [7]	Stable	A	A
E.ON	A2	Stable	Aaa	Aa
EVN*	A2 [7]	Negative	A	Baa
EnBW*	A2 [6]	RUR Down	A	A
Enel*	A2 [7]	Negative	Aaa	Aa
EWE*	A2 [5-7]	Stable	A	Baa
Fortum*	A2 [7]	Stable	A	Baa
Scottish & Southern	A2	RUR Down	A	Baa
Vattenfall*	A2 [7]	Stable	Aa	A
Centrica	A3	Stable	A	Baa
EDP*	A3 [8]	Stable	A	A
Iberdrola	A3	Stable	Aaa	Aa
Dong*	Baa1 [8-10]	Stable	Baa	Baa
Edison	Baa2	Negative	Baa	A

 Positive Outlier  
 Negative Outlier

\* GRI Issuer

## Factor 1: Observations and Outliers

- Size and Scale

The six positive outliers for the Size and scale sub-factor currently rank as the six largest utilities in Europe: EDF, E.ON, GDF Suez, RWE, Enel and Iberdrola. All have an asset base in excess of the \$100 billion cut-off point for the Aaa rating on this factor. Strong scoring here is offset by lower scoring on other factors.

- Competitive position and market structure

EDF is the one outlier in this sub-factor, reflecting the 85% share of the generation it continues to enjoy in the French market. Very few operators in our rated universe register a share of more than 50%, reflecting

## Unregulated Utilities and Power Companies

the success of regulatory initiatives in breaking up the incumbent power generation monopolies. Although EDF's market share is likely to reduce over time, it is unlikely to decline below 50% in the foreseeable future.

### Power Companies

#### Factor 1: Market Assessment, Scale and Competitive Position

Sub-Factor Weights		15.0%	5.0%	
	Rating [BCA]	Outlook	Market and Competitive Position	Geographic Diversity
Verbund *	A1 [5-7]	RUR Down	Aa	Baa
C. Valdostana delle Acque *	A1 [8 - 10]	Stable	A	Ba
Exelon Generation	A3	Stable	A	Baa
PSEG Power LLC	Baa1	Stable	Baa	Ba
Statkraft AS*	Baa1 [10]	Stable	Baa	Ba
FirstEnergy Solutions	Baa2	Stable	Baa	Ba
PPL Energy Supply	Baa2	Stable	A	Baa
TransAlta Corporation	Baa2	RUR Down	A	Baa
AES Gener	Baa3	Negative	Ba	Baa
Allegheny Energy Supply	Baa3	Stable	Baa	Ba
AmerenEnergy Generating	Baa3	Stable	Baa	Ba
Constellation Energy Group	Baa3	RUR Down	Baa	Baa
Endesa Chile	Baa3	Stable	Baa	A
Covanta Holding Corp	Ba2	Stable	Ba	Baa
AES Chivor	Ba2	Stable	Ba	Ba
International Power plc	Ba2	Stable	Ba	Aa
Edelnor	Ba3	Positive	B	B
NRG Energy	Ba3	Stable	Baa	Baa
Edison Mission Energy	B1	Stable	Ba	Ba
Mirant Corporation	B1	Stable	Ba	Ba
RRI Energy	B1	Stable	Ba	Ba
Dynegy Holdings	B2	Stable	Ba	Ba

 Positive Outlier  
 Negative Outlier

\* GRI Issuer

#### Factor 1: Observations and Outliers

There are no outliers among the issuers highlighted for market and competitive position. All of the global unregulated wholesale power markets tend to be relatively new, continue to undergo change, and have been moderately tested through different economic cycles.

For geographic diversification, most issuers score between Baa to B reflecting the largely regional nature of this business. There is one positive outlier, International Power, which has operations across several different continents, scores to a Aa for this sub-factor.

## Unregulated Utilities and Power Companies

## Factor 2: Ratings Mapping

The following table details the mapping for Cash Flow Predictability of Business Model factor.

