MOODY'S RATINGS

Infrastructure and Project Finance

RATING METHODOLOGY
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Rating Methodology

Regulated Electric and Gas Utilities

This rating methodology replaces the *Regulated Electric and Gas Utilities* methodology published on June 23, 2017. We have reordered and made editorial updates to various sections of the methodology. These updates do not change our methodological approach.

Scope

This methodology applies to rate-regulated electric and gas utilities globally whose predominant business is the sale of electricity and/or gas or related services under a rate-regulated framework, in most cases to retail customers. Companies in many industries are regulated. We use the term rate-regulated to distinguish companies whose rates (by which we also mean tariffs or revenues in general) are set by regulators. Rate-regulated utilities that own generating assets as any material part of their business, utilities whose charges or bills to customers include a meaningful component related to the electric or gas commodity, utilities whose rates are regulated at a sub-sovereign level (e.g., by provinces, states or municipalities), and companies providing an independent system operator function to an electric grid are also rated using this methodology. Companies rated using this methodology are primarily rate-regulated monopolies or, in certain circumstances, companies that may not be outright monopolies but where government regulation effectively sets prices and limits competition.

We generally consider a company to be predominantly a regulated electric and gas utility when a majority of its cash flows, prospectively and on a sustained basis, are derived from regulated electric and gas utility businesses. Since cash flows can be volatile (such that a company might have a majority of utility cash flows simply due to a cyclical downturn in its non-utility businesses), we may also consider the breakdown of assets and/or debt of a company to determine which business is predominant.

This methodology applies to a wide variety of companies, including vertically integrated utilities, transmission and distribution utilities with retail customers and/or sub-sovereign regulation, natural gas local distribution utility companies (LDCs), independent system operators, and regulated generation companies. These companies may be operating companies or holding companies.

This methodology does not apply to regulated electric and gas networks, which are rated using a separate methodology. Regulated electric and gas networks are companies whose predominant business is purely the transmission and/or distribution of electricity and/or natural gas without involvement in the procurement or sale of electricity and/or gas; whose charges to customers thus do not include a meaningful commodity cost component; which sell mainly (or in many cases exclusively) to non-retail customers; and which are rate-regulated under a national framework.

Unregulated utilities and power companies, public power utilities, municipal joint action agencies, electric cooperatives, regulated water companies, natural gas pipelines and midstream energy companies are also rated using separate methodologies.[1]

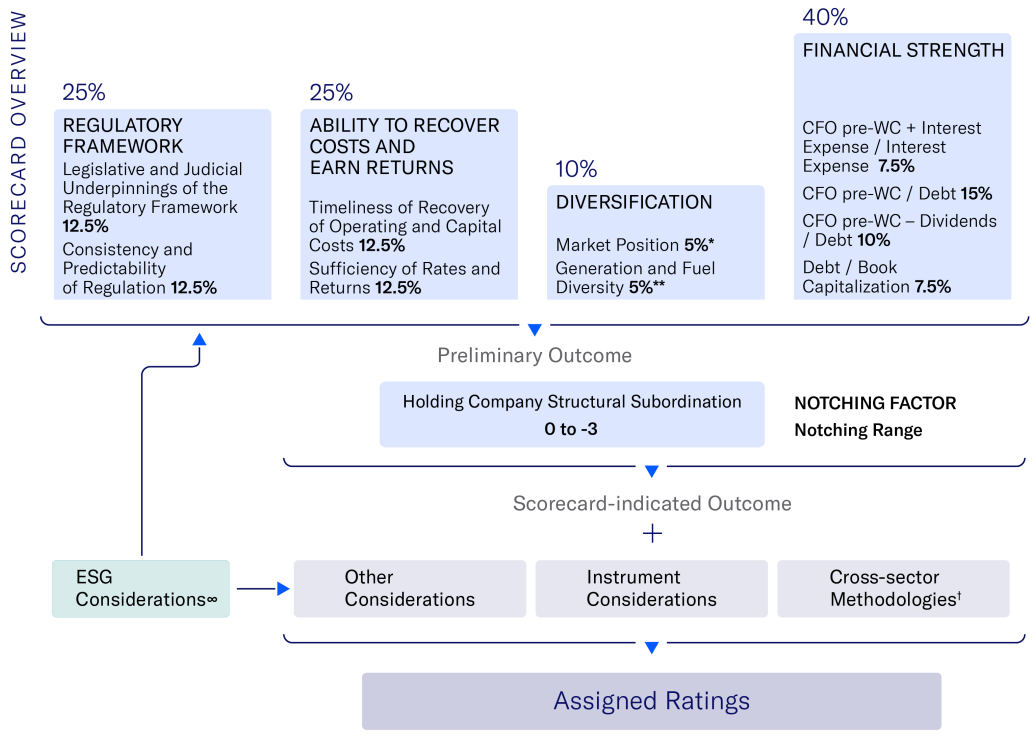
Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of regulated electric and gas utilities globally, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

The following schematic illustrates our general framework for the analysis of regulated electric and gas utilities, which includes the use of a scorecard. The scorecard-indicated outcome is not expected to match the actual rating for each company. For more information, see the "Other considerations" and "Limitations" sections.

Exhibit 1

Illustration of the regulated electric and gas utilities methodology framework



* 10% weight for issuers that lack generation.
** 0% weight for issuers that lack generation.
∞ Environmental, social and governance (ESG) considerations, including, where available, our opinions of exposure to them as expressed in Issuer Profile Scores (IPSs), may affect scorecard factors and other considerations outside of the scorecard. For more information, see the "Other considerations" section.
† Some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
Source: Moody's Ratings

Regulated electric and gas utilities scorecard

For general information about how we use the scorecard and for a discussion of scorecard mechanics, please see the "Using the scorecard to arrive at a scorecard-indicated outcome" section. The scorecard does not include or address every factor that a rating committee may consider in assigning ratings in this sector. Please see the "Other considerations" and "Limitations" sections.

Exhibit 2

Regulated electric and gas utilities scorecard

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Factor: Regulatory Framework (25%)								
Legislative and Judicial Underpinnings of the Regulatory Framework	12.5%	Utility regulation occurs under a fully developed framework that is national in scope based on legislation that provides the utility a nearly absolute monopoly [1] within its service territory, an unquestioned assurance that rates will be set in a manner that will permit the utility to make and recover all necessary investments, an extremely high degree of clarity as to the manner in which utilities will be regulated and prescriptive methods and procedures for setting rates. Existing utility law is comprehensive and supportive such that changes in legislation are not expected to be necessary; or any changes that have occurred have been strongly supportive of utilities credit quality in general and sufficiently forward-looking so as to address problems before they occurred. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility should they occur, including access to national courts, very strong judicial precedent in the interpretation of utility laws, and a strong rule of law. We expect these conditions to continue.	Utility regulation occurs under a fully developed national, state or provincial framework based on legislation that provides the utility an extremely strong monopoly [1] within its service territory, a strong assurance, subject to limited review, that rates will be set in a manner that will permit the utility to make and recover all necessary investments, a very high degree of clarity as to the manner in which utilities will be regulated and reasonably prescriptive methods and procedures for setting rates. If there have been changes in utility legislation, they have been timely and clearly credit supportive of the issuer in a manner that shows the utility has had a strong voice in the process. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility, should they occur including access to national courts, strong judicial precedent in the interpretation of utility laws, and a strong rule of law. We expect these conditions to continue.	Utility regulation occurs under a well-developed national, state or provincial framework based on legislation that provides the utility a very strong monopoly[1] within its service territory, an assurance, subject to reasonable prudency requirements, that rates will be set in a manner that will permit the utility to make and recover all necessary investments, a high degree of clarity as to the manner in which utilities will be regulated, and overall guidance for methods and procedures for setting rates. If there have been changes in utility legislation, they have been mostly timely and on the whole credit supportive for the issuer, and the utility has had a clear voice in the legislative process. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility, should they occur, including access to national courts, clear judicial precedent in the interpretation of utility law, and a strong rule of law. We expect these conditions to continue.	Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation that provides the utility a strong monopoly within its service territory that may have some exceptions such as greater self-generation,[1] a general assurance that, subject to prudency requirements that are mostly reasonable, rates will be set in a manner that will permit the utility to make and recover all necessary investments, reasonable clarity as to the manner in which utilities will be regulated and overall guidance for methods and procedures for setting rates; or (ii) under a new framework where independent and transparent regulation exists in other sectors. If there have been changes in utility legislation, they have been credit supportive or at least balanced for the issuer but potentially less timely, and the utility had a voice in the legislative process. There is either (i) an independent judiciary that can arbitrate disagreements between the regulator and the utility, including access to courts at least at the state or provincial level, reasonably clear judicial precedent in the interpretation of utility laws, and a generally strong rule of law; or (ii) regulation has been applied (under a well-developed framework) in a manner such that redress to an independent arbiter has not been required. We expect these conditions to continue.	Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory that is generally strong but may have a greater level of exceptions,[1] and that, subject to prudency requirements which may be stringent, provides a general assurance (with somewhat less certainty) that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where the jurisdiction has a history of less independent and transparent regulation in other sectors. Either: (i) the judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law; or (ii) where there is no independent arbiter, the regulation has mostly been applied in a manner such redress has not been required. We expect these conditions to continue.	Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility monopoly within its service territory that is reasonably strong but may have important exceptions, and that, subject to prudency requirements which may be stringent or at times arbitrary, provides more limited or less certain assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect less independent and transparent regulation, based either on the regulator's history in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law. Alternately, where there is no independent arbiter, the regulation has been applied in a manner that often requires some redress adding more uncertainty to the regulatory framework. There may be a periodic risk of creditor-unfriendly government intervention in utility markets or rate-setting.	Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory, but with little assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect unpredictable or adverse regulation, based either on the jurisdiction's history in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or is viewed as not being fully independent of the regulator or other political pressure. Alternately, there may be no redress to an effective independent arbiter. The ability of the utility to enforce its monopoly or prevent uncompensated usage of its system may be limited. There may be a risk of creditor-unfriendly nationalization or other significant intervention in utility markets or rate-setting.

