

BEFORE THE  
STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

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In the Matter of  
National Fuel Gas Distribution Corp.

Case 16-G-0257

September 2016

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Prepared Exhibits of:

Staff Finance Panel

Office of Accounting, Audits and  
Finance  
State of New York  
Department of Public Service  
Three Empire State Plaza  
Albany, New York 12223-1350

National Fuel Distribution Corp.

Case 16-G-0257

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NATIONAL FUEL GAS DISTRIBUTION CORPORATION  
NEW YORK DIVISION  
RESPONSE TO DEPARTMENT OF PUBLIC SERVICE  
REQUEST FOR INFORMATION  
CASE 16-G-0257

Question

**Re: Revenue and Expense Reconciliations**

1. Provide, and identify by mechanism, the amount of the Company's total historic test year operating revenue that was subject to reconciliation.
2. Provide, and identify by mechanism, the amount of the total rate year operating revenue that the Company proposes to reconcile.
3. Provide, and identify by mechanism, the amount of the Company's total historic O&M expense that was subject to reconciliation.
4. Provide, and identify by mechanism, the amount of the total rate year O&M expense that the Company proposes to reconcile.

Response:

Revenues Reconcilable	TME 12/2015 Revenues \$	TME 3/2018 Revenues \$
Revenue	Res = 39,918,699	Res = 50,937,103
Decoupling Mechanism	NonRes = 27,996,879 Total = 67,915,578	NonRes = 31,696,164 Total = 82,633,267
Symmetrical Sharing Mechanism	21,867,661	27,755,792
Merchant Function Charge	14,202,000	14,157,812
Low Income Program including Arrearage Forgiveness	6,000,000	10,694,114 <sup>1</sup>

<sup>1</sup> The Company reserves the right to adjust rate year operating revenues based on the Company's Supplemental Testimony filed June 10, 2016 in connection with the Low Income Order dated May 20, 2016 in Case 14-M-0565.

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NATIONAL FUEL GAS DISTRIBUTION CORPORATION  
NEW YORK DIVISION  
RESPONSE TO DEPARTMENT OF PUBLIC SERVICE  
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O&M Reconcilable expenses	TME 12/2015 Expense \$	TME 3/2018 Expense \$
Benefits - Annuity	22,226,000	15,386,000
Benefits – OPEBs	1,988,000	1,334,000
Area Development – Expense	1,000,000	1,250,000
Area Development – Capacity Release	250,000	0
Research & Development	991,000	700,000
PSC Assessment	2,370,000	2,370,000
Site Remediation	2,000,000	5,000,000
Settlement Deferrals	347,000	0

O&M Additional Proposed Reconcilable expenses	TME 12/2015 Expense \$	TME 3/2018 Expense \$
PSC Audits	0	838,000

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NATIONAL FUEL GAS DISTRIBUTION CORPORATION  
NEW YORK DIVISION  
RESPONSE TO DEPARTMENT OF PUBLIC SERVICE  
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CASE 16-G-0257

**Re: Capitalization/Money Pool**

Question

1. What ring-fencing provisions are in place to isolate and protect National Fuel Gas Distribution Corporation's assets from the risks of National Fuel Gas Company and the other subsidiaries?

Response

1. The following are practices National Fuel Gas Company ("National Fuel") has in place which insulate National Fuel Gas Distribution Corporation ("NFGDC") from the activities of National Fuel and its other subsidiaries.

Consolidated Approach to Financing: National Fuel manages its capital structure on a consolidated basis. All capital is raised first at the parent company level and then is allocated to the subsidiaries. Financing plans are developed for the consolidated group by National Fuel's Treasurer and Principal Financial Officer and are approved by National Fuel's President and Chief Executive Officer. In addition, issuances of debt and equity are approved by National Fuel's Board of Directors.

Subsidiary Limits on Borrowing: National Fuel's 1974 Indenture limits its subsidiaries' ability to borrow from parties other than National Fuel. Under that agreement, the principal amount of all subsidiary debt to outside parties may not exceed 15% of the Consolidated Assets (as defined in the 1974 Indenture) of National Fuel.

Cash Accounts: NFGDC maintains separate bank accounts and does not commingle its funds with its sister companies.

Short-Term Borrowing: National Fuel and its subsidiaries (including NFGDC) manage their short-term financing needs through a Money Pool. Under that arrangement, National Fuel makes loans available to its subsidiaries utilizing the proceeds of borrowings under various borrowing facilities, which may include, among others, commercial paper, short-term lines of credit, demand

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NATIONAL FUEL GAS DISTRIBUTION CORPORATION  
NEW YORK DIVISION  
RESPONSE TO DEPARTMENT OF PUBLIC SERVICE  
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credit facilities, revolving lines of credit, and committed credit facilities (“Credit Facilities”), as determined by National Fuel. In addition, at certain times during the year, National Fuel and certain of its subsidiaries generate surplus funds, which they may choose to invest in the Money Pool.

Borrowings through the Money Pool are met first from available surplus funds of the subsidiaries, and then from available surplus funds of National Fuel. Once these sources of funds become insufficient to meet the short-term loan requests, borrowings will be made by National Fuel through the issuance and sale of commercial paper or borrowings under other Credit Facilities. There are two important exceptions to the above, both of which have the effect of insulating NFGDC’s finances from that of the other National Fuel subsidiaries:

1. NFGDC may borrow from the Money Pool but may not invest any excess cash in it.
2. In the event that there are insufficient funds available from Money Pool sources to satisfy Money Pool borrowing requirements of the subsidiaries, NFGDC will receive borrowing priority over the other subsidiaries.

NATIONAL FUEL GAS DISTRIBUTION CORPORATION NEW YORK DIVISION  
**RATE OF RETURN REQUIRED FOR THE RATE YEAR**  
 TWELVE MONTHS ENDED MARCH 31, 2018

March 31, 2018

	<u>Percent</u>	<u>Cost Rate</u>	<u>Weighted Cost of Capital</u>	<u>Pre-Tax</u>
Short-Term Debt	0.00%	0.00%	0.00%	0.00%
Long-Term Debt	57.30%	5.62%	3.22%	3.22%
Customer Deposits	0.40%	0.85%	0.00%	0.00%
Common Equity	42.30%	8.60%	3.64%	5.99%
Total	100.00%		6.86%	9.21%

**National Fuel Gas Distribution Corporation New York Division**

## Impairments and Capitalization

**National Fuel Gas Company<sup>1</sup>**

at September 30

	2016 (6/30/16)	2015	2014	2013	2012	2011
Long-Term Debt	\$ 2,085,686	\$ 2,084,009	\$ 1,637,443	\$ 1,635,630	\$ 1,139,552	\$ 893,274
Total Equity	1,527,642	2,025,440	2,410,683	2,194,729	1,960,095	1,891,885
Capitalization	\$ 3,613,328	\$ 4,109,449	\$ 4,048,126	\$ 3,830,359	\$ 3,099,647	\$ 2,785,159
Debt %	57.7%	50.7%	40.4%	42.7%	36.8%	32.1%
Equity %	42.3%	49.3%	59.6%	57.3%	63.2%	67.9%

**Impairment of Oil and Gas Producing Properties**

(000s)

	Impairment	Equity	Long-Term Debt	Capitalization	Equity Ratio <sup>2</sup>
06/30/16	\$ 82,658	\$ 1,527,642	\$ 2,085,686	\$ 3,613,328	42.3%
03/31/16	397,443	1,622,479	2,085,123	3,707,602	43.8%
12/31/15	435,451	1,812,681	2,084,562	3,897,243	46.5%
09/30/15	417,197	2,025,440	2,084,009	4,109,449	49.3%
06/30/15	588,712	2,247,358	2,099,000	4,346,358	51.7%
03/31/15	120,348	2,599,249	1,649,000	4,248,249	61.2%
	<u>\$ 2,041,809</u>				

**National Fuel Gas Distribution Corporation NY Division<sup>2</sup>**

at December 31

	2015	2014	2013	2012	2011
Long-Term Debt	\$ 324,000,000	\$ 324,000,000	\$ 324,000,000	\$ 324,000,000	\$ 414,000,000
Total Equity	543,450,349	526,720,928	504,498,517	478,587,736	479,280,049
Capitalization	\$ 867,450,349	\$ 850,720,928	\$ 828,498,517	\$ 802,587,736	\$ 893,280,049
Debt %	37.4%	38.1%	39.1%	40.4%	46.3%
Equity %	62.6%	61.9%	60.9%	59.6%	53.7%

<sup>1</sup>SEC filings<sup>2</sup>PSC Annual Reports



# Alternative Regulation for Evolving Utility Challenges: An Updated Survey

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Prepared for:

**Edison Electric Institute**

**January 2013**

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Printed in the United States of America.

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Published by:

Edison Electric Institute

701 Pennsylvania Avenue, N.W.

Washington, D.C. 20004-2696

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# I. Introduction: The Problem of Financial Attrition Under Traditional Cost of Service Regulation

Many utilities are exploring alternatives to traditional rate regulation today. The underlying problem they face is a tendency of cost to grow more rapidly than the billing determinants (*e.g.* kWh of use) that determine revenue growth between rate cases. On the cost side, some utilities need large new generation or transmission investments. Others are engaged in accelerated distribution system modernization. Even without accelerated modernization, “wireco utilities” tend to experience more rate base growth than was the norm in the last years before they sold or spun off their generation. On the revenue side, growth in energy usage per customer (“average use”) helped finance utility cost growth before 1980 because it bolstered revenue appreciably more than cost. Arguably, this was a feature of the Regulatory Compact which allowed utilities to finance needed new capacity.<sup>1</sup> Growth in average use has been much slower since then. Few utilities have experienced much bounceback in average use since the recession thanks to sluggish economic growth, increased energy efficiency, and the spread of distributed generation (“DG”). Some utilities are experiencing declining average use.

Traditional approaches to utility regulation can fail to provide timely rate relief for such conditions. The frequency of rate cases has increased. Utilities facing a pronounced gap between cost and billing determinant growth can experience chronic underearning even with annual rate cases. Financial attrition undoubtedly has been a factor in the long-term decline of average credit ratings among investor-owned electric utilities. This is illustrated in Figure 1. Higher risk raises financing costs and can discourage needed investments.

Alternative approaches to regulation have been developed which handle today’s business conditions better. Some, such as multiyear rate plans, formula rates, and fully-forecasted test years, are comprehensive in character but involve large-scale departures from traditional regulation. Others, such as revenue decoupling and cost trackers, target cost and revenue problem areas that cause cost and revenue growth to differ. Judicious use of targeted approaches can bring revenue and cost growth into better balance and reduce the frequency of rate cases.

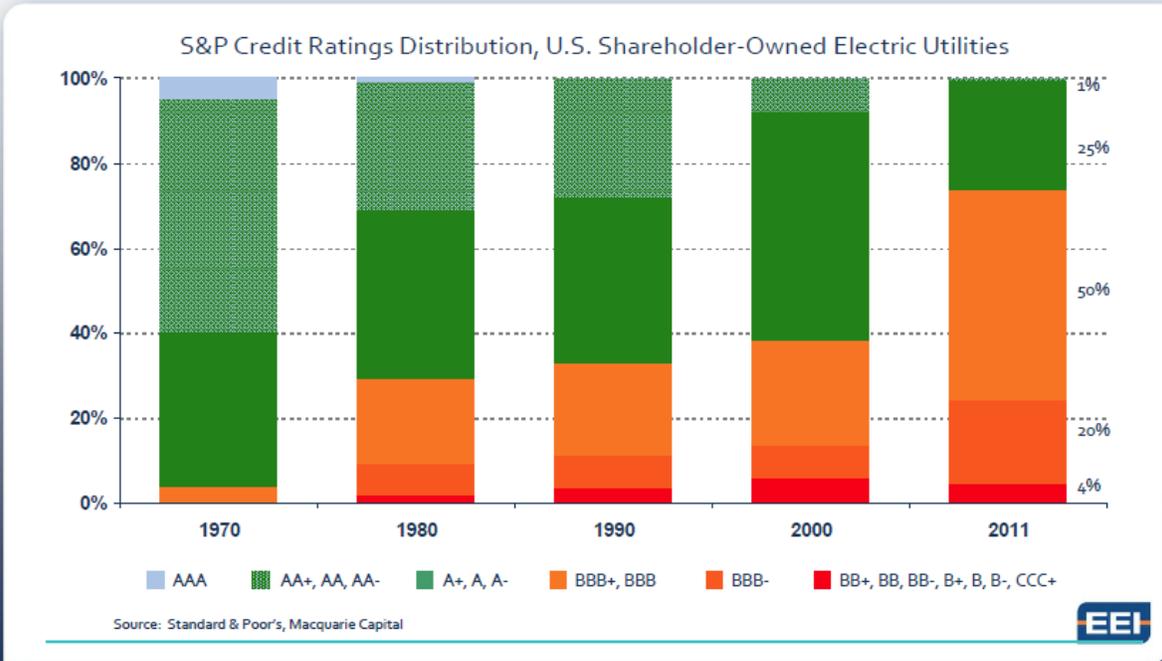
This survey, now updated to include precedents through late 2012, briefly explains salient alternative regulation (“Altreg”) options and details precedents for electric and natural gas utilities. A summary of states that currently use these approaches is featured in Table 1. Natural gas precedents are included because of their relevance to “wires only” utilities.

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<sup>1</sup> See *Cost of Service Regulation in the Investor-Owned Electric Utility Industry: A History of Adaptation*, by Karl McDermott, June 2012. Prepared for the Edison Electric Institute.

# Figure 1: US Electric IOUs Rating History

1970 – 2011



**Table 1**  
**Innovations to Reduce Regulatory Lag: An Overview of Current Precedents**

State	Capex Cost Tracker	CWIP in Rate Base <sup>1</sup>	Multiyear Rate Plan <sup>2</sup>	Revenue Decoupling			Retail Formula Rate Plans	Forward Test Years
				Decoupling True Up Plans	Lost Revenue Adjustment Mechanisms	Fixed Variable Retail Pricing		
Alabama	Yes						Yes	Yes
Arizona	Yes		Yes (electric only)	Yes (gas only)	Yes			
Arkansas	Yes			Yes (gas only)	Yes			
California	Yes		Yes	Yes				Yes
Colorado	Yes	Yes	Yes (electric only)					
Connecticut	Yes (electric only)			Yes (electric only)	Yes (gas only)	Yes		Yes
Delaware	Pending							
District of Columbia				Yes (electric only)				
Florida	Yes	Yes	Yes (electric only)			Yes (gas only)		Yes
Georgia	Yes	Yes	Yes (electric only)	Yes (gas only)		Yes (gas only)	Yes (gas only)	Yes
Hawaii	Yes (electric only)		Yes (electric only)	Yes (electric only)				Yes
Idaho				Yes (electric only)				
Illinois				Yes (gas only)		Yes	Yes (electric only)	Yes
Indiana	Yes (electric only)	Yes		Yes (gas only)	Yes (electric only)			
Iowa	Yes (electric only)		Yes (electric only)					
Kansas	Yes	Pending			Yes (electric only)			
Kentucky	Yes				Yes	Yes (gas only)		Yes
Louisiana	Yes (electric only)	Yes	Yes (electric only)		Yes (electric only)		Yes	Yes (electric only)
Maine	Yes (electric only)		Yes (electric only)					Yes
Maryland				Yes				
Massachusetts	Yes			Yes	Yes			
Michigan	Yes (gas only)	Pending		Yes (gas only)				Yes

## I. Introduction

**Table 1 (continued)**  
**Innovations to Reduce Regulatory Lag: An Overview of Current Precedent**

State	Capex Cost Tracker	CWIP in Rate Base <sup>1</sup>	Multiyear Rate Cap <sup>2</sup>	Revenue Decoupling			Retail Formula Rate Plans	Forward Test Years
				Decoupling True Up Plans	Lost Revenue Adjustment Mechanisms	Fixed Variable Retail Pricing		
Minnesota	Yes	Yes		Yes (gas only)				Yes
Mississippi	Yes (electric only)	Yes				Yes (electric only)	Yes	Yes
Missouri	Yes (gas only)					Yes (gas only)		
Montana	Yes				Yes			
Nebraska								
Nevada				Yes (gas only)	Yes (electric only)			
New Hampshire	Yes		Yes (electric only)		Yes (electric only)			
New Jersey	Yes			Yes (gas only)				
New Mexico		Pending						Pending
New York	Yes (electric only)		Yes	Yes	Yes			Yes
North Carolina		Yes		Yes (gas only)	Yes (electric only)			
North Dakota		Pending				Yes (gas only)		Yes
Ohio	Yes	Pending	Yes (electric only)	Yes (electric only)	Yes (electric only)	Yes (gas only)		
Oklahoma	Yes (electric only)	Pending			Yes (electric only)	Yes (gas only)	Yes (gas only)	
Oregon	Yes			Yes	Yes			Yes
Pennsylvania	Yes (electric only)							Pending
Rhode Island	Yes			Yes				Yes
South Carolina	Yes (electric only)	Yes			Yes (electric only)		Yes (gas only)	
South Dakota	Yes (electric only)	Pending						
Tennessee				Yes (gas only)				Yes
Texas	Yes	Yes					Yes (gas only)	
Utah	Yes (gas only)			Yes (gas only)				Yes
Vermont	Yes (electric only)		Yes					
Virginia	Yes	Yes	Yes (electric only)	Yes (gas only)				
Washington	Pending			Yes (gas only)				
West Virginia	Yes (electric only)	Yes						
Wisconsin		Yes		Yes				Yes
Wyoming	Yes (electric only)	Yes		Yes (gas only)	Yes			Yes (electric only)

<sup>1</sup> This column pertains only to electric utilities.

<sup>2</sup> This column excludes plans involving rate freezes without extensive supplemental funding from trackers.

## II. Cost Trackers and CWIP in Rate Base

A cost tracker is a mechanism for expedited recovery of specific utility costs. Balancing accounts are typically used to track unrecovered allowances. Cost recovery is often implemented using tariff sheet provisions called riders.

Trackers are used in various situations where they are a more practical means of adjusting rates for particular business conditions. Utilities usually recover fuel and purchased power costs via trackers because the volatility and substantial size of these costs would otherwise lead to frequent general rate cases and high risk. Other volatile expenses that are sometimes addressed using trackers include those for pension contributions and uncollectible bills.

A second common use of trackers is for costs that must be incurred because they are required by government agencies. Examples here include franchise fees and certain taxes. Tracking costs like these is fair to utilities and encourages government agents to moderate policies that are apt to raise customer bills.

Trackers are also widely used to compensate utilities for costs that are rapidly rising and don't produce much revenue, whether or not they are volatile or mandated. This can facilitate the targeted expenditures and reduce operating risk and rate case frequency. Examples of operation and maintenance ("O&M") expenses that are sometimes tracked due in whole or part to their rapid growth include those for health care and demand side management ("DSM").

Trackers for the costs of plant additions are sometimes called capital expenditure ("capex") trackers. The costs that are recovered typically include the accumulating depreciation, return on asset value, and taxes that the capex gives rise to. Recovery is sometimes achieved by keeping a rate case open beyond the date of a final decision for the limited purpose of adding assets to the revenue requirement.

Capex costs can qualify for expedited recovery using either or both of the second or third reasons just discussed. A utility might, for example, be compelled to make capital expenditures due to highway relocations or changes in government safety or reliability standards or conductor undergrounding requirements. Capex costs might also be tracked because they are large enough to cause material growth in assets that would otherwise occasion frequent rate cases.

The construction of base load generating capacity is a common source of major plant additions for VIEUs. This kind of capacity can take years to construct, especially when it is powered by solid fuels or hydroelectric resources. An allowance in rates for funds used during construction was traditionally not permitted until assets were used and useful and a rate case was filed. Deferred recovery can strain utility cash flow, involve extra financing expenses, and induce rate "shock" when the value of the plant and construction financing is finally added to the rate base. This is particularly true if the utility is not experiencing growth in average use during the years of construction. Many commissions address these problems by making a return on construction work in progress ("CWIP") eligible for immediate recovery. Capital cost trackers are often used in lieu of frequent rate cases to obtain CWIP recovery.