## Unregulated Utilities

Factor 2: Cash Flow Predictability of Business Model						
Sub-Factor Weights		5.0%	5.0%	5.0%	10.0%	
		Rating [BCA]	Fuel Strategy & mix	Degree of integration & hedging strategy	Capital Requirements & operational performance	Contribution from low/high-risk business
EDF*	Aa3 [6]	Stable	Aa	Aa	Baa	Aa
GdF Suez*	Aa3 [5]	Stable	A	Baa	Ba	Aa
RWE	A1	RUR Down	Baa	Baa	B	Aa
CEZ*	A2 [7]	Stable	Baa	A	Ba	Baa
E.ON	A2	Stable	A	A	B	Aa
EVN*	A2 [7]	Negative	Baa	Baa	Ba	A
EnBW*	A2 [6]	RUR Down	Aa	A	B	Aa
Enel*	A2 [7]	Negative	A	A	Baa	A
EWE*	A2 [5-7]	Stable	Baa	Ba	Ba	Aa
Fortum*	A2 [7]	Stable	Aa	Baa	A	Aa
Scottish & Southern	A2	RUR Down	A	Aa	B	Aa
Vattenfall*	A2 [7]	Stable	Aa	Baa	B	Aa
Centrica	A3	Stable	Baa	Ba	B	Baa
EDP*	A3 [8]	Stable	Aa	Aa	Baa	Aaa
Iberdrola	A3	Stable	Aa	Aa	Ba	Aa
Dong*	Baa1 [8-10]	Stable	Ba	Baa	B	A
Edison	Baa2	Negative	Baa	Ba	Baa	Baa

 Positive Outlier  
 Negative Outlier

\* GRI Issuer

## Factor 2: Observations and Outliers

- Fuel strategy and mix

EDP scores Aa reflecting its high proportion of non-thermal sources with hydro, nuclear and renewables representing around 50% of total installed capacity, and is expected to increase.

- Degree of integration and hedging strategy

EWE is one of the outliers in this sub-factor. While taking into account the company's medium-term PPA arrangements in EWE's overall rating, the score of Ba under this sub-factor reflects the fact that the company is still fundamentally short in own generation capacity. This fact distinguishes EWE from the other unregulated utilities in Europe scored under this rating methodology.



## Unregulated Utilities and Power Companies

### ■ Capital requirements and operational performance

Most companies score more weakly on this sub-factor than their final rating and rank as outliers reflecting the heavy capital expenditure programs planned by most European utilities over the next two to three years.

### ■ Contribution from low/high risk businesses

EDP ranks as the one outlier under this sub-factor reflecting that well over 35% of its EBITDA is generated from regulated and other low risk activities, including generation earning a fixed return under long-term contracts.

## Power Companies

### Factor 2: Cash Flow Predictability of Business Model

Sub-Factor Weights			10.0%	5.0%	5.0%
	Rating [BCA]	Outlook	Effectiveness of Hedging Strategy	Fuel Strategy & Mix	Capital Requirements & Operational Performance
Verbund *	A1 [5-7]	RUR Down	Baa	Ba	A
C. Valdostana delle Acque *	A1 [8 - 10]	Stable	Baa	B	A
Exelon Generation	A3	Stable	Ba	Ba	Baa
PSEG Power LLC	Baa1	Stable	Baa	Ba	Baa
Statkraft AS*	Baa1 [10]	Stable	Baa	Ba	A
FirstEnergy Solutions	Baa2	Stable	Baa	Ba	Baa
PPL Energy Supply	Baa2	Stable	Baa	Ba	Baa
TransAlta Corporation	Baa2	RUR Down	Baa	B	Baa
AES Gener	Baa3	Negative	Baa	Ba	Ba
Allegheny Energy Supply	Baa3	Stable	Baa	B	Ba
AmerenEnergy Generating	Baa3	Stable	Ba	B	Baa
Constellation Energy Group	Baa3	RUR Down	Ba	Ba	Baa
Endesa Chile	Baa3	Stable	Baa	Ba	Baa
Covanta Holding Corp	Ba2	Stable	A	B	Baa
AES Chivor	Ba2	Stable	B	B	Baa
International Power plc	Ba2	Stable	Baa	Baa	Ba
Edelnor	Ba3	Positive	Ba	B	Ba
NRG Energy	Ba3	Stable	Baa	Ba	B
Edison Mission Energy	B1	Stable	B	B	B
Mirant Corporation	B1	Stable	Ba	B	B
RRI Energy	B1	Stable	B	B	B
Dynergy Holdings	B2	Stable	B	B	B