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Factor: Regulatory Framework (25%)								
Consistency and Predictability of Regulation	12.5%	The issuer's interaction with the regulator has led to a strong, lengthy track record of predictable, consistent and favorable decisions. The regulator is highly credit supportive of the issuer and utilities in general. We expect these conditions to continue.	The issuer's interaction with the regulator has a led to a considerable track record of predominantly predictable and consistent decisions. The regulator is mostly credit supportive of utilities in general and in almost all instances has been highly credit supportive of the issuer. We expect these conditions to continue.	The issuer's interaction with the regulator has led to a track record of largely predictable and consistent decisions. The regulator may be somewhat less credit supportive of utilities in general, but has been quite credit supportive of the issuer in most circumstances. We expect these conditions to continue.	The issuer's interaction with the regulator has led to an adequate track record. The regulator is generally consistent and predictable, but there may some evidence of inconsistency or unpredictability from time to time, or decisions may at times be politically charged. However, instances of less credit supportive decisions are based on reasonable application of existing rules and statutes and are not overly punitive. We expect these conditions to continue.	We expect that regulatory decisions will demonstrate considerable inconsistency or unpredictability or that decisions will be politically charged, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. The regulator may have a history of less credit supportive regulatory decisions with respect to the issuer, but we expect that the issuer will be able to obtain support when it encounters financial stress, with some potentially material delays. The regulator's authority may be eroded at times by legislative or political action. The regulator may not follow the framework for some material decisions.	We expect that regulatory decisions will be largely unpredictable or even somewhat arbitrary, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. However, we expect that the issuer will ultimately be able to obtain support when it encounters financial stress, albeit with material or more extended delays. Alternately, the regulator is untested, lacks a consistent track record, or is undergoing substantial change. The regulator's authority may be eroded on frequent occasions by legislative or political action. The regulator may more frequently ignore the framework in a manner detrimental to the issuer.	We expect that regulatory decisions will be highly unpredictable and frequently adverse, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. Alternately, decisions may have credit supportive aspects, but may often be unenforceable. The regulator's authority may have been seriously eroded by legislative or political action. The regulator may consistently ignore the framework to the detriment of the issuer.
Factor: Ability to Recover Costs and Earn Returns (25%)								
Timeliness of Recovery of Operating and Capital Costs	12.5%	Tariff formulas [2] and automatic cost recovery mechanisms provide full and highly timely recovery of all operating costs and essentially contemporaneous return on all incremental capital investments, with statutory provisions in place to preclude the possibility of challenges to rate increases or cost recovery mechanisms. By statute and by practice, general rate cases are efficient, focused on an impartial review, quick, and permit inclusion of fully forward-looking costs.	Tariff formulas [2] and automatic cost recovery mechanisms provide full and highly timely recovery of all operating costs and essentially contemporaneous or near-contemporaneous return on most incremental capital investments, with minimal challenges by regulators to companies' cost assumptions. By statute and by practice, general rate cases are efficient, focused on an impartial review, of a very reasonable duration before non-appealable interim rates can be collected, and primarily permit inclusion of forward-looking costs.	Automatic cost recovery mechanisms provide full and reasonably timely recovery of fuel, purchased power and all other highly variable operating expenses. Material capital investments may be made under tariff formulas [2] or other rate-making permitting reasonably contemporaneous returns, or may be submitted under other types of filings that provide recovery of cost of capital with minimal delays. Instances of regulatory challenges that delay rate increases or cost recovery are generally related to large, unexpected increases in sizeable construction projects. By statute or by practice, general rate cases are reasonably efficient, primarily focused on an impartial review, of a reasonable duration before rates (either permanent or non-refundable interim rates) can be collected, and permit inclusion of important forward-looking costs.	Fuel, purchased power and all other highly variable expenses are generally recovered through mechanisms incorporating delays of less than one year, although some rapid increases in costs may be delayed longer where such deferrals do not place financial stress on the utility. Incremental capital investments may be recovered primarily through general rate cases with moderate lag, with some through tariff formulas.[2] Alternately, there may be formula rates that are untested or unclear. Potentially greater tendency for delays due to regulatory intervention, although this will generally be limited to rates related to large capital projects or rapid increases in operating costs.	There is an expectation that fuel, purchased power or other highly variable expenses will eventually be recovered with delays that will not place material financial stress on the utility, but there may be some evidence of an unwillingness by regulators to make timely rate changes to address volatility in fuel, or purchased power, or other market-sensitive expenses. Recovery of costs related to capital investments may be subject to delays that are somewhat lengthy, but not so pervasive as to be expected to discourage important investments.	The expectation that fuel, purchased power or other highly variable expenses will be recovered may be subject to material delays due to second-guessing of spending decisions by regulators or due to political intervention. Recovery of costs related to capital investments may be subject to delays that are material to the issuer, or may be likely to discourage some important investment.	The expectation that fuel, purchased power or other highly variable expenses will be recovered may be subject to extensive delays due to second-guessing of spending decisions by regulators or due to political intervention. Recovery of costs related to capital investments may be uncertain, subject to delays that are extensive, or that may be likely to discourage even necessary investment.

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Factor: Ability to Recover Costs and Earn Returns (25%)								
Sufficiency of Rates and Returns	12.5%	Sufficiency of rates to cover costs and attract capital is (and will continue to be) unquestioned.	Rates are (and we expect will continue to be) set at a level that permits full cost recovery and a fair return on all investments, with minimal challenges by regulators to companies' cost assumptions. This will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are strong relative to global peers.	Rates are (and we expect will continue to be) set at a level that generally provides full cost recovery and a fair return on investments, with limited instances of regulatory challenges and disallowances. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are generally above average relative to global peers, but may at times be average.	Rates are (and we expect will continue to be) set at a level that generally provides full operating cost recovery and a mostly fair return on investments, but there may be somewhat more instances of regulatory challenges and disallowances, although ultimate rate outcomes are sufficient to attract capital without difficulty. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are average relative to global peers, but may at times be somewhat below average.	Rates are (and we expect will continue to be) set at a level that generally provides recovery of most operating costs but return on investments may be less predictable, and there may be decidedly more instances of regulatory challenges and disallowances, but ultimate rate outcomes are generally sufficient to attract capital. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are generally below average relative to global peers, or where allowed returns are average but difficult to earn. Alternately, the tariff formula may not take into account all cost components and/or remuneration of investments may be unclear or at times unfavorable.	We expect rates will be set at a level that at times fails to provide recovery of costs other than cash costs, and regulators may engage in somewhat arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based much more on politics than on prudency reviews. Return on investments may be set at levels that discourage investment. We expect that rate outcomes may be difficult or uncertain, negatively affecting continued access to capital. Alternately, the tariff formula may fail to take into account significant cost components other than cash costs, and/or remuneration of investments may be generally unfavorable.	We expect rates will be set at a level that often fails to provide recovery of material costs, and recovery of cash costs may also be at risk. Regulators may engage in more arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based primarily on politics. Return on investments may be set at levels that discourage necessary maintenance investment. We expect that rate outcomes may often be punitive or highly uncertain, with a markedly negative impact on access to capital. Alternately, the tariff formula may fail to take into account significant cash cost components, and/or remuneration of investments may be primarily unfavorable.
Factor: Diversification (10%)								
Market Position	5% [3]	A very high degree of multinational and regional diversity in terms of regulatory regimes and/or service territory economies.	Material operations in three or more nations or substantial geographic regions providing very good diversity of regulatory regimes and/or service territory economies.	Material operations in two to three nations, states, provinces or regions that provide good diversity of regulatory regimes and service territory economies. Alternately, operates within a single regulatory regime with low volatility, and the service territory economy is robust, has a very high degree of diversity and has demonstrated resilience in economic cycles.	May operate under a single regulatory regime viewed as having low volatility, or where multiple regulatory regimes are not viewed as providing much diversity. The service territory economy may have some concentration and cyclicality, but is sufficiently resilient that it can absorb reasonably foreseeable increases in utility rates.	Operates in a market area with somewhat greater concentration and cyclicality in the service territory economy and/or exposure to storms and other natural disasters, and thus less resilience to absorbing reasonably foreseeable increases in utility rates. May show somewhat greater volatility in the regulatory regime(s).	Operates in a limited market area with material concentration and more severe cyclicality in service territory economy such that cycles are of materially longer duration or reasonably foreseeable increases in utility rates could present a material challenge to the economy. Service territory may have geographic concentration that limits its resilience to storms and other natural disasters, or may be an emerging market. May show decided volatility in the regulatory regime(s).	Operates in a concentrated economic service territory with pronounced concentration, macroeconomic risk factors, and/or exposure to natural disasters.
Generation and Fuel Diversity	5% [4]	A high degree of diversity in terms of generation and/or fuel sources such that the utility and rate-payers are well insulated from commodity price changes, no generation concentration, and very low exposures to Challenged or Threatened Sources (see definitions below).[5]	Very good diversification in terms of generation and/or fuel sources such that the utility and rate-payers are affected only minimally by commodity price changes, little generation concentration, and low exposures to Challenged or Threatened Sources.	Good diversification in terms of generation and/or fuel sources such that the utility and rate-payers have only modest exposure to commodity price changes; however, may have some concentration in a source that is neither Challenged nor Threatened. Exposure to Threatened Sources is low. While there may be some exposure to Challenged Sources, it is not a cause for concern.	Adequate diversification in terms of generation and/or fuel sources such that the utility and rate-payers have moderate exposure to commodity price changes; however, may have some concentration in a source that is Challenged. Exposure to Threatened Sources is moderate, while exposure to Challenged Sources is manageable.	Modest diversification in generation and/or fuel sources such that the utility or rate-payers have greater exposure to commodity price changes. Exposure to Challenged and Threatened Sources may be more pronounced, but the utility will be able to access alternative sources without undue financial stress.	Operates with little diversification in generation and/or fuel sources such that the utility or rate-payers have high exposure to commodity price changes. Exposure to Challenged and Threatened Sources may be high, and accessing alternate sources may be challenging and cause more financial stress, but ultimately feasible.	Operates with high concentration in generation and/or fuel sources such that the utility or rate-payers have exposure to commodity price shocks. Exposure to Challenged and Threatened Sources may be very high, and accessing alternate sources may be highly uncertain.

	Weight		Aaa	Aa	A	Baa	Ba	B	Caa
Factor: Financial Strength (40%)									
CFO pre-WC + Interest Expense / Interest Expense	7.5%		≥ 8x	6x - 8x	4.5x - 6x	3x - 4.5x	2x - 3x	1x - 2x	< 1x
CFO pre-WC / Debt	15%	Standard Grid	≥ 40%	30% - 40%	22% - 30%	13% - 22%	5% - 13%	1% - 5%	< 1%
		Low Business Risk Grid	≥ 38%	27% - 38%	19% - 27%	11% - 19%	5% - 11%	1% - 5%	< 1%
CFO pre-WC - Dividends / Debt	10%	Standard Grid	≥ 35%	25% - 35%	17% - 25%	9% - 17%	0% - 9%	(5)% - 0%	< (5)%
		Low Business Risk Grid	≥ 34%	23% - 34%	15% - 23%	7% - 15%	0% - 7%	(5)% - 0%	< (5)%
Debt / Book Capitalization[6]	7.5%	Standard Grid	< 25%	25% - 35%	35% - 45%	45% - 55%	55% - 65%	65% - 75%	≥ 75%
		Low Business Risk Grid	< 29%	29% - 40%	40% - 50%	50% - 59%	59% - 67%	67% - 75%	≥ 75%
Preliminary outcome									
Notching factor									
Structural Subordination of Holding Companies									
0 to -3 notches									
Scorecard-indicated outcome									

[1] The strength of the monopoly refers to the legal, regulatory and practical obstacles for customers in the utility's territory to obtain service from another provider. Examples of a weakening of the monopoly would include the ability of a city or large user to leave the utility system to set up their own system, the extent to which self-generation is permitted (e.g., cogeneration) and/or encouraged (e.g., net metering, DSM generation). At the lower end of the ratings spectrum, the utility's monopoly may be challenged by pervasive theft and unauthorized use. Since utilities are generally presumed to be monopolies, a strong monopoly position in itself is not sufficient for a strong score in this sub-factor, but a weakening of the monopoly can lower the score.
[2] Tariff formulas include formula rate plans as well as trackers and riders related to capital investment.
[3] 10% weight for issuers that lack generation.
[4] 0% weight for issuers that lack generation.
[5] Challenged Sources are generation plants that face higher but not insurmountable economic hurdles resulting from penalties or taxes on their operation, or from environmental upgrades that are required or likely to be required. Some examples are carbon-emitting plants that incur carbon taxes, plants that must buy emissions credits to operate, and plants that must install environmental equipment to continue to operate, in each where the taxes/credits/upgrades are sufficient to have a material impact on those plants' competitiveness relative to other generation types or on the utility's rates, but where the impact is not so severe as to be likely require plant closure. Threatened Sources are generation plants that are not currently able to operate due to major unplanned outages or issues with licensing or other regulatory compliance, and plants that are highly likely to be required to de-activate, whether due to the effectiveness of currently existing or expected rules and regulations or due to economic challenges.
[6] When debt/book capitalization is negative, the score is Caa.
Source: Moody's Ratings

Sector overview

Regulated electric and gas utilities globally are engaged in the production, transmission, coordination, distribution and/or sale of electricity and/or natural gas, and they are either investor-owned companies, commercially oriented government-owned companies or, in the case of independent system operators, not-for-profit or similar entities.