## II. Cost Trackers and CWIP in Rate Base

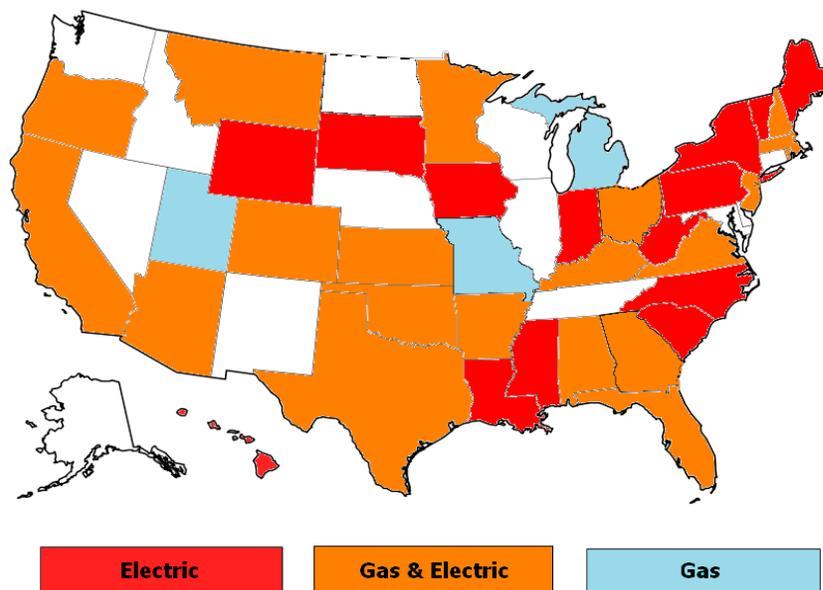
The capex costs of distribution system modernization are sometimes recovered using trackers for somewhat different reasons. The annual expenditure may not be as large as that for solid-fuel generation capacity, and construction of specific assets usually takes less than a year. However, the expenditures can still be sizable and, unlike new generation or customer connections, don't automatically trigger new revenue when construction is finished. A tracker for the cost of the new investment can help a company modernize its grid and improve its services without frequent rate cases.

The capex costs of generation emissions controls are often accorded expedited recovery for a combination of the reasons just discussed. The controls are occasioned by the emissions policies of state and federal agencies. Additionally, the facilities do not produce revenue and some facilities often become used and useful each year over a series of years.

There are varied treatments of costs in approved capex trackers. Plant addition budgets are usually set in advance and commission review of these budgets can be extensive. Once a budget is established, treatment of variances from the budget becomes an issue. Some trackers permit conventional prudence review treatment of cost overruns. In other cases, no adjustments are subsequently made if cost exceeds the budget. In between these extremes are mechanisms in which deviations, of prescribed magnitude, from budgeted amounts are shared formulaically (e.g. 50-50) between the utility and its customers.

Recent precedents for capital cost trackers are listed in Table 2 and Figures 2 and 3. It can be seen that the precedents are quite numerous and continue to grow. This is one of the most widespread approaches to Altreg. On the electric side, trackers for emissions controls, generation capacity, and advanced metering infrastructure have been especially common in recent years. Trackers for gas utilities often focus on the cost of replacing old cast iron and bare steel mains. Trackers for water utilities, sometimes called distribution system improvement charges ("DSICs"), are also common for accelerated modernization. Recent electric utility precedents for CWIP in rate base are listed in Table 3 and Figure 4. It can be seen that most involve investments in generating plant.

**Figure 2: Recent Capex Tracker Precedents by State: Energy Utilities**



**Table 2**  
**Recent Capex Tracker Precedents**

Jurisdiction	Company Name	Services Included	Tracker Name	Eligible Investments	Case Reference
<b>Current</b>					
AL	Alabama Power	Electric	Rate Certificated New Plant	Any approved by Commission through CPCN	Dockets 18117 and 18416 (November 1982)
AL	Mobile Gas Service	Gas	Cast Iron Replacement Factor	Replacement of cast iron mains	Docket 24794 (November 1995)
AR	CenterPoint Energy Arkla	Gas	Main Replacement Rider	Replacement of cast iron and bare steel mains and services	Docket 06-161-U (October 2007)
AR	CenterPoint Energy Arkla	Gas	Government Mandated Expenditure Surcharge Rider	Replacements resulting from highway and street rebuilding	Docket No. 10-108-U (March 2011)
AR	Oklahoma Gas & Electric	Electric	Smart Grid Rider	Systemwide smart grid implementation	Docket No. 10-109-U (August 2011)
AR	SWEPSCO	Electric	Generation Recovery Rider	New generation	Docket No. 09-008-U (November 2009)
AZ	Arizona Public Service	Electric	Environmental Improvement Surcharge	Environmental improvement projects	Docket No. E-01345A-11-024
AZ	Arizona Public Service	Electric	Renewable Energy Standard Adjustment Schedule	Renewables not recovered in base rates	Docket No. E-01345A-08-0172
AZ	Southwest Gas	Gas	Customer Owned Yard Line Cost Recovery Mechanism	Replacement and ownership of customer-owned yard lines that have been shown to be leaking	Docket No. G-01551A-10-0458 (January 2012)
CA	Pacific Gas & Electric	Electric & Gas	Smart Meter Balancing Accounts	AMI	Decision 06-07-027 (July 2006)
CA	Pacific Gas & Electric	Electric	Cornerstone Improvement Project Balancing Account	Capital and O&M expenses to improve the reliability of the electric distribution system	Decision 10-06-048 (June 2010)
CA	Pacific Gas & Electric	Gas Transmission	Pipeline Safety Implementation Plan	Pipeline replacement, automated valve installation, and upgrades to pipeline	Decision 12-12-030 (December 2012)
CA	San Diego Gas & Electric	Electric & Gas	Advanced Metering Infrastructure Balancing Account	AMI	Decision 07-04-043 (April 2007)
CA	San Diego Gas & Electric	Electric	SONGS Major Additions Adjustment Clause	Steam generator replacement for San Onofre Nuclear Generating Station	Decision 06-11-026 (November 2006)
CA	Southern California Edison	Electric	Steam Generator Replacement Project	Steam generator replacement for San Onofre Nuclear Generating Station	Decision 05-12-040 (December 2005)
CA	Southern California Edison	Electric	SmartConnect Balancing Account	Advanced Metering Infrastructure Project	Decision No. 08-09-039 (September 2008)
CA	Southern California Edison	Electric	Solar PV Balancing Account	Solar generation	Decision No. 09-06-049 (June 2009)
CA	Southern California Gas	Gas	Advanced Metering Infrastructure Balancing Account	AMI	Decision 10-04-027 (April 2010)
CO	Atmos Energy	Gas	AMI Surcharge	AMI pilot deployment	Docket No. 10A-189G (May 2010)
CO	Public Service Company of Colorado	Electric	Transmission Cost Adjustment	Transmission projects	Docket No. 07A-339E, Decision No. C07-1085 (December 2007)
CO	Public Service Company of Colorado	Gas	Pipeline Safety Integrity Adjustment	Gas distribution and transmission integrity management programs, main replacement, partial recovery of two large pipeline replacements	Docket No. 10-AL-963G (August 2011)
CT	Connecticut Light & Power	Electric	System Resiliency Plan	Structural hardening	Docket No. 12-07-06 (January 2013)
DE	All utilities may file	Electric & Gas	Utility Facility Relocation Charge	Replacements due to mandated relocations that are not otherwise reimbursed	PSC Regulation Docket No. 63 (April 2012)
FL	Chesapeake Utilities	Gas	Gas Reliability Infrastructure Program Tariff	Replacement of bare steel mains and services	Docket No. 120036-GU (September 2012)
FL	Florida Public Utilities	Gas	Gas Reliability Infrastructure Program Tariff	Replacement of bare steel mains and services	Docket No. 120036-GU (September 2012)
FL	Gulf Power	Electric	Environmental Cost Recovery Clause	Environmental	Docket No. 930613-EI (January 1994)
FL	Florida Power and Light	Electric	Environmental Cost Recovery Clause	Environmental	Docket No. 080281-EI (August 2008)
FL	Florida Power and Light	Electric	Generation Base Rate Adjustment	Generation	Docket No. 120015-EI (December 2012)
FL	Florida Power and Light	Electric	Capacity Cost Recovery Clause	Nuclear power	Docket No. 090009-EI (November 2009)
FL	Peoples Gas System	Gas	Cast Iron/Bare Steel Replacement Rider	Replacement of bare steel and cast iron pipes	Docket No. 110320-GU (September 2012)
FL	Progress Energy Florida	Electric	Capacity Cost Recovery Clause	Nuclear power	Docket No. 090009-EI (November 2009)
FL	Progress Energy Florida	Electric	Environmental Cost Recovery Clause	Environmental	Docket No. 050078-EI (September 2005)
FL	Tampa Electric	Electric	Environmental Cost Recovery Clause	Environmental	Docket No. 960688-EI (August 1996)
GA	Atmos Energy	Gas	Pipe Replacement Surcharge	Replace cast iron and bare steel pipe	Docket No. 12509-U (December 2000)
GA	Atlanta Gas Light	Gas	Strategic Infrastructure Development and Enhancement Program	Infrastructure improvements that sustain reliability and operational flexibility	Docket No. 8516-U (October 2009)
GA	Georgia Power Company	Electric	Environmental Compliance Cost Recovery	Environmental	Docket No. 25060-U (December 2007)
GA	Georgia Power Company	Electric	Nuclear Construction Cost Recovery	Nuclear generation	Docket No. 27800, Senate Bill 31

II. Cost Trackers and CWIP in Rate Base

**Table 2 (continued)  
Recent Capex Tracker Precedents**

Jurisdiction	Company Name	Services Included	Tracker Name	Eligible Investments	Case Reference
HI	Hawaii Electric Light	Electric	Renewable Energy Infrastructure Program Surcharge	Renewable energy infrastructure	Docket No. 2007-0416 (December 2009)
HI	Hawaiian Electric Company	Electric	Renewable Energy Infrastructure Program Surcharge	Renewable energy infrastructure	Docket No. 2007-0416 (December 2009)
HI	Maui Electric	Electric	Renewable Energy Infrastructure Program Surcharge	Renewable energy infrastructure	Docket No. 2007-0416 (December 2009)
IA	MidAmerican Energy	Electric	Cooper Tracking Mechanism	Nuclear plant	Docket APP-96-1 (June 1997), Docket No. TF-02-154 (APP-96-1, RPU-96-8) (May 2002) Cause No. 41744 (February 2001)
IN	Duke Energy Indiana	Electric	Qualified Pollution Control Property	Environmental	
IN	Duke Energy Indiana	Electric	Integrated Coal Gasification Combined Cycle Generating Facility Cost Recovery Adjustment	Integrated gasification combined cycle generating plant	Docket No. 43114 (November 2007)
IN	Indianapolis Power & Light	Electric	Environmental Compliance Cost Recovery	Environmental	Cause 42170 (November 2002)
IN	Indiana Michigan Power	Electric	Clean Coal Technology Rider	Environmental	Cause No. 43636 (June 2009)
IN	Northern Indiana Public Service	Electric	Environmental Cost Recovery Mechanism	Environmental	Cause No. 42150 (November 2002)
KS	Atmos Energy	Gas	Gas System Reliability Surcharge	Infrastructure system replacements	Docket No. 10-ATMG-133-TAR (December 2009)
KS	Black Hills Energy (Aquila)	Gas	Gas System Reliability Surcharge	Infrastructure system replacements	Docket No. 07-AQG-431-RTS (May 2007)
KS	Kansas Gas Service	Gas	Gas System Reliability Surcharge	Infrastructure system replacements	Docket 10-KGSG-155-TAR (December 2009)
KS	Kansas Gas & Electric	Electric	Environmental Cost Recovery Rider	Environmental	Docket No. 05-WSEE-981-RTS (October 2005)
KS	Midwest Energy	Gas	Gas System Reliability Surcharge	Infrastructure system replacements	Docket 09-MDWE-722-TAR (May 2009)
KS	Westar Energy Inc.	Electric	Environmental Cost Recovery Rider	Environmental	Docket No. 05-WSEE-981-RTS (October 2005)
KY	Atmos Energy	Gas	Pipe Replacement Program Rider	Replacement of bare steel service lines, curb valves, meter loops, and mandated relocates	Docket No. 2009-00354 (May 2010)
KY	Columbia Gas	Gas	Advanced Main Replacement Rider	Replacement of cast iron and bare steel mains and services	Docket No. 2009-00141 (September 2009)
KY	Delta Natural Gas	Gas	Pipe Replacement Program Surcharge	Replacement of bare steel pipe, service lines, curb valves, meter loops, and mandated pipe relocations	Case No. 2010-00116 (October 2010)
KY	Kentucky Power	Electric	Environmental Cost Recovery Surcharge	Environmental	Docket No. 2002-00169 (March 2003)
KY	Kentucky Utilities	Electric	Environmental Cost Recovery Surcharge	Environmental	Case No. 93-465 (July 1994)
KY	Louisville Gas & Electric	Electric	Environmental Cost Recovery Surcharge	Environmental	Case No. 94-332 (April 1995)
KY	Louisville Gas & Electric	Gas	Gas Line Tracker	Replacement and transfer of ownership of customer owned service risers	Case No. 2012-00222 (December 2012)
LA	Cleco Power	Electric	Infrastructure and Incremental Costs Recovery	Generation, Transmission, environmental, other projects to be determined	Docket U-30689 (October 2010)
MA	Bay State Gas	Gas	Targeted Infrastructure Recovery Factor	Replacement of bare steel mains and services	DPU 09-30
MA	Massachusetts Electric	Electric	Net CapEx Factor	All distribution above depreciation expense	DPU 09-39
MA	Massachusetts Electric	Electric	Solar Cost Adjustment Provision	Solar generation	DPU 09-38
MA	Nantucket Electric	Electric	Solar Cost Adjustment Provision	Solar generation	DPU 09-38
MA	National Grid (Boston-Essex Gas and Colonial Gas)	Gas	Targeted Infrastructure Recovery Factor	Replacement of bare steel, cast iron, and wrought iron mains, services, meters, meter installations, and house regulators	DPU 10-55
MA	New England Gas	Gas	Targeted Infrastructure Recovery Factor	Replacement of non-cathodically protected steel mains and services and small diameter cast-iron and wrought iron	DPU 10-114
MA	NSTAR Electric	Electric	Capital Projects Scheduling List	Stray voltage inspection survey and remediation program; double pole inspections, replacements, and restorations; and manhole inspection, repair, and upgrade	DTE 05-85 and DPU 10-70-B
MA	NSTAR Electric	Electric	NA	Smart grid pilot	DPU-09-33
MA	Western Massachusetts Electric	Electric	Solar Program Cost Adjustment	Solar generation	DPU 09-05
MN	Minnesota Power	Electric	Arrowhead Regional Emission Abatement Rider	Environmental	M-05-1678 (June 2006)
MN	Minnesota Power	Electric	Renewable Resource Rider	Renewable generation	Docket M-10-273 (July 2010)
MN	Minnesota Power	Electric	Transmission Cost Recovery Rider	Incremental transmission investment	Docket M-07-965 (December 2007)
MN	Northern States Power (Xcel Energy)	Electric	Renewable Energy Standard Cost Recovery Rider	Renewable generation	M-07-872 (March 2008)
MN	Northern States Power (Xcel Energy)	Electric	Metropolitan Emissions Reduction Project (later called Environmental Improvement Rider)	Environmental	Docket M-02-633 (March 2004)
MN	Northern States Power (Xcel Energy)	Electric	Mercury Cost Recovery Rider	Environmental	Docket No. M-09-847 (November 2009)
MN	Northern States Power (Xcel Energy)	Gas	State Energy Policy Rider	Cast iron replacements	Docket No. M-08-261 (November 2008)

**Table 2 (continued)**  
**Recent Capex Tracker Precedents**

Jurisdiction	Company Name	Services Included	Tracker Name	Eligible Investments	Case Reference
ME	Central Maine Power	Electric	NA	AMI	Docket No. 2007-215(II) (February 2010)
MI	SEMCO Gas	Gas	Main Replacement Rider	Replacement of cast iron and unprotected steel mains and service lines	Case U-16169 (January 2011)
MO	AmerenUE	Gas	Infrastructure System Replacement Surcharge	Replacement of mains, valves, service lines, regulator stations, vaults, other pipeline components	Case No. GT-2008-0184 (February 2008)
MO	Atmos Energy	Gas	Infrastructure System Replacement Surcharge	Replacement of mains, valves, service lines, regulator stations, vaults, other pipeline components	Docket No. GO-2009-0046 (October 2008)
MO	Laclede Gas	Gas	Infrastructure System Replacement Surcharge	Replacement of mains, valves, service lines, regulator stations, vaults, other pipeline components	Docket No. GR-2007-0208 (July 2007)
MO	Missouri Gas Energy	Gas	Infrastructure System Replacement Surcharge	Natural gas line replacements and relocations	Docket No. GR-2009-0355 (February 2010)
MS	Mississippi Power	Electric	Environmental Compliance Overview Plan Rate	Environmental	Docket No. 92-UA-0058 and 92-UN-0059 (July 1992)
MT	Northwestern Energy	Electric	NA - Amounts recovered through electric supply service rates	Generation	Docket D.2008.6.69 (November 2008)
MT	Northwestern Energy	Gas	Natural Gas Supply Tracker	Battle Creek natural gas production resources	Docket No. D2012.3.25 (November 2012)
NH	Energy North	Gas	Cast Iron/Bare Steel Replacement Program	Replacement of cast iron and bare steel pipe	Docket DG-107 (June 2007)
NH	Granite State Electric	Electric	Reliability Enhancement Plan Capital Investment Allowance	Feeder hardening and asset replacement	Docket DG-107 (June 2007)
NH	Public Service Company of New Hampshire	Electric	Energy Service	Environmental	DE 11-250 (April 2012)
NJ	Elizabethtown Gas	Gas	Utility Infrastructure Enhancement Rate	Projects to enhance reliability and reinforce infrastructure	Docket No. GO09010053 (April 2009)
NJ	Elizabethtown Gas	Gas	Utility Infrastructure Enhancement Rate II	Projects to enhance reliability and reinforce infrastructure	Docket No. GO10120969 (May 2011)
NJ	New Jersey Natural Gas	Gas	Compressed Natural Gas Pilot Program	Compressed natural gas infrastructure	Docket No. GRI1060361 (June 2012)
NJ	Public Service Electric and Gas	Electric & Gas	Capital Infrastructure Investment Program	Electric: reliability upgrades & feeder replacement, Gas: replacement of cast iron & bare steel mains and services	Docket No. GO09010050 (April 2009)
NJ	Public Service Electric and Gas	Electric & Gas	Capital Infrastructure Investment Program II	Electric: reliability upgrades & feeder replacement, Gas: replacement of cast iron & bare steel mains and services	Docket No. EO11020088, GO1010862 (July 2011)
NJ	Public Service Electric and Gas	Electric	Solar Generation Investment Program	Solar generation	Docket No., EO09020125 (August 2009)
NJ	Rockland Electric	Electric	Smart Grid Surcharge	Smart Grid pilot	Docket No. EO09060459 (April 2010)
NJ	South Jersey Gas	Gas	Capital Investment Recovery Tracker	Bare steel replacement, expand key distribution mains for reliability	Docket No. GO09010051 (April 2009)
NJ	South Jersey Gas	Gas	Capital Investment Recovery Tracker II	Bare steel replacement, expand key distribution mains for reliability	Docket No. GO10100765 (March 2011)
NJ	South Jersey Gas	Gas	Capital Investment Recovery Tracker III	Accelerated Main Replacement Program	Docket No. GO1100632 (May 2012)
NY	Consolidated Edison	Electric	Monthly Adjustment Clause	AMI, SCADA, undergrounding	Case 09-E-0310 (October 2010)
OH	Cleveland Electric Illuminating	Electric	Rider AMI	Ohio Site Deployment	Case Nos. 09-1820-EL-ATA and 12-1230-EL-SSO
OH	Cleveland Electric Illuminating	Electric	Delivery Capital Recovery Rider	Distribution, subtransmission, general, and intangible plant not included in most recent rate case	Case No. 10-388-EL-SSO (August 2010)
OH	Columbia Gas of Ohio	Gas	Infrastructure Replacement Program Rider	Replacement of cast iron and bare steel mains & services, AMI	Case No. 08-0072-GA-AIR, 08-0073-GA-ALT, 08-0074-GA-AAM, and 08-0075-GA-AAM (December 2008); Case No. 09-1036-GA-RDR (April 2010)
OH	Columbus Southern Power	Electric	Distribution Investment Rider	Net capital additions since the date certain of most recent rate case not recovered through other riders	Case 11-346-EL-SSO
OH	Columbus Southern Power	Electric	GridSMART Rider (Phase I)	Smart grid	Case No. 08-917-EL-SSO and 08-918-EL-SSO (March 2009)
OH	Dayton Power and Light	Electric	Environmental Investment Rider	Environmental	Case No. 05-276-EL-AIR (December 2005)
OH	East Ohio Gas d/b/a Dominion East Ohio	Gas	Pipeline Infrastructure Replacement Rider	Pipelines & faulty riser replacements	Case No. 09-458-GA-RDR (December 2009)
OH	East Ohio Gas d/b/a Dominion East Ohio	Gas	Automated Meter Reading Charge	AMI	Case No. 07-0829-GA-AIR, 07-0830-GA-ALT, 07-0831-GA-AAM, 08-0169-GA-ALT, and 06-1453-GA-UNC (October 2008); Case No. 09-38-GA-UNC (May 2009); Case No. 09-1875-GA-RDR (May 2010)