 Positive Outlier  
 Negative Outlier

\* GRI Issuer

### Factor 2: Observations and Outliers

For effectiveness of hedging strategy, Covanta, whose CFR is Ba2, is the only outlier. Covanta owns a portfolio of contracted waste-to-energy projects with a diverse group of municipalities, the majority of which

## Unregulated Utilities and Power Companies

have contracts that extend to the term of the debt. This degree of predictability enables the company to score "A" on this particular factor. We do note that over time, the portfolio will become more exposed to market terms and conditions as the existing contracts expire over the next decade.

With respect to fuel mix and strategy, there were six outliers in the data set. Exelon Generation, while owning both coal-fired base load and natural gas-fired generation, it is the largest nuclear generation company in the US and generates the majority of its electric output and related cash flow from its large and geographic diverse nuclear operation. As such, we consider Exelon to have a fairly concentrated fuel risk in nuclear fuel and, as such, have accorded it a Ba sub-factor rating category. Similarly, Verbund and Compagnia Valdostana delle Acque rely heavily on hydro production. AmerenEnergy Generating, Allegheny Energy Supply and TransAlta have high concentration of coal-fired generation and have related exposure to carbon. Relative to their Baa rating, these three issuers are outliers on this sub-factor.

### Factor 3: Ratings Mapping

The following table details the mapping for the Financial Policy factor:

#### Unregulated Utilities

Factor 3: Financial Policy			
Sub-Factor Weights			10.0%
	Rating [BCA]	Outlook	Financial Policy
EDF*	Aa3 [6]	Stable	Baa
GdF Suez*	Aa3 [5]	Stable	Baa
RWE	A1	RUR Down	Baa
CEZ*	A2 [7]	Stable	Baa
E.ON	A2	Stable	Baa
EVN*	A2 [7]	Negative	Baa
EnBW*	A2 [6]	RUR Down	Baa
Enel*	A2 [7]	Negative	Baa
EWE*	A2 [5-7]	Stable	A
Fortum*	A2 [7]	Stable	Baa
Scottish & Southern	A2	RUR Down	Baa
Vattenfall*	A2 [7]	Stable	Baa
Centrica	A3	Stable	Baa
EDP*	A3 [8]	Stable	Baa
Iberdrola*	A3	Stable	Baa
Dong*	Baa1 [8-10]	Stable	Baa
Edison	Baa2	Negative	Baa

\* GRI Issuer

#### Factor 3: Observations and Outliers

There are no outliers on this sub-factor. Sixteen of the seventeen utilities in the sample score Baa, reflecting the relatively uniform financial policies adopted by the larger integrated utilities in Europe.