An over-arching consideration for regulated utilities is the regulatory environment in which they operate. The nature of regulation can vary significantly from jurisdiction to jurisdiction and is dynamic and subject to political intervention. The direct relationship that a regulated utility has with the retail customer, including billing for electric or gas supply that has substantial price volatility, can lead to a more politically charged rate-setting environment. Similarly, regulation at the sub-sovereign level is often subject to intervention from disaffected customers and influenced by public officials . Our views of regulatory environments evolve over time in accordance with our observations of regulatory, political and judicial events that affect issuers in the sector.

The principal categories of companies rated using this methodology include the following:

Vertically integrated utility: Vertically integrated utilities are regulated electric or combination utilities (see below) that own generation, distribution and (in most cases) electric transmission assets. Vertically integrated utilities are generally engaged in all aspects of the electricity business. They build power plants, procure fuel, generate power, build and maintain the electric grid (including high and low voltage lines, transformers and substations) that delivers power from a group of power plants to end-users , and generally meet all of the electric needs of the customers in a specific geographic area (also called a service territory). The rates or tariffs for all of these monopolistic activities are set by the relevant regulatory authority.

Transmission and distribution utility: Transmission and distribution utilities (T&Ds) typically operate in deregulated markets where generation is provided under a competitive framework. T&Ds own and operate the electric grid that transmits and/or distributes electricity within a specific state or region.

T&Ds provide electrical transportation and distribution services to carry electricity from power plants and transmission lines to retail, commercial, and industrial customers. T&Ds are typically responsible for billing customers for electric delivery and/or supply, and most have an obligation to provide a standard supply or provider-of-last-resort (POLR) service to customers that have not switched to a competitive supplier. These factors distinguish T&Ds from networks, whose customers are retail electric suppliers and/or other electricity companies. In a smaller number of cases, T&Ds rated using this methodology may not have an obligation to provide POLR services, but are regulated in sub-sovereign jurisdictions. The rates or tariffs for these monopolistic T&D activities are set by the relevant regulatory authority.

Natural gas local distribution company: Distribution is the final step in delivering natural gas to customers. While some large industrial, commercial, and electric generation customers receive natural gas directly from high capacity pipelines that carry gas from gas producing basins to areas where gas is consumed, most other users receive natural gas from their local gas utility, also called a local distribution company (LDC). LDCs are regulated utilities involved in the delivery of natural gas to consumers within a specific geographic area. Specifically, LDCs typically transport natural gas from delivery points located on large-diameter pipelines (that usually operate at fairly high pressure) to households and businesses through thousands of miles of small-diameter distribution pipe (that usually operate at fairly low pressure). LDCs are typically responsible for billing customers for gas delivery and/or supply, and most also have the responsibility to procure gas for at least some of their customers, although in some markets gas supply to all customers is on a competitive basis. These factors distinguish LDCs from gas networks, whose customers are retail gas suppliers and/or other natural gas companies. The rates or tariffs for these monopolistic activities are set by the relevant regulatory authority.

Integrated gas utility : Integrated gas utilities are regulated utilities that deliver gas to all end users in a particular service territory by sourcing the commodity; operating transport infrastructure that often combines high pressure pipelines with low pressure distribution systems and, in some cases, gas storage, re-gasification or other related facilities; and performing other supply-related activities, such as customer billing and metering. The rates or tariffs for the totality of these activities are set by the relevant regulatory authority. Many integrated gas utilities are national in scope.

Combination utility: Combination utilities are those that combine an LDC or integrated gas utility with either a vertically integrated utility or a T&D utility. The rates or tariffs for these monopolistic activities are set by the relevant regulatory authority.

Regulated generation utility: Regulated generation utilities (regulated gencos) are utilities that almost exclusively have generation assets, but their activities are generally regulated like those of vertically integrated utilities. This typically means that the purchasers of their output (typically other investor-owned, municipal or cooperative utilities) pay a regulated rate based on the total allowed costs of the regulated genco, including a return on equity, based on a capital structure designated by the regulator. Companies that have been included in this group include certain generation companies that are not rate-regulated in the usual sense of recovering costs plus a regulated rate of return on either equity or asset value.

Independent system operator: An independent system operator (ISO) is an organization formed in certain regional electricity markets to act as the sole chief coordinator of an electric grid. In the areas where an ISO is established, it coordinates, controls and monitors the operation of the electrical power system to assure that electric supply and demand are balanced at all times, and, to the extent possible, that electric demand is met with the lowest-cost sources. ISOs seek to assure adequate transmission and generation resources, usually by identifying new transmission needs and planning for a generation reserve margin above expected peak demand. In regions where generation is competitive, they also seek to establish rules that foster a fair and open marketplace, and they may conduct price-setting auctions for energy and/or capacity. The generation resources that an ISO coordinates may belong to vertically integrated utilities or to independent power producers. ISOs may not be rate-regulated in the traditional sense but fall under governmental oversight. All participants in the regional grid are required to pay a fee or tariff (often volumetric) to the ISO that is designed to recover its costs, including costs of investment in systems and equipment needed to fulfill their function. ISOs may be for profit or not-for-profit entities.

Transmission-only utility: Transmission-only utilities are solely focused on owning and operating transmission assets. The transmission lines these utilities own are typically high-voltage and allow energy producers to transport electric power over long distances from where it is generated (or received) to the transmission or distribution system of a T&D or vertically integrated utility.

Utility holding company (utility holdco): As detailed in Appendix B, regulated electric and gas utilities are often part of corporate families under a parent holding company. The operating subsidiaries of utility holdcos are overwhelmingly regulated electric and gas utilities.

Hybrid holding company (hybrid holdco): Some utility families contain a mix of regulated electric and gas utilities and other types of companies, but the regulated electric and gas utilities represent the majority of the consolidated cash flows, assets and debt. The parent company is thus a hybrid holdco.

Discussion of the scorecard factors

In this section, we explain our general approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators.

Factor: Regulatory Framework (25%)

Why it matters

The regulatory framework is important because it provides the basis for decisions that affect utilities, including rate-setting as well as the consistency and predictability of regulatory decision-making. Core aspects of a regulatory framework are its legislative and judicial underpinnings, and the consistency and predictability of regulatory decisions and rule-making.

Utility rates are set in a political/regulatory process rather than a competitive or free-market process; thus, the regulatory framework is a key determinant of the credit quality of a utility. In jurisdictions where utility revenues include material government subsidy payments, we consider utility rates to be inclusive of these payments, and we thus evaluate sub-factors under the first two factors in light of both rates and material subsidy payments. For example, we would consider the legal and judicial underpinnings and consistency and predictability of subsidies as well as rates. The regulatory framework has many components: the governing body and the utility legislation or decrees it enacts, the manner in which regulators are appointed or elected, the rules and procedures promulgated by those regulators, the judiciary that interprets the laws and rules and that arbitrates disagreements, and the manner in which the utility manages the political and regulatory process. In many cases, utilities have experienced credit stress or default because of a breakdown or obstacle in the regulatory framework – for instance, laws that prohibited regulators from including , in rates, the recovery of investments in uncompleted power plants or plants not deemed "used and useful," or a disagreement about rate-making that could not be resolved until after the utility had defaulted on its debts.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: Legislative and Judicial Underpinnings of the Regulatory Framework; and Consistency and Predictability of Regulation.

Legislative and Judicial Underpinnings of the Regulatory Framework

For this sub-factor, we consider the scope, clarity, transparency, supportiveness and granularity of utility legislation, decrees, and rules as they apply to the issuer. We also consider the strength of the regulator's authority over rate-making and other regulatory issues affecting the utility, the effectiveness of the judiciary or other independent body in arbitrating disputes in a disinterested manner, and whether the utility's monopoly has meaningful or growing carve-outs. In addition, we consider how well-developed the framework is – both how fully fleshed out the rules and regulations are and how well-tested it is – and the extent to which regulatory or judicial decisions have created a body of precedent that help determine future rate-making. We consider how effective the utility is in navigating the regulatory framework – both the utility's ability to shape the framework and adapt to it.

A utility operating in a regulatory framework that is characterized by legislation that is credit-supportive of utilities and eliminates doubt by prescribing many of the procedures that the regulators use in determining fair rates (which legislation may show evidence of being responsive to the needs of the utility in general or specific ways), a long history of transparent rate-setting, and a judiciary that has provided ample precedent by impartially adjudicating disagreements in a manner that addresses ambiguities in the laws and regulations typically receives higher scores for this sub-factor. A utility operating in a regulatory framework that, by statute or practice, allows the regulator to arbitrarily prevent the utility from recovering its costs or earning a reasonable return on prudently incurred investments, or where regulatory decisions may be reversed by politicians, typically receives a lower score.

In general, we view national utility regulation as being less susceptible to political intervention than regulation by state, provincial or municipal entities, so the highest scoring in this sub-factor is typically reserved for this category. However, we acknowledge that states and provinces in some countries may be larger than small nations, such that their regulators may be equally impartial. In such cases, issuers are likely to receive higher scores for this sub-factor.

The relevant judicial system can be a major factor in the regulatory framework, particularly in countries like the US, where disagreements between a utility and its state or municipal regulator may eventually be adjudicated in a federal district court or even by the US Supreme Court. In addition, bankruptcy proceedings in the US occur in federal courts, which have at times been able to impose rate settlement agreements on state or municipal regulators. As a result, the range of decisions available to state regulators may be effectively circumscribed by court precedent at the state or federal level, which we generally view as a favorable characteristic of the regulatory framework.

We consider regulated electric and gas utilities generally to have strong monopolies that are likely to continue, which allows these companies to have high leverage. Thus, the existence of a monopoly in itself is unlikely to be a driver of strong scoring in this sub-factor. On the other hand, a strong challenge to the monopoly could result in lower scores because of the potential loss of customers and revenue. A utility can only recover its costs and investments and service its debt if customers purchase its services. Examples of incursions into utilities' monopoly include the takeover of the utility by a municipality, self-generation such as rooftop solar panels, distributed generation with net metering, in which customers generate power and sell excess power to the utility, or unauthorized use beyond the level for which the utility receives compensation in rates. Incursions that are growing significantly or are having a meaningful impact on rates for customers that remain with the utility could have a negative impact on the scoring of this sub-factor and on the Ability to Recover Costs and Earn Returns factor.

The scoring of this sub-factor may not be the same for every utility in a particular jurisdiction. Some utilities appear to have greater sway over the relevant utility legislation and promulgation of rules than other utilities – even those in the same jurisdiction. The content and tone of publicly filed documents and regulatory decisions sometimes indicates that the management team at one utility has better responsiveness to and credibility with its regulators or legislators than the management at another utility.

While the underpinnings to the regulatory framework tend to change relatively slowly, they do evolve, and our scoring reflects that evolution. For instance, a new regulatory framework typically becomes tested over time as regulatory decisions are issued, or perhaps litigated, thereby setting a body of precedent. Utilities may seek changes to laws in order to permit them to securitize certain costs or collect interim rates, or a jurisdiction in which rates were previously recovered primarily in base rate proceedings may institute riders

and trackers. These changes would likely affect scoring of the Timeliness of Recovery of Operating and Capital Costs sub-factor, but they may also be sufficiently significant to indicate a change in the regulatory underpinnings.

The regulatory framework may also change as a result of a judiciary that had formerly been independent of the executive branch, but which may start to issue decisions that indicate it is conforming its decisions to the expectations of an executive branch that wants to mandate lower rates.