II. Cost Trackers and CWIP in Rate Base

**Table 2 (continued)  
Recent Capex Tracker Precedents**

Jurisdiction	Company Name	Services Included	Tracker Name	Eligible Investments	Case Reference
OH	Duke Energy Ohio	Gas	Accelerated Main Replacement Program Rider	Replacement of bare steel and cast iron mains and services	Case No. 01-1228-GA-AIR, and 01-1478-GA-ALT, and 01-1539-GA-AAM (May 2002); 07-0589-GA-AIR 07-0590-GA-ALT 07-0591-GA-AAM (May 2008)
OH	Duke Energy Ohio	Gas	Advanced Utility Rider	Gas AMI	Case No. 07-0589-GA-AIR 07-0590-GA-ALT 07-0591-GA-AAM (May 2008)
OH	Duke Energy Ohio	Electric	Infrastructure Modernization Distribution Rider	Electric AMI	Case No. 08-920-EL-SSO and 08-921-EL-AAM and 08-922-EL-UNC and 08-923-EL-ATA (December 2008)
OH	Ohio Edison	Electric	Rider AMI	Ohio Site Deployment	Case Nos. 09-1820-EL-ATA and 12-1230-EL-SSO
OH	Ohio Edison	Electric	Delivery Capital Recovery Rider	Distribution, subtransmission, general, and intangible plant not included in most recent rate case (filed in 2007)	Case No. 10-388-EL-SSO (August 2010)
OH	Ohio Power	Electric	Distribution Investment Rider	Net capital additions since the date certain of most recent rate case not recovered through other riders	Case 11-346-EL-SSO
OH	Ohio Power	Electric	GridSMART Rider (Phase I)	Smart grid	Case No. 08-917-EL-SSO and 08-918-EL-SSO (March 2009)
OH	Toledo Edison	Electric	Rider AMI	Ohio Site Deployment	Case Nos. 09-1820-EL-ATA and 12-1230-EL-SSO
OH	Toledo Edison	Electric	Delivery Capital Recovery Rider	Power Distribution, subtransmission, general, and intangible plant not included in most recent rate case (filed in 2007)	Case No. 10-388-EL-SSO (August 2010)
OH	Vectren Energy Delivery	Gas	Distribution Replacement Rider	Replacement of cast iron and bare steel mains and services	Docket No. 07-1081-GA-ALT, 07-1080-GA-AIR and 08-0632-GA-AAM (January 2009)
OK	Oklahoma Gas & Electric	Electric	Smart Grid Rider	Smart grid	Cause No. PUD 201000029 (July 2010)
OK	Oklahoma Gas & Electric	Electric	System Hardening Recovery Rider	Undergrounding and other circuit hardening	Cause No. PUD 20080387, Order No. 567670 (May 2009)
OK	Oklahoma Gas & Electric	Electric	Crossroads Rider	Crossroads Wind Farm	Cause No. PUD 201000037 (July 2010)
OK	Public Service Company of Oklahoma	Electric	Reliability Vegetation/Undergrounding Rider	Conversion of overhead to underground customer service lines	Cause No. PUD 200800144 (January 2009)
OR	Northwest Natural Gas	Gas	System Integrity Program	Bare steel replacement, Transmission integrity management program, distribution integrity management program	Docket UM 1406, Order No. 09-067 (March 2009)
OR	PacifiCorp	Electric	Renewable Adjustment Clause	Renewable generation	Docket UM 1330 (December 2007)
OR	PacifiCorp	Electric	NA	Mona to Oquirrh transmission line only if line is placed into service within 6 months of May 31, 2013	Docket UE 246, Order 12-493 (December 2012)
OR	Portland General Electric	Electric	Renewable Adjustment Clause	Renewable generation	Docket UM 1330 (December 2007)
PA	All utilities may file	Electric & Gas	Distribution System Improvement Charge	Non-expense reducing, non-revenue producing infrastructure replacement projects	Docket No. M-2012-2293611 (August 2012)
PA	PPL Electric Utilities	Electric	Act 129 Compliance Rider	AMI	Docket No. M-2009-2123945 (January 2010)
PA	PECO	Electric	Smart Meter Cost Recovery Rider	AMI	Docket No. M-2009-2123944 (April 2010)
PA	Metropolitan Edison	Electric	Smart Meters Technologies Charge	AMI	Docket M-2009-2123950 (April 2010)
PA	Pennsylvania Electric	Electric	Smart Meters Technologies Charge	AMI	Docket M-2009-2123950 (April 2010)
PA	Pennsylvania Power	Electric	Smart Meters Technologies Charge	AMI	Docket M-2009-2123950 (April 2010)
PA	Duquesne Light	Electric	Smart Meter Charge Rider	AMI	Docket No. M-2009-2123948 (April 2010)
PA	West Penn Power	Electric	Smart Meter Surcharge	AMI	Docket No. M-2009-2123951 (June 2011)
RI	Narragansett Electric (electric operations)	Electric	Electric Infrastructure, Safety, and Reliability Plan Factor	Replacements and load growth	Docket No. 4218 (December 2011)
RI	Narragansett Electric (gas operations)	Gas	Gas Infrastructure, Safety, and Reliability Plan Factor	Replacement investment	Docket No. 4219 (September 2011)
SC	South Carolina Electric & Gas	Electric	NA	Nuclear generation	Docket 2008-196-E (March 2009)
SD	Black Hills Power	Electric	Environmental Improvement Adjustment tariff	Environmental	Docket EL11-001
SD	Northern States Power- MN	Electric	Environmental Cost Recovery Tariff	Environmental	Docket EL07-026 (January 2009)

## Alternative Regulation for Emerging Utility Challenges: An Updated Survey

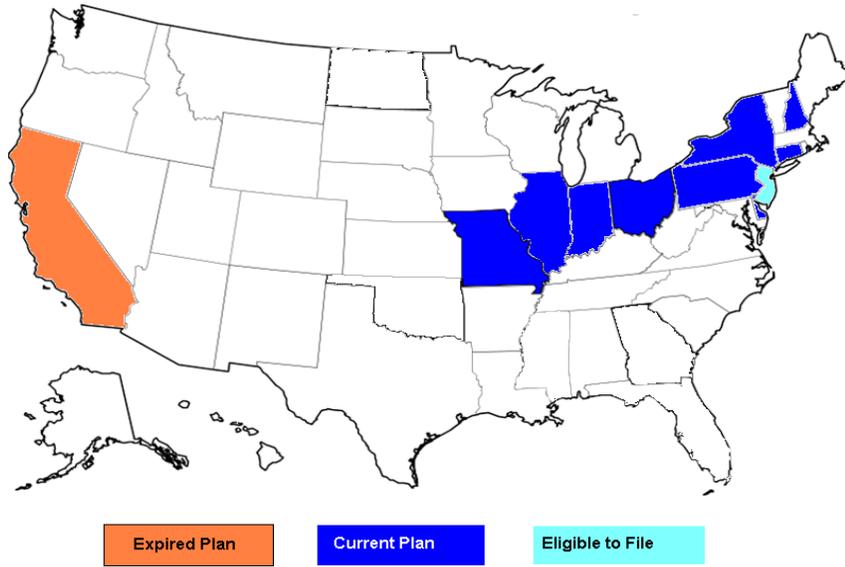
**Table 2 (continued)**  
**Recent Capex Tracker Precedents**

Jurisdiction	Company Name	Services Included	Tracker Name	Eligible Investments	Case Reference
TX	All Electric Utilities	Electric	Distribution Cost Recovery Factor	Any distribution	Docket 39465
TX	AEP Texas Central	Electric	Advanced Metering System Surcharge	AMI	Docket No. 36928
TX	AEP Texas North	Electric	Advanced Metering System Surcharge	AMI	Docket No. 36928
TX	Atmos Energy Mid Tex	Gas	Gas Reliability Infrastructure Program	Incremental investment in new and replacement pipe, pipeline integrity	Texas Utilities Code 104.301 and Gas Utilities Docket 9615
TX	Atmos Energy Pipelines	Gas	Gas Reliability Infrastructure Program	Incremental investment in new and replacement pipe, pipeline integrity	Texas Utilities Code 104.301 and Gas Utilities Docket 9615
TX	Atmos Energy West Texas Division	Gas	Gas Reliability Infrastructure Program	Incremental investment in new and replacement pipe, pipeline integrity	Texas Utilities Code 104.301 and Gas Utilities Docket 9608
TX	Centerpoint Energy Entex - Houston Division	Gas	Gas Reliability Infrastructure Program	Incremental investment in new and replacement pipe, pipeline integrity	Texas Utilities Code 104.301 and Gas Utilities Docket 10067
TX	Centerpoint Energy Houston Electric	Electric	Advanced Metering System Surcharge	AMI	Docket No. 35620 (August 2008)
TX	Oncor Electric Delivery	Electric	Advanced Metering System Surcharge	AMI	Docket No. 35718 (August 2008)
TX	Texas-New Mexico Power	Electric	Advanced Metering System Surcharge	AMI	Docket No. 38306 (July 2011)
UT	Questar Gas	Gas	Infrastructure Rate Adjustment Tracker	Replacement of aging high-pressure feeder lines	Docket 09-057-16 (June 2010)
VA	Appalachian Power	Electric	Environmental & Reliability Cost Recovery Surcharge	Environmental & reliability	Docket No. PUE-2007-00069 (December 2007)
VA	Appalachian Power	Electric	Environmental Rate Adjustment Clause	Environmental	Case No. PUE-2011-00035 (November 2011)
VA	Appalachian Power	Electric	Generation Rate Adjustment Clause	Dresden plant	Docket No. PUE-2011-00036 (January 2012)
VA	Atmos Energy	Gas	Infrastructure Reliability and Replacement Adjustment	Replacement of first generation plastic pipe and service lines and bare steel mains and services	Case No. PUE-2012-00049 (August 2012)
VA	Columbia Gas of Virginia	Gas	SAVE Rider	Replacement of bare steel and cast iron mains, some early plastic pipe, isolated bare steel services, and risers prone to failure	Case No. PUE-2011-00049 (November 2011)
VA	Virginia Electric Power	Electric	Rider R	Bear Garden Generating Station	Case No. PUE-2009-00017 (March 2010)
VA	Virginia Electric Power	Electric	Rider S	Virginia City Hybrid Energy Center	Case No. PUE-2007-00066 (March 2008)
VA	Virginia Electric Power	Electric	Rider W	Warren County Power Station	Case No. PUE-2011-00042 (February 2012)
VA	Virginia Electric Power	Electric	Rider B	Biomass conversions	Case No. PUE-2011-00073 (March 2012)
VA	Washington Gas Light	Gas	SAVE Rider	Replacement of bare and unprotected steel services and mains, mechanically coupled pipe, copper services, cast iron main, and plastic services	Case No. PUE-2010-00087 (April 2011)
VT	Central Vermont Public Service	Electric	New Initiatives Adder	AMI	Dockets 7586 and 7612
WA	All gas utilities may file	Gas	Special Pipe Replacement Program Cost Recovery Mechanism	Replacement of pipe that is at an elevated risk of failure	Docket UG-120715 (December 2012)
WV	Appalachian Power	Electric	Construction/765kW Surcharge	Generation, Environmental	Case No. 11-0274-E-GI (June 2011)
WV	Wheeling Power	Electric	Construction/765kW Surcharge	Generation, Environmental	Case No. 11-0274-E-GI (June 2011)
WY	Black Hills Power	Electric	Cheyenne Prairie Generating Station rate rider tariff	Construction of Cheyenne Prairie Generating Station	Docket No. 20002-84-ET-12 (November 2012)
WY	Cheyenne Light, Fuel, & Power	Electric	Cheyenne Prairie Generating Station rate rider tariff	Construction of Cheyenne Prairie Generating Station	Docket No. 20003-123-ET-12 (November 2012)

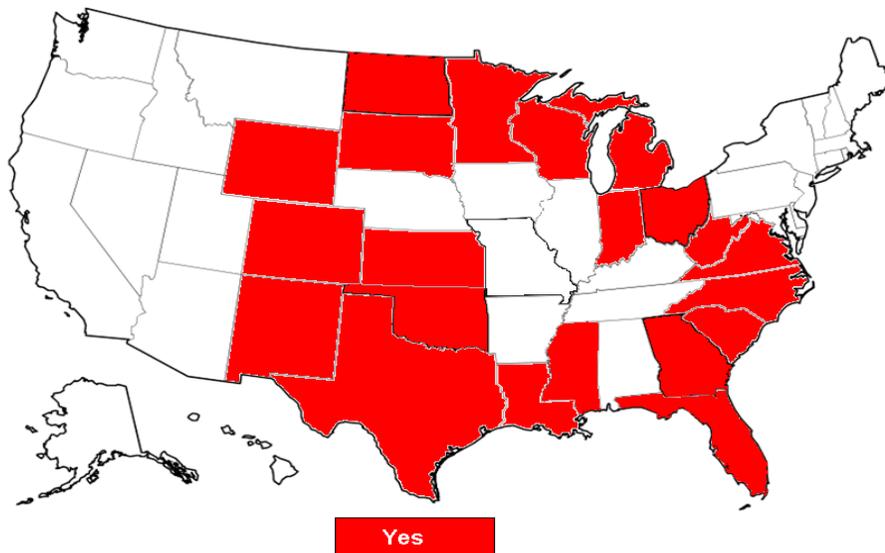
**Table 2 (continued)**  
**Recent Capex Tracker Precedents**

Jurisdiction	Company Name	Services Included	Tracker Name	Eligible Investments	Case Reference
<b>Historic</b>					
CA	San Diego Gas & Electric	Electric & Gas	Advanced Metering Infrastructure Balancing Account	AMI	Application 05-03-015 (March 2005)
CA	Southern California Edison	Electric	Advanced Metering Infrastructure Balancing Account	AMI	Docket No. 07-07-042 (July 2007)
CO	Public Service Company of Colorado	Electric	Air Quality Improvement Rider	Environmental	Docket 98A-511E
GA	Atlanta Gas Light	Gas	Pipeline Replacement Program Cost Recovery Rider	Replacement of cast iron and bare steel pipe	Docket 8516-U later updated in Docket No. 29950 as STRIDE tracker in 2009
IL	Commonwealth Edison	Electric	Rider Systems Modernization Projects, renamed Rider Advanced Metering Pilot	AMI	Case 07-0566, Case 09-0263
IL	Peoples Gas Light & Coke	Gas	Rider Incremental Cost Recovery	Replacement of cast iron and bare steel pipe	Docket No. 09-0167 (January 2010)
KY	Union Light, Heat and Power (Duke Energy Kentucky)	Gas	Advanced Main Replacement Rider	Replacement of cast iron and bare steel mains and services	Docket No. 2001-00092 (January 2002)
NJ	Atlantic City Electric	Electric	Infrastructure Investment Surcharge	Replacements	Docket No. E009010049 and G009010054 (April 2009)
NJ	New Jersey Natural Gas	Gas	Accelerated Infrastructure Projects	Replace bare steel mains, reinforce distribution system & transmission mains	Docket No. G009010052 and GR07110889 (April 2009)
NJ	New Jersey Natural Gas	Gas	Accelerated Infrastructure Projects II	Replace bare steel mains, reinforce distribution system & transmission mains	Docket No. GR10100793 (March 2011)
NY	Coning Natural Gas	Gas	Delivery Rate Adjustment	Incremental additions	Docket No. 08-G-1137 (March 2009)
NY	NYSEG	Gas	Gas Cost Savings Incentive Mechanism	Infrastructure that reduces the cost of gas supply	Docket No. 01-G-1668 (November 2002)
OH	Cleveland Electric Illuminating	Electric	Delivery Service Improvement Rider	Distribution reliability	0021-EL-ATA, 09-0022-EL-AEM, and 09-0023-EL-AAM (March 2009)
OH	Columbus Southern Power	Electric	IGCC Surcharge (Phase I only)	Early IGCC development	Case No. 05-376-EL-UNC (April 2006)
OH	Columbus Southern Power	Electric	IGCC Surcharge (Phase II) IGCC Recovery Factor (Phase III)	IGCC	Case No. 05-376-EL-UNC (June 2006)
OH	Columbus Southern Power	Electric	Generation Cost Recovery Rider	Environmental	Case No. 07-63-EL-UNC (October 2007)
OH	Columbus Southern Power	Electric	Environmental Investment Carrying Charges (applies only to standard offer service customers)	Environmental	Case 08-917-EL-SSO (October 2011)
OH	Ohio Edison	Electric	Delivery Service Improvement Rider	Distribution reliability	Case No. 08-0935-EL-SSO, 09-0021-EL-ATA, 09-0022-EL-AEM, and 09-0023-EL-AAM (March 2009)
OH	Ohio Power	Electric	Environmental Investment Carrying Charges (applies only to standard offer service customers)	Environmental	Case 08-917-EL-SSO (October 2011)
OH	Ohio Power	Electric	Generation Cost Recovery Rider	Environmental	Case No. 07-63-EL-UNC (October 2007)
OH	Ohio Power	Electric	IGCC Surcharge (Phase I only)	Early IGCC development	Case No. 05-376-EL-UNC (April 2006)
OH	Ohio Power	Electric	IGCC Surcharge (Phase II) IGCC Recovery Factor (Phase III)	IGCC	Case No. 05-376-EL-UNC (June 2006)
OH	Toledo Edison	Electric	Delivery Service Improvement Rider	Distribution reliability	Case No. 08-0935-EL-SSO, 09-0021-EL-ATA, 09-0022-EL-AEM, and 09-0023-EL-AAM (March 2009)
OK	Empire District Electric	Electric	Capital Recovery Rider	All incremental investment between rate cases	Case No. PUD 201000033, Order 577904 (August 2010)
OK	Oklahoma Gas & Electric	Electric	OU Spirit Rider	OU Spirit Wind Farm	Case No. 200900167, Order No. 571788 (October 2009)
OK	Oklahoma Gas & Electric	Electric	Smart Power Rider	Norman, Oklahoma pilot smart grid program	Case No. 200800398
OK	Public Service Company of Oklahoma	Electric	Capital Investment Rider (CIR)	All incremental investment between rate cases	Case No. 200900181 (August 2009)
OR	Northwest Natural Gas	Gas	NA	AMI	Docket UM 1413, Order 09-105 (March 2009)
OR	Northwest Natural Gas	Gas	Bare steel replacement program	Replacement of bare steel	Docket No. UM 1030, Order No. 01-843 (September 2001)
OR	Portland General Electric	Electric	NA	AMI	Docket UE 189, Order No. 08-245 (May 2008)
PA	PPL Electric Utilities	Electric	Energy Development Rider	Renewable interconnections	Docket No. M-00031715 F0003 (August 2006); Previously R-00973954 (May 14, 1998)
RI	Narragansett Electric (gas operations)	Gas	Accelerated Capital Replacement Program	Replacement of high pressure bare steel services inside customer premises	Docket No. 3943 (January 2009)
WV	Appalachian Power	Electric	NA: tracker included in the Expanded Net Energy Cost Mechanism	Transmission line, Environmental	Case No. 05-1278-E-PC-PW-42T (July 2006)