## Unregulated Utilities and Power Companies

## Power Companies

## Factor 3: Financial Policy

Sub-Factor Weights				10.0%
	Rating [BCA]	Outlook	Financial Policy	
Verbund *	A1 [5-7]	RUR Down	Baa	
C. Valdostana delle Acque *	A1 [8 - 10]	Stable	A	
Exelon Generation	A3	Stable	Baa	
PSEG Power LLC	Baa1	Stable	Baa	
Statkraft AS*	Baa1 [10]	Stable	Baa	
FirstEnergy Solutions	Baa2	Stable	Baa	
PPL Energy Supply	Baa2	Stable	Baa	
TransAlta Corporation	Baa2	RUR Down	Baa	
AES Gener	Baa3	Negative	Ba	
Allegheny Energy Supply	Baa3	Stable	Baa	
AmerenEnergy Generating	Baa3	Stable	Baa	
Constellation Energy Group	Baa3	RUR Down	<b>B</b>	
Endesa Chile	Baa3	Stable	Ba	
Covanta Holding Corp	Ba2	Stable	Ba	
AES Chivor	Ba2	Stable	B	
International Power plc	Ba2	Stable	Ba	
Edelnor	Ba3	Positive	Ba	
NRG Energy	Ba3	Stable	B	
Edison Mission Energy	B1	Stable	B	
Mirant Corporation	B1	Stable	B	
RRI Energy	B1	Stable	B	
Dynegy Holdings	B2	Stable	B	

	Positive Outlier
	Negative Outlier

\* GRI Issuer

**Factor 3: Observations and Outliers**

Constellation Energy Group is the only outlier due to the weakened liquidity profile exhibited by this issuer within the past twelve months.

## Unregulated Utilities and Power Companies

## Factor 4: Ratings Mapping

The following table details the mapping for the Financial Strengths Metrics factor

## Unregulated Utilities

Factor 4: Financial Strength Metrics						
Sub-Factor Weights			10.0%	12.5%	12.5%	5.0%
	Rating [BCA]	Outlook	Cash flow + Interest/Interest	Cash flow / Debt	RCF / Net Debt	FCF / Net Debt
EDF*	Aa3 [6]	Stable	Baa	Baa	Baa	Ba
GdF Suez*	Aa3 [5]	Stable	Baa	Baa	Baa	Ba
RWE	A1	RUR Down	Baa	A	A	Baa
CEZ*	A2 [7]	Stable	Aa	Aaa	Aaa	Aa
E.ON	A2	Stable	Baa	A	A	Ba
EVN*	A2 [7]	Negative	Baa	Baa	A	Baa
EnBW*	A2 [6]	RUR Down	Baa	A	A	Baa
Enel*	A2 [7]	Negative	Baa	Ba	Ba	Ba
EWE*	A2 [5-7]	Stable	Baa	Baa	Baa	Ba
Fortum*	A2 [7]	Stable	A	A	Ba	Ba
Scottish & Southern	A2	RUR Down	Baa	Baa	Baa	Ba
Vattenfall*	A2 [7]	Stable	A	Aa	Aa	Baa
Centrica	A3	Stable	A	Aaa	Aaa	Ba
EDP*	A3 [8]	Stable	Baa	Ba	Baa	Ba
Iberdrola	A3	Stable	Baa	Ba	Ba	Ba
Dong*	Baa1 [8-10]	Stable	A	A	Aa	Ba
Edison	Baa2	Negative	A	A	A	Baa

 Positive Outlier  
 Negative Outlier

\* GRI Issuer

## Factor 4: Observations and Outliers

- **Cash Flow + Interest/Interest**

There are no outliers on this sub-factor.

- **Cash Flow / Debt**

There are two positive outliers on this sub-factor. Centrica's Aaa score reflects a very strong financial profile ahead of planned investments. Cez's Aaa score reflects its maintenance of good financial flexibility to offset its smaller scale and relatively solid financial profile to offset its positioning in a moderate-sized and higher risk Central and East European market.

- **RCF / Debt**

There are three positive outliers on this sub-factor. Centrica's Aaa score reflects a very strong financial profile ahead of planned investments. Cez's Aaa score reflects its maintenance of good financial flexibility to offset its smaller scale and relatively solid financial profile to offset its positioning in a moderate-sized central

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European market. The Ba assigned to Iberdrola and Enel, two of the three negative outliers, reflect the reduction in financial flexibility which has followed a period of intensive acquisition and investment.