Consistency and Predictability of Regulation

In assessing this sub-factor, we consider the track record of regulatory decisions in terms of consistency, predictability and supportiveness. We evaluate the utility's interactions in the regulatory process as well as the overall stance of the regulator toward the utility.

In most jurisdictions, the laws and rules seek to make rate-setting a primarily technical process that examines costs the utility incurs and the returns on investments the utility needs to earn so it can make investments that are required to build and maintain the utility infrastructure, which includes power plants, electric transmission and distribution systems, and/or natural gas distribution systems. Where the process remains technical and transparent such that regulators can support the financial health of the utility while balancing their public duty to assure that reliable service is provided at a reasonable cost, and where the utility is able to align itself with the policy initiatives of the governing jurisdiction, the utility typically receives higher scores for this sub-factor. Where the process includes substantial political intervention, which could take the form of legislators or other government officials publicly second-guessing regulators, dismissing regulators who have approved unpopular rate increases, or preventing the implementation of rate increases, or where regulators ignore the laws/rules to deliver an outcome that appears more politically motivated, the utility typically receives a lower score for this sub-factor.

As with the prior sub-factor, we may score different utilities in the same jurisdiction differently, based on outcomes that are more or less supportive of credit quality over a period of time. Some utilities are better able to meet the expectations of their customers and regulators, whether through better service, greater reliability, more stable rates or simply more effective regulatory outreach and communication. These utilities typically receive more consistent and credit-supportive outcomes, so they typically score higher for this sub-factor. Conversely, if a utility has multiple, rapid rate increases, chooses to submit major rate increase requests during a sensitive election cycle or a severe economic downturn, has chronic customer service issues, is viewed as frequently providing incomplete information to regulators, or is tone-deaf to the priorities of regulators and politicians, it may receive less consistent and supportive outcomes and thus receive a lower score for this sub-factor.

In scoring this sub-factor, we primarily evaluate the actions of regulators, politicians and jurists rather than their words. Nonetheless, words matter when they are an indication of future action. We seek to differentiate between political rhetoric that is perhaps oriented toward gaining attention for the viewpoint of the speaker and rhetoric that is indicative of future actions and trends in decision-making.

Factor: Ability to Recover Costs and Earn Returns (25%)

Why it matters

The ability of a utility to recover its costs and earn a return, including during different market and economic conditions, directly affects its ability to generate cash flow and service its debt. Core aspects of this factor are the timeliness of recovery of operating and capital costs, and the sufficiency of rates and returns.

The ability to recover prudently incurred costs on a timely basis and to attract debt and equity capital are crucial credit considerations. The inability to recover costs, for instance if fuel or purchased power costs ballooned during a rate freeze period, has been one of the greatest drivers of financial stress in this sector, as well as the cause of some utility defaults. In a sector that is typically free cash flow negative (due to large capital expenditures and dividends) and that routinely needs to refinance very large maturities of long-term debt, investor concerns about a lack of timely cost recovery or the sufficiency of rates can, in an extreme scenario, strain access to capital markets and potentially lead to insolvency of the utility. While our scoring for this factor may primarily be influenced by our assessment of the regulatory relationship, it can also be highly affected by the management and business decisions of the utility.

The timeliness and sufficiency of rates are interrelated. Timeliness can have an impact on our view of what constitutes sufficient returns, because a strong assurance of timely cost recovery reduces risk. Conversely, utilities may have a strong assurance that they will earn a full return on certain deferred costs until they are able to collect them, or their generally strong returns may allow them to weather some rate lag on recovery of construction-related capital expenditures. The timeliness of cost recovery is particularly important in a period of rapidly rising costs. For example, fuel is a large component of total costs for vertically integrated utilities and for natural gas utilities, and fuel prices are highly volatile, so the timeliness of fuel and purchased power cost recovery is especially important.

The first two factors are closely interrelated, but utilities may receive different scores for each of these. For example, a utility could have a regulatory framework that causes considerable credit concerns, perhaps because it is untested or undergoing a transition to de-regulation, but where the track record of rate-case outcomes is positive. This could result in a higher score for the Ability to Recover Costs and Earn Returns factor than for the Regulatory Framework factor. Conversely, there may be instances of strong Legislative and Judicial Underpinnings of the regulatory framework where a commission ignores the framework, which affects the Consistency and Predictability of Regulation as well as the Ability to Recover Costs and Earn Returns. In some cases, a commission has used extraordinary measures to prevent or defer a rate increase that might have been justifiable from a cost perspective but would have caused rate shock.

Scoring for the Ability to Recover Costs and Earn Returns factor places more emphasis on our expectation of timeliness and sufficiency of rates over time; whereas financial metrics may be affected by one-time events, market conditions or construction cycles, which are trends that could normalize or even reverse.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: Timeliness of Recovery of Operating and Capital Costs; and Sufficiency of Rates and Returns.

Timeliness of Recovery of Operating and Capital Costs

In assessing this sub-factor, we consider provisions and cost recovery mechanisms for operating costs, mechanisms that allow operating and/or capital expenditures to be trued up periodically in rates without having to file a rate case (this may include formula rates, rider and trackers, or the ability to periodically adjust rates for construction work in progress). We also consider the process and time frame of rate proceedings and the track record of recovery. For instance, having a formula rate plan is positive, but if the actual process has included reviews that are delayed for long periods, it may diminish the benefit to the utility. In addition, we consider the lag between the time that a utility incurs a major construction expenditure and the time that the utility will start to recover and/or earn a return on that expenditure.

Sufficiency of Rates and Returns

In assessing this sub-factor, we consider statutory protections that assure full cost recovery and a reasonable return for the utility on its investments, the regulatory mechanisms used to determine what a reasonable return should be, and the track record of the utility in actually recovering costs and earning allowed returns.

We examine outcomes of rate cases/tariff reviews and compare them to the request submitted by the utility, to prior rate cases/tariff reviews for the same utility and to recent rate/tariff decisions for a peer group of comparable utilities. In this context, comparable utilities are typically utilities in the same or similar jurisdiction. In cases where the utility is unique or nearly unique in its jurisdiction, we compare it to other peers with an adjustment for local differences, including prevailing rates of interest and returns on capital, as well as the timeliness of rate-setting . We consider regulatory disallowances of costs or investments, with a focus on their financial severity and also on the reasons provided by the regulator, in order to assess the likelihood that such disallowances will be repeated in the future.

Factor: Diversification (10%)

Why it matters

Diversification of overall business operations is important because it helps to mitigate the risk that economic cycles, material changes in a single regulatory regime, or commodity price movements have on the cash flow and credit quality of a utility. While utilities' sales

volumes have lower exposure to economic downturns than many non-financial corporate issuers, some sales components, including industrial sales, are directly affected by economic trends that result in lower production and/or plant closures. In addition, economic activity performs a role in the commercial sector or rate of customer growth in the service territory and, absent energy efficiency and conservation, can often affect usage per customer.

The economic strength or weakness of the service territory can affect the political and regulatory environment for rate increase requests by the utility. For utilities in areas prone to severe storms and other natural disasters, the utility's geographic diversity or concentration can be a key determinant for creditworthiness.

Diversity among regulatory regimes can mitigate the impact of a single unfavorable decision affecting one part of the utility's footprint.

For utilities with electric generation, fuel-source diversity can mitigate the impact to the utility and to its rate-payers of changes in commodity prices, hydrology and water flow, and environmental or other regulations affecting plant operations and economics; so fuel diversity typically leads to more stable rates over time.

Regulatory environments are most likely to become unfavorable during periods of rapid rate increases, which are more important than absolute rate levels. Fuel diversity can be important even if fuel and purchased power expenses are an automatic pass-through to the utility's rate-payers, because rapid price increases can cause regulators or utilities to seek recovery over a more prolonged period than the pass-through mechanism allows. Changes in environmental, safety and other regulations have caused vulnerabilities for certain technologies and fuel sources. These vulnerabilities have varied widely in different countries and have changed over time.

How we assess it for the scorecard
Scoring for this factor is based on two sub-factors: Market Position, and Generation and Fuel Diversity.

Market Position

In assessing market position, we consider the economic diversity of the utility's service territory and the diversity of its regulatory regimes, as well as the size and scale of a utility's operations. We also consider the diversity of utility operations (e.g., regulated electric, gas, water, steam) where there are material operations in more than one area.

Economic diversity is typically a function of the population, size and breadth of the territory and the businesses that drive its gross domestic product (GDP) and employment. For the size of the territory, we typically consider the number of customers and the volume of generation and/or throughput. For breadth, we consider the number of sizable metropolitan areas served, the economic diversity and vitality in those metropolitan areas, and any concentration in a particular area or industry. In our assessment, we may consider various information sources. We also consider the mix of the utility's sales volumes among customer types, as well as the track record of volume sales and any notable payment patterns during economic cycles. For diversity of regulatory regimes, we typically look at the number of regulators and the percentages of revenues and utility assets that are under the purview of each. Issuers regulated in multiple jurisdictions typically receive the highest scores in the Market Position sub-factor. Where there is only one regulator, we make a differentiation of regimes perceived as having lower or higher volatility. Size of the utility is also considered, since a larger utility can better absorb the impact of temporary, or one-time, adverse events.

Issuers with multiple supportive regulatory jurisdictions, a balanced sales mix among residential, commercial, industrial and governmental customers in a large service territory with a robust and diverse economy generally receive a higher score for this sub-factor than issuers that lack these characteristics. Issuers with a small service territory economy that has a high dependence on one or two sectors , especially highly cyclical industries, generally receive lower scores for this sub-factor, as do issuers with meaningful exposure to economic dislocations caused by natural disasters.

For issuers that are vertically integrated utilities having a meaningful amount of generation, this sub-factor has a weighting of 5%. For electric transmission and distribution utilities without meaningful generation and for natural gas local distribution companies, this sub-factor has a weighting of 10%.

Generation and Fuel Diversity

We consider the fuel type of the issuer's generation and important power purchase agreements, the ability of the issuer to shift its generation and power purchases when there are changes in fuel prices, the extent to which the utility and its rate-payers are exposed to or insulated from changes in commodity prices, and exposure to challenged sources and threatened sources (see the explanations for how we generally characterize these generation sources in the table below).

A regulated utility's capacity mix may not in itself be an indication of fuel diversity or the ability to shift fuels, because utilities may keep old and inefficient plants (e.g., natural gas boilers) to serve peak load. For this reason, we do not incorporate set percentages reflecting an "ideal" or "sub-par" mix for capacity or even generation. In addition to looking at a utility's generation mix to evaluate fuel diversity, we consider the efficiency of the utility's plants, their placement on the regional dispatch curve, and the demonstrated ability/inability of the utility to shift its generation mix in accordance with changing commodity prices.

Issuers having a balanced mix of fuel types as well as low exposure to challenged and threatened sources of generation typically receive higher scores for this sub-factor. Issuers that have concentration in one or two sources of generation, especially if they are threatened or challenged sources, typically receive lower scores.

In assessing an issuer's extent of exposure to challenged and threatened sources , we consider not only the existence of those plants in the utility's portfolio, but also the relevant factors that determine the impact on the utility and on its rate-payers. For instance, an issuer that has a fairly high percentage of its generation from challenged sources could be assessed very differently if its peers experience the same magnitude of those issues than if its peers have no exposure to challenged or threatened sources. In assessing threatened sources, we consider a utility's progress in its plan to replace those sources, its reserve margin, the availability of purchased power capacity in the region, and the overall impact of the replacement plan on the issuer's rates relative to its peer group. We also consider the extent to which the utility's generation resources plan is aligned with the relevant government's fuel/energy policy and the economic support of the underlying economy (e.g., if the fuel or plants are important sources of jobs and tax revenue).