**Figure 3: Recent Capex Tracker Precedents by State: Water Utilities**



**Figure 4: Recent Electric Precedents for CWIP In Rate Base**



**Table 3**  
**CWIP in Rate Base: Recent Electric Retail Precedents**

Jurisdiction	Company	Year Approved	Type of Project	Reference
Colorado	Public Service of Colorado	2006	Transmission, generation	Docket No. 06S-234EG
Colorado	Legislation	2007	Transmission	Senate Bill 07-100
Florida	Rulemaking	2007	Nuclear and IGCC generation	Docket 060508-EL
Florida	Florida Power & Light	2008	Nuclear generation	Docket 080650-EL
Florida	Progress Energy Florida	2008	Nuclear generation	Docket 080148-EI
Georgia	Georgia Power	2009	Nuclear generation	Docket 27800
Indiana	General Policy		Environmental	
Indiana	Duke Energy Indiana	2007	IGCC generation	Docket No. 43114
Kansas	Legislation	2008	Nuclear generation	Senate Bill 586
Louisiana	Rulemaking	2007	Nuclear generation	Docket R-29712
Louisiana	Cleco Power	2006	Generation	Docket U-28765
Michigan	Legislation	2008	Significant capital projects	House Bill 5524
Minnesota	Northern States Power- MN	2004	Environmental	Docket No. M-02-633
Minnesota	Minnesota Power	2007	Transmission	Docket M-07-965
Mississippi	Mississippi Power	2001	All projects within 1 year of completion	Docket No. 01-UN-0548
New Mexico	Legislation	2009	All	Senate Bill 477
North Carolina	Duke Energy Carolinas	2009	Generation	Docket No. E-7, Sub 909
North Carolina	Legislation	2007	Generation	Senate Bill 3
North Dakota	Legislation	2007	Transmission, federally mandated environmental	Senate Bill 2031 & House Bill 1221
Ohio	Legislation	2008	New Generation, Environmental	SB 221
Oklahoma	Legislation	2005	Environmental, transmission	House Bill 1910
South Carolina	South Carolina Electric & Gas	2003	Generation	Docket No. 2002-223-E
South Carolina	South Carolina Electric & Gas	2009	Nuclear generation	Docket 2009-211-E
South Dakota	Legislation	2006/2007	Transmission, environmental	
Texas	Rulemaking	2005	All Transmission within ERCOT (conditional)	Project 28884
Virginia	Legislation	2007	Reliability-related, nuclear, renewables, new generation using Virginia coal	Senate Bill 1416
Virginia	Virginia Electric Power	2008	New generation using Virginia coal	PUE-2007-00066
West Virginia	Appalachian Power	2006	Transmission, environmental, IGCC generation	Case No. 05-1278-E-PC-PW-42T
West Virginia	Monongahela Power	2007	Environmental	Case No. 05-0750-E-PC
Wisconsin	Wisconsin Public Service	2000	Nuclear generation, transmission	Docket 6690-UR-112
Wisconsin	Wisconsin Public Service	2005	Generation	Docket 6690-UR-117
Wisconsin	Wisconsin Power & Light	2012	All Commission approved projects	Docket 6680-UR-118
Wisconsin	General Policy		Diverse operations	
Wyoming	Black Hills Power	2012	Generation	Docket 20002-84-ET-12
Wyoming	Cheyenne Light, Fuel, & Power	2012	Generation	Docket 20003-123-ET-12

## III. Revenue Decoupling

We use the term revenue decoupling to describe a diverse set of rate treatments designed to facilitate recovery of allowed revenue. The link between a utility's revenue and its sales is thereby weakened. This reduces the utility's disincentive to promote energy efficiency and can alleviate the financial stress caused by DSM programs and declining average use. DSM programs to encourage energy efficiency and discourage load peakedness can yield large cost savings for customers. Three approaches to decoupling are well established: decoupling true up plans, lost revenue adjustment mechanisms ("LRAMs"), and fixed variable pricing.

### A. Decoupling True Up Plans

Decoupling true up plans adjust rates periodically to ensure that a utility's actual revenue tracks the revenue allowed by regulators. Most decoupling true up plans have two basic components: a revenue decoupling mechanism ("RDM") and an allowed revenue adjustment mechanism ("RAM"). The RDM tracks variances between actual and allowed revenue and makes periodic true ups. To the extent that recovery of allowed revenue is achieved, utilities can use rate designs more aggressively to promote DSM goals.

Decoupling true ups may be made annually or more frequently. More frequent adjustments cause actual and allowed revenue each year to correlate better so that rates fluctuate less from year to year. The size of the true up that is permitted in a given year is sometimes capped. A "soft" cap permits utilities to defer for later recovery any account balances that cannot be recovered immediately.

RDMs vary in the scope of utility services to which they apply. Quite commonly, only revenues from residential and commercial business customers are decoupled. These customers account for a high share of distribution base rate revenue and are usually the primary focus of DSM programs. RDMs also vary in terms of the service classes for which revenues are pooled for true up purposes. In some plans all service classes are placed in the same "basket". Other plans have multiple baskets. These insulate customers of services in each basket from changes in demands for services in other baskets.

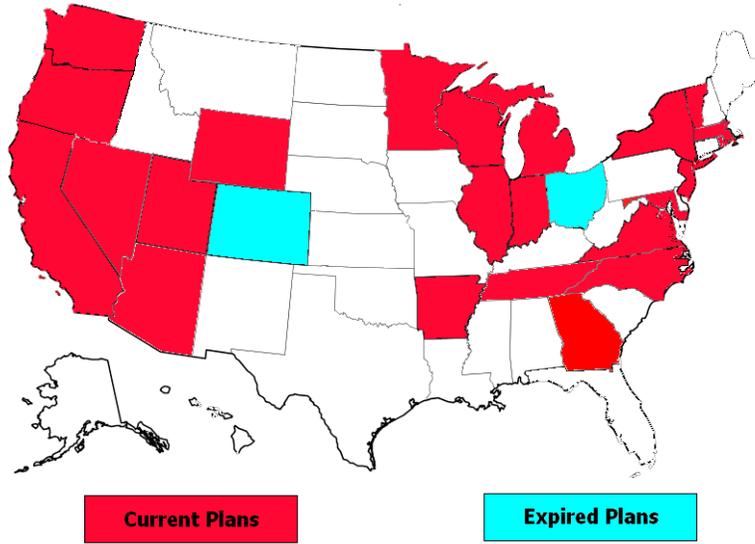
Some RDMs are "partial" in the sense that they exclude from decoupling the revenue impact of certain kinds of demand fluctuations. For example, true ups are sometimes allowed only for the difference between weather normalized revenue and allowed revenue. An RDM that instead accounts for *all* sources of demand variance is called a "full" decoupling mechanism. Full decoupling provides more encouragement for rate design experimentation.

The RAM component of a decoupling true up plan escalates allowed revenue between rate cases. Virtually all decoupling true up plans have some kind of RAM because if allowed revenue is static the utility will experience financial attrition as its costs rise. Utilities that do not have RAMs in their decoupling true up plans often file annual rate cases.

Some RAMs are "broad-based" in the sense that they provide enough revenue growth to compensate the utility for several kinds of cost pressures. Broad-based RAMs are essentially the same thing as the revenue cap escalators that we discuss below in the section on multiyear rate plans. When RAMs are not broad-based, utilities usually retain the right to file rate cases during the decoupling plan and frequently do file. The revenue per customer ("RPC") freeze is a popular approach to RAM design. Allowed revenue grows at



**Figure 5b: Gas Decoupling True up Plans by State**



**Table 4**  
**Decoupling True Up Plan Precedents**

Jurisdiction	Company Name	Services	Plan Years	Revenue Adjustment Mechanism	Case Reference
<b>Current</b>					
<b>Canada</b>					
AB	Altgas Utilities	Gas	2013-2017	RPC Index	Decision 2012-237
AB	ATCO Gas	Gas	2013-2017	RPC Index	Decision 2012-237
BC	BC Hydro	Electric	2012-2014	Stairstep	Order G-77-12A
BC	FortisBC	Electric	2012-2013	Stairstep	Order G 110-12
BC	Terasen Gas	Gas	2012-2013	Stairstep	Order G-44-12
BC	Pacific Northern Gas	Gas	2003-open 2008-2012, extended through 2013	RPC Freeze	N/A
ON	Union Gas	Gas	2003-open 2008-2012, extended through 2013	RPC Index through 2012, RPC Freeze for 2013	Docket EB-2007-0606
<b>United States</b>					
AR	CenterPoint Energy	Gas	2008-2015	No RAM but broad-based capex tracker	Dockets 06-161-U, 11-088-U
AR	Arkansas Oklahoma Gas	Gas	2007-2013	No RAM	Dockets 07-026-U, 07-077-TF
AR	Arkansas Western	Gas	2007-2013	No RAM	Docket 07-078-TF
AZ	Southwest Gas	Gas	2012-open	RPC Freeze	Docket No. G-01551A-10-0458
CA	California Pacific Electric	Electric	2013-2015	Indexing	Decision 12-11-030
CA	Pacific Gas & Electric	Gas & Electric	2011-2013	Stairstep	Decision 11-05-018
CA	Southwest Gas	Gas	2009-2013	Stairstep	Decision 08-11-048
CA	Southern California Edison	Electric	2012-2014	Hybrid	Decision 12-11-051
CA	Southern California Gas	Gas	2008-2011	Stairstep	Decision 08-07-046
CA	San Diego Gas & Electric	Gas & Electric	2008-2011	Stairstep	Decision 08-07-046
CT	United Illuminating	Electric	2009-open	Stairstep until 2011/No RAM for 2011 onwards	Docket No. 08-07-04
DC	Potomac Electric Power	Electric	2010-open	RPC Freeze	Order 15556
GA	Atmos Energy	Gas	2012-open	No RAM but FRP type mechanism also in effect	Docket No. 34734
HI	Hawaiian Electric Company	Electric	2011-open	Hybrid	0083
HI	Hawaiian Electric Light Company	Electric	2012-open	Hybrid	Docket No. 2008-0274, 2009-
HI	Maui Electric	Electric	2012-open	Hybrid	Dockets 2008-0274, 2009-0163
ID	Idaho Power	Electric	2012-open	RPC Freeze	Case No. IPC-E-11-19
IL	North Shore Gas	Gas	2012-open	No RAM	Case 11-0280
IL	Peoples Gas Light & Coke	Gas	2012-open	No RAM	Case 11-0281
IN	Indiana Gas	Gas	2011-2015	RPC Freeze	Cause No. 44019
IN	Vectren Southern Indiana	Gas	2011-2015	RPC Freeze	Cause No. 44019
IN	Citizens Gas	Gas	2007-open	RPC Freeze	Cause No. 42767
MA	Fitchburg Gas & Electric	Gas	2011-open	RPC Freeze	DPU 11-02
MA	Fitchburg Gas & Electric	Electric	2011-open	No RAM	DPU 11-01
MA	New England Gas	Gas	2011-open	RPC Freeze	DPU-10-114
MA	Western Massachusetts Electric	Electric	2011-open	No RAM	DPU 10-70
MA	Massachusetts Electric	Electric	2010-open	No RAM but broad-based capex tracker	DPU 09-39
MA	Bay State Gas	Gas	2009-open	RPC Freeze	DPU 09-30
MA	Boston-Essex Gas	Gas	2010-open	RPC Freeze	DPU 10-55
MA	Colonial Gas	Gas	2010-open	RPC Freeze	DPU 10-55
MD	Baltimore Gas & Electric	Electric	2008-open	RPC Freeze	Letter Orders ML 108069, 108061
MD	Delmarva Power & Light	Electric	2007-open	RPC Freeze	Order No. 81518
MD	Potomac Electric Power	Electric	2007-open	RPC Freeze	Order No. 81517
MD	Chesapeake Utilities	Gas	2006-open	RPC Freeze	Order No. 81054
MD	Washington Gas Light	Gas	2005-open	RPC Freeze	Order No. 80130
MD	Baltimore Gas & Electric	Gas	1998-open	RPC Freeze	Case No. 8780
MI	Michigan Consolidated Gas	Gas	2013-open	No RAM	Case No. U-16999
MI	Michigan Gas Utilities	Gas	2010-open	RPC Freeze	Case No. U-15990
MN	Minnesota Energy Resources	Gas	2012-2015	RPC Freeze	GR-10-977
MN	CenterPoint Energy	Gas	2010-2013	RPC Freeze	GR-08-1075
NC	Public Service Co of NC	Gas	2008-open	RPC Freeze	Docket No. G-5, Sub 495
NC	Piedmont Natural Gas	Gas	2008-open	RPC Freeze	Docket No. G-9, Sub 550
NJ	New Jersey Natural Gas	Gas	2010-2013	RPC Freeze	Docket GR05121020
NJ	South Jersey Gas	Gas	2010-2013	RPC Freeze	Docket GR05121019
NV	Southwest Gas	Gas	2009-open	RPC Freeze	D-09-04003
NY	Orange & Rockland Utilities	Gas	2012-open	RPC Freeze	Case 08-G-1398
NY	Corning Natural Gas	Gas	2012-2015	RPC Stairstep	Case 11-G-0280
NY	Orange & Rockland Utilities	Electric	2012-2015	Stairstep	Case 11-E-0408
NY	Niagara Mohawk	Electric	2011-open	No RAM	Case 10-E-0050
NY	New York State Electric & Gas	Gas & Electric	2010-2013	RPC Stairstep for Gas, Stairstep for Electric	Case 09-E-0715
NY	Rochester Gas & Electric	Gas & Electric	2010-2013	RPC Stairstep for Gas, Stairstep for Electric	Case 09-E-0717

**Table 4 (continued)**  
**Decoupling True Up Plan Precedents**

Jurisdiction	Company Name	Services	Plan Years	Revenue Adjustment Mechanism	Case Reference
NY	Consolidated Edison	Gas	2010-2013	RPC Stairstep	Case 09-G-0795
NY	Consolidated Edison	Electric	2010-2013	Stairstep	Case 09-E-0428
NY	Central Hudson G&E	Gas & Electric	2010-2013	RPC Stairstep for Gas, Stairstep for Electric	Case 09-E-0588
NY	Keyspan Energy Delivery - Long Island	Gas	2010-open	RPC Stairstep through 2012, RPC Freeze After 2012	Case 06-G-1186
NY	Keyspan Energy Delivery - New York	Gas	2010-open	RPC Stairstep through 2012, RPC Freeze After 2012	Case 06-G-1185
NY	Niagara Mohawk	Gas	2009-open	RPC Freeze	Case 08-G-0609
NY	National Fuel Gas	Gas	2008-open	RPC Freeze	Case 07-G-0141
OH	AEP Ohio	Electric	2012-2015	RPC Freeze	Case 11-351-EL-AIR
OH	Duke Energy Ohio	Electric	2012-2014	RPC Freeze	Case 11-5905-EL-RDR
OR	Northwest Natural Gas	Gas	2012-open	RPC Freeze	Order No. 12-408
OR	Portland General Electric	Electric	2011-2013	RPC Freeze	Order No. 10-478
OR	Cascade Natural Gas	Gas	2007-2012	RPC Freeze	Order No. 06-191
RI	Narragansett Electric	Electric	2012-open	No RAM but broad-based capex tracker	Docket 4206
RI	Narragansett Electric	Gas	2012-open	RPC Freeze	Docket 4206
TN	Chattanooga Gas	Gas	2010-2013	RPC Freeze	Docket 09-0183
UT	Questar Gas	Gas	2010-open	RPC Freeze	Docket No. 09-057-16
VA	Washington Gas Light	Gas	2010-2013	RPC Freeze	Case No. PUE-2009-00064
VA	Columbia Gas of Virginia	Gas	2013-2015	RPC Freeze	Case No. PUE-2012-00013
WA	Avista	Gas	2013-2014	Stairstep	Docket UG-120437
WI	Wisconsin Public Service	Gas & Electric	2013-open	No RAM	Docket 6690-UR-121
WY	Questar Gas	Gas	2012-open	RPC Freeze	Docket 30010-113-GR-11
WY	SourceGas Distribution	Gas	2011-open	RPC Freeze	Docket 30022-148-GR-10
<b>Historic</b>					
<b>Canada</b>					
BC	BC Hydro	Electric	2011	No RAM	Order G-180-10
BC	BC Hydro	Electric	2009-2010	Stairstep	Order G-16-09
BC	Terasen Gas	Gas	2010-2011	Stairstep	Order G-141-09
BC	Terasen Gas	Gas	2008-2009	Hybrid	Order G-33-07
BC	Terasen Gas	Gas	2004-2007	Hybrid	Order G-51-03
BC	BC Gas	Gas	2000-2001	Hybrid	Order G-48-00
BC	BC Gas	Gas	1998-2000	Hybrid	Order G-85-97
ON	Enbridge Gas Distribution	Gas	2008-2012	RPC Index	Docket EB-2007-0615
<b>United States</b>					
CA	Pacific Gas & Electric	Gas & Electric	2007-2010	Stairstep	Decision 07-03-044
CA	Pacific Gas & Electric	Gas & Electric	2004-2006	Indexing	Decision 04-05-055
CA	Pacific Gas & Electric	Gas & Electric	1993-1995	Hybrid	Decision 92-12-057
CA	Pacific Gas & Electric	Electric	1990-1992	Hybrid	Decision 89-12-057
CA	Pacific Gas & Electric	Electric	1986-1989	Hybrid	Decision 85-12-076
CA	Pacific Gas & Electric	Electric	1984-1985	Hybrid	Decision 83-12-068
CA	Pacific Gas & Electric	Gas & Electric	1982-1983	Hybrid	Decision 93887
CA	Pacific Gas & Electric	Gas	1978-1981	No RAM	Decisions 89316, 91107
CA	PacifiCorp	Electric	1984-1985	Stairstep	Decision 89-09-034
CA	San Diego Gas & Electric	Gas & Electric	2005-2007	Indexing	Decision 05-03-025
CA	San Diego Gas & Electric	Gas & Electric	1994-1999	Hybrid	Decision 94-08-023
CA	San Diego Gas & Electric	Electric	1989-1993	Hybrid	Decision 89-11-068
CA	San Diego Gas & Electric	Gas & Electric	1986-1988	Hybrid	Decision 85-12-108
CA	San Diego Gas & Electric	Gas & Electric	1982-1983	Hybrid	Decision 93892
CA	Southern California Edison	Electric	2009-2011	Stairstep	Decision 09-03-025
CA	Southern California Edison	Electric	2006-2008	Hybrid	Decision 06-05-016
CA	Southern California Edison	Electric	2004-2006	Hybrid	Decision 04-07-022
CA	Southern California Edison	Electric	2001-2003	Indexing	Decision 02-04-055
CA	Southern California Edison	Electric	1986-1991	Hybrid	Decision 85-12-076
CA	Southern California Edison	Electric	1983-1984	Hybrid	Decision 82-12-055
CA	Southern California Gas	Gas	2005-2007	Indexing	Decision 05-03-025
CA	Southern California Gas	Gas	1998-2002	Indexing	Decision 97-07-054
CA	Southern California Gas	Gas	1986-1989	Hybrid	Decision 85-12-076
CA	Southern California Gas	Gas	1990-1993	Hybrid	Decision 90-01-016
CA	Southern California Gas	Gas	1981-1982	Stairstep	Decision 92497
CA	Southern California Gas	Gas	1979-1980	Stairstep	Decision 89710