### ■ FCF/ Debt

This sub-factor includes nine outliers – all on the downside. All nine score Ba implying that they have on average reported negative free cash flow in the three years to 2008 – a function of the large capital expenditure programs and rising pay-out ratios carried out by many of the large European integrated utilities.

## Power Companies

### Factor 4: Financial Strength Metrics

Sub-Factor Weights			15.0%	20.0%	7.5%	7.5%
	Rating [BCA]	Outlook	Cash Flow + Interest / Interest	Cash Flow / Debt	RCF / Debt	FCF / Debt
Verbund *	A1 [5-7]	RUR Down	Baa	A	A	Baa
C. Valdostana delle Acque *	A1 [8 - 10]	Stable	A	Aa	Aaa	Aa
Exelon Generation	A3	RUR Down	Aa	Aa	A	Baa
PSEG Power LLC	Baa1	Stable	Baa	A	Baa	Ba
Statkraft AS*	Baa1 [10]	Stable	Baa	Baa	B	B
FirstEnergy Solutions	Baa2	Stable	Baa	Ba	Baa	B
PPL Energy Supply	Baa2	Stable	Baa	Ba	B	B
TransAlta Corporation	Baa2	RUR Down	Baa	Baa	Baa	B
AES Gener	Baa3	Negative	Baa	Baa	Baa	B
Allegheny Energy Supply	Baa3	Stable	Baa	Baa	Baa	Ba
AmerenEnergy Generating	Baa3	Stable	Baa	Baa	Ba	B
Constellation Energy Group	Baa3	RUR Down	Ba	Ba	Ba	B
Endesa Chile	Baa3	Stable	Baa	Baa	Baa	Ba
Covanta Holding Corp	Ba2	Stable	Ba	Ba	Ba	Ba
AES Chivor	Ba2	Stable	Baa	A	Baa	Baa
International Power plc	Ba2	Stable	Ba	B	B	Ba
Edelnor	Ba3	Positive	A	A	A	Baa
NRG Energy	Ba3	RUR Up	Ba	Ba	Ba	Ba
Edison Mission Energy	B1	Stable	Ba	B	B	Ba
Mirant Corporation	B1	Stable	Ba	Ba	Baa	B
RRI Energy	B1	Stable	B	B	Ba	Baa
Dynegy Holdings	B2	Stable	B	B	B	B

 Positive Outlier  
 Negative Outlier

\* GRI Issuer

### Factor 4: Observations and Outliers

#### ■ Cash Flow + Interest/Interest

There is only one outlier. Edelnor is a small regional Chilean generator has produced strong financial results. However, the results, prior to the last three years, were substantially weaker and can be volatile.

#### ■ Cash Flow / Debt

There are two positive outliers on this sub-factor. Edelnor is a positive outlier on each of the quantitative for the reasons discussed above. Also, Compagnia Valdostana delle Acque is another positive outlier due to its very strong financial performance as a small hydro generator.

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### ■ RCF / Debt

Both Edelnor and Compagnia Valdostana delle Acque are the only two positive outliers. The negative outliers are Statkraft and PPL Energy Supply. Both are outliers due to both companies' very large capital investment programs and in the case of PPL Energy Supply, an outsized dividend payment made to its parent as a result of the sale of its Latin American businesses, which was used to finance a share repurchase program.

### ■ FCF/ Debt

Edelnor is a positive outlier as is RRI Energy reflecting a relatively modest capital investment program and the lack of a dividend. This sub-factor also has seven negative outliers, reflecting large capital investment programs underway and in certain cases, a sizeable dividend paid by the generation company to the parent to finance parent level dividends or share repurchases.