Factor: Financial Strength (40%)

Why it matters

Financial strength is necessary for a regulated electric and gas utility to attract capital at a reasonable cost in order to invest in its generation, transmission and distribution assets, so the utility can fulfill its service obligations at a reasonable cost to rate-payers and service debt. The financial strength of utilities, which are characterized by large investments in long-lived property, plant and equipment, includes the ability to service debt and provide a return to shareholders.

The financial statements of regulated electric and gas utilities have certain aspects that affect financial analysis, including disparate treatment of certain elements under US Generally Accepted Accounting Principles (GAAP) compared with International Financial Reporting Standards (IFRS). Regulatory accounting may permit utilities to defer certain costs (thereby creating regulatory assets) that a non-utility corporate entity would have to expense. For instance, a regulated utility may be able to defer a substantial portion of costs related to recovery from a storm based on the general regulatory framework for those expenses, even if the utility does not have a specific order to collect the expenses from rate-payers over a set period. A regulated utility may be able to accrue and defer a return on equity (in addition to capitalizing interest) for construction work in progress for an approved project based on the assumption that it will be able to collect that deferred equity return once the asset comes into service. Because of the disparate treatment of certain elements under the different accounting standards , we focus more on a utility's cash flow than on its reported net income.

Conversely, utilities may collect certain costs in rates well ahead of the time they must be paid (for instance, pension costs), thereby creating regulatory liabilities. Many of our metrics focus on Cash Flow from Operations Before Changes in Working Capital (CFO Pre-WC) because, unlike Funds from Operations (FFO), it captures the changes in long-term regulatory assets and liabilities.

However, under IFRS the two metrics are essentially the same. In general, we view changes in working capital as being less useful in the financial analysis of a utility because such changes are often seasonal (for example, power demand is generally greatest in the summer) or caused by changes in fuel prices that are typically a relatively automatic pass-through to the customer. We nonetheless consider the impact of working capital changes in analyzing a utility's liquidity (see the "Liquidity" section in "Other rating considerations").

CFO Pre-Working Capital Plus Interest Expense / Interest Expense

This metric is an indicator of a utility's ability to cover the cost of its borrowed capital.

CFO Pre-Working Capital / Debt

This metric provides important indications of the cash-generating ability of a utility compared to its total debt.

CFO Pre-Working Capital Minus Dividends / Debt

This ratio is an indicator for financial leverage as well as an indicator of the strength of a utility's cash flow after dividend payments are made. Dividend obligations of utilities are often substantial, quasi-permanent outflows that can affect the ability of a utility to cover its debt obligations, and this ratio can also provide insight into the financial policies of a utility or utility holding company. The higher the level of retained cash flow relative to a utility's debt, the more cash the utility has to support its capital expenditure program.

Debt / Book Capitalization

This ratio is a traditional measure of balance sheet leverage. Total capitalization includes minority interest and deferred taxes in addition to total debt, preferred stock, other hybrid securities, and common equity. Since the presence or absence of deferred taxes is a function of national tax policy, comparing utilities using this ratio may be more meaningful among utilities in the same country or in countries with similar tax policies. High debt levels in comparison to capitalization can indicate higher interest obligations, can limit the ability of a utility to raise additional financing if needed, and can lead to leverage covenant violations in bank credit facilities or other financing agreements. We also examine debt/capitalization ratios as defined in applicable covenants (which typically exclude deferred taxes from capitalization) relative to the covenant threshold level. A high ratio may result from a regulatory framework that does not permit a robust cushion of equity in the capital structure, or from a material write-off of an asset, which may not have affected current period cash flows but could affect future period cash flows relative to debt.

How we assess it for the scorecard

Scoring for this factor is based on four quantitative sub-factors: CFO Pre-Working Capital Plus Interest Expense/Interest Expense ; CFO Pre-Working Capital/Debt; CFO Pre-Working Capital Minus Dividends/Debt; and Debt/Book Capitalization.

There are two sets of thresholds for three of these ratios based on the level of the issuer's business risk – the Standard Grid and the Lower Business Risk (LBR) Grid. In our view, the different types of utility entities rated using this methodology have different levels of business risk.

Generation utilities and vertically integrated utilities generally have a higher level of business risk because they are engaged in power generation, so we apply the Standard Grid. We view power generation as the highest-risk component of the electric utility business, as generation plants are typically the most expensive part of a utility's infrastructure (representing potential asse t concentration risk) and are subject to the greatest risks in both construction and operation, including the risk that incurred costs will either not be recovered in rates or recovered with material delays.

Other types of utilities may have lower business risk, such that we consider that they are more appropriately assessed using the LBR Grid, due to factors that could include a generally greater transfer of risk to customers, very strong insulation from exposure to commodity price movements, good protection from volumetric risks, fairly limited capex needs and/or low exposure to storms, major accidents and natural disasters. For instance, we consider many US natural gas LDCs and certain US electric T&Ds , which lack generation but generally retain some procurement responsibilities for customers, as typically having a lower business risk profile than their vertically integrated peers. In cases of T&Ds that we do not view as having materially lower risk than their vertically integrated peers, we apply the Standard grid. This could result from a regulatory framework that exposes them to energy supply risk, large capital expenditures for required maintenance or upgrades, a heightened exposure to catastrophic climate events , increased regulatory scrutiny due to poor reliability or other considerations. The Standard Grid also applies to LDCs that in our view do not have materially lower risk; for instance, due to their ownership of high pressure pipes or older systems requiring extensive gas main replacements, where gas commodity costs are not fully recovered in a reasonably contemporaneous manner, where the LDC is not well-insulated from declining volumes, or if the jurisdiction of operation has aggressive policies to limit or reduce its business.

CFO Pre-Working Capital Plus Interest Expense / Interest Expense

The numerator is the sum of CFO Pre-WC and interest expense, and the denominator is interest expense.

CFO Pre-Working Capital / Debt

The numerator is CFO Pre-WC, and the denominator is total debt.

CFO Pre-Working Capital Minus Dividends / Debt

The numerator is CFO Pre-WC minus dividends, and the denominator is total debt.

Debt / Book Capitalization

The numerator is total debt, and the denominator is book capitalization.

Notching factor: Structural Subordination of Holding Companies

Our assessment of the Structural Subordination of Holding Companies may result in a downward adjustment to the preliminary outcome that results from the four weighted factors. We apply this adjustment in whole-notch increments, with a maximum of three alphanumeric notches down from the preliminary scorecard-indicated outcome to arrive at the scorecard-indicated outcome.

In cases where we consider that the credit weakness or credit strength represented by the notching factor is greater than the scorecard range, we incorporate this view into the rating, which may be different from the scorecard-indicated outcome. For a discussion of scorecard mechanics, please see the "Using the scorecard to arrive at a scorecard-indicated outcome" section.

Why it matters

Notching for the structural subordination of holding companies is important because in the regulated utility sector, barriers to movement of cash among companies in the corporate family can vary, depending on the regulatory framework. These barriers can lead to significantly different probabilities of default for holding companies (HoldCos) and operating subsidiaries (OpCos).

A typical utility company structure consists of a HoldCo that owns one or more OpCos. OpCos may be regulated utilities or non-utility companies. A HoldCo typically has no operations – its assets are mostly limited to its equity interests in subsidiaries, and potentially other investments in subsidiaries that are structured as equity, debt or even hybrid instruments.

Most HoldCos present their financial statements on a consolidated basis that blurs legal considerations about priority of creditors based on the legal structure of the family, and scorecard scoring is thus based on consolidated ratios. However, HoldCo creditors typically have a secondary claim on the group's cash flows and assets after OpCo creditors. We refer to this as structural subordination because it is the corporate legal structure, rather than specific subordination provisions, that causes creditors at each of the utility and non-utility subsidiaries to have a more direct claim on the cash flows and assets of their respective OpCo obligors. By contrast, the debt of the HoldCo is typically serviced primarily by dividends that are up-streamed by the OpCos. The HoldCo and OpCo may also have intercompany agreements, including tax sharing agreements, that can be another source of cash to the HoldCo. Under normal circumstances, these dividends are made from net income, after payment of the OpCo's interest and preferred dividends.

Structural subordination also affects loss given default. Under most default scenarios, an OpCo's creditors will be satisfied from the value residing at that OpCo before any of the OpCo's assets can be used to satisfy claims of the HoldCo's creditors. Actual priority in a default scenario will be determined by many factors, including the corporate and bankruptcy laws of the jurisdiction, the asset value of each OpCo, specific financing terms, inter-relationships among members of the family, etc. The prevalence of debt issuance at the OpCo level is another reason that structural subordination is usually a more serious concern in the utility sector than for investment-grade issuers in other non-financial corporate sectors.

The first four factors are primarily oriented to OpCos (and to some extent for HoldCos with minimal structural subordination; for example, there is no current structural subordination to debt at the operating company if all of the utility family's debt and preferred stock is issued at the HoldCo level, although there is structural subordination to other liabilities at the OpCo level). The additional risk from structural subordination is addressed via a notching adjustment to bring scorecard-indicated outcomes (on average) closer to the actual ratings of HoldCos.

How we assess it for the scorecard

Scorecard-indicated outcomes of holding companies may be notched down based on structural subordination. The risk factors and mitigants that impact structural subordination are varied and can be present in different combinations, such that a formulaic approach is not practical and case-by-case analyst judgment of the interaction of all pertinent factors that may increase or decrease its importance to the credit risk of an issuer is essential.

Some of the potentially pertinent features that could increase the extent or impact of structural subordination include the following:

» Regulatory or other barriers to cash movement from OpCos to HoldCo

» Specific ring-fencing provisions

» Strict financial covenants at the OpCo level

» Higher leverage at the HoldCo level While higher leverage at the HoldCo does not increase structural subordination per se, it exacerbates the impact of any structural subordination that exists.

» Significant dividend limitations at an important OpCo

» HoldCo exposure to subsidiaries with high business risk or volatile cash flows

» Strained liquidity at the HoldCo level

» The group's investment program is primarily in businesses that are higher risk or new to the group

Some of the potentially mitigating features that could decrease the extent and/or impact of structural subordination include the following:

» Substantial diversity in cash flows from a variety of utility OpCos

» Meaningful dividends to HoldCo from unlevered utility OpCos

» Dependable, meaningful dividends to HoldCo from non-utility OpCos

» The group's investment program is primarily in strong utility businesses

» Inter-company guarantees - however, in many jurisdictions the value of an upstream guarantee may be limited by certain factors, including by the value that the OpCo received in exchange for granting the guarantee

Notching for structural subordination within the scorecard may range from 0 to three downward notches. Instances of extreme structural subordination are relatively rare, so the scorecard convention does not accommodate wider differences, although in the instances where we believe it is present, actual ratings do reflect the full impact of structural subordination.

A related issue is the relationship of ratings within a utility family with multiple operating companies, and sometimes intermediate holding companies. Some of the key issues are the same, such as the relative amounts of debt at the holding company level compared to the operating company level (or at one OpCo relative to another), and the extent to which operating companies have credit insulation due to regulation or other protective factors. Appendix A has additional insights on ratings within a utility family.

Other considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors can include financial controls and the quality of financial reporting; corporate legal structure; the quality and experience of management; assessments of corporate governance, as well as environmental and social considerations; exposure to uncertain licensing regimes; and possible government interference in some countries. Regulatory, litigation, liquidity, technology and reputational risk, as well as changes to consumer and business spending patterns, competitor strategies and macroeconomic trends can also affect ratings.