**Table 4 (continued)**  
**Decoupling True Up Plan Precedents**

Jurisdiction	Company Name	Services	Plan Years	Revenue Adjustment Mechanism	Case Reference
CO	Public Service Company of Colorado	Gas	2008-2011	RPC Freeze	Decision C07-0568
FL	Florida Power Corporation	Electric	1995-1997	RPC Freeze	Docket 930444
ID	Idaho Power	Electric	2007-2009	RPC Freeze	Case No. IPC-E-04-15
ID	Idaho Power	Electric	2010-2012	RPC Freeze	Case No. IPC-E-09-28
IL	North Shore Gas	Gas	2008-2012	RPC Freeze	Case 07-0241
IL	Peoples Gas Light & Coke	Gas	2008-2012	RPC Freeze	Case 07-0242
IN	Vectren Energy	Gas	2007-2011	RPC Freeze	Cause No. 43046
IN	Vectren Southern Indiana	Gas	2007-2011	RPC Freeze	Cause No. 43046
IN	Citizens Gas	Gas	2007-2011	RPC Freeze	Cause No. 42767
ME	Central Maine Power	Electric	1991-1993	RPC Freeze	Docket No. 90-085
MI	Consumers Energy	Electric	2009-2011	RPC Freeze	Case No. U-15645
MI	Consumers Energy	Gas	2010-2012	RPC Freeze	Case No. U-15986
MI	Detroit Edison	Electric	2010-2011	RPC Freeze	Case No. U-15768
MI	Upper Peninsula Power	Electric	2010-2011	RPC Freeze	Case No. U-15988
MI	Michigan Consolidated Gas	Gas	2010-2012	RPC Freeze	Case No. U-15985
MT	Montana Power Company	Electric	1994-1998	RPC Freeze	Docket No. 93.6.24
NC	Piedmont Natural Gas	Gas	2005-2008	RPC Freeze	Docket G-44 Sub 15
NJ	New Jersey Gas Natural	Gas	2007-2010	RPC Freeze	Docket GR05121020
NJ	South Jersey Gas	Gas	2007-2010	RPC Freeze	Docket GR05121019
NY	Central Hudson G&E	Gas	2009-open	RPC Freeze	Case 08-E-0888
NY	Central Hudson G&E	Electric	2009-open	No RAM	Case 08-E-0887
NY	Consolidated Edison	Electric	2008-open	No RAM	Case 07-E-0523
NY	Consolidated Edison	Gas	2007-2010	Stairstep	Case 06-G-1332
NY	Consolidated Edison	Electric	1992-1995	Stairstep	Opinion No. 92-8
NY	Long Island Lighting Company	Electric	1992-1994	Stairstep	Opinion No. 92-8
NY	New York State Electric & Gas	Electric	1993-1995	Stairstep	Opinion No. 93-22
NY	Niagara Mohawk	Electric	1990-1992	Stairstep	Case 94-E-0098
NY	Orange & Rockland Utilities	Gas	2009-2012	RPC Stairstep	Case 08-G-1398
NY	Orange & Rockland Utilities	Electric	2011-2012	No RAM	Case 10-E-0362
NY	Orange & Rockland Utilities	Electric	2008-2011	Stairstep	Case 07-E-0949
NY	Orange & Rockland Utilities	Electric	1991-1993	Stairstep	Case 89-E-175
NY	Rochester Gas & Electric	Electric	1993-1996	Stairstep	Opinion No. 93-19
OH	Vectren Energy	Gas	2007-2009	RPC Freeze	Case 05-1444-GA-UNC
OR	Northwest Natural Gas	Gas	2009-2012	RPC Freeze	Order No. 07-426
OR	Northwest Natural Gas	Gas	2005-2009	RPC Freeze	Order No. 05-934
OR	Northwest Natural Gas	Gas	2002-2005	RPC Freeze	Order No. 02-634
OR	PacifiCorp	Electric	1998-2001	Indexing	Order No. 98-191
OR	Portland General Electric	Electric	2009-2010	RPC Freeze	Order No. 09-020
OR	Portland General Electric	Electric	1995-1996	Stairstep	Order No. 95-0322
UT	Questar Gas	Gas	2006-2010	RPC Freeze	Docket No. 05-057-T01
VA	Virginia Natural Gas	Gas	2009-2012	RPC Freeze	Case No. PUE-2008-00060
WA	Avista	Gas	2009-2012	RPC Freeze	Docket UG-060518
WA	Avista	Gas	2007-2009	RPC Freeze	Docket UG-060518
WA	Cascade Natural Gas	Gas	2005-2010	RPC Freeze	Docket UG-060256
WA	Puget Sound & Power	Electric	1991-1995	RPC Freeze	Docket UE-901184-P
WI	Wisconsin Public Service	Gas & Electric	2009-2012	RPC Freeze	D-6690-UR-119
WY	Questar Gas	Gas	2009-2012	RPC Freeze	Docket 30010-94-GR-08

## B. Lost Revenue Adjustment Mechanisms

An LRAM explicitly compensates a utility for base rate revenues that are estimated to be lost due to its DSM programs, distributed generation (“DG”), or other specific causes. Compensation for lost margins is usually effected through a rate rider. Estimates of energy (and sometimes also peak load) savings are needed for LRAM calculations. The utility remains at risk for fluctuations in volumes and peak load due to weather, local economic activity, power market prices, and other volatile demand drivers. The utility is usually kept whole for the full revenue impact of its DSM (and possibly also DG) programs and not just for the incremental effort that causes average use to decline.<sup>2</sup> This is desirable because a program to promote DSM and DG increases the gap between cost and billing determinant growth and thereby increase potential attrition and the need for more frequent rate cases even if average use does not decline. Precedents for LRAMs are detailed in Table 5 and Figure 6 below.<sup>3</sup> It can be seen that, while LRAMs are less widely used than decoupling true up plans today, they have experienced a rebound in recent years and are more popular for electric than for gas utilities. For example, they are featured in Duke Energy’s “Save a Watt” approach to DSM regulation and are also popular in the Intermountain West states. Some utilities have LRAMs and decoupling true up plans.

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<sup>2</sup> For an example of an LRAM that covers DG as well as DSM programs, see Decision 73183 of the Arizona Corporation Commission in the 2012 rate case for Arizona Public Service. A multiyear rate plan was also approved in the decision.

<sup>3</sup> Some mechanisms similar to LRAMs are excluded from this survey.

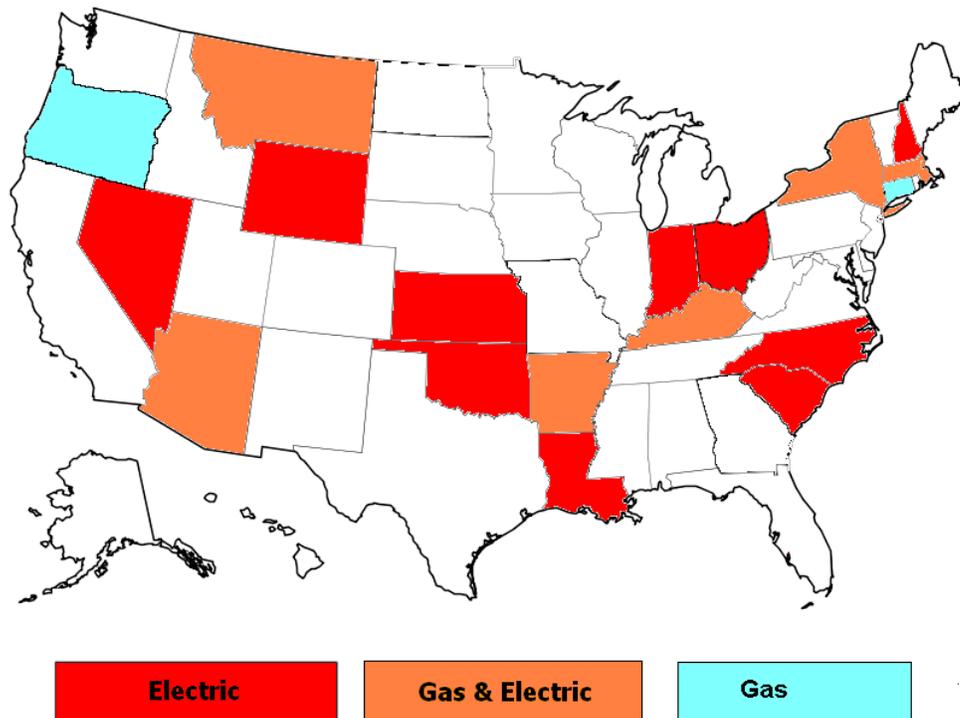
**Table 5  
Current LRAM Precedents**

State	Company	Services	Approval Date	Case Reference
AR	Arkansas Oklahoma Gas	Gas	June 2011	Docket No. 07-077-TF, Order Number 30
AR	Centerpoint Energy Arkla	Gas	June 2011	Docket No. 07-081-TF, Order Number 31
AR	Entergy Arkansas	Electric	June 2011	Docket No. 07-085-TF, Order Number 40
AR	Oklahoma Gas & Electric	Electric	June 2011	Docket No. 07-075-TF, Order No. 26
AR	SourceGas Arkansas	Gas	June 2011	Docket No. 07-078-TF, Order No. 26
AR	Southwestern Electric Power	Electric	June 2011	Docket No. 07-082-TF, Order Nos. 35 and 36
AZ	Arizona Public Service	Electric	May 2012	Docket No. E-01345A-11-0224, Decision No. 73183
AZ	UNS Gas	Gas	May 2012	Docket No. G-04204A-11-0158 Decision No. 73142
CT	Connecticut Natural Gas	Gas	August 1995	Docket No. 93-02-04
CT	Southern Connecticut Gas	Gas	August 1995	Docket No. 93-03-09
CT	Yankee Gas Service	Gas	January 2012	Docket No. 11-10-03
IN	Duke Energy Indiana (PSI)	Electric	February 2010	Cause No. 43374
IN	Indiana-Michigan Power	Electric	September 2010	Cause 43827
IN	Northern Indiana Public Service	Electric	May 2011	Cause 43618
IN	Southern Indiana Gas & Electric	Electric	August 2011 (large commercial and industrials), June 2012 (residential and small commercial)	Cause Nos. 43938 and 43405 DSMA 9 S1
KS	Kansas Gas & Electric	Electric	January 2011	Docket No. 10-WSEE-775-TAR
KS	Westar Energy	Electric	January 2011	Docket No. 10-WSEE-775-TAR
KY	Atmos Energy	Gas	September 2009	Case No. 2008-00499
KY	Columbia Gas of Kentucky	Gas	October 2009	Case No. 2009-00141
KY	Delta Natural Gas	Gas	July 2008	Docket No. 2008-00062
KY	Duke Energy Kentucky	Electric	December 1995 and February 2005	Case Nos. 95-321 and 2004-00389
KY	Duke Energy Kentucky	Gas	February 2005	Case No. 2004-00389
KY	Louisville Gas & Electric	Electric & Gas	November 1993	Case No. 93-150
KY	Kentucky Power	Electric	December 1995	Case No. 95-427
KY	Kentucky Utilities	Electric	May 2001	Case No. 2000-0459
LA	Entergy New Orleans	Electric	April 2009	New Orleans Resolution R-09-136
MA	All Electric distributors	Electric	July 2012	D.P.U. 12-01A
MA	Berkshire Gas	Gas	October 1992	D.P.U. 91-154
MA	NSTAR Electric	Electric	April 1992, June 1994, and June 2010	D.P.U. 90-335, D.P.U. 94-2/3-CC, and D.P.U. 10-06
MA	Commonwealth Gas d/b/a NSTAR Gas	Gas	November 1994	D.P.U. 94-128
MT	Northwestern Energy	Gas	February 2009	Docket No. D2008.5.44
MT	Northwestern Energy	Electric	December 2005	Docket No. D2004.6.90
MT	Montana-Dakota Utilities	Gas	October 2006	Docket No. D2005.10.156; Order No. 6697c

**Table 5 (continued)**  
**Current LRAM Precedents**

State	Company	Services	Approval Date	Case Reference
NY	Central Hudson Gas & Electric	Electric	July 2006	Case No. 05-E-0934
NY	Consolidated Edison of New York	Electric	March 2005	Case No. 04-E-0572
NY	Consolidated Edison of New York	Gas	April 2002	Case No.00-G-1456
NY	Keyspan Long Island	Gas	December 2009	Case No. 06-G-1186; Currently effective for all customers not in RDM
NY	Keyspan New York	Gas	December 2009	Case No. 06-G-1185; Currently effective for all customers not in RDM
NC	Duke Energy Carolinas	Electric	February 2010	Docket No. E-7, Sub 831
NC	Progress Energy Carolinas (Carolina Power & Light)	Electric	November 2009	Docket No. E-2, Sub 931
NC	Virginia Electric Power	Electric	October 2011	Docket No. E-22, Sub 464
NH	Unitil Energy Services	Electric	June 2010	DE 09-137, Order No. 25,111
NV	Nevada Energy	Electric	May 2011	Docket 10-10024
NV	Sierra Pacific Power	Electric	May 2011	Docket 10-10025
OH	Duke Energy Ohio (Cincinnati Gas & Electric)	Electric	July 2007	Docket No. 06-0091-EL-UNC
OH	First Energy Ohio (Cleveland Electric Illuminating, Toledo Edison, Ohio Edison)	Electric	March 2009	Docket No. 08-935-EL-SSO
OH	American Electric Power (Ohio Power, Columbus Southern Power)	Electric	May 2010	Docket No. 09-1089-EL-POR; Effective for classes not included in RDM
OH	Dayton Power & Light	Electric	June 2009	Docket No. 08-1094-EL-SSO
OK	Empire District Electric	Electric	November 2009	Cause No. 200900146 Order 571326
OK	Oklahoma Gas & Electric	Electric	July 2008	Cause No. 200800059 Order 556179
OK	Public Service of Oklahoma	Electric	January 2010	Cause No. PUD 200900196; Order 572836
ON	Union Gas	Gas	January 2008	EB-2007-0606
ON	Enbridge Gas Distribution	Gas	February 2008	EB-2007-0615
ON	Toronto Hydro-Electric	Electric	September 2007	EB-2007-0096
OR	Portland General Electric	Electric	September 2001	Order No. 01-836; UE 79 (Approved 2001 LRAM) Currently non-residential customers only
OR	Cascade Natural Gas	Gas	April 2006	Order No. 06-191; UG 167 excludes classes under RDM
OR	Avista Utilities	Gas	December 1993	Order 93-1881
SC	Progress Energy Carolinas	Electric	June 2009	Docket No. 2008-251-E Order 2009-373
SC	Duke Energy Carolinas	Electric	January 2010	Docket No. 2009-226-E Order No. 2010-79
SC	South Carolina Electric & Gas	Electric	July 2010	Docket No. 2009-261-E, Order No. 2010-472
WY	Cheyenne Light, Fuel, and Power	Electric & Gas	September 2011	Docket Nos. 20003-108-EA-10 and 30005-140-GA-10
WY	Montana-Dakota Utilities	Electric	January 2007	Docket No. 20004-65-ET-06

Figure 6: Current LRAMs by State



### C. Fixed Variable Pricing

Fixed variable pricing is an approach to the design of base rates that uses fixed charges (charges that do not vary with the sales volume or peak demand) to recover a high percentage of fixed costs. A *straight* fixed variable (“SFV”) rate design recovers *all* fixed costs through fixed charges. A rate design that recovers a substantial but smaller share of fixed costs through fixed charges is sometimes called *modified* fixed variable pricing. Most fixed variable rate designs implemented to date have involved the same fixed charge for all customers in a service class. However, “sliding scale” rate designs have been developed which assign lower fixed charges to customers who are likely to have lower volumes.

The lion’s share of base rate revenue from residential and commercial customers is typically raised using customer charges under fixed variable pricing. Revenue thus tends to grow at the gradual pace of customer growth.

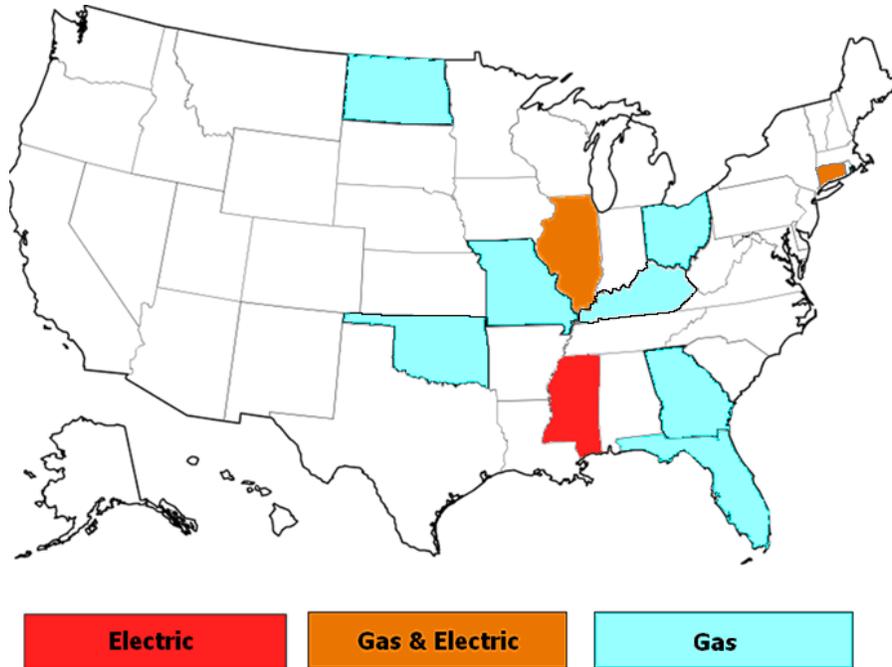
SFV pricing has been used on a large scale by interstate gas transmission companies since the early 1990s. Precedents for fixed variable pricing in retail ratemaking are listed below on Table 6 and Figure 7. It can be seen that fixed variable retail pricing has to date been more common for gas distributors than electric utilities. This again reflects the greater problem of declining average use that gas distributors have faced. Ohio is noteworthy for having recently switched from decoupling true up plans to fixed variable pricing for its gas distributors.

**Table 6**  
**Fixed Variable Retail Pricing Precedents**

Jurisdiction	Company Name	Services	Years in Place	Case Reference
CT	Connecticut Light & Power	Electric	2007-open	Docket 07-07-01
CT	Yankee Gas System	Gas	2011-open	Docket 10-12-02
FL	Peoples Gas System	Gas	2009-open	Docket 080318-GU
GA	Atlanta Gas Light	Gas	1998-open	Docket No. 8390-U
IL	Ameren CILCO	Gas	2008-2012	Case 07-0588
IL	Ameren CIPS	Gas	2008-2012	Case 07-0589
IL	Ameren IP	Gas	2008-2012	Case 07-0590
IL	Ameren Illinois	Gas	2012-open	Case 11-0282
IL	Commonwealth Edison	Electric	2011-open	Case 10-0467
IL	Nicor Gas	Gas	2009-open	Docket No. 08-0363
IL	North Shore Gas	Gas	2008-open	Case No. 07-0241
IL	Peoples Gas Light & Coke	Gas	2008-open	Case No. 07-0242
KY	Delta Natural Gas	Gas	2007-open	Case No. 2007-00089
KY	Duke Energy Kentucky	Gas	2010-open	Case No. 2009-00202
MO	AmerenUE	Gas	2007-open	Case No. GR-2007-0003
MO	Atmos Energy	Gas	2007-2010	Case GR-2006-0387
MO	Atmos Energy	Gas	2010-open	Case No. GR-2010-0192
MO	Empire District Gas	Gas	2010-open	Case GR-2009-0434
MO	Missouri Gas Energy	Gas	2007-open	Case GR-2006-0422
MO	Laclede Gas	Gas	2002-open	Case GR-2002-356
MS	Mississippi Power	Electric	Occurred over period of years	No specific case
ND	Xcel Energy	Gas	2005-open	Case PU-04-578
OH	Duke Energy Ohio (CG&E)	Gas	2008-open	Case 07-590-GA-ALT
OH	Dominion East Ohio	Gas	2008-2010	Case 07-830-GA-ALT
OH	Columbia Gas	Gas	2008-open	Case 08-0072-GA-AIR
OH	Vectren Energy Delivery of Ohio	Gas	2009-open	Case 07-1080-GA-AIR
OK	Oklahoma Natural Gas	Gas	2004-open	Cause Nos. PUD 200400610, PUD 201000048, PUD 200900110
OK	Centerpoint Energy	Gas	2010-open	Cause No. PUD 201000030

In addition to the precedents listed here, some other states have in recent years made sizable steps in the direction of fixed variable pricing by redesigning rates for small volume customers to raise customer charges and lower volumetric charges substantially. Investor-owned utilities in Canada are typically permitted to raise a much higher portion of their revenue through fixed charges than in the United States. Most fixed variable rate designs feature uniform fixed charges within service classes, but gas utilities in Florida, Georgia, and Oklahoma have fixed charges that vary in some fashion with long term consumption patterns.

**Figure 7: Fixed Variable Pricing Precedents by State**



## IV. Forward Test Years

General rate cases involve “test years” in which revenue requirements and billing determinants are jointly considered in setting new rates. An historic test year ends before the rate case is filed. A fully-forecasted (a/k/a “forward”) test year (“FTY”) is a twelve month period that begins after the rate case is filed. An FTY typically begins about the time that the rate case is expected to end. Two-year forecasts are therefore required to span both the rate case year and the year that rates take effect.<sup>4</sup> In between FTYs and historic test years is the option of a “partially forecasted” test year in which some months of historic data on utility operations are combined with some months of forecasted data. Under this approach, actual data for all months usually become available during the course of the rate case.