## Unregulated Utilities and Power Companies

### Appendix D: Industry Overview

The unregulated utility and unregulated wholesale power sector is populated by companies with a variety of asset characteristics, regional concentrations, and market dynamics which influence the sector. Several characteristics that apply to the industry as a whole are summarized below:

#### **I. Electric demand tends to follow regional economic demand**

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In most developed countries, long-term demand for electricity is principally a function of a region's growth prospects, which collectively creates the need for additional electric supply to support industrial, commercial, and residential customer growth. In developing countries, demand for electricity will often grow at a faster pace than a region's gross domestic product as higher economic wealth enables more consumers to purchase products and services and more industries to be created, all of which requires electric production. Weather can also have a material impact on electric demand, and can change demand dramatically on a year-by-year basis. Together, regional economic demand and weather represent two of the factors that influence the market price of electricity and the associated margin.

#### **II. Margins and cash flows can be volatile**

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Operating margins and related cash flows of wholesale power companies and to a somewhat lesser extent, unregulated utilities can be volatile. Some of the factors that influence the volatility of cash flows include the existence of regional excess capacity that will depress wholesale power prices, fuel prices (especially the price of natural gas which can be volatile), the effectiveness of a company's hedging strategy, and changes in demand for power due to economic events or weather. Given the economies of scale associated with building large power plants, new capacity additions tend to come on-line in large blocks which result in periods of excess capacity and lower margins upon the completion of a plant build-out.

#### **III. Inability to store product and impact of weather places a high premium on operating performance**

---

Unlike other commodities, electricity cannot be stored and must be delivered upon being produced. In addition, extreme weather patterns can greatly impact the demand for electricity causing substantial changes in prices during the hours of greatest demand. For that reason, operating performance is critically important to the expected revenue, income and cash flow of a wholesale generator and an unregulated utility. To the extent that a large generating resource is not in service due to an extended forced outage, power prices in the region can increase rapidly, particularly on days and hours of highest demand. Typically, in the event of an unforeseen forced outage, the affected wholesale power company is likely to incur incremental operating expenses to return the unit to service and may incur higher incremental replacement power costs to replace the generation that is out of service to the extent the generator has commitments to honor. Often, the replacement power is generated by less efficient units resulting in higher power costs for the affected power company. To address this, most electric grids try to ensure that the region has a reserve margin of around 15% to 20% to ensure adequate supply in the event of an unexpected outage. Moreover, a regular operation and maintenance program is critically important particularly given the age of the some of the generation facilities currently in use in many countries. Generally speaking, unplanned outages of nuclear plants can have a long tenor given the complexity of the generating units and, in most cases, the involvement by the federal or national nuclear regulator. Outages for other types of generating plants, including coal-fired and natural gas-fired plants, tend to be substantially shorter but outages for each of these fuel sources can last more than six months in the most severe cases.

## Unregulated Utilities and Power Companies

### IV. Regional differences are a function of market structure and fuel source mix

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The way in which prices are determined is largely based upon market structures and the framework implemented by the national or regional regulator often with the passage of legislation. These market structures are subject to change depending upon their effectiveness in providing transparency to generators and buyers in a particular region. In addition, the framework established is often intended to provide power companies with an incentive to build new generating capacity to meet the regional growth and to maintain adequate electric supply to satisfy reserve requirements. While similarities exist between countries, most market frameworks are somewhat different reflecting the characteristics of the individual markets as well as the dominant type of electric generation in a particular market. For example, a region that is highly dependent upon hydro resources as a core electric fuel source is likely to require a higher reserve margin because the region's hydro resource can change substantially from season to season depending upon the amount of precipitation. Moody's also observes that some markets encourage bilateral contracts between buyers and sellers, while others rely upon auctions to determine market pricing for both energy and capacity. Moreover, national or local regulators are requiring the construction of renewable resources (wind, solar, biomass) as a core component of a region's power mix in order to reduce environmental emissions.

### V. Industry is capital intensive and large capacity additions tend to be lumpy

---

The utility and power business is capital intensive, and many companies are facing periods where free cash flow will decline and turn negative given the size of the capital investments currently being contemplated, particularly, with the multi-year nature of most build out programs. Some of the capital investment will be required to meet future environmental standards or renewable requirements; others are contemplated for incremental growth. Because of the large scale nature of most generation projects, capacity additions tend to be lumpy, which often results in periods of excess capacity upon the completion of a typical build out. During these periods, wholesale power prices can decline substantially until the incremental supply is worked off.

