lengthy process that does not provide funds immediately in the wake of a storm when service is being restored. Even with securitization, CenterPoint Houston would need to finance for up to 18 months until the process is complete.

- **Growth**: CenterPoint Houston has the obligation to serve our customers, and the number of customers in our service area has grown by 2% per year for decades and, unlike many other utility service areas, is projected to continue growing. CenterPoint Houston has to invest the capital required for the growing customer base – creating a continuous need to access capital markets and putting CenterPoint Houston at risk for overleverage due to current regulatory earnings lag and underearning. Our capital is tied up in the investment – our costs are sunk and prescriptive.
- **Population density**: As the utility serving one of the largest metro areas in the United States, CenterPoint Houston must invest in more distribution than transmission compared to other utilities in Texas. This presents unique challenges.

Q. HOW DOES THAT TYPE OF AFOREMENTIONED GROWTH AFFECT CENTERPOINT HOUSTON'S CREDIT METRICS?

A. As a public utility, CenterPoint Houston has a statutory duty to provide transmission and distribution service to all customers in its certificated service area. Thus, CenterPoint Houston is required to invest the capital necessary to construct facilities that will serve the additional growth, which requires incremental funding of such growth, including debt. The ability to generate sufficient cash flows from those capital investments in a timely manner relative to the amount of debt

necessary to fund the investments will drive the metrics that support the high-quality credit ratings.

Q. DOES CENTERPOINT HOUSTON FACE ANY OTHER NEAR-TERM RISKS THAT IMPACT ITS CREDIT RATING?

A. Yes. As noted in Ms. Story's Direct Testimony, the Inflation Reduction Act imposes a new 15% CAMT based upon adjusted financial statement income. Ms. Story testifies that the Company expects that CNP will be subject to the 15% CAMT beginning in tax year 2024.[10] Accordingly, the cash outlay associated with the CAMT presents a risk to our business that will likely adversely impact CenterPoint Houston's credit metrics, including the funds from operations (FFO)/debt ratio if we are unable to recover the impact of the tax through rates as illustrated in Table JRichert-7 below:

Table JRichert-7. Corporate Alternative Minimum Tax Impact to FFO Illustrative ONLY

	Cash Flow with Min Tax (A)		
Funds from Operations (FFO)	(without recovery)	(with recovery)	
Net Income adjusted for cash items = FFO	1,000	(B) 1,015	(A)
Minus: Min Tax Payment	(15)	(15)	(B)
Adjusted FFO	**985**	**1,000**	(C) = (A) - (B)
Adjusted Total Debt			
Total Debt	6,567	6,567	(D)
FFO/Debt	**15.0%**	**15.2%**	(E) = (C) / (D)

(A) All figures are illustrative only, not to be representative of actuals
(B) Assumes that Rate Base is adjusted for Min Tax, allowing for recovery through rates

[10] Ms. Story explains that CenterPoint Houston and other members of the CNP consolidated income tax return are expected to pay regular income tax in excess of the CAMT in 2023. As a result, she concludes that there will be no minimum tax due for the 2023 tax year.

In the event that negative credit impacts occur, CenterPoint Houston's ability to invest in necessary projects may be impeded as our ability to raise incremental debt issuances may be otherwise limited based on lower credit metrics.

Q. HAVE THE CREDIT AGENCIES COMMENTED ON THE IMPACT OF THE CAMT ON CREDIT?

A. Yes. As shown in Exhibit JRichert-3(CONF), S&P published a report on August 30, 2022, on the Inflation Reduction Act tax impacts to credit, and stated "the [CAMT] will impact the FFO of mostly investment-grade companies due to an increase in cash tax outflows related to higher taxes paid, and will also result in reduced accessible cash to offset debt." S&P does not expect the CAMT itself to affect ratings, but I believe this is an additional drag on CenterPoint Houston's credit metrics. Moody's published a similar report on August 10, 2022 (Exhibit JRichert-4(CONF)), and noted "from a liquidity perspective, this tax will have the largest negative effects on large, growing companies that only recently met the income threshold . . . . Their net operating losses have been used to offset taxable income, but that offset will be undone by the book minimum tax of 15%, which can be a substantial portion of operating cash flow."

Q. DOES CENTERPOINT EXPECT TO GENERATE ENOUGH REVENUE FROM OPERATIONS TO INTERNALLY FUND THE PROJECTED CAPITAL INVESTMENTS?

A. No. CenterPoint Houston's revenue from operations will not be sufficient to internally fund all of that investment. CenterPoint Houston's base rates are set based upon its historic investment levels. As explained in the Direct Testimony of

Lynnae K. Wilson and Jason M. Ryan, and others, a combination of sustained and rapid customer growth together with heightened expectations for reliability and resiliency, are requiring ever increasing levels of annual capital investment above base rates. As described in earlier testimony, there is nearly $13 billion of investments anticipated over the next five years. Therefore, it will be necessary for CenterPoint Houston to fund the incremental investment through a combination of debt issuances, retained earnings, and equity infusions from CNP.

Q. YOU TESTIFIED EARLIER THAT THE RATING AGENCIES HAVE STATED THAT CONSTRUCTIVE RESPONSES BY THE REGULATORY AGENCIES ARE NECESSARY TO MITIGATE THE EFFECTS OF THE FUNDING GAP BEYOND GENERATED CASH FLOWS. WHAT TOOLS ARE AVAILABLE TO THE REGULATORY COMMISSIONS TO RESTORE THE CASH FLOW TO LEVELS THAT WILL MAINTAIN CURRENT CREDIT METRICS?

A. The rating agencies have identified a number of tools to restore part of the lost cash flow, including the following:

- an increase in the authorized equity ratio;
- an increase in the authorized ROE; or
- an increase in depreciation expense.

These tools are not mutually exclusive. They can be used in combination with each other and in combination with other tools, such as shortening amortization time periods.

Q. WHAT TOOL IS CENTERPOINT HOUSTON PROPOSING THAT THE COMMISSION ADOPT IN THIS CASE?

A. CenterPoint Houston proposes that the Commission help mitigate the funding gap through a combination of all of these tools including authorizing CenterPoint Houston's actual operating capital structure, improving the authorized ROE as supported by Company witness Ann E. Bulkley, and approving the depreciation rates supported by Company witness Dane E. Watson. Increasing the authorized equity ratio used to set rates to match the equity level at which the business is actually funded would be a credit supportive recommendation. Because increasing the equity ratio has the corresponding effect of reducing the debt ratio, it improves the quality of the Company's credit metrics. Table JRichert-8 below is an illustrative example to show how isolating something such as equity layer would lead to higher returns on rate base. This hypothetical example creates an incremental $30 million of generated returns to support future capital investments, which would have the corresponding effect of reducing the incremental debt needs.

Table JRichert-8: Illustrative Change of Equity Content (in millions)[11]

	Allowed:	Updated Equity layer:
Equity Content	42.5%	45%
ROE	9.4%	9.4%
Capital (in millions)	$12,794	$12,794
Return on Investment	$511	$541
Change in Return:		**+$30**

[11] This example does not take into account any changes to cost of capital or Operations and Maintenance expenses.

Q. HOW CAN CENTERPOINT HOUSTON DEMONSTRATE THAT THE EQUITY RATIO DECIDED BY THE COMMISSION IMPACTS CREDIT RATINGS?

A. As previously mentioned in my testimony, both Moody's and Fitch lowered CenterPoint Houston's issuer rating during or shortly after the conclusion of CenterPoint Houston's last rate case in Docket No. 49421. In Exhibit JRichert-5(CONF), which is a Moody's report dated March 4, 2020, Moody's downgraded CenterPoint Houston's senior secured rating to A2 from A1. In its report, Moody's stated:

> '…CEHE's ratio of cash flow pre-working capital to debt ratio is falling to the 15% to 16% range, down from around 19% historically . . . .' In addition, CEHE's approved stipulation of settlement …includes a ROE and equity layer of 9.4% and 42.5%, respectively. This is lower than CEHE's previous 10% ROE and 45% equity layer, all resulting in lower cash flow and a higher debt capitalization.

B. Need for a Capital Structure that Supports an A3 Issuer

Q. IS AN A3 ISSUER RATING APPROPRIATE FOR CENTERPOINT HOUSTON?

A. My earlier testimony described cost of debt disparity between credit ratings. A higher rating translates to lower costs as illustrated in Tables JRichert-4 and JRichert-6. I also described the market access afforded to higher rated credit. It is in the public interest for CenterPoint Houston to be in a position to borrow funds on reasonable terms under any circumstances that may arise in the future given the recent experience of turbulent market environment. Solid financial integrity is a critical component of CenterPoint Houston's ability to address the ongoing funding needs associated with providing reliable electric service as described earlier and in

the Direct Testimony of Jason M. Ryan. CenterPoint Houston routinely needs access to the debt capital markets at reasonable rates in order to finance its future capital investments and refinance the approximately $7 billion of existing long-term debt that will mature over time. CenterPoint Houston may also, from time to time, need to access the debt capital markets for unexpected needs such as system restoration costs following a hurricane. These unexpected needs could occur at inopportune times when the financial markets are not robust, and CenterPoint Houston may not have adequate liquidity reserves, or parent support, to wait for improved market conditions. Accordingly, I believe it is appropriate for CenterPoint Houston to attain and maintain its prior A3 issuer rating at Moody's and S&P/Fitch equivalent rating or better.

Q. WOULD THE PROPOSED 44.90% EQUITY RATIO AND 10.4% ROE IMPROVE THE PROJECTED FFO/DEBT RATIO ENOUGH TO IMPROVE THE COMPANY'S CREDIT RATING?

A. According to the Moody's report dated January 11, 2024 in Exhibit JRichert-6(CONF), factors that could lead to an upgrade include if "CEHE's financial metrics improve, including a ratio of CFO pre-W/C to debt consistently above 17%".[12] Based on the projected cash flow improvements and resulting debt reductions shown in the simplified calculation below, we would advocate for a ratings improvement.

[12] "CFO pre-W/C" means Cash Flow from Operations before Changes in Working Capital.

Table JRichert-9: Calculated FFO/Debt based on Capital Structure and ROE Recommendation[13]

($ in Billions)	2025E	2026E	2027E	2028E
FFO (at 55%/45% structure at 10.4% ROE)	$1.5	$1.7	$1.9	$2.0
Total Debt	$9.0	$9.9	$10.9	$11.8
FFO / Total Debt	**17.0%**	**17.3%**	**17.3%**	**17.3%**

Q. HAVE YOU REVIEWED THE CAPITAL STRUCTURES OF THE COMPANIES THAT MS. BULKLEY INCLUDED IN HER PROXY GROUP?

A. Yes. Those capital structures appear in Ms. Bulkley's Exhibit AEB-14.

Q. IS A CAPITAL STRUCTURE WITH 44.90% COMMON EQUITY REASONABLE WHEN COMPARED TO CAPITAL STRUCTURES OF THE COMPANIES IN THAT PROXY GROUP?

A. As mentioned earlier, the capital structure proposed in CenterPoint Houston's Rate Filing Package is conservative. As shown on Company witness Ms. Bulkley's Exhibit AEB-14, the equity ratios for the utility operating subsidiaries of the Company's proxy group average 52.42%. Those percentages are considerably higher than the 44.90% equity ratio requested by CenterPoint Houston in this case.

C. Summary of Capital Structure Recommendation

Q. HOW WOULD YOU SUMMARIZE THE DATA THAT YOU HAVE REVIEWED AND PRESENTED IN THIS TESTIMONY ON THE MATTER OF CAPITAL STRUCTURE?

[13] This projected calculation is isolating for FFO changes made by revising capital structure and ROE recommendations and is not comprehensive for other witness recommendations.

A. The data and testimony I have presented demonstrate the reasonableness of using a 55.10% long-term debt and 44.90% equity capital structure. That structure is in the best interest of the customers and the communities we serve for the local transmission and distribution utility to have a single A3 credit rating or greater because such rating is expected to allow the utility to raise funds as needed, on reasonable terms, to finance the ongoing capital investment and improvements in our electric system even in the face of adverse conditions (whether that be a hurricane that affects the utility or developments in the bank or capital markets that affect all companies in the industry).

This recommendation is also in the best interest of the Company as it has continued reliance on capital markets to fund customer-driven investments. As leverage increases, a company has less financial flexibility, due to the need to service the fixed payments associated with the debt. This reduced financial flexibility results in greater financial risk for the company, resulting from lower overall coverage ratios. Further, higher leverage increases the risk to equity holders, which are the last claimants on company assets.

V. COST OF DEBT CAPITAL

Q. WHAT TOPIC DO YOU DISCUSS IN THIS SECTION OF YOUR TESTIMONY?

A. I describe CenterPoint Houston's embedded cost of long-term debt.

Q. WHAT IS THE COMPANY'S CURRENT EMBEDDED COST OF LONG-TERM DEBT IN THIS CASE?

A. CenterPoint Houston's current embedded cost of long-term debt is 4.29%.

Q. HOW DID CENTERPOINT HOUSTON CALCULATE THAT LONG-TERM DEBT RATE?

A. The cost of debt was calculated in Schedules II-C-2.4 and II-C-2.4a. The cost of debt percentage is calculated as the adjusted annual debt requirement[14] divided by the net balance of debt as of December 31, 2023.