Historic test years are chronically uncompensatory when cost grows materially faster than billing determinants. Annual rate cases can alleviate but not eliminate underearning. Where historic test years are used in rate cases there are thus added advantages to implementing other Altreg innovations discussed in this paper.

Forward test years can compensate utilities for a tendency of cost growth to exceed billing determinant growth.<sup>5</sup> If this tendency is chronic, however, it does not eliminate the problem of frequent rate cases. It is therefore not unusual for regulators to combine FTYs with other Altreg remedies, as is the case in California and New York.

Diverse approaches are used to forecast costs in FTY rate cases. Some companies rely on their budgeting process to make cost projections. Others normalized data for an historical reference period and adjust for known and measurable changes and then use indexing and other statistical methods to extend projections. Mixes of these two approaches are common.

Forward test years were adopted in many jurisdictions during the 1970s and 1980s when rapid price inflation and major plant additions coincided with slowing growth in average use. This approach to Altreg was therefore one of the earliest implemented. Several additional states have recently moved in the direction of FTYs. Many of these states are in the West, where comparatively rapid economic growth has required more rapid build out of utility infrastructure. FTYs were recently sanctioned legislatively in Pennsylvania.

Current state policies concerning test years are summarized below in Figure 8 and Table 7. The ranks of US jurisdictions that allow the use of alternatives to historic test years have swollen and now encompass well over half of the total. The “other” category in Figure 8 includes states where utilities can file FTYs but many do not (*e.g.* Illinois), states where FTYs may be approved on a case by case basis (*e.g.* New Mexico, Utah, and Wyoming), and states where partially forecasted test years are the norm (*e.g.* Ohio and New Jersey). Forward test years are the norm in Canada and several jurisdictions have permitted two forward test years.

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<sup>4</sup> A forward test year can be the rate case year, and thereby not require two-year forecasts, if rates are allowed to be changed as proposed on an interim basis shortly after the filing.

<sup>5</sup> The effect on credit metrics can be material. For evidence see “Forward Test Years for US Electric Utilities” by Mark Newton Lowry, David Hovde, Lullit Getachew, and Matt Makos, August 2010. Prepared for the Edison Electric Institute.



**Table 7**  
**Test Year Approaches of US Jurisdictions**

Jurisdiction	Notes
<b>Fully-Forecasted (15)</b>	
Alabama	Utilities operate under forward-looking formula rate plans
California	
Connecticut	
FERC	Rate cases use forward test years but some formula rate plans use HTYs
Florida	
Georgia	
Hawaii	
Maine	
Michigan	
Minnesota	
New York	
Oregon	
Rhode Island	
Tennessee	
Wisconsin	
<b>Partially-Forecasted (3)</b>	
Arkansas	
Ohio	
New Jersey	
<b>Transitional/Varying (14)</b>	
District of Columbia	PEPCO has filed rate cases using both hybrid and historical test years recently Before restructuring FTY filings were common, but companies have used a mix of HTYs and partially-forecasted test years in recent filings
Delaware	
Idaho	
Illinois	Utilities use various test years including FTYs
Kentucky	Utilities use various test years including FTYs
Louisiana	Utilities use various test years including FTYs
Maryland	Utilities use various test years excluding FTYs
Mississippi	One electric utility operates under a forward-looking formula rate plan
Missouri	Utilities have the option to file partially-forecasted test years
New Mexico	A recently passed law allows for use of FTYs, but no rate increase based on FTY evidence has yet been approved
North Dakota	Utilities use various test years including FTYs
Pennsylvania	Partially-forecasted test years have been the norm. Law allowing fully-forecasted test years passed in 2012. First FTY case is pending.
Utah	Test year selection is part of the rate case and can be contested. Several recent rate cases have used FTYs.
Wyoming	Rocky Mountain Power has recently used FTYs
<b>Historic (20)</b>	
Alaska	
Arizona	
Colorado	Utilities can file FTY evidence. No FTY rates have yet been approved but a recent case made extraordinary HTY adjustments.
Indiana	
Iowa	
Kansas	
Massachusetts	
Montana	
Nebraska	Nebraska has no electric IOUs. Gas companies are legally authorized to use FTYs but commonly use HTYs.
Nevada	
New Hampshire	
North Carolina	
Oklahoma	
South Carolina	
South Dakota	
Texas	
Vermont	
Virginia	
Washington	
West Virginia	

**IV. Forward Test Years**

## V. Multiyear Rate Plans

Multiyear rate plans (“MRPs”) are designed to compensate a utility for changing business conditions without frequent, full true ups to its actual cost of service. Rate cases are held infrequently, most often at three to five year intervals. Any rate escalations that are made between rate cases are based in whole or in part on automatic attrition relief mechanisms (“ARMs”). The rate adjustments provided by ARMs are largely “external” in the sense that they give a utility an *allowance* for cost growth rather than reimbursement for its *actual* growth. The “externalization” of ratemaking that these two features of MRPs achieve can strengthen utility performance incentives despite a reduction in regulatory cost. Benefits of better performance can be shared between the utility and its customers. Lower regulatory cost has special appeal in jurisdictions where numerous utilities must be regulated.

ARMs typically cap the growth in either rates (*e.g.* customer charges and cents per kWh) or allowed revenue. Rate caps are favored when and where utilities are encouraged to bolster system use since they strengthen incentives to promote use and facilitate marketing flexibility by reducing concerns about cross-subsidies. Revenue caps are usually combined with decoupling true ups, and are often favored where utilities must cope with declining average use and/or large-scale DSM programs.

Several approaches to the design of ARMs are well-established. These approaches include stairsteps, indexing, and hybrids. Stairsteps provide predetermined increases in rates (or revenue) which often reflect forecasts of cost growth. Indexing escalates rates (or revenue) automatically for inflation and sometimes also for growth in the number of customers served and/or industry productivity trends. Hybrid ARMs typically involve indexing of budgets for O&M expenses and stairsteps for capital cost budgets.

The indexing approach to ARM design is more common for distribution charges because distribution cost growth is relatively gradual and predictable. Hybrid and stairstep ARMs are more adaptable to the cost growth trajectories of VIEUs, which are more uneven due to occasional major plant additions. Some VIEUs operating under MRPs have separate ratemaking treatments for generation and distribution.

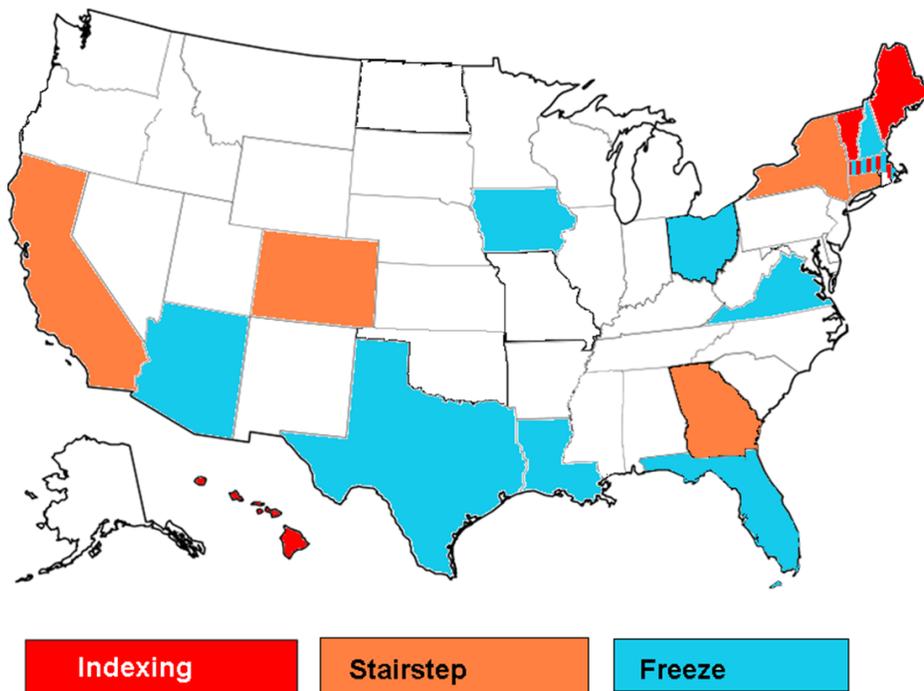
Supplemental rate adjustments are usually allowed for changes in business conditions that are especially difficult to address using ARMs. A tracker that recovers a large portion of a utility’s capex cost can, for example, sometimes permit the company to operate under a multiyear freeze on rates for other non-energy costs. This is so because the value of the residual rate base is more likely to be static or decline. Trackers may also address *force majeure* events such as severe storms and changes in tax rates and other government policies that affect costs.

Some multiyear rate and revenue caps feature earnings sharing mechanisms (“ESMs”) that automatically share earnings surpluses and/or deficits that result when the rate of return on equity (“ROE”) deviates from its regulated target. Some feature “off-ramps” that permit plan suspension when earnings are unusually high or low. Plans often feature award and/or penalty mechanisms that are linked to the utility’s service quality.

MRPs were first widely used in the railroad, telecommunications, and oil pipeline industries. A major attraction was the ability of price caps to afford utilities flexibility in serving markets with diverse competitive pressures from a consolidated set of assets. The use of MRPs in the regulation of gas and electric utilities has been chiefly motivated by other advantages such as stronger performance incentives and lower regulatory cost.

Current US and Canadian precedents for MRPs are indicated in Table 8 and Figures 9a and 9b.<sup>6</sup> In the US, multiyear rate plans are most common in California and the Northeast. MRPs with ARMs that escalate rate or revenue automatically are more common for energy distributors than for VIEUs. Canada is moving towards MRPs with index-based ARMs for pipe and wire utilities in all four populous provinces. MRPs with index-based ARMs are more the rule than the exception for pipe and wire utilities overseas. ARMs used in MRPs for VIEUs typically have a stairstep or hybrid form. Other VIEUs operate under a combination of a rate freeze and one or more trackers to compensate the utility for specific causes of potential attrition.

**Figure 9a: Recent US Electric Multiyear Rate Cap Precedents by State**



<sup>6</sup> The table considers only MRPs that weren't listed in Table 4 on decoupling true up precedents. Figures 9a and 9b cover all MRPs. Rate freezes without extensive supplemental funding from trackers are excluded from Table 8 and Figures 9a and 9b.

**Table 8**  
**Multiyear Price Cap Precedents<sup>1,2</sup>**

Jurisdiction	Company Name	Plan Term	Services Covered	Rate Escalation Provisions	Case Reference
<b>Current</b>					
AZ	Arizona Public Service	2012-2016	Bundled power service	Rate freeze with an adjustment to account for purchase of SCE's share of Four Corners generating facility, additional capex and other cost trackers, LRAM	Decision No. 73183, May 2012
CA	PacifiCorp	2011-2013	Bundled power service	Price Cap Index: Rates escalated by Global Insight forecast of CPI, less 0.5% productivity factor; supplemental funding for major plant additions can be requested in annual filings.	Decision 10-09-010; September 2, 2010
CO	Public Service Company of Colorado	2012-2014	Bundled power service	Stairstep	Decision No. C12-0494
FL	Florida Power & Light	2013-2016	Bundled power service	Rate freeze with multiple capex and other cost trackers	Docket No. 120015-EI, December 2012
FL	Progress Energy Florida	2012-2016	Bundled power service	Rate Freeze with one step plus capex and other cost trackers	Docket No. 120022-EI
GA	Georgia Power	2011-2013	Bundled power service	Stairstep: Rate increases permitted for DSM and major generation plant additions	Docket 31958
IA	MidAmerican Energy	2001 - 2005, extended to 2013	Bundled power service	Rate Freeze with nuclear capex and other cost trackers	Dockets RPU-01-3 and RPU-2012-0001
LA	Cleco	2009-2014	Bundled power service	Rate freeze with capex tracker	Order No. U-30689
ME	Central Maine Power (III)	2009-2013	Power distribution	Price Cap Index: GDPPI - 1%, separate AMI tracker	Docket 2007-215
NH	Public Service Company of New Hampshire	2010-2015	Power distribution (generation regulated separately)	Stairstep: Rate increases allowed to account for distribution capital additions in 2010-2013	DE 09-035
NH	Unitil Energy Systems	2011-2016	Power distribution	Stairstep: Rate increases allowed to account for distribution capital additions in 2011-2013	DE 10-055
OH	AEP-OH	2012-2015	Power distribution	Rate Freeze supplemented by capex and other cost trackers	Case No. 11-346-EL-SSO, August 8, 2012
OH	First Energy Ohio	2011-2014, later extended to 2016	Power distribution	Rate Freeze with capex and other cost trackers	Case Nos. 11-388-EL-SSO, 12-1230-EL-SSO
VA	Virginia Electric Power	2010-2013	Bundled power service	Rate Freeze with capex and other cost trackers	Case No. PUE-2009-00019
VT	Green Mountain Power	2010-2013	Electric	Revenue cap index	Docket No. 7585
VT	Central Vermont Public Service	2011-2013	Electric	Revenue cap index	Docket No. 7627
VT	Vermont Gas Systems	2012-2015	Gas	Revenue cap hybrid	Docket No. 7803
Alberta	Enmax	2007-2013	Power distribution	Price Cap Index: Input Price Index -1.2%	Decision 2009-035
Alberta	Altgas Utilities	2013-2017	Gas	Revenue Per Customer Indexing: Input Price Index - 1.16%, separate capex trackers	Decision 2012-237
Alberta	ATCO Gas	2013-2017	Gas	Revenue Per Customer Indexing: Input Price Index - 1.16%, separate capex trackers	Decision 2012-237
Alberta	EPCOR, Fortis Alberta	2013-2017	Power distribution	Price Cap Index: Input Price Index - 1.16%, separate capex trackers	Decision 2012-237
Northwest Territories	Northland Utilities	2011-2013	Bundled power service	Stairstep	Decision 17-2011
Northwest Territories	Northland Utilities (Yellowknife)	2011-2013	Bundled power service	Stairstep	Decision 13-2011

**Table 8 (continued)  
Multiyear Price Cap Precedents<sup>1,2</sup>**

Jurisdiction	Company Name	Plan Term	Services Covered	Rate Escalation Provisions	Case Reference
<b>Current</b>					
Ontario	All Ontario distributors	2010-2013	Power distribution	Price Cap Index: GDP IPI for Final Domestic Demand - (0.92% to 1.32% depending on company's annual performance in benchmarking studies)	EB-2007-0673 (July 14, 2008, September 17, 2008, and January 28, 2009)
Prince Edward Island	Maritime Electric	2013-2016	Bundled power service	Stairstep: Bill defines rates for each year.	Bill 26 (2012) Electric Power (Energy Accord Continuation) Amendment Act

**Historic**

Jurisdiction	Company Name	Plan Term	Services Covered	Attrition Relief Mechanisms	Case Reference
CA	Sierra Pacific Power	2009-2011, extended to 2012	Bundled power service	Price Cap Index	Decision 09-10-041
CA	PacifiCorp	1994-1996, extended to 1999	Bundled power service	Price Cap Index	Decision 93-12-106; December 3, 1993
CA	PacifiCorp	2007-2009, extended to 2010	Bundled power service	Price Cap Index	Decisions 06-12-011 and 09-04-017
CA	San Diego Gas and Electric	1999-2002	Electric & Gas	Price Cap Index	Decision 99-05-030; May 13, 1999
CA	Southern California Edison	1997-2001	Electric	Price Cap Index	Decision 96-09-092; September 6, 1996
CT	United Illuminating	2006-2008	Power Distribution	Stairstep	Docket 05-06-04
FL	Florida Power & Light	2006-2009	Bundled power service	Rate Freeze with exception for new generating facilities after they are in service and multiple capex and other cost trackers	Docket 050045-EI
FL	Progress Energy Florida	2006-2009	Bundled power service	Rate freeze with 1 step to reflect generation brought in-service and multiple capex and other cost trackers	Docket No. 050078-EI
GA	Atlanta Gas Light	2005-2010	Gas distribution	Base rate freeze featuring a broad-based capex tracker	Docket No. 18638-U
MA	Bay State Gas	2006-2009	Gas distribution	Price Cap Index	Docket DTE 05-27
MA	Berkshire Gas	2002-2012	Gas distribution	No adjustment until September 2004, then Price Cap Index	Docket D.T.E. 01-56
MA	Boston Gas (I)	1997-2001	Gas distribution	Price Cap Index	Docket D.P.U. 96-50-C (Phase I) May 16, 1997
MA	Boston Gas (II)	2004-2010	Gas distribution	Price Cap Index	Docket DTE 03-40
MA	Blackstone Gas	November 1, 2004 - October 31, 2009	Gas distribution	Price Cap Index	Docket D.T.E. 04-79
MA	National Grid	2000-2010	Power distribution	Rate Freeze between 2000 and 2005, Price Cap Index: 2006-2010, inflation adjustment made based on index of regional power distribution charges.	Docket DTE 99-47 (November 29, 1999)
MA	Nstar	2006-2012	Power distribution	Price Cap Index	Docket D.T.E. 05-85
ME	Bangor Gas	2000-2009, extended to 2012	Gas Distribution	Price Cap Index	Docket 970795 (June 26, 1998)
ME	Bangor Hydro Electric (I)	1998-2000	Power distribution	Price Cap Index	Docket 97-116 (March 24, 1998)
ME	Bangor Hydro Electric (II)	2002-2007	Power Distribution	Stairstep	Docket No. 2001-410
ME	Central Maine Power (I)	1995-1999	Bundled power service	Price Cap Index	Docket 92-345 Phase II (January 10, 1995)
ME	Central Maine Power (II)	2001-2007	Power distribution	Price Cap Index	Docket 99-666 (November 16, 2000)