### VI. Obstacles to entry can be substantial

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Given that electricity cannot be stored and there are regional limitations in terms of long-term delivery of electric production, many existing generation plants have usually been built in a way that most efficiently provides electricity to the region's service territory. In addition, generation plants are often operated with an active maintenance and life extension plan enabling the generation stations to remain fairly efficient and operational well beyond the initial expected life of the plants. This is particularly true for hydro, nuclear and coal plants. As such, obstacles to entry for new entrants can often be substantial.



## Unregulated Utilities and Power Companies

### Appendix E: Key Rating Issues Over the Next Decade

#### Global Climate Change and Environmental Awareness

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The global power industry will continue to be affected by growing concerns over climate change and greenhouse gas emissions, particularly important for an industry that currently relies on a large number of coal-fired power plants. There have been significant increases in environmental expenditure estimates among generators and utilities with significant coal fired generation in recent years as policymakers have mandated pollution control measures and emissions limitations in response to public concerns over climate change. These expenditures are likely to continue to increase with the imposition of new and sometimes uncertain requirements with respect to SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub>, and mercury emissions. Generators will likely have to implement substantial additional reductions in power plant emissions and as a result are likely to experience progressively higher capital expenditures over the next decade. On the margin, some of the smaller, less efficient coal generation assets will likely be shut down over this timeframe. In the U.S., it is likely that some form of CO<sub>2</sub> legislation will be passed in the near future and efforts are underway to increase the country's reliance of renewable resources. Of particular concern is the uncertainty about whether wholesale market prices will move in lock step to fully capture all of the environmental compliance costs and other related costs or if whether margins will compress as the result of these costs.

#### Market Transformation and Regulatory Risk

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The wholesale power market remains highly fragmented with certain regions of the world operating with less regulation and other regions operating under partial regulatory structures. Moody's believes that relative to other commodity businesses, the wholesale power market will remain highly fragmented and will rely upon some degree of regulation or oversight for price determination. Unlike other global commodities, the production of electricity is regional, as the product cannot be stored and cannot be transported long distances. Moreover, deregulation of the industry in certain regions has not, in many cases, resulted in substantial choice for end-use customers or a moderation in prices. As such, the involvement of a local or national regulator still has a substantial influence on market pricing and on market structure for participants in the unregulated utility and power sector. Over the next decade, depending upon the supply and demand characteristics of a particular region and upon the degree of involvement by the local or national regulator, the regulatory and market frameworks affecting power markets are likely to continue experiencing varying degrees of change. Some markets may undergo greater involvement by the local or the national regulator as a means of controlling power prices or pursuing environmental goals; others may rely more heavily on the market. This involvement will continue to be an important element to determining credit quality for the sector.

#### Large Capital Expenditures Likely for New Generation and Ongoing Maintenance

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Even with the global recession, worldwide demand for electricity will over the long-run continue to grow and many companies will likely incur substantial capital expenditures for both new generation and for operating and maintenance costs. Much of the reason that capital costs will remain high relates to the strong demand for electricity from economies such as China and India. Construction of power plants is a global business and generators will be competing for the same resources and talent as the global recession ends.

## Unregulated Utilities and Power Companies

### Moody's Related Research

#### Industry Outlooks:

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- EMEA Electric and Gas Utilities, November 2008 (112344)
- North American Natural Gas Transmission & Distribution: Six-Month Update, September 2008 (111486)

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- Power Generation Projects, December 2008 (112366)
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- Margin & Collateral Paid and Received by European Utilities: Whose Cash is it? Moody's Response to the accounting differences, June 2009 (117823)
- Right-Way Hedging for Power Companies, June 2009 (117978)
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- Credit Roadmap for Energy Utilities and Power Companies in the Americas, March 2009 (115514)

*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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