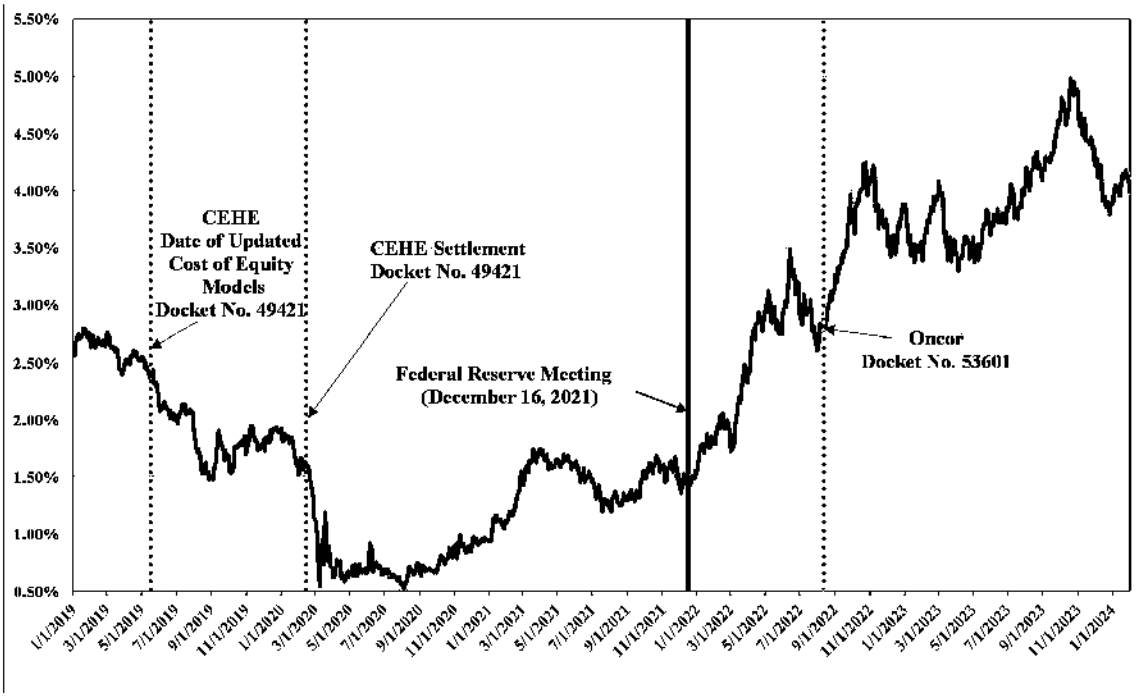
Q. HAVE DEBT COSTS BEEN INCREASING RECENTLY?

A. Yes. The cost of short-term and long-term debt has increased significantly in the past few years, primarily as the result of rising interest rates. This can be viewed in CenterPoint Houston's two most recent bond offerings. In March of 2023, a 10-year bond was issued at a rate of 4.98%. Several months later, a 5-year bond was offered in September at a rate of 5.2%. That represents a 4% increase in the coupon for half of the duration bond over a relatively short amount of time.

As shown in the table below referenced from Figure AEB-4 of the Direct Testimony of Ann E. Bulkley, the underlying 10-year treasury bond yield remains at approximately 4.00%.

[14] Including amortized costs of issuances and interest rate hedges as consistent with prior practice.

Table JRichert-10: 10-Year Treasury Bond Yield, January 2019–January 2024



VI. COST OF EQUITY CAPITAL AND RATE OF RETURN

Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF ANN E. BULKLEY IN WHICH SHE PROPOSES A 10.6% ROE FOR CENTERPOINT HOUSTON?

A. Yes. I have reviewed Ms. Bulkley's testimony, and while I agree that 10.6% is a reasonable ROE for CenterPoint Houston, the Company is requesting an ROE of 10.4% after taking into consideration the affordability for customers of the overall return requirement, as discussed in the Direct Testimony of Jason M. Ryan.

Q. WHAT IS THE APPROPRIATE RATE OF RETURN FOR CENTERPOINT HOUSTON USING THE 10.4% ROE, A 4.29% COST OF DEBT AND A CAPITAL STRUCTURE COMPOSED OF 55.10% LONG-TERM DEBT AND 44.90% EQUITY?

A. Using a capital structure consisting of 55.10% long-term debt and 44.90% equity, a 4.29% cost of debt, and a 10.4% ROE, the overall rate of return for CenterPoint Houston is 7.03%. That is the rate of return that CenterPoint Houston is asking the Commission to adopt in this proceeding. Please refer to Schedule II-C-2.1 for this calculation.

Table JRichert-11: Recommended Rate of Return

	(a) Balance	(b) Percentage of Total	(c) Cost	(d) Weighted Cost
Common Equity	5,990,929,790	44.90%	**10.40%**	4.67%
Long-Term Debt	7,351,041,105	55.10%	**4.29%**	2.36%
Total	13,341,970,895	100.00%		7.03%

VII. RING FENCING PROVISIONS

Q. CAN YOU PLEASE PROVIDE A DESCRIPTION OF RING-FENCING?

A. Yes. At a high level, ring-fencing is a method of separating assets or businesses from each other. For utilities, regulators have sought to use ring-fencing to insulate the utility from any potential credit risk associated with the utility's parent or other affiliate companies.

Q. HAVE RING-FENCING REQUIREMENTS BEEN PLACED ON CENTERPOINT HOUSTON AND HAVE YOU ADHERED TO ALL REQUIREMENTS?

A. Yes, 14 ring-fencing provisions were contained in the Docket No. 49421 Final Order, Ordering Paragraphs Nos. 26–39, and CenterPoint Houston has adhered to all requirements.

Q. DOES CENTERPOINT REQUEST ANY CHANGES BE MADE TO THE REQUIREMENTS?

A. Yes. Ordering Paragraph No. 30 states: "CenterPoint Houston must maintain registrations with all three ratings agencies."[15] CenterPoint Houston requests that this requirement be revised to read, "CenterPoint Houston must maintain registrations with Moody's and S&P ratings agencies." Reducing CenterPoint Houston's required registrations from all three agencies to two should reduce the associated costs borne by our customers by approximately $990,000 annually. There is an annual fee of $66,000 per calendar year for the annual entity rating, as well as a 6.6 basis point fee to that agency to rate each new issuance, which resulted in $924,000 in costs in 2023. Having two of three agencies (Moody's and S&P) rate the issuances would be sufficient to maintain the rating integrity of the entity.

Similarly, Ordering Paragraph No. 39 states: "CenterPoint Houston must notify the Commission if its credit issuer rating or corporate rating as rated by any of the three major rating agencies falls below investment-grade level."[16] CenterPoint Houston requests this requirement also be revised to read, "CenterPoint Houston must notify the Commission if its credit issuer rating or corporate rating as rated by Moody's or S&P falls below investment-grade level."

[15] Docket No. 49421, Ordering Paragraph No. 30.

[16] Docket No. 49421, Ordering Paragraph No. 39.

Reducing the number of rating agencies as proposed in the revisions above is consistent with requirements of our peers, including AEP Texas,[17] SWEPCO,[18] and Entergy Texas.[19].

VIII. TREASURY AND INVESTOR RELATIONS DEPARTMENTS' ORGANIZATION AND OPERATING COSTS

Q. WHAT TOPICS DO YOU DISCUSS IN THIS SECTION OF YOUR TESTIMONY?

A. I support the reasonable and necessary costs charged to CenterPoint Houston for the services provided to CenterPoint Houston by the CNP Treasury and Investor Relations Departments.

Q. PLEASE DESCRIBE THE TREASURY AND INVESTOR RELATIONS DEPARTMENTS AND THEIR FUNCTIONS.

A. The Treasury Department facilitates cash movements for the Company, credit monitoring, and capital markets transactions to support the operations among other things. The department reports to the Chief Financial Officer of CNP.

With respect to CenterPoint Houston, the Treasury Department provides a number of services. The Treasury operations group secures cost-effective funding of short-term and long-term capital requirements for CNP and its subsidiaries, manages existing long-term capital to optimize the cost of capital in relation to the life and risk profile of the assets and preserves financial flexibility by ensuring ready access to various sources of short-term and long-term capital. This group is

[17] Docket No. 49494, Finding of Fact No. 38, Ordering Paragraph No. 113.

[18] Docket No. 51415, Findings of Fact Nos. 108a, 108b, Ordering Paragraph No. 4.

[19] Docket No. 53719, Finding of Fact No. 118, Ordering Paragraphs Nos. 12a, 12b.

also responsible for optimizing returns on the temporary investment of cash and for developing and maintaining relationships with banks, rating agencies and other members of the financial community. This group also administers corporate and benefits trust investment activities and maintains relationships with corporate and benefit trust fund managers.

For Investor Relations, the National Investor Relations Institute defines that function as "a strategic management responsibility that integrates finance, communication, marketing and securities law compliance to enable the most effective two-way communication between a company, the financial community, and other constituencies, which ultimately contributes to a company's securities achieving fair valuation." Consistent with that definition, CNP's Investor Relations Department interacts with existing equity and fixed-income investors and prospective investors, and it assists with mandatory reporting requirements imposed by state and federal regulatory agencies, such as the U.S. Securities and Exchange Commission.

With respect to Investor Relations' role at CNP, CNP's subsidiaries, including CenterPoint Houston, compete on a global level for capital not just with gas and electric utilities, but with all other publicly traded companies. In this extremely competitive landscape, Investor Relations is crucial to help ensure the Company has access to a sufficiently large pool of investors by telling the Company's "story" and making sure investors are familiar with the company; building long-term credibility within the financial community. Investor Relations ensures that CenterPoint Houston's debt and CNP's equity securities are fairly

traded and valued properly. It provides debt and equity investors with access to management and company information and identifies bond and equity investors that are looking for specific investment return profiles that match CNP's investment profile.

Q. WHAT EXPENSE AMOUNTS IN CENTERPOINT HOUSTON'S PROPOSED COST OF SERVICE DOES YOUR TESTIMONY SUPPORT?

A. I support affiliate costs for the Treasury and Investor Relations functions charged to CenterPoint Houston. The Direct Testimonies of Kristie L. Colvin and L. Darren Storey provide additional information regarding the amount of Treasury and Investor Relations Department expenses and the allocations of those expenses to CenterPoint Houston.

Q. HOW ARE THE TREASURY AND INVESTOR RELATIONS DEPARTMENTS' EXPENSES CHARGED TO CENTERPOINT HOUSTON?

A. The Treasury and Investor Relations organization expenses are allocated at cost according to the allocation methodologies addressed in Mr. Storey's Direct Testimony.

Q. IS IT CORRECT THAT THE COSTS THAT THE TREASURY AND INVESTOR RELATIONS DEPARTMENTS CHARGE CENTERPOINT HOUSTON ARE NOT HIGHER THAN WHAT THOSE DEPARTMENTS CHARGE OTHER CNP AFFILIATES OR DIVISIONS FOR DEPARTMENT SERVICES?

A. Yes. The costs that the Departments charge CenterPoint Houston for operation and maintenance expense costs are not higher than what those Departments charge other CNP affiliates or divisions for those services. All operation and maintenance expense costs incurred by the Departments are charged to all CNP affiliates at cost through allocations. Ms. Colvin's and Mr. Storey's Direct Testimonies further describe the process for direct charging or allocating costs to CenterPoint Houston and other CNP affiliates or divisions at cost.

Q. ARE THE TREASURY AND INVESTOR RELATIONS DEPARTMENTS' EXPENSES YOU SUPPORT REASONABLE AND NECESSARY TO PROVIDE SERVICE TO THE PUBLIC?

A. Yes. As my testimony demonstrates, the services that the Departments provide to CenterPoint Houston are necessary and must be provided for the Company to provide electric service, and those services are provided at a reasonable cost.

Q. DO THE EXPENSES FOR THE SERVICES PROVIDED BY THE TREASURY AND INVESTOR SERVICES DEPARTMENTS AND CHARGED TO CENTERPOINT HOUSTON INCLUDE ANY EXPENSES THAT PURA AND THE COMMISSION RULES PROHIBIT FROM INCLUSION AS A COMPONENT OF COST OF SERVICE?

A. No. Although the Departments incur certain expenses that must be excluded from CenterPoint Houston's costs of service, such expenses were not allocated to CenterPoint Houston's cost of service in this proceeding. Mr. Storey's Direct Testimony discusses CNP's processes to track and identify such non-recoverable

expenses, and Ms. Colvin's Direct Testimony discusses the adjustments to exclude non-recoverable costs from CenterPoint Houston's cost of service.

Q. HOW DO THE TREASURY AND INVESTOR RELATIONS DEPARTMENTS MONITOR THEIR EXPENSES TO ENSURE COSTS INCURRED ARE REASONABLE AND NECESSARY AND THAT COSTS ARE PROPERLY ASSIGNED?

A. The Departments utilize CNP's annual budget process, described by Mr. Storey in his Direct Testimony, to determine expected expenditures for the coming year. As part of this process, management reviews and approves the annual budget. I also review and approve invoices and monitor actual expenditures against the budget each month.

Q. ARE INVESTORS NECESSARY FOR CNP AND CENTERPOINT HOUSTON TO OPERATE AND PROVIDE SERVICE TO CUSTOMERS?

A. Yes, as stated above, if all of these activities were not done, the cost of capital (both debt and equity) would be higher. In essence, all of the Investor Relations activities serve to reduce the cost of capital by ensuring the best possible pricing execution for debt and equity issuances. A more educated and diversified investor pool that is familiar with CenterPoint Houston and its investment thesis helps build stronger demand for the company's issuances and allows for more leverage in negotiating price. Just as a strong balance sheet with a supportive capital structure supports CenterPoint Houston's credit rating and lowers borrowing costs, an active Investor Relations Department does the same.