**Table 8 (continued)**  
**Multiyear Price Cap Precedents<sup>1,2</sup>**

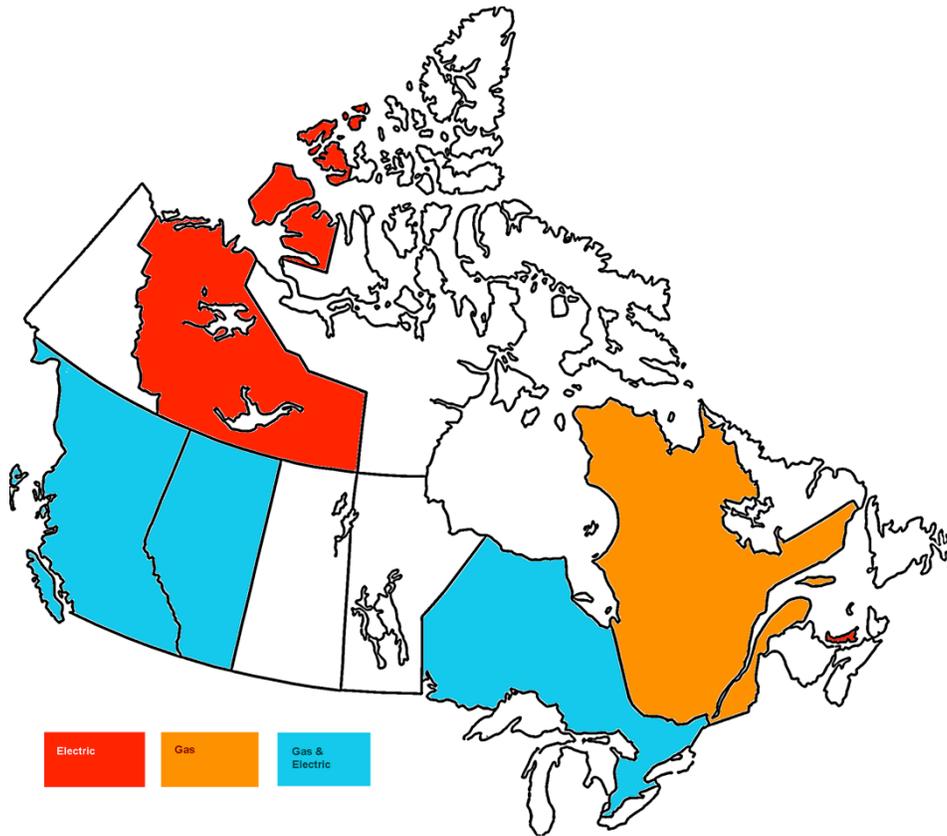
**Historic**

Jurisdiction	Company Name	Plan Term	Services Covered	Rate Escalation Provisions	Case Reference
NY	Brooklyn Union Gas	October 1, 1991 - September 30, 1994	Gas distribution	Stairstep	Case 90-G-0981, Opinion 91-21, October 9, 1991
NY	Brooklyn Union Gas	October 1, 1994 - September 30, 1997	Gas distribution	Stairstep	Case 93-G-0941, Opinion 94-22, October 18, 1994
NY	Central Hudson Gas & Electric	July 1, 2006 - June 30, 2009	Electric & Gas	Stairstep	Case 05-E-0934 & Case 05-G-0935; July 24, 2006
NY	Consolidated Edison	October 1, 1994 - September 30, 1997	Gas Distribution	Stairstep	Case 93-G-0996, Opinion 94-21, October 12, 1994
NY	Consolidated Edison	April 1, 2005 - March 31, 2008	Power distribution	Stairstep	Case 04-E-0572, March 24, 2005
NY	Long Island Lighting Company	December 1, 1993- November 30, 1996	Gas distribution	Stairstep	Case 93-G-0002, Opinion 93-23, December 23, 1993
NY	New York State Electric & Gas	December 1, 1993 - August 31, 1995	Gas	Stairstep	Case 92-G-1086, Opinion 93-22, November 9, 1993
NY	New York State Electric & Gas	August 1, 1995 - July 31, 1998, Years 2 and 3 not implemented due to restructuring	Electric	Stairstep	Case 94-M-0349, Opinion 95-27, September 27, 1995
NY	Niagara Mohawk	July 1, 1990 - December 31, 1992	Gas	Stairstep	Case 29327, Opinion 89-37, June 28, 1991
NY	Orange & Rockland Utilities	November 1, 2003- October 31, 2006	Gas	Stairstep	Case 02-G-1553, October 23, 2003
NY	Orange & Rockland Utilities	November 1, 2006 - October 31, 2009	Gas	Stairstep	Case 05-G-1494, October 20, 2006
NY	Rochester Gas & Electric	July 1, 1993 - June 30, 1996	Gas	Stairstep	Case 92-G-0741, Opinion No. 93-19; August 24, 1993
OH	Cincinnati Gas & Electric	2009-2011	Power generation	Stairstep	Case 08-920-EL-SSO
OH	Dayton Power & Light	2009-2012	Power Distribution	Rate freeze supplemented by capex and other cost trackers	Case No. 08-1094-EL-SSO (June 2009)
VT	Green Mountain Power	2007-2010	Electric	Stairstep	Docket No. 7176
VT	Vermont Gas Systems	2007-2012	Gas	Hybrid	Docket No. 7109
Alberta	Northwestern Utilities	1999-2002	Bundled power service	Stairstep	Decision U98060 (March 31, 1998)
Alberta	EPCOR	2002-2005, Terminated 12/31/2003	Power distribution	Price Cap Index	City of Edmonton Distribution Tariff Bylaw 12367 (August 18, 2000)
BC	Fortis BC	2006-2009, extended to 2011	Bundled power service	Revenue Cap Hybrid	Order G-58-06
Ontario	All Ontario distributors	2000-2003	Power distribution	Price Cap Index	RP-1999-0034
Ontario	All Ontario Distributors	2006-2009	Power Distribution	Price Cap Index	EB-2006-0089 (December 20, 2006)
Ontario	Union Gas	2001-2003	Gas distribution	Price Cap Index	RP-1999-0017 (July 21, 2001)

<sup>1</sup> Rate freezes without extensive supplemental funding from capex trackers are excluded from this table.

<sup>2</sup> MRPs with revenue decoupling and broad-based revenue cap escalators are detailed in Table 4.

Figure 9b: Recent Canadian Multiyear Rate Cap Precedents by Province



## VI. Formula Rates

A cost of service formula rate plan (“FRP”) is essentially a wide-scope cost tracker designed to help a utility’s revenue track its pro forma cost of service. When revenue and cost are not balanced a utility’s realized ROE deviates from the target set by regulators, and earnings surpluses or deficits occur. FRPs have earnings true up mechanisms that adjust rates so that earnings variances are substantially reduced or eliminated. Regulatory cost is reduced by limiting review of costs and revenues.

The earnings true up mechanism in an FRP calculates the revenue adjustment necessary to reduce or eliminate earnings variances. Some compare the earned ROE to the target (a/k/a benchmark) ROE and then calculate the rate adjustment needed to reduce the ROE variance. Another approach is to adjust rates for the difference between revenue and a pro forma cost of service that is calculated using a rate of return target. Both approaches often add interest on the variance to the revenue adjustment.

Earnings true up mechanisms in FRPs commonly move the ROE all, or almost all, of the way to its regulated target without sharing earnings variances. This is an important distinction between an FRP earnings true up mechanism and the earnings *sharing* mechanisms found in some multiyear rate plans. ESMs also frequently have sizable deadbands.

Expedited review of operating prudence does not always extend to major investment programs. In state-regulated FRPs for retail services, for instance, major investment programs are generally approved separately through such means as hearings on certificates of public convenience and necessity. The resultant cost is sometimes recovered through a separate tracker. Mechanisms are sometimes added to an FRP to encourage better operating performance in targeted areas. An example is a limit on the escalation of O&M expenses using an indexing formula.

Formula rates have been used at the FERC and its predecessor agency to regulate interstate services of gas and electric utilities since at least 1950. Use of FRPs was encouraged in the 1970s and early 1980s by rapid price inflation. Despite slower inflation in recent years, the FERC has made extensive use of formula rates for power transmission in an effort to simplify its daunting regulatory task and facilitate urgently needed investments.

Precedents for retail formula rates, which recover costs of generation and/or distribution, are listed in Table 9 and Figure 10<sup>7</sup>. It can be seen that FRPs for retail utility services are operative today in several Southeast and South Central states. Alabama was an early innovator, approving “Rate Stabilization and Equalization” plans for Alabama Power and Alabama Gas in the early 1980s.<sup>8</sup> Formula rates are, additionally, now used to regulate electric utilities in Mississippi, some gas and electric utilities in Louisiana, and some gas utilities in Oklahoma, Texas, and South Carolina. Utilities in other states have cost trackers that act like formula rates to recover their transmission costs from retail customers. Most of the recent approvals of formula rates have been for gas distribution, as this is one means of avoiding the frequent rate cases that declining average use can trigger. However, formula rates were recently authorized for electric utilities in Illinois and two are now operating under FRPs there.

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<sup>7</sup> Some plans labeled as formula rates do not qualify for inclusion in this table and figure based on our definition.

<sup>8</sup> For further discussion of the Alabama FRP experience see Edison Electric Institute, *Case Study of Alabama Rate Stabilization and Equalization Mechanism*, June 2011.

**Table 9**  
**Retail Formula Rate Plan Precedents<sup>1</sup>**

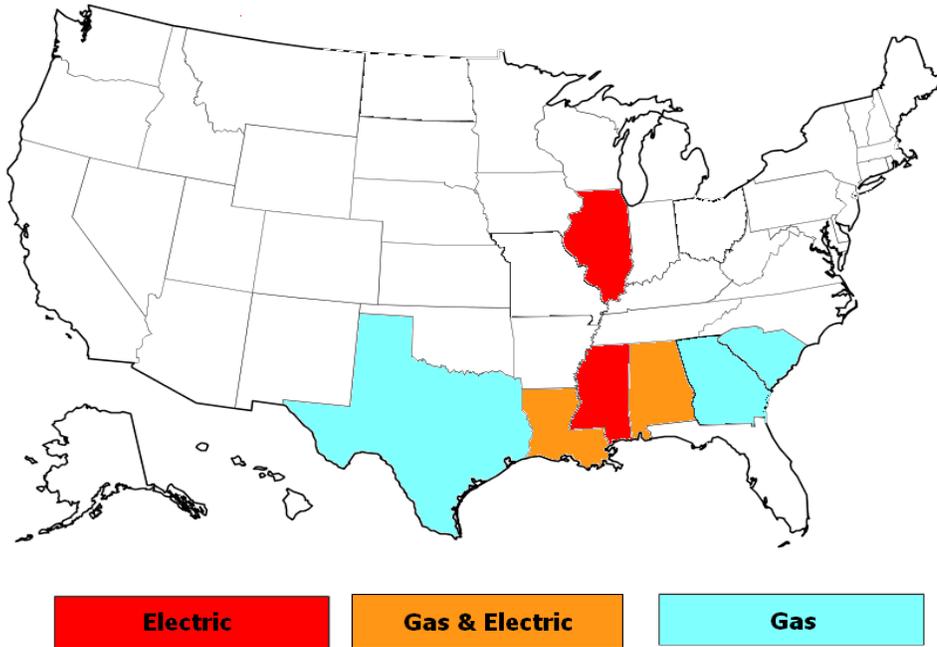
Jurisdiction	Company Name	Services	Plan Name	Plan Term	Case Reference
<b>Current</b>					
AL	Alabama Power	Bundled Power Service	Rate Stabilization & Equalization Factor (Rate RSE)	2006-open	Dockets No. 18117 and 18416 (October 2005)
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	2008-2014	Dockets No. 18406 and 18328 (December 2007)
AL	Mobile Gas Service	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	2009-2013	Docket 28101 (December 2009)
GA	Atmos Energy	Gas	Georgia Rate Adjustment Mechanism (GRAM)	2012-open	Docket 34764 (December 2011)
IL	Ameren Illinois	Power Distribution	Rate Modernization Action Plan - Pricing (Rate MAP-P)	2011-2017	Case 12-0001 (September 2012)
IL	Commonwealth Edison	Power Distribution	Rate Delivery Service Pricing and Performance (Rate DSPP)	2011-2017	Case 11-0721 (May 2012)
LA	Atmos Energy - Louisiana Gas Service	Gas	Rate Stabilization Plan	2006-open	Docket No. U-21484 (May 2006)
LA	Atmos Energy - Trans Louisiana Gas	Gas	Rate Stabilization Plan	2006-open	Docket No. U-28814 and U-28588 and U-28587 (May 2006)
LA	Entergy New Orleans	Electric and Gas	Formula Rate Plan	2010-2012	Docket No. UD-08-03 (April 2009)
MS	Atmos Energy Corp	Gas	Stable/Rate Rider	2009-present	Docket No. 05-UN-0503 (December 2009)
MS	Centerpoint Energy Entex	Gas	Rate Regulation Adjustment Rider	2008-open	Docket No. 07-UN-548 (December 2007)
MS	Entergy Mississippi	Bundled Power Service	Formula Rate Plan 5 (FRP 5)	2010-open	Docket No. 2009-UN-388 (March 2010)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 5 (PEP-5)	2010-open	Docket No. 2003-UN-0898 (November 2009)
OK	Centerpoint Energy Arkla	Gas	Performance Based Rate of Change Plan	2010-open	Docket No. 201000030 (July 2010)
OK	Oklahoma Natural Gas	Gas	Performance Based Rate of Change Plan	2010-2013	Docket No. 200800348 (April 2009)
SC	Piedmont Gas	Gas	NA	2005-present	Docket No. 2005-125-G (September 2005)
SC	South Carolina Electric and Gas	Gas	NA	2005-present	Docket No. 2005-113-G (October 2005)
TX	Centerpoint Energy-Texas Coast Division	Gas	Cost of Service Adjustment Clause	2008-open	Gas Utility Docket 9791 (October 2008)
TX	Atmos Energy-Mid Texas Division	Gas	Rate Review Mechanism	2008 - conclusion of rate case to be filed on or before June 1, 2013	Various Resolutions/Ordinances across cities in service territory, including City of Fort Worth Ordinance 17989-02-2008
TX	Atmos Energy West Texas Division	Gas	Rate Review Mechanism	2009 - conclusion of rate case to be filed on or before June 1, 2013	Various Resolutions/Ordinances across cities in service territory
TX	Texas Gas Service - North Service Area	Gas	Cost of Service Adjustment Tariff	2009-open	Various Resolutions/Ordinances in service territory and Gas Utility Docket 9839 (April 2009)
<b>Historic</b>					
AL	Alabama Power	Bundled Power Service	Rate Stabilization & Equalization Factor (Rate RSE)	2002-2006	Dockets No. 18117 and 18416 (March 2002)
AL	Alabama Power	Bundled Power Service	Rate Stabilization & Equalization Factor (Rate RSE)	1998-2002	Dockets No. 18117 and 18416 (March 1998)
AL	Alabama Power	Bundled Power Service	Rate Stabilization & Equalization Factor (Rate RSE)	1990-1998	Dockets No. 18117 and 18416 (March 1990)
AL	Alabama Power	Bundled Power Service	Rate Stabilization & Equalization Factor (Rate RSE)	1985-1990	Dockets No. 18117 and 18416 (June 1985)
AL	Alabama Power	Bundled Power Service	Rate Stabilization & Equalization Factor (Rate RSE)	1982-1985	Dockets No. 18117 and 18416 (November 1982)
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	2002-2007	Dockets No. 18046 and 18328 (June 2002)

**Table 9 (continued)**  
**Retail Formula Rate Plan Precedents<sup>1</sup>**

Jurisdiction	Company Name	Services	Plan Name	Plan Term	Case Reference
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	1996-2001	Dockets No. 18046 and 18328 (October 1996)
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	1991-1995	Dockets No. 18046 and 18328 (December 1990)
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	1987-1990	Dockets No. 18046 and 18328 (September 1987)
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	1985-1987	Dockets No. 18046 and 18328 (May 1985)
AL	Alabama Gas	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	1983-1985	Dockets No. 18046 and 18328 (January 1983)
AL	Mobile Gas Service	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	2005-2009	Docket 28101 (June 2005)
AL	Mobile Gas Service	Gas	Rate Stabilization & Equalization Factor (Rate RSE)	2001-2005	Docket 28101 (June 2002)
LA	Atmos Energy - Louisiana Gas Service	Gas	Rate Stabilization Plan	2001-2003	Docket No. U-21484 (January 2001)
LA	Entergy New Orleans	Electric only	Formula Rate Plan	2004-2006	Docket No. UD-01-04 (May 2003)
MS	Atmos Energy Corp	Gas	Stable/Rate Rider	2006-2009	Docket No. 05-UN-0503 (October 2005)
MS	Atmos Energy Corp	Gas	Stable/Rate Rider	1992-2006	Docket 92-UA-0230 (September 1992)
MS	Centerpoint Energy Entex	Gas	Rate Regulation Adjustment Rider	1996-2007	Docket No. 96-UN-0202 (September 1996)
MS	Entergy Mississippi	Bundled Power Service	Formula Rate Plan 1 (FRP 1)	1995	Docket No. 93-UA-0301 (March 1994)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 4A (PEP-4A)	2009	Docket No. 06-UN-0511 (January 2009)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 4 (PEP-4)	2004-2009	Docket No. 03-UN-0898 (May 2004)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 3 (PEP-3)	2002-2004	Docket No. 01-UN-0826 (October 2002)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 2A (PEP-2A)	2001-2002	Docket No. 01-UN-0548 (December 2001)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 1A (PEP-1A)	1992-1993	Docket 92-UN-0059 (July 1992)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan - 1 (PEP-1)	1991-1992	Docket No. 90-UN-0287 (December 1990)
MS	Mississippi Power	Bundled Power Service	Performance Evaluation Plan	1986-1990	Docket No. U-4761 (August 1986)
OK	Centerpoint Energy Arkla	Gas	Performance Based Rate of Change Plan	2008-2010	Docket No. 200800062 (July 2008)
OK	Centerpoint Energy Arkla	Gas	Performance Based Rate of Change Plan	2004-2008	Docket No. 200400187 (November 2004)

<sup>1</sup> Table excludes some mechanisms that do not conform to our FRP definition. Some of these are called formula rate plans.

**Figure 10: Current Retail Formula Rate Precedents by State**



## VII. Conclusions

Regulation of North American energy utilities is evolving to remedy the chronic underearning and frequent rate cases that traditional regulation tends to produce under modern operating conditions. Innovations continue, while some older forms of Altreg are again finding favor. This brief survey has not considered all noteworthy approaches to Altreg. Here are some of the other approaches that merit recognition:

- Regulatory assets can provide delayed compensation with interest for the annual cost of newly used and useful plant that doesn't automatically produce revenue.
- Attrition adjustments to rates can provide some compensation for an ongoing tendency of cost growth to exceed billing determinant growth. See, for example, a recent decision of the Washington Utilities and Transportation Commission in a rate case for Avista<sup>9</sup>.
- Utilities can be permitted to file rate cases on a limited set of issues, such as additions to generation plant, that are salient causes of potential attrition.

The variety of Altreg approaches that have been established reflects the varied circumstances of individual utilities. Some are vertically integrated, while others are more specialized wire companies. Investment needs and trends in average use vary greatly. No single Altreg approach is right for every situation. The availability of multiple remedies for the underlying problems increases the chance that an approach has already been tried that fits the regulatory inclinations of a particular jurisdiction. Numerous precedents for an approach should raise confidence that it makes good sense under fairly common circumstances.

Taken together, the many innovations described in this survey can encourage utilities to make smart investments, reduce long run costs, and improve service quality without rate shock or unnecessarily frequent rate cases. Utilities can be encouraged to promote energy efficiency and peak load management aggressively. Regulators and stakeholders to regulation across the US should give priority attention to these options and consider which Altreg combinations work best in their situation.

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<sup>9</sup> Washington Utilities and Transportation Commission, Dockets UE-120436/UG-120437, Order 09, December 26, 2012.



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RELATED CRITERIA AND RESEARCH

## Criteria | Corporates | Utilities:

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*(Editor's Note: We originally published this criteria article on Nov. 19, 2013. We're republishing it following our criteria review completed on July 24, 2015. As a result of our review, we updated the author contact information. This criteria article supersedes "Key Credit Factors: Business And Financial Risks In The Investor-Owned Utilities Industry," published Nov. 26, 2008, "Assessing U.S. Utility Regulatory Environments," Nov. 7, 2007, and "Revised Methodology For Adjusting Amounts Reported By U.K. GAAP Water Companies For Infrastructure Renewals Accounting," Jan. 27, 2010.)*

1. Standard & Poor's Ratings Services is refining and adapting its methodology and assumptions for its Key Credit Factors: Criteria For Regulated Utilities. We are publishing these criteria in conjunction with our corporate criteria (see "Corporate Methodology," published Nov. 19, 2013). This article relates to our criteria article, "Principles Of Credit Ratings," Feb. 16, 2011.
2. This criteria article supersedes "Key Credit Factors: Business And Financial Risks In The Investor-Owned Utilities Industry," Nov. 26, 2008, "Criteria: Assessing U.S. Utility Regulatory Environments," Nov. 7, 2007, and "Revised Methodology For Adjusting Amounts Reported By U.K. GAAP Water Companies For Infrastructure Renewals Accounting," Jan. 27, 2010.

## SCOPE OF THE CRITERIA

3. These criteria apply to entities where regulated utilities represent a material part of their business, other than U.S. public power, water, sewer, gas, and electric cooperative utilities that are owned by federal, state, or local governmental bodies or by ratepayers. A regulated utility is defined as a corporation that offers an essential or near-essential infrastructure product, commodity, or service with little or no practical substitute (mainly electricity, water, and gas), a business model that is shielded from competition (naturally, by law, shadow regulation, or by government policies and oversight), and is subject to comprehensive regulation by a regulatory body or implicit oversight of its rates (sometimes referred to as tariffs), service quality, and terms of service. The regulators base the rates that they set on some form of cost recovery, including an economic return on assets, rather than relying on a market price. The regulated operations can range from individual parts of the utility value chain (water, gas, and electricity networks or "grids," electricity generation, retail operations, etc.) to the entire integrated chain, from procurement to sales to the end customer. In some jurisdictions, our view of government support can also affect the final rating outcome, as per our government-related entity criteria (see "General Criteria: Rating Government-Related Entities: Methodology and Assumptions," Dec. 9, 2010).

## SUMMARY OF THE CRITERIA

4. Standard & Poor's is updating its criteria for analyzing regulated utilities, applying its corporate criteria. The criteria for evaluating the competitive position of regulated utilities amend and partially supersede the "Competitive Position"

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section of the corporate criteria when evaluating these entities. The criteria for determining the cash flow leverage assessment partially supersede the "Cash Flow/Leverage" section of the corporate criteria for the purpose of evaluating regulated utilities. The section on liquidity for regulated utilities partially amends existing criteria. All other sections of the corporate criteria apply to the analysis of regulated utilities.

## IMPACT ON OUTSTANDING RATINGS

5. These criteria could affect the issuer credit ratings of about 5% of regulated utilities globally due primarily to the introduction of new financial benchmarks in the corporate criteria. Almost all ratings changes are expected to be no more than one notch, and most are expected to be in an upward direction.