The following are examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Environmental, social and governance considerations

Where environmental, social and governance (ESG) issues are meaningful for credit profiles, we incorporate them into our ratings analysis in a variety of ways in the application of our sector-specific methodologies. As one part of our overall credit analysis, we consider how ESG risks could affect the qualitative and quantitative factors and sub-factors in the scorecard.

Even where ESG considerations do not affect the measures in the scorecard, or where they cannot be quantified, we incorporate them into our overall analysis of credit drivers that are meaningful to the rating. As a result, we may incorporate these ESG risks qualitatively outside of the scorecard. As part of our ratings analysis, we may establish Issuer Profile Scores (IPSs), which indicate our opinion of the extent to which a given issuer is exposed to E, S and G risks (incorporating ESG-specific mitigants) or benefits from its exposure to E, S or G. The IPSs are inputs to credit ratings. For more information, please see our methodology that describes our general principles for assessing ESG risks.[2]

Increasing requirements and efforts to reduce greenhouse gas emissions (known as carbon transition) may lead to higher costs for many regulated electric and gas utilities. In addition, the ownership or operation of assets that may become "stranded" (i.e., assets that become unprofitable due to carbon transition) may indicate higher risk.

We also consider the impact of decarbonization efforts on the electrification of heating, transportation and industry. In our assessment of the net impact of decarbonization on issuers in this sector, we consider the share of generation in the business mix, the location of generation assets and the technology employed and exposure to natural gas transportation and distribution. Pressure for issuers to decarbonize and implementation timelines may be affected by regulation, policies and the potential for renewable energy to displace carbon intensive generation in each market. In general, carbon-intensive generation assets such as coal-fired plants are most exposed to carbon transition risk, followed by gas-fired plants. Renewable energy projects and other low-carbon power generation assets are well-positioned to benefit from carbon transition. Our assessment of the net impact of decarbonization also takes into account the central role of electricity networks in decarbonization efforts. In contrast, decarbonization may reduce demand for gas networks in many markets, particularly for residential heating supply.

We also consider waste and pollution risks, including emissions of non-carbon air pollutants, which can also impose significant compliance costs on thermal generators, as well as long-term storage costs for nuclear generators, particularly in regions where the generators are fully or partially responsible for those costs. Issuers in this sector are also exposed to physical risks associated with climate change, including damage to electricity networks caused by storms or wildfires. For example, operators of hydro generators and water-cooled thermal plants may experience lower output during periods of low rainfall. Conversely, generators in hydro-dominated markets may be exposed to lower electricity prices during unusually wet periods. Issuers in this sector are also exposed to weather-related disasters and other catastrophic events, including nuclear accidents and natural gas pipeline explosions, as well as costs to enhance climate resilience or remediate environmental damage.

Social issues are often important considerations. Regulated electric and gas utilities are highly exposed to socially driven policy agendas resulting from public concern about affordable energy, energy security and the environment, often enabled by the direct involvement of governments and regulators in setting energy policy. In addition to health and safety risks associated with maintaining heavy equipment and machinery, the sector is also prone to event risks with social risk repercussions, such as nuclear and hydropower disasters and gas pipeline explosions.

Among the areas of focus in corporate governance are audit committee financial expertise, the incentives created by executive compensation packages, related-party transactions, interactions with outside auditors, and ownership structure.

Liquidity

Liquidity is an important rating consideration for all electric and gas utilities, and extremely weak liquidity can heavily affect ratings in many cases. However, the relative strength or weakness of liquidity may not have a substantial impact in discriminating between two issuers with an otherwise similar credit profile. Liquidity can be particularly important where issuers have large short-term demands on liquidity, for example in highly seasonal operating environments where working capital needs must be considered. We form an

opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash. For more information on our approach, please see our liquidity cross-sector methodology.[3]

Liquidity encompasses a company's ability to generate cash from internal sources as well as the availability of external sources of financing to supplement these internal sources. Liquidity and access to financing are of particular importance in this sector. Utility assets can often have a very long useful life- 30, 40 or even 60 years is not uncommon, as well as high costs. Partly as a result of construction cycles, the utility sector has experienced prolonged periods of negative free cash flow – essentially, the sum of its dividends and its capital expenditures for maintenance and growth of its infrastructure frequently exceeds cash from operations, such that a portion of capital expenditures must routinely be financed by debt or equity. Utilities are among the largest debt issuers in the corporate universe and typically require consistent access to the capital markets to assure adequate sources of funding and to maintain financial flexibility. Substantial portions of capital expenditures are non-discretionary (for example, maintenance, adding customers to the network, or meeting environmental mandates); however, utilities have been swift to cut or defer discretionary spending during economic downturns. Dividends represent a quasi-permanent outlay, because utilities typically only rarely cut their dividends. Liquidity is also important to meet maturing obligations, which can often be large,, and to meet collateral calls under any hedging agreements.

Due to the importance of liquidity, incorporating it as a factor with a fixed weighting in the scorecard would suggest an importance level that is often far different from the actual weight in the rating. In normal circumstances, most companies in the sector have good access to liquidity. The industry generally requires, and for the most part has, large, syndicated, multi-year committed credit facilities. In addition, utilities have demonstrated strong access to capital markets , even under difficult conditions. As a result, liquidity generally has not been an issue for most utilities, and a utility with very strong liquidity may not warrant a rating distinction compared to a utility with strong liquidity. However, when there is weakness in liquidity or liquidity management, it can be the dominant consideration for ratings.

Our assessment of liquidity for regulated utilities involves an analysis of total sources and uses of cash over the next 12 months or more, as is done for all corporates. Using our financial projections of the utility and our analysis of its available sources of liquidity (including an assessment of the quality and reliability of alternate liquidity such as committed credit facilities), we consider how its projected sources of cash (cash from operations, cash on hand and existing committed multi-year credit facilities) compare to its projected uses (including all or most capital expenditures, dividends, maturities of short and long-term debt, our projection of potential liquidity calls on financial hedges, and important issuer-specific items such as special tax payments). We assume no access to capital markets or additional liquidity sources, no renewal of existing credit facilities, and no cut to dividends. We assess a company's liquidity profile under this scenario, its ability to make adjustments to improve its liquidity position, and any dependence on liquidity sources with lower quality and reliability.

Management strategy

The quality of management is an important factor supporting the credit strength of a regulated utility or utility holding company. Assessing the execution of business plans over time can be helpful in assessing management's business strategies, policies, and philosophies and in evaluating management performance relative to performance of competitors and our projections. Management's track record of adhering to stated plans, commitments and guidelines provides insight into management's likely future performance, including in stressed situations.

We assess financial policy (including dividend policy and planned capital expenditures) and how management balances the potentially competing interests of shareholders, fixed income investors and other stakeholders. Dividends and discretionary capital expenditures are the two primary components over which management has the greatest control in the short term. For holding companies, we consider the extent to which management stretches its payout ratio (through aggressive increases or delays in needed decreases) in order to satisfy common shareholders. For a utility that is a subsidiary of a parent company with several utility subsidiaries, dividends to the parent may be more volatile depending on the cash generation and cash needs of that utility, because parents typically want to assure that each utility maintains the regulatory debt/equity ratio on which its rates have been set. The effect is that utility subsidiaries typically pay higher dividends when they have lower capital needs and lower dividends when they have higher capital expenditures or other cash needs. Any dividend policy that cuts into the regulatory debt/equity ratio is a material credit negative.

Size

Size can be a very important factor in our assessment of certain risks that affect ratings in this sector, including exposure to natural disasters, customer concentration, primarily to industrial customers in a single sector, and construction risks associated with large projects. While the scorecard incorporates the first two of these risks into the Diversification factor, for some issuers these considerations may be sufficiently important that the rating reflects a greater weight for these risks. Construction projects typically carry the risk of cost overruns and delays, but these risks are materially heightened for projects that are very large relative to the size of the utility.

While size brings certain economies of scale that can somewhat affect the utility's cost structure and competitiveness, rates are more heavily affected by costs related to fuel and fixed assets. Smaller utilities have sometimes been better able to focus their attention on meeting the expectations of a single regulator than their multi-state peers.

Interaction of utility ratings with government policies and sovereign ratings

Government actions can have a credit impact on regulated utilities directly through rate regulation, and indirectly through energy, environmental and tax policies. Government actions affect fuel prices, the mix of generating plants, the certainty and timing of revenues and costs, and the likelihood that regulated utilities will experience financial stress. While our evolving view of the impact of such policies and the general economic and financial climate is reflected in the ratings of each utility, some considerations do not lend themselves to incorporation in a simple scorecard.[4]

Non-utility operations

In some cases, regulated utilities have non-utility operations that are segments within the utility company, compared with the more common practice of housing such operations in one or more separate affiliates. In general, we evaluate the other businesses that are material in accordance with the appropriate methodology, and the rating on the regulated electric and gas utility reflects considerations from such methodologies. There may be analytical limitations in evaluating the utility and non-utility businesses where segment financial results are not fully available , and these may be addressed through estimation based on available information. Diversified non-utility operations generally increase the business risk profile of a regulated utility, which is a relatively low-risk business . To reflect this heightened risk, we may assign ratings that are lower than scorecard-indicated outcomes for companies with diversified operations.

Event risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in a utility's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard-indicated outcome. Event risks — which are varied and can range from leveraged recapitalizations to sudden regulatory changes or liabilities from an accident — can overwhelm even a stable, well-capitalized utility. Some other types of event risks include M&A, asset sales, spinoffs, shareholder distributions, litigation, pandemics, significant cybercrime events and geopolitical conflicts.

Financial controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including the proper tone at the top, centralized operations, and consistency in accounting policies and procedures. Auditors' reports on the effectiveness of internal controls, auditors' comments in financial reports and unusual restatements of financial statements or delays in regulatory filings may indicate weaknesses in internal controls.

Parental support

Ownership can provide ratings lift for a particular company in the regulated electric and gas utilities sector if it is owned by a highly rated owner(s) and is viewed to be of strategic importance to those owners. In our analysis of parental support, we consider whether the parent has the financial capacity and strategic incentives to provide support to the issuer in times of stress or financial need (e.g., a major capital investment or advantaged operating agreement), or has already done so in the past. Conversely, if the parent puts a high dividend burden on the issuer, which in turn reduces its flexibility, the ratings would reflect this risk.

Government-related issuers may receive ratings uplift due to expected government support. However, for certain issuers, government ownership can have a negative impact on the underlying Baseline Credit Assessment.[5] For example, price controls, onerous taxation and high distributions can have a negative effect on an issuer's underlying credit profile.

Other institutional support

In some countries, large corporate issuers have received government or banking support in the event of financial difficulties because of their overall importance to the functioning of the economy. In Japan, our corporate ratings consider the support that has operated there for large and systemically important organizations. Over the years, this has resulted in lower levels of default than might otherwise have occurred. Our approach considers whether the presence of group and banking relationships may provide support when systemically important companies encounter significant financial stress.

Using the scorecard to arrive at a scorecard-indicated outcome

1. Measurement or estimation of factors in the scorecard

In the "Discussion of the scorecard factors" section, we explain our analytical approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators. When a factor comprises sub-factors, we score at the sub-factor level. Some factors do not have sub-factors, in which case we score at the factor level.

The information used in assessing the sub-factors is generally found in or calculated from information in the company's financial statements or regulatory filings, derived from other observations or estimated by Moody's analysts. We may also incorporate non-public information.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a company's performance, as well as for peer comparisons. Financial metrics, unless otherwise indicated, are typically calculated based on an average of the most recent three years of reported results. However, the factors in the scorecard can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historical and expected future performance for periods of several years or more.