Q. ARE THERE OTHER BENEFITS OF INVESTOR RELATIONS TO CUSTOMERS?

A. Yes. Other benefits that Investor Relations provides include preparing competitive market analysis, trends and peer analysis, monitoring activist investor activity, providing stock surveillance reporting, and compiling bond holder and shareholder ownership reports and providing general reporting on securities performance. All of these activities help to ensure that CNP and CenterPoint Houston's leadership have all the right information to make the best business decisions, which in turn, facilitates the financial health of CenterPoint Houston and translates to benefits for customers.

Q. DO YOU HAVE ANY CONCLUDING COMMENTS REGARDING THE COSTS OF THE TREASURY AND INVESTOR RELATIONS DEPARTMENTS?

A. Yes. The functions and services that are performed by the Departments are essential functions that must be performed by any large, publicly owned corporation today, not just utilities. They are necessary for CenterPoint Houston to be able to provide the service that it does to the public, and the costs assigned to CenterPoint Houston for these functions and services are reasonable.

IX. CONCLUSION

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

JUNE 23, 2017

INFRASTRUCTURE

MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

Regulated Electric and Gas Utilities

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This rating methodology replaces "Regulated Electric and Gas Utilities" last revised on December 23, 2013. We have updated some outdated links and removed certain issuer-specific information.

Summary

This rating methodology explains our approach to assessing credit risk for regulated electric and gas utilities globally. This document does not include an exhaustive treatment of all factors that are reflected in our ratings but should enable the reader to understand the qualitative considerations and financial information and ratios that are usually most important for ratings in this sector.[1]

This report includes a detailed scorecard which is a reference tool that can be used to approximate credit profiles within the regulated electric and gas utility sector in most cases. The scorecard provides summarized guidance for the factors that are generally most important in assigning ratings to companies in the regulated electric and gas utility industry. However, the scorecard is a summary that does not include every rating consideration. The weights shown for each factor in the scorecard represent an approximation of their importance for rating decisions but actual importance may vary substantially. In addition, the scorecard uses historical results while ratings are based on our forward-looking expectations. As a result, the scorecard-indicated outcome is not expected to match the actual rating of each company.

THIS METHODOLOGY WAS UPDATED ON THE DATES LISTED AS NOTED: ON SEPTEMBER 10, 2020, WE REMOVED POINT-IN-TIME REFERENCES AND ALSO MADE MINOR FORMATTING CHANGES; ON NOVEMBER 4, 2019, WE UPDATED SOME OUTDATED REFERENCES AND ALSO MADE MINOR FORMATTING CHANGES; ON FEBRUARY 22, 2019, WE AMENDED A REFERENCE TO A METHODOLOGY IN APPENDIX E AND REMOVED OUTDATED TEXT; ON AUGUST 2, 2018, WE MADE MINOR FORMATTING CHANGES THROUGHOUT THE METHODOLOGY; ON FEBRUARY 15, 2018, WE CORRECTED THE FORMATTING OF THE FACTOR 4: FINANCIAL STRENGTH TABLE ON PAGE 34; AND ON SEPTEMBER 27, 2017, WE REMOVED A DUPLICATE FOOTNOTE THAT WAS PLACED IN THE MIDDLE OF THE TEXT ON PAGE 7.

[1] This update may not be effective in some jurisdictions until certain requirements are met.

The scorecard contains four key factors that are important in our assessment for ratings in the regulated electric and gas utility sector:

1. Regulatory Framework
2. Ability to Recover Costs and Earn Returns
3. Diversification
4. Financial Strength

Some of these factors also encompass a number of sub-factors. There is also a notching factor for holding company structural subordination.

This rating methodology is not intended to be an exhaustive discussion of all factors that our analysts consider in assigning ratings in this sector. We note that our analysis for ratings in this sector covers factors that are common across all industries such as ownership, management, liquidity, corporate legal structure, governance and country related risks which are not explained in detail in this document, as well as factors that can be meaningful on a company-specific basis. Our ratings consider these and other qualitative considerations that do not lend themselves to a transparent presentation in a scorecard format. The scorecard used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex scorecard that might map scorecard-indicated outcomes more closely to actual ratings.

Highlights of this report include:

» An overview of the rated universe

» A summary of the rating methodology

» A discussion of the scorecard factors

» Comments on the rating methodology assumptions and limitations, including a discussion of rating considerations that are not included in the scorecard

The Appendices show the full scorecard (Appendix A), our approach to ratings within a utility family (Appendix B), a description of the various types of companies rated under this methodology (Appendix C), regional and other considerations (Appendix D), and treatment of power purchase agreements (Appendix E).

This methodology describes the analytical framework used in determining credit ratings. In some instances, our analysis is also guided by additional publications which describe our approach for analytical considerations that are not specific to any single sector. Examples of such considerations include but are not limited to: the assignment of short-term ratings, the relative ranking of different classes of debt and hybrid securities, how sovereign credit quality affects non-sovereign issuers, and the assessment of credit support from other entities.[2]

[2] A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

About the Rated Universe

This methodology applies to rate-regulated[3] electric and gas utilities that are not Networks[4]. Regulated electric and gas utilities are companies whose predominant[5] business is the sale of electricity and/or gas or related services under a rate-regulated framework, in most cases to retail customers. Also included under this methodology are 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. Companies rated under 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.

This rating methodology covers regulated electric and gas utilities worldwide. These companies 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. As detailed in Appendix C, this methodology covers a wide variety of companies active in the sector, including vertically integrated utilities, transmission and distribution utilities with retail customers and/or sub-sovereign regulation, local gas distribution utility companies (LDCs), independent system operators, and regulated generation companies. These companies may be operating companies or holding companies.

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. While regulation is also a key consideration for networks, a utility's regulatory environment is in comparison often more dynamic and more 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 more accessible for participation by interveners, including disaffected customers and the politicians who want their votes. 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.

This methodology pertains to regulated electric and gas utilities and excludes the following types of issuers, which are covered by separate rating methodologies: regulated networks, unregulated utilities and power companies, public power utilities, municipal joint action agencies, electric cooperatives, regulated water companies and natural gas pipelines.[6]

[3] 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.

[4] 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.

[5] 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.

[6] A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

About this Rating Methodology

This report explains the rating methodology for regulated electric and gas utilities in six sections, which are summarized as follows:

1. Identification and Discussion of the Scorecard Factors

The scorecard in this rating methodology focuses on four factors. The four factors are comprised of sub-factors that provide further detail:

Factor / Sub-Factor Weighting - Regulated Utilities

Broad Scorecard Factors	Factor Weighting	Sub-Factor	Sub-Factor Weighting
Regulatory Framework	25%	Legislative and Judicial Underpinnings of the Regulatory Framework	12.5%
		Consistency and Predictability of Regulation	12.5%
Ability to Recover Costs and Earn Returns	25%	Timeliness of Recovery of Operating and Capital Costs	12.5%
		Sufficiency of Rates and Returns	12.5%
Diversification	10%	Market Position	5%*
		Generation and Fuel Diversity	5%**
Financial Strength, Key Financial Metrics	40%		
		CFO pre-WC + Interest / Interest	7.5%
		CFO pre-WC / Debt	15.0%
		CFO pre-WC – Dividends / Debt	10.0%
		Debt/Capitalization	7.5%
Total	100%		100%
Notching Adjustment			
Holding Company Structural Subordination			0 to -3

*10% weight for issuers that lack generation; **0% weight for issuers that lack generation

2. Measurement or Estimation of Factors in the Scorecard

We explain our general approach for scoring each factor and show the weights used in the scorecard. We also provide a rationale for why each of these scorecard components is meaningful as a credit indicator. The information used in assessing the sub-factors is generally found in or calculated from information in company financial statements, derived from other observations or estimated by our analysts. All of the quantitative credit metrics incorporate Moody's standard adjustments to income statement, cash flow statement and balance sheet amounts for restructuring, impairment, off-balance sheet accounts, receivable securitization programs, under-funded pension obligations, and recurring operating leases.[7]

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. We utilize historical data (in most cases, an average of the last three years of reported results) in the scorecard. However, the factors in the scorecard can be assessed using various time

[7] For more information, see our cross-sector methodology that describes our standard adjustments in the analysis of non-financial corporations. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

periods. For example, rating committees may find it analytically useful to examine both historic and expected future performance for periods of several years or more, or for individual twelve-month periods.

3. Mapping Scorecard Factors to the Rating Categories

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

4. Assumptions Limitations and Rating Considerations Not Included in the Scorecard

This section discusses limitations in the use of the scorecard to map against actual ratings, some of the additional factors that are not included in the scorecard but can be important in determining ratings, and limitations and assumptions that pertain to the overall rating methodology.

5. Determining the Overall Scorecard-Indicated Outcome[8]

To determine the overall scorecard-indicated outcome, we convert each of the sub-factor ratings into a numeric value based upon the scale below.

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

The numerical score for each sub-factor is multiplied by the weight for that sub-factor with the results then summed to produce a composite weighted-factor score. The composite weighted factor score is then mapped back to an alphanumeric rating based on the ranges in the table below.

Scorecard-Indicated Outcome

Scorecard-Indicated Outcome	Aggregate Weighted Total Factor Score
Aaa	x < 1.5
Aa1	1.5 ≤ x < 2.5
Aa2	2.5 ≤ x < 3.5
Aa3	3.5 ≤ x < 4.5
A1	4.5 ≤ x < 5.5
A2	5.5 ≤ x < 6.5
A3	6.5 ≤ x < 7.5
Baa1	7.5 ≤ x < 8.5
Baa2	8.5 ≤ x < 9.5
Baa3	9.5 ≤ x < 10.5
Ba1	10.5 ≤ x < 11.5
Ba2	11.5 ≤ x < 12.5
Ba3	12.5 ≤ x < 13.5

[8] In general, the scorecard-indicated outcome is oriented to the Corporate Family Rating (CFR) for speculative-grade issuers and the senior unsecured rating for investment-grade issuers. For issuers that benefit from ratings uplift due to parental support, government ownership or other institutional support, the scorecard-indicated outcome is oriented to the baseline credit assessment. For more information, see our cross-sector methodology that describes our general approach for assessing government-related issuers. Individual debt instrument ratings also factor in decisions on notching for seniority level and collateral. For more information, see our cross-sector methodology that describes principles related to loss given default for speculative grade non-financial companies and also our cross-sector methodology that describes the alignment of corporate instrument ratings based on differences in security and priority of claim. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Scorecard-Indicated Outcome

Scorecard-Indicated Outcome	Aggregate Weighted Total Factor Score
B1	13.5 ≤ x < 14.5
B2	14.5 ≤ x < 15.5
B3	15.5 ≤ x < 16.5
Caa1	16.5 ≤ x < 17.5
Caa2	17.5 ≤ x < 18.5
Caa3	18.5 ≤ x < 19.5
Ca	x ≥ 19.5

For example, an issuer with a composite weighted factor score of 11.7 would have a Ba2 scorecard-indicated outcome.

6. Appendices

The Appendices present a full scorecard and provide additional commentary and insights on our view of credit risks in this industry.

Discussion of the Scorecard Factors

Our analysis of electric and gas utilities focuses on four broad factors:

» Regulatory Framework

» Ability to Recover Costs and Earn Returns

» Diversification

» Financial Strength

There is also a notching factor for holding company structural subordination.

Factor 1: Regulatory Framework (25%)

Why It Matters

For rate-regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations. The regulatory environment is comprised of two factors - the Regulatory Framework and its corollary factor, the Ability to Recover Costs and Earn Returns. Broadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation. The Ability to Recover Costs and Earn Returns relates more directly to the actual decisions, including their timeliness and the rate-setting outcomes.

Utility rates[3] 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 success of utility. 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

[3] 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 1a, 1b, 2a and 2b 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.

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 primarily or at least secondarily because of a break-down or obstacle in the Regulatory Framework – for instance, laws that prohibited regulators from including investments in uncompleted power plants or plants not deemed "used and useful" in rates, or a disagreement about rate-making that could not be resolved until after the utility had defaulted on its debts.

How We Assess Legislative and Judicial Underpinnings of the Regulatory Framework for the Scorecard

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 look at how well developed the framework is – both how fully fleshed out the rules and regulations are and how well tested it is – the extent to which regulatory or judicial decisions have created a body of precedent that will help determine future rate-making. Since the focus of our scoring is on each issuer, 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 will 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 rules will receive higher scores in the Legislative and Judicial Underpinnings 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 seeking to enhance their populist appeal will receive a much lower score.

In general, we view national utility regulation as being less liable to political intervention than regulation by state, provincial or municipal entities, so the very highest scoring in this sub-factor is 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 "above-the-fray" in terms of impartial and technically-oriented rate setting, and very high scoring may be appropriate.

The relevant judicial system can be a major factor in the regulatory framework. This is particularly true in litigious societies like the United States, where disagreements between the utility and its state or municipal regulator may eventually be adjudicated in federal district courts or even by the US Supreme Court. In addition, bankruptcy proceedings in the US take place 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 favorable for the credit- supportiveness of the regulatory framework.

Electric and gas utilities are generally presumed to have a strong monopoly that will continue into the foreseeable future, and this expectation has allowed these companies to have greater leverage than companies in other sectors with similar ratings. 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 cause lower scoring, because the utility can only recover its costs and investments and service its debt if customers purchase its services. There have been some instances of incursions into utilities' monopoly, including municipalization, self-generation, distributed generation with net metering, or unauthorized use

(beyond the level for which the utility receives compensation in rates). Incursions that are growing significantly or having a meaningful impact on rates for customers that remain with the utility could have a negative impact on scoring of this sub-factor and on factor 2 - Ability to Recover Costs and Earn Returns.

The scoring of this sub-factor may not be the same for every utility in a particular jurisdiction. We have observed that 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 factor scoring will seek to reflect that evolution. For instance, a new framework will typically become 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 impact scoring of sub-factor 2b - Timeliness of Recovery of Operating and Capital Costs, but they may also be sufficiently significant to indicate a change in the regulatory underpinnings. On the negative side, a judiciary that had formerly been independent 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.

Factor 1a: Legislative and Judicial Underpinnings of the Regulatory Framework (12.5%)

Aaa	Aa	A	Baa
Utility regulation occurs under a fully developed framework that is national in scope based on legislation that provides the utility a nearly absolute monopoly (see note 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 (see note 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 (see note 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 (see note 1), a general assurance that, subject to prudency requirements that are mostly reasonable, rates will be set 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.

Ba	B	Caa
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 (see note 1), and that, subject to prudency requirements which may be stringent, provides a general assurance (with somewhat less certainty) that rates will be set 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 of 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.

Note 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.

How We Assess Consistency and Predictability of Regulation for the Scorecard

For the Consistency and Predictability 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 - power plants, electric transmission and distribution systems, and/or natural gas distribution systems. When 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 when the utility is able to align itself with the policy initiatives of the governing jurisdiction, the utility will receive higher scores in this sub-factor. When 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 when regulators ignore the laws/rules to deliver an outcome that appears more politically motivated, the utility will receive lower scores in 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. We have observed that 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 will score higher in 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 score lower in this sub-factor.

In scoring this sub-factor, we will 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 1b: Consistency and Predictability of Regulation (12.5%)

Aaa	Aa	A	Baa
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 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.

Ba	B	Caa
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 2: Ability to Recover Costs and Earn Returns (25%)

Why It Matters

This scorecard factor examines the ability of a utility to recover its costs and earn a return over a period of time, including during differing market and economic conditions. While the Regulatory Framework looks at the transparency and predictability of the rules that govern the decision-making process with respect to utilities, the Ability to Recover Costs and Earn Returns evaluates the regulatory elements that directly impact the ability of the utility to generate cash flow and service its debt over time. 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 the Ability to Recover Costs and Earn Returns may primarily be influenced by our assessment of the regulatory relationship, it can also be highly impacted by the management and business decisions of the utility.

How We Assess Ability to Recover Costs and Earn Returns

The timeliness and sufficiency of rates are scored as separate sub-factors; however, they 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. Utilities have benefitted from low interest rates and generally decreasing fuel costs and purchased power costs, but these market conditions could easily reverse. 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.

While Factors 1 and 2 are closely inter-related, scoring of these factors will not necessarily be the same. We have observed jurisdictions where the Regulatory Framework caused considerable credit concerns – perhaps it was untested or going through a transition to de-regulation, but where the track record of rate case outcomes was quite positive, leading to a higher score in the Ability to Recover Costs and Earn Returns. Conversely, there have been instances of strong Legislative and Judicial Underpinnings of the Regulatory Framework where the commission has ignored the framework (which would affect Consistency and Predictability of Regulation as well as Ability to Recover Costs and Earn Returns) or has used extraordinary measures to prevent or defer an increase that might have been justifiable from a cost perspective but would have caused rate shock.

One might surmise that Factors 2 and 4 should be strongly correlated, since a good Ability to Recover Costs and Earn Returns would normally lead to good financial metrics. However, the scoring for the Ability to Recover Costs and Earn Returns sub-factor places more emphasis on our expectation of timeliness and sufficiency of rates over time; whereas financial metrics may be impacted by one-time events, market conditions or construction cycles - trends that we believe could normalize or even reverse.

How We Assess Timeliness of Recovery of Operating and Capital Costs for the Scorecard

The criteria we consider include provisions and cost recovery mechanisms for operating costs, mechanisms that allow actual operating and/or capital expenditures to be trued-up periodically into 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) as well as the process and timeframe of general tariff/base rate cases – those that are fully reviewed by the regulator, generally in a public format that includes testimony of the utility and other stakeholders and interest groups. We also look at the track record of the utility and regulator for timeliness. 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 dampen the benefit to the utility. In addition, we seek to estimate the lag between the time that a utility incurs a major construction expenditures and the time that the utility will start to recover and/or earn a return on that expenditure.

How We Assess Sufficiency of Rates and Returns for the Scorecard

The criteria we consider include 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 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, comparison will be made 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 look at regulatory disallowances of costs or investments, with a focus on their financial severity and also on the reasons given by the regulator, in order to assess the likelihood that such disallowances will be repeated in the future.

Factor 2a: Timeliness of Recovery of Operating and Capital Costs (12.5%)

Aaa	Aa	A	Baa
Tariff formulas 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 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 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. 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.

Ba	B	Caa
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.

Note: Tariff formulas include formula rate plans as well as trackers and riders related to capital investment.

Factor 2b: Sufficiency of Rates and Returns (12.5%)

Aaa	Aa	A	Baa
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.

Ba	B	Caa
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 3: Diversification (10%)

Why It Matters

Diversification of overall business operations helps to mitigate the risk that economic cycles, material changes in a single regulatory regime or commodity price movements will have a severe impact on cash flow and credit quality of a utility. While utilities' sales volumes have lower exposure to economic recessions than many non-financial corporate issuers, some sales components, including industrial sales, are directly affected by economic trends that cause lower production and/or plant closures. In addition, economic activity plays a role in the rate of customer growth in the service territory and (absent energy efficiency and conservation) can often impact 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. We have observed that utilities' regulatory environments are most likely to become unfavorable during periods of rapid rate increases (which are more important than absolute rate levels) and that fuel diversity leads to more stable rates over time.

For that reason, fuel diversity can be important even if fuel and purchased power expenses are an automatic pass-through to the utility's ratepayers. 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 Market Position for the Scorecard

Market position is comprised primarily of the economic diversity of the utility's service territory and the diversity of its regulatory regimes. We also consider the diversity of utility operations (e.g., regulated electric, gas, water, steam) when there are material operations in more than one area.

Economic diversity is a typically a function of the population, size and breadth of the territory and the businesses that drive its GDP and employment. For the size of the territory, we typically consider the number of customers and the volumes of generation and/or throughput. For breadth, we consider the number of sizeable 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.[15] We also look at 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. While the highest scores in the Market Position sub-factor are reserved for issuers regulated in multiple jurisdictions, when there is only one regulator, we make a differentiation of regimes perceived as having lower or higher volatility.

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 will generally score higher in this sub-factor. An issuer with a small service territory economy that

[15] For example, in the US, information sources on the diversity and vitality of economies of individual states and metropolitan areas may include Moody's Economy.com.

has a high dependence on one or two sectors, especially highly cyclical industries, will generally score lower in this sub-factor, as will 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%.

How We Assess Generation and Fuel Diversity for the Scorecard

Criteria include the fuel type of the issuer's generation and important power purchase agreements, the ability of the issuer economically to shift its generation and power purchases when there are changes in fuel prices, the degree to which the utility and its rate-payers are exposed to or insulated from changes in commodity prices, and exposure to Challenged Source 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, since 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 hydro, coal, natural gas, nuclear and renewable energy as well as low exposure to challenged and threatened sources of generation will score more highly in this sub-factor. Issuers that have concentration in one or two sources of generation, especially if they are threatened or challenged sources, will incur lower scores.

In evaluating an issuer's degree of exposure to challenged and threatened sources, we will consider not only the existence of those plants in the utility's portfolio, but also the relevant factors that will 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 evaluated very differently if its peer utilities face the same magnitude of those issues than if its peers have no exposure to challenged or threatened sources. In evaluating threatened sources, we consider the 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. Especially if there are no peers in the same jurisdiction, we also examine the extent to which the utility's generation resources plan is aligned with the relevant government's fuel/energy policy.

Factor 3: Diversification (10%)

Weighting 10%	Sub-Factor Weighting	Aaa	Aa	A	Baa
Market Position	5.00% *	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.
Generation and Fuel Diversity	5.00% **	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).	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.

	Sub-Factor Weighting	Ba	B	Caa	Definitions
Market Position	5.00% *	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.	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.

Generation and Fuel Diversity	5.00% **	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.	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.

* 10% weight for issuers that lack generation **0% weight for issuers that lack generation

Factor 4: Financial Strength (40%)

Why It Matters

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

How We Assess It for the Scorecard

In comparison to companies in other non-financial corporate sectors, the financial statements of regulated electric and gas utilities have certain unique aspects that impact financial analysis, which is further complicated by disparate treatment of certain elements under US Generally Accepted Accounting Principles (GAAP) versus 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 ratepayers over a set period of time. 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. For this reason, 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 measures are essentially the same. In general, we view changes in working capital as less important in utility financial analysis because they are often either 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 will nonetheless examine the impact of working capital changes in analyzing a utility's liquidity (see "Other Rating Considerations" – Liquidity).

Given the long-term nature of utility assets and the often lumpy nature of their capital expenditures, it is important to analyze both a utility's historical financial performance as well as its prospective future performance, which may be different from backward-looking measures. Scores under this factor may be higher or lower than what might be expected from historical results, depending on our view of expected 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.

For this scoring grid, we have identified four key ratios that we consider the most consistently useful in the analysis of regulated electric and gas utilities. However, no single financial ratio can adequately convey the relative credit strength of these highly diverse companies. Our ratings consider the overall financial strength of a company, and in individual cases other financial indicators may also play an important role.

CFO Pre-Working Capital Plus Interest/Interest or Cash Flow Interest Coverage

The cash flow interest coverage ratio is an indicator for a utility's ability to cover the cost of its borrowed capital. The numerator in the ratio calculation is the sum of CFO Pre-WC and interest expense, and the denominator is interest expense.

CFO Pre-Working Capital / Debt

This important metric is an indicator for the cash generating ability of a utility compared to its total debt. The numerator in the ratio calculation is CFO Pre-WC, and the denominator is 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. The numerator of this ratio is CFO Pre-WC minus dividends, and the denominator is total debt.

Debt/Capitalization

This ratio is a traditional measure of balance sheet leverage. The numerator is total debt and the denominator is total capitalization. All of our ratios are calculated in accordance with our standard adjustments[11], but we note that our definition of total capitalization includes 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[12]. 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 impacted current period cash flows but could affect future period cash flows relative to debt.

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 covered under this methodology (as described in Appendix C) 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 asset 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 believe that they are most 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 low exposure to storms, major accidents and natural

[11] In certain circumstances, analysts may also apply specific adjustments.

[12] We also examine debt/capitalization ratios as defined in applicable covenants (which typically exclude deferred taxes from capitalization) relative to the covenant threshold level.

disasters. For instance, we tend to view many US natural gas local distribution companies (LDCs) and certain US electric transmission and distribution companies (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 will 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 degree of exposure to catastrophic storm damage, or increased regulatory scrutiny due to poor reliability, or other considerations. The Standard Grid will also apply 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, or where the LDC is not well insulated from declining volumes.

The four key ratios, their weighting in the grid, and the Standard and LBR scoring thresholds are detailed in the following table.

Factor 4: Financial Strength

Weighting 40%	Sub-Factor Weighting		Aaa	Aa	A	Baa	Ba	B	Caa
CFO pre-WC + Interest / Interest	7.50%		≥ 8.0x	6.0x - 8.0x	4.5x - 6.0x	3.0x - 4.5x	2.0x - 3.0x	1.0x - 2.0x	< 1.0x
CFO pre-WC / Debt	15.00%	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	10.00%	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 / Capitalization	7.50%	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%

Notching for Structural Subordination of Holding Companies

Why It Matters

A typical utility company structure consists of a holding company ("HoldCo") that owns one or more operating subsidiaries (each an "OpCo"). 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 advances, debt, or even hybrid securities.

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[13]. Under normal circumstances, these dividends are made from net income, after payment of the OpCo's interest and preferred dividends. In most non-financial corporate sectors where cash often moves freely between the entities in a single issuer family, this distinction may have less of an impact. However, in the regulated utility sector, barriers to movement of cash among companies in the corporate family can be much more restrictive, depending on the regulatory framework. These barriers can lead to significantly different probabilities of default for HoldCos and OpCos. Structural subordination also affects loss given default. Under most default[14] 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. 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 grids for factors 1-4 are primarily oriented to OpCos (and to some degree for HoldCos with minimal current 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

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 are essential.

Some of the potentially pertinent factors that could increase the degree and/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 OpCo level
- Higher leverage at the HoldCo level[15]
- Significant dividend limitations or potential 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 factors that could decrease the degree and/or impact of structural subordination include the following:

[13] The HoldCo and OpCo may also have intercompany agreements, including tax sharing agreements, that can be another source of cash to the HoldCo.

[14] 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.

[15] While higher leverage at the HoldCo does not increase structural subordination per se, it exacerbates the impact of any structural subordination that exists.

- 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 negative 3 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 degree to which operating companies have credit insulation due to regulation or other protective factors. Appendix B has additional insights on ratings within a utility family.