Given the long-term nature of utility assets and the often uneven nature of their capital expenditures, we consider a utility's historical financial performance as well as its prospective future performance. Multi-year periods are usually more representative of credit quality because utilities can experience swings in cash flows from one-time events, including such items as rate refunds, storm cost deferrals that create a regulatory asset, or securitization proceeds that reduce a regulatory asset. Nonetheless, we also look at trends in metrics for individual periods, which may influence our view of future performance and ratings.

All of the quantitative credit metrics incorporate our standard adjustments[6] to income statement, cash flow statement and balance sheet amounts for items such as restructuring, impairment, off-balance sheet accounts, receivable securitization programs, under-funded pension obligations, and recurring operating leases. We may also make other analytical adjustments that are specific to a particular issuer.

2. Mapping scorecard factors to a numeric score

After estimating or calculating each factor or sub-factor, each outcome is mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, or Caa, also called alpha categories).

Qualitative factors are scored based on the description by broad rating category in the scorecard. The numeric value of each alpha score is based on the scale below.

Exhibit 3
Numeric equivalents for factor and sub-factor scores

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

Source: Moody's Ratings

3. Determining the overall scorecard-indicated outcome

The numeric score for each weighted sub-factor (or each factor, when the factor has no sub-factors) is multiplied by the weight for that sub-factor (or factor), with the results then summed to produce an aggregate numeric score before notching factors (the preliminary outcome). We then consider whether the preliminary outcome that results from the four weighted factors should be notched downward in order to arrive at an aggregate numeric score after notching factors, based on Holding Company Structural

Subordination. Numerically, a downward notch adds 1 to the score, and an upward notch subtracts 1 from the score. In aggregate, the notching factor can result in a total of up to three downward notches from the preliminary outcome to arrive at the scorecard-indicated outcome.

The aggregate numeric score before and after notching factors is mapped to an alphanumeric]. For example, an issuer with an aggregate numeric score before notching factors of 11.7 would have a Ba2 preliminary outcome, based on the ranges in the table below. If the combined notching factors totaled two downward notches, the aggregate numeric score after notching factors would be 13.7, which would map to a B1 scorecard-indicated outcome.

Exhibit 4
Scorecard-indicated outcome

Aggregate numeric score	Scorecard-indicated outcome
x < 1.5	Aaa
1.5 ≤ x < 2.5	Aa1
2.5 ≤ x < 3.5	Aa2
3.5 ≤ x < 4.5	Aa3
4.5 ≤ x < 5.5	A1
5.5 ≤ x < 6.5	A2
6.5 ≤ x < 7.5	A3
7.5 ≤ x < 8.5	Baa1
8.5 ≤ x < 9.5	Baa2
9.5 ≤ x < 10.5	Baa3
10.5 ≤ x < 11.5	Ba1
11.5 ≤ x < 12.5	Ba2
12.5 ≤ x < 13.5	Ba3
13.5 ≤ x < 14.5	B1
14.5 ≤ x < 15.5	B2
15.5 ≤ x < 16.5	B3
16.5 ≤ x < 17.5	Caa1
17.5 ≤ x < 18.5	Caa2
18.5 ≤ x < 19.5	Caa3
x ≥ 19.5	Ca

Source: Moody's Ratings

In general, the scorecard-indicated outcome is oriented to the corporate family rating (CFR) for speculative-grade issuers and to the senior unsecured rating for investment-grade issuers. For issuers that benefit from rating uplift from parental support, government ownership or other institutional support, we consider the underlying credit strength or Baseline Credit Assessment for comparison to the scorecard-indicated outcome. For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers.[7]

Assigning issuer-level and instrument-level ratings

After considering the scorecard-indicated outcome, other considerations and relevant cross-sector methodologies, we typically assign a corporate family rating (CFR) to speculative-grade issuers or a senior unsecured rating for investment-grade issuers. For issuers that benefit from rating uplift from government ownership, we may assign a Baseline Credit Assessment.[8]

Individual debt instrument ratings may be notched up or down from the CFR or the senior unsecured rating to reflect our assessment of differences in expected loss related to an instrument's seniority level and collateral. The documents that provide broad guidance for such notching decisions are the rating methodology on loss given default for speculative-grade non-financial companies, the methodology for notching corporate instrument ratings based on differences in security and priority of claim, and the methodology for assigning short-term ratings.[9]

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.[10]

Limitations

In the preceding sections, we have discussed the scorecard factors and many of the other considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

Limitations of the scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple tool that can be used in most cases to approximate credit profiles of issuers in this sector and to explain, in summary form, many of the factors that are generally most important in assigning ratings to these issuers. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each factor and sub-factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual company's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other considerations" section, may be important for ratings, and their relative importance may also vary from company to company. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.[11] Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, the relative ranking of different classes of debt and hybrid securities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

General limitations of the methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Companies in the sector may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, industry competition, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

Appendix A: Approach to ratings within a utility family

Typical composition of a utility family

A typical utility company structure consists of a HoldCo that owns one or more OpCos). OpCos may be regulated utilities or non-utility companies. Financing of these entities varies by region, in part due to the regulatory framework. A HoldCo typically has no operations – its assets are mostly limited to its equity interests in subsidiaries, and potentially other investments in subsidiaries or minority interests in other companies. However, in certain cases there may be material operations at the HoldCo level. Financing can occur primarily at the OpCo level, primarily at the HoldCo level, or at both HoldCo and OpCos in varying proportions. When a HoldCo has multiple utility OpCos, they will often be located in different regulatory jurisdictions. A HoldCo may have both levered and unlevered OpCos.

General approach to a utility family

In our analysis, we generally consider the stand-alone credit profile of an OpCo and the credit profile of its ultimate parent HoldCo (and any intermediate HoldCos), as well as the profile of the family as a whole, while acknowledging that these elements can have cross-family credit implications in varying degrees, principally based on the regulatory framework of the OpCos and the financing model (which has often developed in response to the regulatory framework).

In addition to considering individual OpCos under this (or another applicable) methodology, we typically[12] approach a HoldCo rating by assessing the qualitative and quantitative factors in this methodology for the consolidated entity and each of its utility subsidiaries. Ratings of individual entities in the issuer family may be pulled up or down based on the interrelationships among the companies in the family and their relative credit strength.

In considering how closely aligned or how differentiated ratings should be among members of a utility family, we assess a variety of factors, including:

- Regulatory or other barriers to cash movement among OpCos and from OpCos to HoldCo
- Differentiation of the regulatory frameworks of the various OpCos
- Specific ring-fencing provisions at particular OpCos
- Financing arrangements – for instance, each OpCo may have its own financing arrangements, or the sole liquidity facility may be at the parent; there may be a liquidity pool among certain but not all members of the family; certain members of the family may be better able to withstand a temporary hiatus of external liquidity or access to capital markets
- Financial covenants and the extent to which an Event of Default by one OpCo limits availability of liquidity to another member of the family
- The extent to which higher leverage at one entity increases default risk for other members of the family
- An entity's exposure to or insulation from an affiliate with high business risk
- Structural features or other limitations in financing agreements that restrict movements of funds, investments, provision of guarantees or collateral, etc.
- The relative size and financial significance of any particular OpCo to the HoldCo and the family

Our approach to a Hybrid HoldCo depends in part on the importance of its non-utility operations and the availability of information on individual businesses. If the businesses are material and their individual results are fully detailed in financial disclosures, we may be able to assess each material business individually by reference to the relevant Moody's methodologies to arrive at a composite assessment for the combined businesses.[13] If non-utility operations are material but are not available in financial disclosures, we may look at the consolidated entity under more than one methodology. When non-utility operations are less material but could still impact the overall credit profile, the difference in business risks and our estimation of their impact on financial performance will be qualitatively incorporated in the rating.

Higher barriers to cash movement with financing predominantly at the OpCos

Where higher barriers to cash movement exist at an OpCo or OpCos due to the regulatory framework or debt structural features, ratings among family members are likely to be more differentiated. The degree of separateness may be greater or smaller and is assessed on a case-by-case basis, because situational considerations are important.

One area we consider is financing arrangements. For instance, there will tend to be greater differentiation if each member of a family has its own bank credit facilities and difficulties experienced by one entity would not trigger events of default for other entities. While the existence of a money pool might appear to reduce separateness between the participants, there may be regulatory barriers within money pools that preserve separateness. For instance, non-utility entities may have access to the pool only as a borrower, only as a lender, and even the utility entities may have regulatory limits on their borrowings from the pool or their credit exposures to other pool members. If the only source of external liquidity for a money pool is borrowings by the HoldCo under its bank credit facilities, there would be less separateness, especially if the utilities were expected to depend on that liquidity source. However, the ability of an OpCo to finance itself by accessing capital markets must also be considered. Inter-company tax agreements can also have an impact on our view of how separate the risks of default are.

For a HoldCo, the greater the regulatory, economic, and geographic diversity of its OpCos, the greater its potential separation from the default probability of any individual subsidiary. Conversely, if a HoldCo's actions have made it clear that the HoldCo will provide support for an OpCo encountering some financial stress (for instance, due to delays and/or cost over-runs on a major construction project), we would be likely to perceive less separateness.

Even where high barriers to cash movement exist, onerous leverage at a parent company may not only give rise to greater notching for structural subordination at the parent, it may also pressure an OpCo's rating, especially when there is a clear dependence on an OpCo's cash flow to service parent debt.

While most of the regulatory barriers to cash movement are very real, they are not absolute. Furthermore, while it is not usually in the interest of an insolvent parent or its creditors to bring an operating utility into a bankruptcy proceeding, such an occurrence is not impossible.

The greatest separateness occurs where strong regulatory insulation is supplemented by effective ring- fencing provisions that fully separate the management and operations of the OpCo from the rest of the family and limit the parent's ability to cause the OpCo to commence bankruptcy proceedings as well as limiting dividends and cash transfers. Typically, most entities in US utility families (including HoldCos and OpCos) are rated within 3 notches of each other. However, it is possible for the HoldCo and OpCos in a family to have much wider notching due to the combination of regulatory imperatives and strong ring-fencing that includes a significant minority shareholder who must agree to important corporate decisions, including a voluntary bankruptcy filing.

Lower barriers to cash movement with financing predominantly at the OpCos

Our approach to rating issuers within a family where there are lower regulatory barriers to movement of cash from OpCos to HoldCos places greater emphasis on the credit profile of the consolidated group. Individual OpCos are considered based on their individual characteristics and their importance to the family, and their assigned ratings are typically banded closely around the consolidated credit profile of the group due to the expectation that cash will transit relatively freely among family entities.

Some utilities may have OpCos in jurisdictions where cash movement among certain family members is more restricted by the regulatory framework, while cash movement from and/or among OpCos in other jurisdictions is less restricted. In these situations, OpCos with more restrictions may vary more widely from the consolidated credit profile while those with fewer restrictions may be more tightly banded around the other entities in the corporate family group.

Appendix B: Regional and other considerations

Notching considerations for US first mortgage bonds

In most regions, our approach to notching between different debt classes of the same regulated utility issuer follows the guidance on notching corporate instrument ratings based on differences in security and priority of claim, including a one notch differential between senior secured and senior unsecured debt.[14] However, in most cases we have two notches between the first mortgage bonds and senior unsecured debt of regulated electric and gas utilities in the US. Wider notching differentials between debt classes may also be appropriate in speculative-grade issuers.[15]

First mortgage bond holders in the US generally benefit from a first lien on most of the fixed assets used to provide utility service, including such assets as generating stations, transmission lines, distribution lines, switching stations and substations, and gas distribution facilities, as well as a lien on franchise agreements. In our view, the critical nature of these assets to the issuers and to the communities they serve has been a major factor that has led to very high recovery rates for this class of debt in situations of default, thereby justifying a two-notch uplift. The combination of the breadth of assets pledged and the bankruptcy-tested recovery experience has been unique to the US.