Assumptions, Limitations and Other Rating Considerations

The scorecard in this rating methodology represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that might enable the scorecard to map more closely to actual ratings. Accordingly, the four factors and the notching factor in the scorecard do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in the regulated electric and gas utility sector. In addition, our ratings incorporate expectations for future performance, while the financial information that is used in the scorecard is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we cannot disclose. In other cases, we estimate future results based upon past performance, industry trends, competitor actions or other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

Assumptions that may cause our forward-looking expectations to be incorrect include unanticipated changes in any of the following factors: the macroeconomic environment and general financial market conditions, industry competition, disruptive technology, regulatory and legal actions.

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, that legal priority of claim affects average recovery on different classes of debt, sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that lack of access to liquidity is a strong driver of credit risk.

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

Ratings may include additional factors that are difficult to quantify or that have a meaningful effect in differentiating credit quality only in some cases, but not all. Such factors include financial controls, 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 also affect ratings. While these are important considerations, it is not possible precisely to express these in the rating methodology scorecard without making the scorecard excessively complex and significantly less transparent.

Ratings may also reflect circumstances in which the weighting of a particular factor will be substantially different from the weighting suggested by the scorecard.

This variation in weighting rating considerations can also apply to factors that we choose not to represent in the scorecard. For example, liquidity is a consideration frequently critical to ratings and which may not, in other circumstances, have a substantial impact in discriminating between two issuers with a similar credit profile. As an example of the limitations, ratings can be heavily affected by extremely weak liquidity that magnifies default risk. However, two identical companies might be rated the same if their only differentiating feature is that one has a good liquidity position while the other has an extremely good liquidity position.

Other Rating Considerations

We consider other factors in addition to those discussed in this report, but in most cases understanding the considerations discussed herein should enable a good approximation of our view on the credit quality of companies in the regulated electric and gas utilities sector. Ratings consider our assessment of the quality of management, corporate governance, financial controls, liquidity management, event risk and seasonality. The analysis of these factors remains an integral part of our rating process.

Liquidity and Access to Capital Markets

Liquidity analysis is a key element in the financial analysis of electric and gas utilities, and it 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 price tags. 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 debt financed. 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 capex 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 recessions. Dividends represent a quasi-permanent outlay, since utilities typically only rarely will cut their dividend. Liquidity is also important to meet maturing obligations, which often occur in large chunks, 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 evaluate 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 examine 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 Quality and Financial Policy

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. A record of consistency provides us with insight into management's likely future performance in stressed situations and can be an indicator of management's tendency to depart significantly from its stated plans and guidelines.

We also 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 is willing to stretch 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 we have observed is that utility subsidiaries often 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 – Natural Disasters, Customer Concentration and Construction Risks

The size and scale of a regulated utility has generally not been a major determinant of its credit strength in the same way that it has been for most other industrial sectors. While size brings certain economies of scale that can somewhat affect the utility's cost structure and competitiveness, rates are more heavily impacted 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.

However, size can be a very important factor in our assessment of certain risks that impact ratings, 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 attempts to incorporate the first

two of these into Factor 3, for some issuers these considerations may be sufficiently important that the rating reflects a greater weight for these risks. While construction projects always carry the risk of cost over-runs and delays, these risks are materially heightened for projects that are very large relative to the size of the utility.

Interaction of Utility Ratings with Government Policies and Sovereign Ratings

Compared to most industrial sectors, regulated utilities are more likely to be impacted by government actions. Credit impacts can occur 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 ratings for each utility, some considerations do not lend themselves to incorporation in a simple scorecard.[15]

Diversified Operations at the Utility

A small number of regulated utilities have diversified operations that are segments within the utility company, as opposed to the more common practice of housing such operations in one or more separate affiliates. In general, we will seek to evaluate the other businesses that are material in accordance with the appropriate methodology and the rating will reflect considerations from such methodologies. There may be analytical limitations in evaluating the utility and non-utility businesses when segment financial results are not fully broken out and these may be addressed through estimation based on available information. Since regulated utilities are a relatively low risk business compared to other corporate sectors, in most cases diversified non-utility operations increase the business risk profile of a utility. Reflecting this tendency, we note that assigned ratings are typically lower than scorecard-indicated outcomes for such companies.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness. Typical special events include mergers and acquisitions, asset sales, spin-offs, capital restructuring programs, litigation and shareholder distributions.

Corporate Governance

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.

Investment and Acquisition Strategy

In our credit assessment, we take into consideration management's investment strategy. Investment strategy is benchmarked with that of the other companies in the rated universe to further verify its consistency. Acquisitions can strengthen a company's business. Our assessment of a company's tolerance for acquisitions at a given rating level takes into consideration (1) management's risk appetite, including the likelihood of further acquisitions over the medium term; (2) share buy-back activity; (3) the company's commitment to specific leverage targets; and (4) the volatility of the underlying businesses, as well as that of the business acquired. Ratings can often hold after acquisitions even if leverage temporarily climbs above normally acceptable ranges. However, this depends on (1) the strategic fit; (2) pro-forma

[15] 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 an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

capitalization/leverage following an acquisition; and (3) our confidence that credit metrics will be restored in a relatively short timeframe.

Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. Such accuracy is only possible when companies have sufficient internal controls, including centralized operations, the proper tone at the top and consistency in accounting policies and procedures.

Weaknesses in the overall financial reporting processes, financial statement restatements or delays in regulatory filings can be indications of a potential breakdown in internal controls.

Appendix A: Regulated Electric and Gas Utilities Methodology Factor Scorecard

Factor 1a: Legislative and Judicial Underpinnings of the Regulatory Framework (12.5%)

Aaa	Aa	A	Baa
Utility regulation occurs under a fully developed framework that is national in scope based on legislation that provides the utility a nearly absolute monopoly (see note 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 (see note 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 (see note 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 (see note 1), a general assurance that, subject to prudency requirements that are mostly reasonable, rates will be set 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.

Ba	B	Caa
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 (see note 1), and that, subject to prudency requirements which may be stringent, provides a general assurance (with somewhat less certainty) that rates will be set 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 (iii) 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 of 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.

Note 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.

* 10% weight for issuers that lack generation **0% weight for issuers that lack generation

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Factor 1b: Consistency and Predictability of Regulation (12.5%)

Aaa	Aa	A	Baa
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 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.

Ba	B	Caa
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 2a: Timeliness of Recovery of Operating and Capital Costs (12.5%)

Aaa	Aa	A	Baa
Tariff formulas 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 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 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. 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.

Ba	B	Caa
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.

Note: Tariff formulas include formula rate plans as well as trackers and riders related to capital investment.

Factor 2b: Sufficiency of Rates and Returns (12.5%)

Aaa	Aa	A	Baa
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.

Ba	B	Caa
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 3: Diversification (10%)

Weighting 10%	Sub-Factor Weighting	Aaa	Aa	A	Baa
Market Position	5% *	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.
Generation and Fuel Diversity	5% **	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).	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

	Sub-Factor Weighting	Ba	B	Caa	Definitions
Market Position	5% *	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.	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.
Generation and Fuel Diversity	5% **	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.	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.

* 10% weight for issuers that lack generation **0% weight for issuers that lack generation

Factor 4: Financial Strength

Weighting 40%	Sub-Factor Weighting		Aaa	Aa	A	Baa	Ba	B	Caa
CFO pre-WC + Interest / Interest	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 / Capitalization	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%

Appendix B: Approach to Ratings within a Utility Family

Typical Composition of a Utility Family

A typical utility company structure consists of a holding company ("HoldCo") that owns one or more operating subsidiaries (each an "OpCo"). 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[17] 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 better be 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

[17] See paragraph at the end of this section for approaches to Hybrid HoldCos.

See also those factors noted in "Notching for Structural Subordination of Holding Companies".

Our approach to a Hybrid HoldCo (see definition in Appendix C) 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 broken out 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.[12] If non-utility operations are material but are not broken out 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 on 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

[12] A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

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 C: Brief Descriptions of the Types of Companies Rated Under This Methodology

The following describes the principal categories of companies rated under this methodology:

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 that delivers power from a group of power plants to end-users (including high and low voltage lines, transformers and substations), 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 & Distribution Utility: Transmission & 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 under 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.

Local Gas 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 regulated 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. Instead, we have looked at a combination of governmental action with respect to setting feed-in tariffs and directives on how much generation will be built (or not built) in combination with a generally high degree of government ownership, and we have concluded that these companies are currently best rated under this methodology. Future evolution in our view of the operating and/or regulatory environment of these companies could lead us to conclude that they may be more appropriately rated under a related methodology. [9]

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. Unlike most of the other utilities rated under this methodology, transmission-only utilities primarily provide services to other utilities and ISOs. Transmission-only utilities in most parts of the world other than the US have typically been rated under a different methodology. [10]

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.

[9] For more information, see our methodology that describes our general approach for assessing unregulated utilities and unregulated power companies. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[10] For more information, see our methodology that describes our general approach for assessing regulated electric and gas networks. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Appendix D: 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.[37] 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.[38]

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

[37] A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[38] For more information, see our cross-sector methodology that describes general principles related to loss given default for speculative-grade companies. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

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 seek to 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 also considers the significance of 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 E: 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 creates 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.

Each of these factors will be considered by our analysts and a decision will be made as to the importance of the PPA to the risk analysis of the utility.

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 by sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. An index of sector and cross-sector credit rating 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.

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MOODY'S
INVESTORS SERVICE

PSEG – spread at issue

PSEG - Yield at issue

CNP – Houston Electric– spread at issue

CNP – Houston Electric– yield at issue

Table JRichert-4. Peer Comparison of CenterPoint Houston's March 2023 Bond Issuance

					A +	B =	C
	Bond Rating (Moody's / S&P)	Amount ($ in Millions)	Duration	Issuance date	Treasury Benchmark	New Issue Spread	Yield
CenterPoint Houston	A2/A	$600	10 yr	20-Mar-23	3.48%	1.50%	4.98%
Public Service Electric & Gas Co. (G)	A1/A	$500	10 yr	23-Mar-23	3.44%	1.22%	4.662%
CenterPoint Houston's issuer rating is Baa1 at Moody's, while the senior secured rating is A2 and the senior unsecured rating is Baa1.							

The following files are not convertible:

WP JRichert-2 (Table JRichert-5 and JRichert-6 Corp A vs BBB).xlsx
WP JRichert-3 (Table JRichert-7 Alt Min Tax).xlsx
WP JRichert-4 (Table JRichert-8 Cap Structure Illustration).xlsx
WP JRichert-5 (Table JRichert-9 CEHE rate case file _ROE cap struct Support).xlsx

Please see the ZIP file for this Filing on the PUC Interchange in order to access these files.

Contact centralrecords@puc.texas.gov if you have any questions.

PUC DOCKET NO. 56211

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR AUTHORITY TO CHANGE RATES	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY

OF

GREGORY S. WILSON

ON BEHALF OF

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

MARCH 2024

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LIST OF EXHIBITS

EXECUTIVE SUMMARY – STORM RESERVE

(GREGORY S. WILSON)

The service territory of CenterPoint Energy Houston Electric, LLC ("CenterPoint Houston" or the "Company") has been impacted over the years by weather events that have resulted in significant outages and restoration efforts. To support adequate preparation for such losses, my testimony offers an independent opinion of the reasonableness of CenterPoint Houston's approach with respect to protecting its Transmission and Distribution ("T&D") assets through self-insurance.

My testimony:

- addresses the purpose of a self-insurance reserve.
- describes how a self-insurance reserve operates.
- provides an estimate of the annual accrual necessary to provide for expected property losses that are not covered by insurance along with a recommended time period over which this accrual is to be made.
- provides an estimate of a target amount to accumulate in the self-insurance reserve along with a recommended time period over which the accrual to reach the target amount is to be made; and
- includes a cost benefit analysis demonstrating that self-insurance at the levels proposed by CenterPoint Houston is a lower cost alternative to purchasing insurance and is in the public interest, consistent with the 16 Tex. Admin. Code ("TAC") 25.231(b)(1)(G).

This information, in addition to my support materials, demonstrates that CenterPoint Houston's requested self-insurance reserve is reasonable and necessary given the lack of reasonably priced commercial insurance. Thus, the costs associated with funding a self-insurance reserve should be included in CenterPoint Houston's cost of service.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, OCCUPATION, BUSINESS AFFILIATION, AND BUSINESS ADDRESS.

A. My name is Gregory S. Wilson. I am a consulting actuary specializing in the area of property-casualty actuarial matters. I am a Vice President and Principal at Lewis & Ellis, LLC ("L&E"). My business address is 6600 Chase Oaks Blvd, Suite 150, Plano TX 75023.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.

A. I received a Bachelor of Science degree in applied mathematics from the University of Rhode Island in 1976.

In 1992, after completing all of the required examinations, I became a Fellow of the Casualty Actuarial Society, the highest designation a property-casualty actuary can attain. This designation is obtained through a rigorous process involving separate examinations on topics such as mathematics, probability and statistics, theory of credibility, theory of risk and insurance, economics, insurance coverages, ratemaking, loss reserving, insurance accounting and regulation, and individual risk rating. I am also a Member of the American Academy of Actuaries.

Following college, I was employed by Amica Mutual Insurance Company until 1994, at which time I was a vice president serving as chief actuary and supervising the actuarial department.

In 1994, I joined PricewaterhouseCoopers, LLP where I provided actuarial consulting services to a wide variety of clients including insurance companies, state insurance regulators, self-insured entities, and non-insurance corporations. I joined L&E in 2001, where I continue to provide actuarial consulting services to a wide variety of clients. My resume is attached to this testimony as Exhibit GSW-1.

Q. WHAT IS AN ACTUARY?

A. An actuary is a business professional who estimates the financial implications of future contingent events or risk, which in the context of a rate case such as this one is the risk of damage to the utility's facilities and infrastructure due to currently unknown (or contingent) future events. Actuaries use mathematics, statistics, and financial theory to help manage such risks. In this proceeding, my analysis of future financial consequences is performed in accordance with the Actuarial Standards of Practice adopted by the American Academy of Actuaries.

Q. HAVE YOU EVER TESTIFIED BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS ("COMMISSION")?

A. Yes. I submitted testimony addressing self-insurance reserve issues similar to those that I address in this testimony in Docket Nos. 16705, 20150, 22356, 30123, 33309, 34800, 37364, 37744, 38339, 38480, 39896, 40606, 41791, 43950, 44704, 44746, 46957, 48371, 48401, 49421, 49494, 51415, 51583, 51611, 53601, and 53719. I have also testified on self-insurance issues in conjunction with a utility rate filing before the Missouri Public Service Commission.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The general purpose of my testimony is to offer an independent opinion of the reasonableness of the approach CenterPoint Energy Houston Electric, LLC ("CenterPoint Houston" or the "Company") proposes to take with respect to protecting its Transmission and Distribution ("T&D") assets through self-insurance. The specific purpose of my testimony is: (1) to estimate the annual accruals needed for a self-insurance reserve for property damage losses incurred by CenterPoint Houston not covered by insurance, in accordance with Section 36.064 of the Texas Public Utility Regulatory Act; and (2) to estimate a target amount to accumulate in the self-insurance reserve along with a recommended time period over which these accruals are to be made.

My testimony also includes a cost benefit analysis demonstrating that self-insurance at the levels proposed by CenterPoint Houston is a lower cost alternative to purchasing insurance and is in the public interest, consistent with the 16 TAC §25.231(b)(1)(G).

Q. WHAT DOES 16 TAC §25.231(b)(1)(G) PROVIDE REGARDING SELF-INSURANCE?

A. This rule provides as follows:

> Accruals credited to reserve accounts for self-insurance under a plan requested by an electric utility and approved by the commission. The commission shall consider approval of a self insurance plan in a rate case in which expenses or rate base treatment are requested for such a plan. For the purposes of this section, a self insurance plan is a plan providing for accruals to be credited to reserve accounts. The reserve accounts are to be charged with property and liability losses which occur, and which could not have been

> reasonably anticipated and included in operating and maintenance expenses, and are not paid or reimbursed by commercial insurance. The commission will approve a self-insurance plan to the extent it finds it to be in the public interest. In order to establish that the plan is in the public interest, the electric utility must present a cost benefit analysis performed by a qualified independent insurance consultant who demonstrates that, with consideration of all costs, self-insurance is a lower-cost alternative than commercial insurance and the ratepayers will receive the benefits of the self insurance plan. The cost benefit analysis shall present a detailed analysis of the appropriate limits of self insurance, an analysis of the appropriate annual accruals to build a reserve account for self insurance, and the level at which further accruals should be decreased or terminated.

Q. WHAT HAS THE COMMISSION PREVIOUSLY ESTABLISHED AS THE PROPERTY INSURANCE EXPENSE AND RESERVE TARGET FOR CENTERPOINT HOUSTON?

A. In Docket No. 49421, the Commission set (1) an annual accrual of $3.575 million to provide for average annual expected losses from events where losses are greater than $100,000 and (2) an accrual of $4.11 million annual for three years to achieve a target reserve of $6.55 million from a reserve deficit level of ($5.79 million).

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. As shown on Exhibit GSW-2 to my direct testimony, I propose an annual accrual of **Error! Unknown document property name.** and a new target property insurance reserve of **Error! Unknown document property name.**. The accrual is composed of two elements. The first is **Error! Unknown document property name.** to provide for average annual expected O&M losses from events where the O&M expense is greater than $100,000 and the loss is expected to be charged to the self-insurance reserve. As I explain subsequently, the **Error! Unknown document property name.** annual accrual is calculated using a Monte Carlo

simulation run on the loss history of the Company. The second is **Error! Unknown document property name.** accrued annually for five years to achieve the target reserve of **Error! Unknown document property name.** from the current reserve deficit level of ($42.081 million).

III. SELF-INSURANCE RESERVE BACKGROUND

Q. PLEASE STATE THE PURPOSE OF CENTERPOINT HOUSTON'S SELF-INSURANCE RESERVE AND EXPLAIN HOW IT WOULD OPERATE.

A. The purpose of CenterPoint Houston's self-insurance reserve is to provide for accruals to be credited to a reserve account to cover occurrences resulting in T&D losses of more than $100,000 in O&M expenses, as discussed in the testimony of Ms. Kristie L. Colvin.

Each year, an amount would be accrued in the self-insurance reserve to provide for losses expected to occur in the calendar year. In addition to this amount, an accrual would be made to raise the self-insurance reserve to a level that would serve as a financial buffer in the event that actual losses exceed the accrued amount of expected annual losses.

Q. WHAT HAPPENS IF THE ANNUAL AGGREGATE LOSSES DO NOT EQUAL THE AMOUNT ACCRUED IN ANY GIVEN YEAR?

A. If the annual aggregate losses exceed the amount accrued in any given year, the remaining reserve, if sufficient, would be drawn upon to provide the needed additional amounts. If the remaining reserve is insufficient, the losses will still be booked to the self-insurance reserve, resulting in the reserve having a negative

value. If the annual aggregate losses are less than the amount accrued for that purpose, the excess annual accrual would remain in the self-insurance reserve, serving to bring the self-insurance reserve closer to its target level.

Q. WHY IS IT NECESSARY TO BUILD THE SELF-INSURANCE RESERVE UP TO A CERTAIN TARGETED LEVEL?

A. The range of expected losses from property damage covered by the self-insurance reserve varies considerably from year to year, as will the actual losses that CenterPoint Houston will incur. The self-insurance reserve needs to be sufficient to cover the losses for each year, knowing that any given year's actual losses may be very different from the average expected losses. Hence, a reserve large enough to allow for some variation in the annual aggregate amount of losses is needed.

Q. IS CENTERPOINT HOUSTON'S SELF-INSURANCE PLAN IN THE CUSTOMERS' INTEREST?

A. Yes. The self-insurance plan of CenterPoint Houston, allowed under 16 TAC §25.231(b)(1)(G) is in the best interest of the Company's customers. As I discuss later in my testimony, it provides a lower cost alternative than purchasing commercial insurance for all losses. At the same time, the self-insurance plan provides utility rate stability by establishing a self-insurance reserve to absorb variations between expected and actual annual losses. As a result, absent an extreme catastrophic loss, customers' rates should not fluctuate due to different self-insurance losses from one year to the next.

IV. ANNUAL EXPECTED LOSSES

Q. WHAT AMOUNT SHOULD CENTERPOINT HOUSTON ACCRUE ANNUALLY IN THE SELF-INSURANCE RESERVE TO COVER THE EXPECTED LOSSES FOR EACH YEAR?

A. I recommend that CenterPoint Houston accrue **Error! Unknown document property name.** annually to the self-insurance reserve. This amount is the expected value of the annual O&M losses incurred by CenterPoint Houston from property loss events where the total O&M loss is more than $100,000, except those where the total loss is at least $100 million. The recommended amount of **Error! Unknown document property name.** is calculated using a Monte Carlo simulation run on the ten-year loss history (shown on Exhibit GSW-3 to my direct testimony) of the Company.

Q. WHAT IS A MONTE CARLO SIMULATION?

A. A Monte Carlo simulation is a statistical technique incorporating a computer program to simulate loss experience over a longer period of time than the period captured in the loss history.

The program simulates individual losses on an annual basis for CenterPoint Houston for 50,000 iterations of annual experience. A statistical distribution is estimated from CenterPoint Houston's trended loss experience and input into the model. The model is run 50,000 times, each time simulating a possible outcome. From these 50,000 iterations of simulated experience, I was able to determine that the average annual indicated loss over this period was **Error! Unknown document property name.**.

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE COMPANY'S HISTORICAL DATA?

A. Exhibit GSW-4 to my direct testimony contains an example showing how each historic loss was adjusted to reflect the current cost levels using the Handy-Whitman index of cost trends of electric utility construction for the South Central Region. The Handy-Whitman index data is a standard database used to measure cost changes for utility companies. The loss in the example occurred on May 16, 2021, for $1,566,721. The Handy-Whitman index as of January, 2021, was 773; as of July, 2021, it was 796. Interpolating between these two points to May 16, 2021, produces an expected index of 790.155. As of September, 2023, the Handy-Whitman index was 855. Thus, the change from May 16, 2021, to September, 2023, was 855 divided by 790.155 or 1.082 (8.2% increase). Multiplying the loss of $1,566,721 by 1.082 gives a cost-adjusted loss of $1,695,192. This procedure was used for each loss with an O&M cost of $100,000 or greater, but less than $100 million, that occurred during the experience period and did not receive regulatory asset treatment. This approach is reasonable because it adjusts historic costs to current dollar levels.

In addition, we limited the loss history to the last ten years of data. There have been an increasing number of storms over the last five to six years, and it is more reasonable to reflect that in the projection for future years than to rely on outdated information that is not indicative of what should be expected to occur in the future.

Q. WERE ANY OTHER ADJUSTMENTS MADE TO THE HISTORICAL DATA?

A. Yes. Actual losses from Hurricanes Harvey, Laura, and Nicholas, as well as winter storm Uri were removed from the data. The losses from those storms were substantially more than what could be reasonably covered through the self-insurance reserve (the losses from those storms were more than $13 million each). The Company has sought or is seeking to recover those costs via regulatory assets, without using the self-insurance reserve. In addition, because the lowest amount of these storms was approximately $13 million, I removed any storm from the simulation that exceeded that amount, under the assumption that the costs for any future storms at that level would be recovered through the regulatory asset process.

Q. WERE ANY ADJUSTMENTS MADE TO THE MONTE CARLO SIMULATION TO ADJUST FOR POTENTIAL SECURITIZATION?

A. Yes. As I mentioned above, the results from the simulation were adjusted by removing any simulated weather event where the loss exceeded $100 million, as these losses may be securitized.

Q. IS THE METHODOLOGY YOU USED TO DETERMINE THE ANNUAL EXPECTED LOSSES CONSISTENT WITH THE METHODOLOGY THAT YOU HAVE USED TO DETERMINE ANNUAL EXPECTED LOSSES IN PREVIOUS PROCEEDINGS?

A. Yes. I calculated the annual expected losses in a manner consistent with methodology I have used in recent proceedings including the Company's most recent rate case, Docket No. 49421.

V. TARGET RESERVE

Q. WHAT IS THE TARGET AMOUNT OF MONEY NEEDED TO PROVIDE FOR AN ADEQUATE SELF-INSURANCE RESERVE?

A. The recommended total target amount of the reserve is **Error! Unknown document property name.**, which is the amount of O&M damage expected to result from a 25-year event with total losses under $100 million.

Q. WHY IS IT NECESSARY TO ACCRUE MORE TO THE SELF-INSURANCE RESERVE THAN THE $10.6 MILLION FOR EXPECTED ANNUAL LOSSES?

A. The **Error! Unknown document property name.** accrual is intended to cover only the average annual expected loss from property damage. These losses can range from very low to millions of dollars in any one year. The property damage reserve needs to be built up to provide for extreme or catastrophic events in any one year.

Q. HOW WAS YOUR TARGET RESERVE OF $16.7 MILLION DEVELOPED?

A. As indicated above, I ran a Monte Carlo simulation on the loss history of CenterPoint Houston. From the 50,000 iterations of simulated experience, I was able to determine that in any 25-year period, the largest annual expected impact on the self-insurance reserve is approximately **Error! Unknown document property name.**.

Q. WHY IS THIS RESERVE LEVEL APPROPRIATE?

A. This reserve level is the amount that should be carried by CenterPoint Houston to make an actuarially sound provision for coverage of the self-insured losses. The target reserve will be sufficient if annual losses are equal to or less than the target in a given year provided the reserve is already in place at its target amount; but if the actual losses exceed the amount accrued for the expected annual amount for several years in a row, the self-insurance reserve may be depleted.

For example, once the reserve level has been reached, if there are several years with losses of approximately $10 million, then the reserve balance will remain relatively stable. However, if there are two consecutive years with annual aggregate losses of more than $15 million each year, the self-insurance reserve would be in a deficit position. The deficit amount would need to be collected from future ratepayers.

Q. DOES THE PRESENCE OF A RESERVE OR ACCRUAL DESIGNED TO REACH A TARGET LEVEL ENSURE THAT THE RESERVE BALANCE WILL BE ADEQUATE TO COVER EVERY PROPERTY LOSS?

A. No. As explained above, once the reserve reaches its targeted level, on average it should cover typical annual losses, but should also be enough to cover a once in 25-year event. Larger loss events are possible, and should one occur, the reserve would not cover the full amount. Those events are much less common and therefore I have recommended that CenterPoint Houston not consider those events in establishing the target level for the reserve balance.

Q. WHAT IS THE BALANCE OF THE RESERVE?

A. As shown on Rate Filing Package Schedule II-B-7, the adjusted balance of the reserve is a deficit balance of approximately ($42,081,000) as of December 31, 2023.