In some cases, there is only a one-notch differential between US first mortgage bonds and the senior unsecured rating. For instance, this is likely when the pledged property is not considered critical infrastructure for the region, or if the mortgage is materially weakened by carve-outs, lien releases or similar creditor-unfriendly terms.

Securitization

The use of securitization, a financing technique utilizing a discrete revenue stream (typically related to recovery of specifically defined expenses) that is dedicated to servicing specific securitization debt, has primarily been used in the US, where it has been pervasive in the past. The first generation of securitization bonds were primarily related to recovery of the negative difference between the market value of utilities' generation assets and their book value when certain states switched to competitive electric supply markets and utilities sold their generation (so-called stranded costs). This technique was then used for significant storm costs (especially hurricanes) and was eventually broadened to include environmental related expenditures, deferred fuel costs, or even deferred miscellaneous expenses. In its simplest form, a securitization isolates and dedicates a stream of cash flow into a separate special purpose entity (SPE). The SPE uses that stream of revenue and cash flow to provide annual debt service for the securitized debt instrument. Securitization is typically underpinned by specific legislation to segregate the securitization revenues from the utility's revenues to assure their continued collection, and the details of the enabling legislation may vary from state to state. The utility benefits from the securitization because it receives an immediate source of cash (although it gives up the opportunity to earn a return on the corresponding asset), and ratepayers benefit because the cost of the securitized debt is lower than the utility's cost of debt and much lower than its all-in cost of capital, which reduces the revenue requirement associated with the cost recovery.

In the presentation of US securitization debt in published financial ratios, we make our own assessment of the appropriate credit representation but in most cases follow the accounting in audited statements under US Generally Accepted Accounting Principles (GAAP), which in turn considers the terms of enabling legislation. As a result, accounting treatment may vary. In most states, utilities have been required to consolidate securitization debt under GAAP, even though it is technically non-recourse.

In general, we view securitization debt of utilities as being on-credit debt, in part because the rates associated with it reduce the utility's headroom to increase rates for other purposes while keeping all-in rates affordable to customers. Thus, where accounting treatment is off balance sheet, we adjust the company's ratios by including the securitization debt and related revenues for our analysis. Where the securitized debt is on balance sheet, our credit analysis focuses on the ratios that exclude securitization debt and related revenues. Since securitization debt amortizes mortgage-style, including it makes ratios look worse in early years (when most of the revenue collected goes to pay interest) and better in later years (when most of the revenue collected goes to pay principal).

Appendix C: Treatment of Power Purchase Agreements ("PPAs")

Although many utilities own and operate power stations, some have entered into PPAs to source electricity from third parties to satisfy retail demand. The motivation for these PPAs may be one or more of the following: to outsource operating risks to parties more skilled in power station operation, to provide certainty of supply, to reduce balance sheet debt, to fix the cost of power, or to comply with regulatory mandates regarding power sourcing, including renewable portfolio standards. While we regard PPAs that reduce operating or financial risk as a credit positive, some aspects of PPAs may negatively affect the credit of utilities. The most conservative treatment would be to treat a PPA as a debt obligation of the utility as, by paying the capacity charge, the utility is effectively providing the funds to service the debt associated with the power station. At the other end of the continuum, the financial obligations of the utility could also be regarded as an ongoing operating cost, with no long-term capital component recognized.

Under most PPAs, a utility is obliged to pay a capacity charge to the power station owner (which may be another utility or an Independent Power Producer – IPP); this charge typically covers a portion of the IPP's fixed costs in relation to the power available to the utility. These fixed payments usually help to cover the IPP's debt service and are made irrespective of whether the utility calls on the IPP to generate and deliver power. When the utility requires generation, a further energy charge, to cover the variable costs of the IPP, will also typically be paid by the utility. Some other similar arrangements are characterized as tolling agreements, or long-term supply contracts, but most have similar features to PPAs and thus we analyze them as PPAs.

PPAs are recognized qualitatively to be a future use of cash whether or not they are treated as debt-like obligations in financial ratios

The starting point of our analysis is the issuer's audited financial statements – we consider whether the utility's accountants determine that the PPA should be treated as a debt equivalent, a capitalized lease, an operating lease, or in some other manner. PPAs have a wide variety of operational and financial terms, and it is our understanding that accountants are required to have a very granular view into the particular contractual arrangements in order to account for these PPAs in compliance with applicable accounting rules and standards. However, accounting treatment for PPAs may not be entirely consistent across US GAAP, IFRS or other accounting frameworks. In addition, we may consider that factors not incorporated into the accounting treatment may be relevant (which may include the scale of PPA payments, their regulatory treatment including cost recovery mechanisms, or other factors that create financial or operational risk for the utility that is greater, in our estimation, than the benefits received). When the accounting treatment of a PPA is a debt or lease equivalent (such that it is reported on the balance sheet, or disclosed as an operating lease and thus included in our adjusted debt calculation), we generally do not make adjustments to remove the PPA from the balance sheet.

However, in relevant circumstances we consider making adjustments that impute a debt equivalent to PPAs that are off-balance sheet for accounting purposes.

Regardless of whether we consider that a PPA warrants or does not warrant treatment as a debt obligation, we assess the totality of the impact of the PPA on the issuer's probability of default. Costs of a PPA that cannot be recovered in retail rates create material risk, especially if they also cannot be recovered through market sales of power.

Additional considerations for PPAs

PPAs have a wide variety of financial and regulatory characteristics, and we may treat each particular circumstance differently. Factors which determine where on the continuum we treat a particular PPA include the following:

» **Risk management:** An overarching principle is that PPAs have normally been used by utilities as a risk management tool and we recognize that this is the fundamental reason for their existence. Thus, we will not automatically penalize utilities for entering into contracts for the purpose of reducing risk associated with power price and availability. Rather, we will look at the aggregate commercial position, evaluating the risk to a utility's purchase and supply obligations. In addition, PPAs are similar to other long-term supply contracts used by other industries and their treatment should not therefore be fundamentally different from that of other contracts of a similar nature.

- **Pass-through capability:** Some utilities have the ability to pass through the cost of purchasing power under PPAs to their customers. As a result, the utility takes no risk that the cost of power is greater than the retail price it will receive. Accordingly we regard these PPA obligations as operating costs with no long-term debt-like attributes. PPAs with no pass-through ability have a greater risk profile for utilities. In some markets, the ability to pass through costs of a PPA is enshrined in the regulatory framework, and in others can be dictated by market dynamics. As a market becomes more competitive or if regulatory support for cost recovery deteriorates, the ability to pass through costs may decrease and, as circumstances change, our treatment of PPA obligations will alter accordingly.
- **Price considerations:** The price of power paid by a utility under a PPA can be substantially above or below the market price of electricity. A below-market price will motivate the utility to purchase power from the IPP in excess of its retail requirements, and to sell excess electricity in the spot market. This can be a significant source of cash flow for some utilities. On the other hand, utilities that are compelled to pay capacity payments to IPPs when they have no demand for the power or at an above-market price may suffer a financial burden if they do not get full recovery in retail rates. We will focus particularly on PPAs that have mark-to-market losses, which typically indicates that they have a material impact on the utility's cash flow.
- **Excess reserve capacity:** In some jurisdictions, there is substantial reserve capacity and thus a significant probability that the electricity available to a utility under PPAs will not be required by the market. This increases the risk to the utility that capacity payments will need to be made when there is no demand for the power. We may determine that all of a utility's PPAs represent excess capacity, or that a portion of PPAs are needed for the utility's supply obligations plus a normal reserve margin, while the remaining portion represents excess capacity. In the latter case, we may impute debt to specific PPAs that are excess or take a proportional approach to all of the utility's PPAs.
- **Risk-sharing:** Utilities that own power plants bear the associated operational, fuel procurement and other risks. These must be balanced against the financial and liquidity risk of contracting for the purchase of power under a PPA. We will examine on a case-by case basis the relative credit risk associated with PPAs in comparison to plant ownership.
- **Purchase requirements:** Some PPAs are structured with either options or requirements to purchase the asset at the end of the PPA term. If the utility has an economically meaningful requirement to purchase, we would most likely consider it to be a debt obligation. In most such cases, the obligation would already receive on-balance sheet treatment under relevant accounting standards.
- **Default provisions:** In most cases, the remedies for default under a PPA do not include acceleration of amounts due, and in many cases PPAs would not be considered as debt in a bankruptcy scenario and could potentially be cancelled. Thus, PPAs may not materially increase Loss Given Default for the utility. In addition, PPAs are not typically considered debt for cross-default provisions under a utility's debt and liquidity arrangements. However, the existence of non-standard default provisions that are debt-like would have a large impact on our treatment of a PPA. In addition, payments due under PPAs are senior unsecured obligations, and any inability of the utility to make them materially increases default risk.

Methods for estimating a liability amount for PPAs

According to the weighting and importance of the PPA to each utility and the level of disclosure, we may approximate a debt obligation equivalent for PPAs using one or more of the methods discussed below. In each case, we look holistically at the PPA's credit impact on the utility, including the ability to pass through costs and curtail payments, the materiality of the PPA obligation to the overall business risk and cash flows of the utility, operational constraints that the PPA imposes, the maturity of the PPA obligation, the impact of purchased power on market-based power sales (if any) that the utility will engage in, and our view of future market conditions and volatility.

- **Operating cost:** If a utility enters into a PPA for the purpose of providing an assured supply and there is reasonable assurance that regulators will allow the costs to be recovered in regulated rates, we may view the PPA as being most akin to an operating cost. Provided that the accounting treatment for the PPA is, in this circumstance, off-balance sheet, we will most likely make no adjustment to bring the obligation onto the utility's balance sheet.

- **Annual obligation x 6:** In some situations, the PPA obligation may be estimated by multiplying the annual payments by a factor of six (in most cases). This method is sometimes used in the capitalization of operating leases. This method may be used as an approximation where the analyst determines that the obligation is significant but cannot otherwise be quantified due to limited information.
- **Net present value:** Where the analyst has sufficient information, we may add the NPV of the stream of PPA payments to the debt obligations of the utility. The discount rate used will be our estimate of the cost of capital of the utility.
- **Debt look-through:** In some circumstances, where the debt incurred by the IPP is directly related to the off-taking utility, there may be reason to allocate the entire debt (or a proportional part related to share of power dedicated to the utility) of the IPP to that of the utility.
- **Mark-to-market:** In situations in which we believe that the PPA prices exceed the market price and thus will create an ongoing liability for the utility, we may use a net mark-to-market method, in which the NPV of the utility's future out-of-the-money net payments will be added to its total debt obligations.
- **Consolidation:** In some instances where the IPP is wholly dedicated to the utility, it may be appropriate to consolidate the debt and cash flows of the IPP with that of the utility. If the utility purchases only a portion of the power from the IPP, then that proportion of debt might be consolidated with the utility.

If we have determined to impute debt to a PPA for which the accounting treatment is not on-balance sheet, we will, in some circumstances, use more than one method to estimate the debt equivalent obligations imposed by the PPA, and compare results. If circumstances (including regulatory treatment or market conditions) change over time, the approach that is used may also vary.

Moody's related publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which is available here.

Endnotes

1 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

2 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

3 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

4 For more information, see our cross-sector methodology that discusses general principles related to how sovereign credit quality can impact other ratings. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

5 For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

6 For an explanation of our standard adjustments, please see the cross-sector methodology that describes our financial statement adjustments in the analysis of non-financial corporations.

7 A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

8 For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

9 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

10 A link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

11 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

12 See paragraph at the end of this section for approaches to Hybrid HoldCos.

13 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

14 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

15 For more information, see our cross-sector methodology that describes general principles related to loss given default for speculative-grade companies. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

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