Q. WHAT ARE THE INDIVIDUAL COMPONENTS OF THE ANNUAL ACCRUAL TO THE SELF-INSURANCE RESERVE INDICATED BY YOUR ANALYSIS?

A. The annual amount to be accrued each year is **Error! Unknown document property name.**, which is composed of two elements. First, there is **Error! Unknown document property name.** each year to provide for the year's annual expected covered losses from property loss event damages. Second, there should be an accrual of **Error! Unknown document property name.** each year for five years to provide for the variation in annual losses from year to year by building the total self-insurance reserve from the test year balance of approximately ($42.081 million) up to the **Error! Unknown document property name.** level. I have recommended a five-year period to be consistent with the Company's treatment of regulatory asset requests, as well as to balance the interests of future ratepayers versus past ratepayers.

Q. ARE THESE CALCULATIONS PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED ACTUARIAL PROCEDURES?

A. Yes. The process reflects generally accepted actuarial procedures. However, I have made certain adjustments to reflect the nature of ratemaking for public utilities. For example, it would be customary to project losses to the anticipated cost level of the

future time period during which rates will be in effect. Because of the historical test year approach to utility ratemaking and the adjustment of expense items based on known and measurable quantities only, I have limited loss adjustments to the cost levels. The dates to which the losses were adjusted reflect the dates of the most recent indices available at the time the adjustments were made. On the other hand, common actuarial practice would be to project the cost of expected losses to the future period when they will be incurred, a level that would be greater than the level recommended in my testimony.

In addition, no adjustment has been made to reflect future increased exposure to loss. For example, in 2024 CenterPoint Houston may own more property in the service area that is exposed to loss than it had in years prior to 2023. This would increase the exposure to loss, and lead to a higher recommended reserve. These adjustments are consistent with my methodology in the Company's most recent rate case, Docket No. 49421, and testimony in other recent rate case proceedings.

Q. HOW WILL THE SELF-INSURANCE RESERVE ACCRUALS OPERATE?

A. The excess of annual expected losses over actual self-insured losses, to the extent there is any such excess, will accrue to the self-insurance target reserve and cause CenterPoint Houston to reach its target earlier, all other things being equal. Any deficiency between the annual expected losses and the actual self-insured layer losses in any calendar year will serve to extend the period over which the Company can expect to reach its target.

VI. COST BENEFIT ANALYSIS

Q. HOW DID YOU DETERMINE THAT SELF-INSURANCE IS A LOWER COST ALTERNATIVE FOR THOSE T&D PROPERTY LOSSES GREATER THAN $100,000?

A. There are at least two ways to consider the cost-benefit of self-insuring these losses. The first is by considering the manner in which insurance companies set premiums and the second is by an actual comparison of the recommended self-insurance accrual to the estimated insurance premium for comparable coverage, if available.

Q. WHAT ASPECTS OF AN INSURANCE COMPANY'S PREMIUM DETERMINATION PROCESS DID YOU CONSIDER IN CONCLUDING THAT THE SELF-INSURANCE APPROACH FOR THE DESIGNATED LAYER OF LOSSES IS APPROPRIATE?

A. Insurance companies include provisions in their premiums for all costs associated with the transfer of the insurance risk. Hence, they include provisions for losses, loss adjustment expenses, non-loss related expenses, premium taxes, and a profit.

A self-insurance reserve, such as CenterPoint Houston's reserve, does not need to include many of the provisions other than those for losses and loss-related expenses. For example, a self-insurance reserve does not need to pay premium taxes and other state-imposed fees. An insurance company needs to make a profit on the business it transacts. A self-insurance reserve, on the other hand, is not intended to generate a profit and, hence, no provision for profit needs to be included in the accrual provisions. Insurance companies also incur costs associated with the acquisition of insured risks. The largest of these expenses is that associated with

the payment of commissions to insurance agents or brokers to place the business. A self-insurance reserve does not include any provision for commissions because there are no insurance agents or brokers involved. Finally, an insurance company must expend resources to underwrite risks, market its products, and maintain overhead expenses. A self-insurance reserve does not need to provide for these costs.

In summary, self-insurance saves the costs of premium taxes, commissions, profit, and many of the general expenses associated with the operation of an insurance company.

Q. WHAT OTHER COST BENEFIT ANALYSIS HAVE YOU RELIED UPON TO SHOW THAT THE COST FOR THE SELF-INSURED LAYER IS LOWER THAN THE COST OF INSURANCE FOR THE SAME LAYER OF INSURANCE AND IS IN THE INTEREST OF THE COMPANY'S CUSTOMERS?

A. Comparing the cost of self-insurance versus the cost of buying insurance establishes that it is more cost effective for CenterPoint Houston to self-insure. As discussed in the testimony of Company witness Shane Kimzey, CenterPoint Houston's risk manager has inquired about obtaining coverage for T&D assets damaged by storms. The risk manager has been unable to find coverage at any cost reasonably close to the cost of self-insurance. This is due to the extensive damage caused by hurricanes to electric utilities across the country in the past several years.

VII. CONCLUSION

Q. WHAT DO YOU CONCLUDE REGARDING CENTERPOINT HOUSTON'S REQUEST FOR SELF-INSURANCE RESERVE TO T&D PROPERTY LOSSES?

A. I have conducted an analysis that meets the Commission's rule requirements and have demonstrated that self-insurance is necessary and desirable given the lack of reasonably priced commercial insurance.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, at this time.

GREGORY S. WILSON WORKPAPERS

WP GSW-1	Cost Escalation
WP GSW-2	T&D Coverage Email

GREGORY S. WILSON, FCAS, MAAA
Vice President and Principal

CURRENT POSITION

Mr. Wilson is a Vice President and Principal with Lewis & Ellis, LLC.

EXPERIENCE:

Mr. Wilson's responsibilities include evaluating the adequacy of insurance company reserve levels in conjunction with actuarial certification for the annual statement as well as state insurance department examinations. He also evaluates the adequacy of loss reserves for several self-insured companies. In addition, he performs rate level analyses for insurance companies and helps them prepare filings for the state insurance departments, as well as self-insured analyses for electric utilities and prepares testimony for the Public Utility Commission.

Prior to joining the firm, Mr. Wilson was a Principal Consultant at PricewaterhouseCoopers LLP. His responsibilities were similar to his current responsibilities. In addition, he reviewed retrospective rating calculations for several companies involved in class action litigation in Texas. He also performed several funding analyses for governmental entities.

Prior to joining PricewaterhouseCoopers LLP, Mr. Wilson was Vice President of Amica Mutual Insurance Company in Providence, Rhode Island.

There, he supervised all aspects of ratemaking, from procedures to recommendations, helped negotiate the purchase of reinsurance, determined IBNR, developed a strategy for Massachusetts Automobile and developed other states' residual market strategies, in particular, New York and New Jersey.

EDUCATION

Mr. Wilson received his Bachelor's degree in Applied Mathematics from the University of Rhode Island.

PROFESSIONAL ACTIVITIES

Mr. Wilson is a former member of the Casualty Actuarial Society's Examination Committee, Committee on Ratemaking, and Committee on Reserving. He is also a Past President of the Southwest Actuarial Forum.

CenterPoint Houston
Calculation of Recommended Accrual

Expected Annual Storm Loss	10,600,000
Incremental Amount to Build Storm Reserve	11,740,000
Total Annual Accrual	22,340,000

CenterPoint Houston
Major Property Damage
Adjusted to Current Cost Levels
2014-2023

Year	Actual Loss	Trended Loss
2014	4,603,359	6,195,396
2015	10,469,375	13,759,524
2016	7,554,093	9,805,792
2017	4,404,440	5,530,939
2018	8,241,448	9,890,978
2019	12,131,831	14,094,371
2020	7,773,846	8,586,823
2021	10,478,340	11,174,223
2022	11,556,242	11,556,242
2023	25,735,077	25,735,078
Total	102,948,051	116,329,366

CenterPoint Houston
Example of Loss Trending Methodology

1)	Date of Loss	16-May-21
2)	Amount of Loss	$1,566,721
3)	Handy-Whitman Index - Electric Utility Construction South Central Region - Distribution Plant	
	a) January, 2021	773
	b) July, 2021	796
	c) May 16, 2021	790.155
	d) September, 2023	855
4)	Trend Factor (3d) / (3c)	1.082
5)	Cost-Adjusted Losses (2) x (4)	$1,695,192

Date of Storm	Trans. & Dist. Gross Loss	Handy-Whitman Index	Interpolated Index	Trend Factor	Trended Loss	Semi-Annual Total	Annual Total	Natural Log
1/1/2014		627				889,790	1,740,780	
3/4/2014	242,388		629.398	1.358	329,163			12.704307
5/12/2014	537,846		632.066	1.353	727,706			13.4976524
5/26/2014	134,207		632.608	1.352	181,449			12.1087273
5/27/2014	708,232		632.646	1.351	956,821			13.7713718
5/28/2014	321,687		632.685	1.351	434,600			12.9821806
7/1/2014		634				2,629,739		
7/3/2014	189,557		634.163	1.348	255,523			12.4510666
8/11/2014	1,206,606		637.342	1.342	1,619,266			14.2974834
7/4/2014	318,728		634.245	1.348	429,645			12.9707154
7/31/2014	317,050		636.446	1.343	425,798			12.9617195
10/2/2014	184,496		641.582	1.333	245,933			12.4128141
10/6/2014	442,562		641.908	1.332	589,492			13.2870171
1/1/2015		649				3,565,657	6,195,396	
4/16/2015	360,361		649.000	1.317	474,596			13.0702193
4/17/2015	1,625,432		649.000	1.317	2,140,695			14.5766409
4/25/2015	449,119		649.000	1.317	591,490			13.2903999
4/26/2015	759,939		649.000	1.317	1,000,840			13.8163505
5/14/2015	106,161		649.000	1.317	139,814			11.8480649
5/17/2015	158,581		649.000	1.317	208,852			12.2493801
5/24/2015	348,703		649.000	1.317	459,242			13.0373334
5/25/2015	2,379,446		649.000	1.317	3,133,730			14.9577347
5/30/2015	476,656		649.000	1.317	627,756			13.3499071
6/16/2015	424,278		649.000	1.317	558,774			13.2335005
6/30/2015	237,015		649.000	1.317	312,148			12.651234
7/1/2015		649				9,647,937		
8/11/2015	923,053		651.005	1.313	1,211,969			14.0077566
8/19/2015	126,345		651.397	1.313	165,890			12.0190823
8/25/2015	268,189		651.690	1.312	351,863			12.7709981
10/24/2015	884,101		654.625	1.306	1,154,636			13.959296
10/31/2015	473,567		654.967	1.305	618,005			13.3342525
12/13/2015	268,398		657.071	1.301	349,186			12.7633589
12/27/2015	200,029		657.755	1.300	260,038			12.4685837
1/1/2016		658				4,111,587	13,759,524	
2/23/2016	240,489		658.000	1.299	312,395			12.6520231
3/9/2016	332,326		658.000	1.299	431,691			12.9754661
3/24/2016	116,851		658.000	1.299	151,789			11.9302455
4/13/2016	203,109		658.000	1.299	263,838			12.4830913
4/17/2016	1,899,081		658.000	1.299	2,466,906			14.7184751
4/27/2016	585,133		658.000	1.299	760,087			13.5411886
5/9/2016	376,414		658.000	1.299	488,961			13.1000387
5/14/2016	343,950		658.000	1.299	446,790			13.009845
5/21/2016	385,456		658.000	1.299	500,708			13.1237776
5/25/2016	1,325,646		658.000	1.299	1,722,015			14.3590054
6/1/2016	303,792		658.000	1.299	394,626			12.8856948
6/12/2016	341,194		658.000	1.299	443,211			13.0018009
6/18/2016	163,312		658.000	1.299	212,142			12.2650102
6/28/2016	273,999		658.000	1.299	355,925			12.7824745
7/1/2016		658				8,951,084		
7/25/2016	123,853		659.826	1.296	160,514			11.9861354
8/13/2016	362,280		661.272	1.293	468,428			13.0571369
12/17/2016	177,211		670.859	1.274	225,766			12.3272553
1/1/2017		672				854,708	9,805,792	
1/2/2017	200,332		672.066	1.272	254,822			12.4483208
1/22/2017	510,899		673.392	1.270	648,842			13.382945
2/14/2017	302,014		674.917	1.267	382,651			12.8548796
3/24/2017	312,450		677.436	1.262	394,313			12.8848991
3/29/2017	570,562		677.768	1.261	719,479			13.4862829
5/22/2017	206,892		681.348	1.255	259,649			12.4670868
5/23/2017	424,623		681.414	1.255	532,902			13.1860928
6/4/2017	271,005		682.210	1.253	339,569			12.7354315
7/1/2017		684				3,532,227		
7/9/2017	434,516		684.609	1.249	542,710			13.2043302
7/15/2017	498,900		685.065	1.248	622,627			13.3417033
8/7/2017	337,459		686.815	1.245	420,136			12.9483346
10/20/2017	110,215		692.446	1.235	136,115			11.8212556

Date of Storm	Trans. & Dist. Gross Loss	Handy-Whitman Index	Interpolated Index	Trend Factor	Trended Loss	Semi-Annual Total	Annual Total	Natural Log
10/22/2017	224,574		692.598	1.234	277,124			12.5322206
1/1/2018		698				1,998,712	5,530,939	
1/11/2018	305,585		698.663	1.224	374,036			12.8321063
1/16/2018	657,911		698.994	1.223	804,626			13.5981325
3/28/2018	573,642		703.702	1.215	696,975			13.4545051
4/3/2018	249,113		704.099	1.214	302,423			12.6195822
4/14/2018	272,335		704.829	1.213	330,342			12.707885
4/22/2018	109,190		705.359	1.212	132,339			11.7931208
5/20/2018	538,612		707.215	1.209	651,182			13.386544
5/26/2018	592,357		707.613	1.208	715,567			13.4808304
7/1/2018		710				4,007,490		
6/3/2018	426,015		706.652	1.210	515,478			13.1528498
6/14/2018	108,478		707.967	1.208	131,042			11.7832707
6/20/2018	111,193		708.685	1.206	134,099			11.8063358
7/3/2018	243,765		710.239	1.204	293,493			12.5896075
7/9/2018	628,624		710.957	1.203	756,235			13.5361068
7/12/2018	147,853		711.315	1.202	177,719			12.0879577
8/8/2018	131,589		714.543	1.197	157,512			11.9672571
8/9/2018	140,099		714.663	1.196	167,558			12.0290845
8/10/2018	101,552		714.783	1.196	121,456			11.7073046
8/21/2018	158,913		716.098	1.194	189,742			12.1534216
9/3/2018	183,002		717.652	1.191	217,956			12.2920469
9/9/2018	292,605		718.370	1.190	348,200			12.7605334
9/22/2018	177,718		719.924	1.188	211,129			12.2602238
9/29/2018	158,301		720.761	1.186	187,745			12.1428387
10/15/2018	104,792		722.674	1.183	123,969			11.7277878
10/31/2018	915,454		724.587	1.180	1,080,236			13.8926902
11/12/2018	135,336		726.022	1.178	159,428			11.9793478
12/7/2018	361,919		729.011	1.173	424,530			12.9587391
12/20/2018	247,838		730.565	1.170	289,971			12.5775362
12/26/2018	167,656		731.283	1.169	195,990			12.1858173
1/1/2019		732				5,883,488	9,890,978	
1/19/2019	467,740		732.199	1.168	546,321			13.2109613
1/23/2019	297,177		732.243	1.168	347,103			12.7573761
2/26/2019	111,727		732.619	1.167	130,386			11.7782536
4/4/2019	171,525		733.028	1.166	199,999			12.2060654
4/7/2019	1,132,780		733.061	1.166	1,320,821			14.093764
4/13/2019	250,782		733.127	1.166	292,411			12.5859171
4/18/2019	534,448		733.182	1.166	623,166			13.3425684
5/3/2019	565,751		733.348	1.166	659,666			13.399489
5/7/2019	1,127,092		733.392	1.166	1,314,189			14.0887306
5/9/2019	2,306,758		733.414	1.166	2,689,679			14.8049325
6/5/2019	288,768		733.713	1.165	336,414			12.7260989
6/6/2019	528,225		733.724	1.165	615,382			13.3299984
6/16/2019	513,194		733.834	1.165	597,871			13.3011302
6/24/2019	368,723		733.923	1.165	429,563			12.9705233
6/25/2019	153,559		733.934	1.165	178,896			12.0945602
7/1/2019		734				10,281,867		
7/11/2019	158,006		735.576	1.162	183,603			12.120532
7/15/2019	134,120		736.207	1.161	155,714			11.955775
7/30/2019	399,118		738.571	1.158	462,178			13.0437057
8/14/2019	498,469		740.935	1.154	575,233			13.262531
8/28/2019	343,095		743.141	1.151	394,902			12.8863933
9/10/2019	106,762		745.190	1.147	122,456			11.7155041
9/17/2019	1,674,012		746.293	1.146	1,918,418			14.4670116
1/1/2020		763				3,812,504	14,094,371	
4/9/2020	540,379		770.615	1.110	599,821			13.3043867
4/12/2020	119,118		770.846	1.109	132,102			11.7913284
4/19/2020	196,520		771.385	1.108	217,744			12.2910748
4/28/2020	101,950		772.077	1.107	112,859			11.6338923
4/29/2020	653,830		772.154	1.107	723,790			13.4922568
5/10/2020	468,668		773.000	1.106	518,347			13.1584001
5/15/2020	646,121		773.385	1.106	714,610			13.479492
5/24/2020	293,611		774.077	1.105	324,440			12.6898557
5/27/2020	1,563,129		774.308	1.104	1,725,694			14.36114
6/3/2020	187,834		774.846	1.103	207,181			12.2413459

Date of Storm	Trans. & Dist. Gross Loss	Handy-Whitman Index	Interpolated Index	Trend Factor	Trended Loss	Semi-Annual Total	Annual Total	Natural Log
6/21/2020	112,755		776.231	1.101	124,143			11.7291902
6/22/2020	594,465		776.308	1.101	654,505			13.3916352
7/1/2020		777				6,055,236		
7/11/2020	109,793		776.783	1.101	120,882			11.7025725
7/17/2020	106,341		776.652	1.101	117,082			11.670628
7/21/2020	121,368		776.565	1.101	133,626			11.8027996
7/25/2020	297,557		776.478	1.101	327,611			12.6995809
9/6/2020	108,418		775.543	1.102	119,477			11.690875
9/7/2020	131,810		775.522	1.102	145,254			11.8862401
9/20/2020	878,856		775.239	1.103	969,378			13.7844096
12/13/2020	427,573		773.413	1.105	472,469			13.0657264
12/24/2020	113,750		773.174	1.106	125,808			11.7425107
1/1/2021		773				2,531,587	8,586,823	
1/6/2021	205,718		773.635	1.105	227,319			12.3341076
1/10/2021	162,828		774.144	1.104	179,762			12.0993902
3/14/2021	147,825		782.149	1.093	161,573			11.9927098
3/17/2021	116,312		782.530	1.093	127,130			11.7529616
4/14/2021	149,087		786.088	1.088	162,206			11.9966244
4/23/2021	118,126		787.232	1.086	128,285			11.7620072
4/30/2021	219,082		788.122	1.085	237,704			12.3787804
5/1/2021	416,886		788.249	1.085	452,322			13.0221491
5/11/2021	101,279		789.519	1.083	109,685			11.6053672
5/16/2021	1,566,721		790.155	1.082	1,695,192			14.3433063
5/17/2021	149,427		790.282	1.082	161,680			11.9933753
5/24/2021	206,661		791.171	1.081	223,401			12.3167229
5/28/2021	551,009		791.680	1.080	595,089			13.2964669
6/2/2021	491,299		792.315	1.079	530,112			13.1808436
6/13/2021	202,067		793.713	1.077	217,626			12.2905325
6/15/2021	595,557		793.967	1.077	641,415			13.3714317
6/21/2021	302,184		794.729	1.076	325,150			12.6920411
6/28/2021	177,502		795.619	1.075	190,815			12.1590589
7/1/2021		796				6,366,466		
7/9/2021	168,045		798.565	1.071	179,976			12.1005797
7/12/2021	232,940		799.527	1.069	249,013			12.4252593
7/13/2021	318,994		799.848	1.069	341,005			12.7396511
7/14/2021	152,548		800.168	1.069	163,074			12.0019566
7/19/2021	349,097		801.772	1.066	372,138			12.8270192
7/30/2021	223,448		805.299	1.062	237,302			12.3770901
8/14/2021	109,506		810.109	1.055	115,528			11.6572715
8/15/2021	819,454		810.429	1.055	864,524			13.6699343
8/18/2021	181,243		811.391	1.054	191,031			12.1601889
10/1/2021	167,998		825.500	1.036	174,046			12.0670753
10/27/2021	360,630		833.837	1.025	369,646			12.8203006
10/28/2021	1,381,698		834.158	1.025	1,416,241			14.1635167
12/11/2021	133,168		848.266	1.008	134,233			11.8073331
1/1/2022		855				4,807,757	11,174,223	
1/2/2022	150,991		855.000	1.000	150,991			11.9249725
1/8/2022	475,099		855.000	1.000	475,099			13.0712786
1/15/2022	235,489		855.000	1.000	235,489			12.3694196
2/3/2022	502,284		855.000	1.000	502,284			13.1269203
2/17/2022	104,926		855.000	1.000	104,926			11.5610076
3/11/2022	122,000		855.000	1.000	122,000			11.7117776
3/21/2022	235,906		855.000	1.000	235,906			12.3711876
3/22/2022	337,861		855.000	1.000	337,861			12.7303886
4/10/2022	110,592		855.000	1.000	110,592			11.6136069
4/11/2022	158,461		855.000	1.000	158,461			11.9732666
4/12/2022	108,772		855.000	1.000	108,772			11.5970062
4/25/2022	457,848		855.000	1.000	457,848			13.034293
5/2/2022	144,966		855.000	1.000	144,966			11.8842562
5/5/2022	404,571		855.000	1.000	404,571			12.9105833
5/21/2022	783,835		855.000	1.000	783,835			13.5719544
5/24/2022	234,842		855.000	1.000	234,842			12.3666664
5/25/2022	614,550		855.000	1.000	614,550			13.3286463
6/19/2022	336,869		855.000	1.000	336,869			12.7274479
7/1/2022		855				5,519,862		
7/1/2022	136,360		855.000	1.000	136,360			11.8230556

Date of Storm	Trans. & Dist. Gross Loss	Handy-Whitman Index	Interpolated Index	Trend Factor	Trended Loss	Semi-Annual Total	Annual Total	Natural Log
7/9/2022	797,951		855.000	1.000	797,951			13.5898019
7/14/2022	378,776		855.000	1.000	378,776			12.8447014
8/10/2022	1,118,494		855.000	1.000	1,118,494			13.9274941
8/18/2022	910,969		855.000	1.000	910,969			13.7222642
8/29/2022	294,346		855.000	1.000	294,346			12.5925096
8/31/2022	141,899		855.000	1.000	141,899			11.8628719
9/7/2022	246,656		855.000	1.000	246,656			12.4157492
9/15/2022	129,267		855.000	1.000	129,267			11.7696351
10/24/2022	565,387		855.000	1.000	565,387			13.245266
10/28/2022	218,288		855.000	1.000	218,288			12.2935699
11/4/2022	237,255		855.000	1.000	237,255			12.376891
12/22/2022	860,732		855.000	1.000	860,732			13.6655379
1/1/2023		855				6,036,380	11,556,242	
1/7/2023	173,993		855.000	1.000	173,993			12.0667724
1/24/2023	6,318,512		855.000	1.000	6,318,512			15.6589943
3/16/2023	397,182		855.000	1.000	397,182			12.892149
4/5/2023	582,672		855.000	1.000	582,672			13.2753798
4/20/2023	1,375,170		855.000	1.000	1,375,170			14.1340882
5/8/2023	277,952		855.000	1.000	277,952			12.5352035
5/13/2023	794,012		855.000	1.000	794,012			13.5848539
6/8/2023	2,120,348		855.000	1.000	2,120,348			14.5670906
6/21/2023	8,245,620		855.000	1.000	8,245,620			15.9251927
7/1/2023		855				20,285,461		
8/24/2023	295,409		855.000	1.000	295,409			12.5961157
8/27/2023	519,568		855.000	1.000	519,568			13.1607529
9/8/2023	201,132		855.000	1.000	201,132			12.2117165
9/14/2023	923,713		855.000	1.000	923,713			13.7361569
10/3/2023	551,054		855.000	1.000	551,054			13.2195874
9/25/2023	211,327		855.000	1.000	211,327			12.26116
10/22/2023	528,919		855.000	1.000	528,919			13.1785901
10/29/2023	304,205		855.000	1.000	304,205			12.625456
11/1/2023	287,383		855.000	1.000	287,383			12.5685701
11/8/2023	357,411		855.000	1.000	357,411			12.786643
11/12/2023	419,248		855.000	1.000	419,248			12.9462184
11/16/2023	483,656		855.000	1.000	483,656			13.0891298
11/22/2023	366,592		855.000	1.000	366,592			12.812005
1/1/2024		855				5,449,617	25,735,078	
Total	109,044,940				133,951,387	133,951,387	133,951,387	
Average							9,922,325	

Total Number of Claims	214
Number of Years	10.0
Average per year	21.400

From: Vacek, James M
Sent: Thursday, January 4, 2024 3:33 PM
To: Worsham, Krystin M; Jackson, Robert; Sorum, Peggy J; Leahy, Patrick; Fibbe, George; Kimzey, Michael S
Cc: Peters III, Patrick H
Subject: RE: [External Email] Availability of T&D Coverage

All,
Please find a revised version cleaning up some formatting issues from my prior email.
Regards,

Jim Vacek
Director Insurance Risk Management

CenterPoint Energy | Legal Department
713.207.5108 w | 832.291.9024 c
CenterPointEnergy.com

From: Vacek, James M
Sent: Thursday, January 4, 2024 1:47 PM
To: Worsham, Krystin M <krystin.worsham@centerpointenergy.com>; Jackson, Robert <robert.jackson@centerpointenergy.com>; Sorum, Peggy J <peggy.sorum@centerpointenergy.com>; Leahy, Patrick <patrick.leahy@bakerbotts.com>; Fibbe, George <george.fibbe@bakerbotts.com>
Cc: Peters III, Patrick H <patrick.peters@centerpointenergy.com>
Subject: FW: [External Email] Availability of T&D Coverage

I've added commentary in red to the various options presented by McGriff.
At this time, none would be considered a viable alternative.
Regards,

Jim Vacek
Director Insurance Risk Management

CenterPoint Energy | Legal Department
713.207.5108 w | 832.291.9024 c
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