## EFFECTIVE DATE AND TRANSITION

6. These criteria are effective immediately on the date of publication.

## METHODOLOGY

### Part I--Business Risk Analysis

#### Industry risk

7. Within the framework of Standard & Poor's general criteria for assessing industry risk, we view regulated utilities as a "very low risk" industry (category '1'). We derive this assessment from our view of the segment's low risk ('2') cyclical and very low risk ('1') competitive risk and growth assessment.
8. In our view, demand for regulated utility services typically exhibits low cyclical, being a function of such key drivers as employment growth, household formation, and general economic trends. Pricing is non-cyclical, since it is usually based in some form on the cost of providing service.

#### Cyclical

9. We assess cyclical for regulated utilities as low risk ('2'). Utilities typically offer products and services that are essential and not easily replaceable. Based on our analysis of global Compustat data, utilities had an average peak-to-trough (PTT) decline in revenues of about 6% during recessionary periods since 1952. Over the same period, utilities had an average PTT decline in EBITDA margin of about 5% during recessionary periods, with PTT EBITDA margin declines less severe in more recent periods. The PTT drop in profitability that occurred in the most recent recession (2007-2009) was less than the long-term average.
10. With an average drop in revenues of 6% and an average profitability decline of 5%, utilities' cyclical assessment calibrates to low risk ('2'). We generally consider that the higher the level of profitability cyclical in an industry, the higher the credit risk of entities operating in that industry. However, the overall effect of cyclical on an industry's risk profile may be mitigated or exacerbated by an industry's competitive and growth environment.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***Competitive risk and growth**

11. We view regulated utilities as warranting a very low risk ('1') competitive risk and growth assessment. For competitive risk and growth, we assess four sub-factors as low, medium, or high risk. These sub-factors are:

- Effectiveness of industry barriers to entry;
- Level and trend of industry profit margins;
- Risk of secular change and substitution by products, services, and technologies; and
- Risk in growth trends.

**Effectiveness of barriers to entry--low risk**

12. Barriers to entry are high. Utilities are normally shielded from direct competition. Utility services are commonly naturally monopolistic (they are not efficiently delivered through competitive channels and often require access to public thoroughfares for distribution), and so regulated utilities are granted an exclusive franchise, license, or concession to serve a specified territory in exchange for accepting an obligation to serve all customers in that area and the regulation of its rates and operations.

**Level and trend of industry profit margins--low risk**

13. Demand is sometimes and in some places subject to a moderate degree of seasonality, and weather conditions can significantly affect sales levels at times over the short term. However, those factors even out over time, and there is little pressure on margins if a utility can pass higher costs along to customers via higher rates.

**Risk of secular change and substitution of products, services, and technologies--low risk**

14. Utility products and services are not overly subject to substitution. Where substitution is possible, as in the case of natural gas, consumer behavior is usually stable and there is not a lot of switching to other fuels. Where switching does occur, cost allocation and rate design practices in the regulatory process can often mitigate this risk so that utility profitability is relatively indifferent to the substitutions.

**Risk in industry growth trends--low risk**

15. As noted above, regulated utilities are not highly cyclical. However, the industry is often well established and, in our view, long-range demographic trends support steady demand for essential utility services over the long term. As a result, we would expect revenue growth to generally match GDP when economic growth is positive.

**B. Country risk**

16. In assessing "country risk" for a regulated utility, our analysis uses the same methodology as with other corporate issuers (see "Corporate Methodology").

**C. Competitive position**

17. In the corporate criteria, competitive position is assessed as ('1') excellent, ('2') strong, ('3') satisfactory, ('4') fair, ('5') weak, or ('6') vulnerable.

18. The analysis of competitive position includes a review of:

- Competitive advantage,
- Scale, scope, and diversity,
- Operating efficiency, and
- Profitability.

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19. In the corporate criteria we assess the strength of each of the first three components. Each component is assessed as either: (1) strong, (2) strong/adequate, (3) adequate, (4) adequate/weak, or (5) weak. After assessing these components, we determine the preliminary competitive position assessment by ascribing a specific weight to each component. The applicable weightings will depend on the company's Competitive Position Group Profile. The group profile for regulated utilities is "National Industries & Utilities," with a weighting of the three components as follows: competitive advantage (60%), scale, scope, and diversity (20%), and operating efficiency (20%). Profitability is assessed by combining two sub-components: level of profitability and the volatility of profitability.
20. "Competitive advantage" cannot be measured with the same sub-factors as competitive firms because utilities are not primarily subject to influence of market forces. Therefore, these criteria supersede the "competitive advantage" section of the corporate criteria. We analyze instead a utility's "regulatory advantage" (section 1 below).

**Assessing regulatory advantage**

21. The regulatory framework/ regime's influence is of critical importance when assessing regulated utilities' credit risk because it defines the environment in which a utility operates and has a significant bearing on a utility's financial performance.
22. We base our assessment of the regulatory framework's relative credit supportiveness on our view of how regulatory stability, efficiency of tariff setting procedures, financial stability, and regulatory independence protect a utility's credit quality and its ability to recover its costs and earn a timely return. Our view of these four pillars is the foundation of a utility's regulatory support. We then assess the utility's business strategy, in particular its regulatory strategy and its ability to manage the tariff-setting process, to arrive at a final regulatory advantage assessment.
23. When assessing regulatory advantage, we first consider four pillars and sub-factors that we believe are key for a utility to recover all its costs, on time and in full, and earn a return on its capital employed:
24. Regulatory stability:
- Transparency of the key components of the rate setting and how these are assessed
  - Predictability that lowers uncertainty for the utility and its stakeholders
  - Consistency in the regulatory framework over time
25. Tariff-setting procedures and design:
- Recoverability of all operating and capital costs in full
  - Balance of the interests and concerns of all stakeholders affected
  - Incentives that are achievable and contained
26. Financial stability:
- Timeliness of cost recovery to avoid cash flow volatility
  - Flexibility to allow for recovery of unexpected costs if they arise
  - Attractiveness of the framework to attract long-term capital
  - Capital support during construction to alleviate funding and cash flow pressure during periods of heavy investments
27. Regulatory independence and insulation:

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- Market framework and energy policies that support long-term financeability of the utilities and that is clearly enshrined in law and separates the regulator's powers
- Risks of political intervention is absent so that the regulator can efficiently protect the utility's credit profile even during a stressful event

28. We have summarized the key characteristics of the assessments for regulatory advantage in table 1.

**Table 1**

Preliminary Regulatory Advantage Assessment		
Qualifier	What it means	Guidance
Strong	The utility has a major regulatory advantage due to one or a combination of factors that support cost recovery and a return on capital combined with lower than average volatility of earnings and cash flows.	The utility operates in a regulatory climate that is transparent, predictable, and consistent from a credit perspective.
	There are strong prospects that the utility can sustain this advantage over the long term.	The utility can fully and timely recover all its fixed and variable operating costs, investments and capital costs (depreciation and a reasonable return on the asset base).
	This should enable the utility to withstand economic downturns and political risks better than other utilities.	The tariff set may include a pass-through mechanism for major expenses such as commodity costs, or a higher return on new assets, effectively shielding the utility from volume and input cost risks.
		Any incentives in the regulatory scheme are contained and symmetrical.
		The tariff set includes mechanisms allowing for a tariff adjustment for the timely recovery of volatile or unexpected operating and capital costs.
		There is a track record of earning a stable, compensatory rate of return in cash through various economic and political cycles and a projected ability to maintain that record.
		There is support of cash flows during construction of large projects, and pre-approval of capital investment programs and large projects lowers the risk of subsequent disallowances of capital costs.
Adequate	The utility has some regulatory advantages and protection, but not to the extent that it leads to a superior business model or durable benefit.	It operates in a regulatory environment that is less transparent, less predictable, and less consistent from a credit perspective.
	The utility has some but not all drivers of well-managed regulatory risk. Certain regulatory factors support the business's long-term stability and viability but could result in periods of below-average levels of profitability and greater profit volatility. However, overall these regulatory drivers are partially offset by the utility's disadvantages or lack of sustainability of other factors.	The utility is exposed to delays or is not, with sufficient certainty, able to recover all of its fixed and variable operating costs, investments, and capital costs (depreciation and a reasonable return on the asset base) within a reasonable time.
		Incentive ratemaking practices are asymmetrical and material, and could detract from credit quality.
		The utility is exposed to the risk that it doesn't recover unexpected or volatile costs in a full or less than timely manner due to lack of flexible reopeners or annual revenue adjustments.
		There is an uneven track record of earning a compensatory rate of return in cash through various economic and political cycles and a projected ability to maintain that record.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***Table 1****Preliminary Regulatory Advantage Assessment (cont.)**

		There is little or no support of cash flows during construction, and investment decisions on large projects (and therefore the risk of subsequent disallowances of capital costs) rest mostly with the utility.
		The utility operates under a regulatory system that is not sufficiently insulated from political intervention and is sometimes subject to overt political influence.
Weak	The utility suffers from a complete breakdown of regulatory protection that places the utility at a significant disadvantage.	The utility operates in an opaque regulatory climate that lacks transparency, predictability, and consistency.
	The utility's regulatory risk is such that the long-term cost recovery and investment return is highly uncertain and materially delayed, leading to volatile or weak cash flows. There is the potential for material stranded assets with no prospect of recovery.	The utility cannot fully and/or timely recover its fixed and variable operating costs, investments, and capital costs (depreciation and a reasonable return on the asset base).
		There is a track record of earning minimal or negative rates of return in cash through various economic and political cycles and a projected inability to improve that record sustainably.
		The utility must make significant capital commitments with no solid legal basis for the full recovery of capital costs.
		Ratemaking practices actively harm credit quality.
		The utility is regularly subject to overt political influence.

29. After determining the preliminary regulatory advantage assessment, we then assess the utility's business strategy. Most importantly, this factor addresses the effectiveness of a utility's management of the regulatory risk in the jurisdiction(s) where it operates. In certain jurisdictions, a utility's regulatory strategy and its ability to manage the tariff-setting process effectively so that revenues change with costs can be a compelling regulatory risk factor. A utility's approach and strategies surrounding regulatory matters can create a durable "competitive advantage" that differentiates it from peers, especially if the risk of political intervention is high. The assessment of a utility's business strategy is informed by historical performance and its forward-looking business objectives. We evaluate these objectives in the context of industry dynamics and the regulatory climate in which the utility operates, as evaluated through the factors cited in paragraphs 24-27.
30. We modify the preliminary regulatory advantage assessment to reflect this influence positively or negatively. Where business strategy has limited effect relative to peers, we view the implications as neutral and make no adjustment. A positive assessment improves the preliminary regulatory advantage assessment by one category and indicates that management's business strategy is expected to bolster its regulatory advantage through favorable commission rulings beyond what is typical for a utility in that jurisdiction. Conversely, where management's strategy or businesses decisions result in adverse regulatory outcomes relative to peers, such as failure to achieve typical cost recovery or allowed returns, we adjust the preliminary regulatory advantage assessment one category worse. In extreme cases of poor strategic execution, the preliminary regulatory advantage assessment is adjusted by two categories worse (when possible; see table 2) to reflect management decisions that are likely to result in a significantly adverse regulatory outcome relative to peers.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***Table 2**

Preliminary regulatory advantage score	--Strategy modifier--			
	Positive	Neutral	Negative	Very negative
Strong	Strong	Strong	Strong/Adequate	Adequate
Strong/Adequate	Strong	Strong/Adequate	Adequate	Adequate/Weak
Adequate	Strong/Adequate	Adequate	Adequate/Weak	Weak
Adequate/Weak	Adequate	Adequate/Weak	Weak	Weak
Weak	Adequate/Weak	Weak	Weak	Weak

**Scale, scope, and diversity**

31. We consider the key factors for this component of competitive position to be primarily operational scale and diversity of the geographic, economic, and regulatory foot prints. We focus on a utility's markets, service territories, and diversity and the extent that these attributes can contribute to cash flow stability while dampening the effect of economic and market threats.
32. A utility that warrants a Strong or Strong/Adequate assessment has scale, scope, and diversity that support the stability of its revenues and profits by limiting its vulnerability to most combinations of adverse factors, events, or trends. The utility's significant advantages enable it to withstand economic, regional, competitive, and technological threats better than its peers. It typically is characterized by a combination of the following factors:
- A large and diverse customer base with no meaningful customer concentration risk, where residential and small to medium commercial customers typically provide most operating income.
  - The utility's range of service territories and regulatory jurisdictions is better than others in the sector.
  - Exposure to multiple regulatory authorities where we assess preliminary regulatory advantage to be at least Adequate. In the case of exposure to a single regulatory regime, the regulatory advantage assessment is either Strong or Strong/Adequate.
  - No meaningful exposure to a single or few assets or suppliers that could hurt operations or could not easily be replaced.
33. A utility that warrants a Weak or Weak/Adequate assessment lacks scale, scope, and diversity such that it compromises the stability and sustainability of its revenues and profits. The utility's vulnerability to, or reliance on, various elements of this sub-factor is such that it is less likely than its peers to withstand economic, competitive, or technological threats. It typically is characterized by a combination of the following factors:
- A small customer base, especially if burdened by customer and/or industry concentration combined with little economic diversity and average to below-average economic prospects;
  - Exposure to a single service territory and a regulatory authority with a preliminary regulatory advantage assessment of Adequate or Adequate/Weak; or
  - Dependence on a single supplier or asset that cannot easily be replaced and which hurts the utility's operations.
34. We generally believe a larger service territory with a diverse customer base and average to above-average economic growth prospects provides a utility with cushion and flexibility in the recovery of operating costs and ongoing investment (including replacement and growth capital spending), as well as lessening the effect of external shocks (i.e.,

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extreme local weather) since the incremental effect on each customer declines as the scale increases.

35. We consider residential and small commercial customers as having more stable usage patterns and being less exposed to periodic economic weakness, even after accounting for some weather-driven usage variability. Significant industrial exposure along with a local economy that largely depends on one or few cyclical industries potentially contributes to the cyclical nature of a utility's load and financial performance, magnifying the effect of an economic downturn.
36. A utility's cash flow generation and stability can benefit from operating in multiple geographic regions that exhibit average to better than average levels of wealth, employment, and growth that underpin the local economy and support long-term growth. Where operations are in a single geographic region, the risk can be ameliorated if the region is sufficiently large, demonstrates economic diversity, and has at least average demographic characteristics.
37. The detriment of operating in a single large geographic area is subject to the strength of regulatory assessment. Where a utility operates in a single large geographic area and has a strong regulatory assessment, the benefit of diversity can be incremental.

**Operating efficiency**

38. We consider the key factors for this component of competitive position to be:
  - Compliance with the terms of its operating license, including safety, reliability, and environmental standards;
  - Cost management; and
  - Capital spending: scale, scope, and management.
39. Relative to peers, we analyze how successful a utility management achieves the above factors within the levels allowed by the regulator in a manner that promotes cash flow stability. We consider how management of these factors reduces the prospect of penalties for noncompliance, operating costs being greater than allowed, and capital projects running over budget and time, which could hurt full cost recovery.
40. The relative importance of the above three factors, particularly cost and capital spending management, is determined by the type of regulation under which the utility operates. Utilities operating under robust "cost plus" regimes tend to be more insulated given the high degree of confidence costs will invariably be passed through to customers. Utilities operating under incentive-based regimes are likely to be more sensitive to achieving regulatory standards. This is particularly so in the regulatory regimes that involve active consultation between regulator and utility and market testing as opposed to just handing down an outcome on a more arbitrary basis.
41. In some jurisdictions, the absolute performance standards are less relevant than how the utility performs against the regulator's performance benchmarks. It is this performance that will drive any penalties or incentive payments and can be a determinant of the utilities' credibility on operating and asset-management plans with its regulator.
42. Therefore, we consider that utilities that perform these functions well are more likely to consistently achieve determinations that maximize the likelihood of cost recovery and full inclusion of capital spending in their asset bases. Where regulatory resets are more at the discretion of the utility, effective cost management, including of labor, may allow for more control over the timing and magnitude of rate filings to maximize the chances of a constructive outcome such as full operational and capital cost recovery while protecting against reputational risks.

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43. A regulated utility that warrants a Strong or Strong/Adequate assessment for operating efficiency relative to peers generates revenues and profits through minimizing costs, increasing efficiencies, and asset utilization. It typically is characterized by a combination of the following:
- High safety record;
  - Service reliability is strong, with a track record of meeting operating performance requirements of stakeholders, including those of regulators. Moreover, the utility's asset profile (including age and technology) is such that we have confidence that it could sustain favorable performance against targets;
  - Where applicable, the utility is well-placed to meet current and potential future environmental standards;
  - Management maintains very good cost control. Utilities with the highest assessment for operating efficiency have shown an ability to manage both their fixed and variable costs in line with regulatory expectations (including labor and working capital management being in line with regulator's allowed collection cycles); or
  - There is a history of a high level of project management execution in capital spending programs, including large one-time projects, almost invariably within regulatory allowances for timing and budget.
44. A regulated utility that warrants an Adequate assessment for operating efficiency relative to peers has a combination of cost position and efficiency factors that support profit sustainability combined with average volatility. Its cost structure is similar to its peers. It typically is characterized by a combination of the following factors:
- High safety performance;
  - Service reliability is satisfactory with a track record of mostly meeting operating performance requirements of stakeholders, including those of regulators. We have confidence that a favorable performance against targets can be mostly sustained;
  - Where applicable, the utility may be challenged to comply with current and future environmental standards that could increase in the medium term;
  - Management maintains adequate cost control. Utilities that we assess as having adequate operating efficiency mostly manage their fixed and variable costs in line with regulatory expectations (including labor and working capital management being mostly in line with regulator's allowed collection cycles); or
  - There is a history of adequate project management skills in capital spending programs within regulatory allowances for timing and budget.
45. A regulated utility that warrants a weak or weak/adequate assessment for operating efficiency relative to peers has a combination of cost position and efficiency factors that fail to support profit sustainability combined with below-average volatility. Its cost structure is worse than its peers. It typically is characterized by a combination of the following:
- Poor safety performance;
  - Service reliability has been sporadic or non-existent with a track record of not meeting operating performance requirements of stakeholders, including those of regulators. We do not believe the utility can consistently meet performance targets without additional capital spending;
  - Where applicable, the utility is challenged to comply with current environmental standards and is highly vulnerable to more onerous standards;
  - Management typically exceeds operating costs authorized by regulators;
  - Inconsistent project management skills as evidenced by cost overruns and delays including for maintenance capital spending; or
  - The capital spending program is large and complex and falls into the weak or weak/adequate assessment, even if

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operating efficiency is generally otherwise considered adequate.

**Profitability**

46. A utility with above-average profitability would, relative to its peers, generally earn a rate of return at or above what regulators authorize and have minimal exposure to earnings volatility from affiliated unregulated business activities or market-sensitive regulated operations. Conversely, a utility with below-average profitability would generally earn rates of return well below the authorized return relative to its peers or have significant exposure to earnings volatility from affiliated unregulated business activities or market-sensitive regulated operations.
47. The profitability assessment consists of "level of profitability" and "volatility of profitability."

**Level of profitability**

48. Key measures of general profitability for regulated utilities commonly include ratios, which we compare both with those of peers and those of companies in other industries to reflect different countries' regulatory frameworks and business environments:
- EBITDA margin,
  - Return on capital (ROC), and
  - Return on equity (ROE).
49. In many cases, EBITDA as a percentage of sales (i.e., EBITDA margin) is a key indicator of profitability. This is because the book value of capital does not always reflect true earning potential, for example when governments privatize or restructure incumbent state-owned utilities. Regulatory capital values can vary with those of reported capital because regulatory capital values are not inflation-indexed and could be subject to different assumptions concerning depreciation. In general, a country's inflation rate or required rate of return on equity investment is closely linked to a utility company's profitability. We do not adjust our analysis for these factors, because we can make our assessment through a peer comparison.
50. For regulated utilities subject to full cost-of-service regulation and return-on-investment requirements, we normally measure profitability using ROE, the ratio of net income available for common stockholders to average common equity. When setting rates, the regulator ultimately bases its decision on an authorized ROE. However, different factors such as variances in costs and usage may influence the return a utility is actually able to earn, and consequently our analysis of profitability for cost-of-service-based utilities centers on the utility's ability to consistently earn the authorized ROE.
51. We will use return on capital when pass-through costs distort profit margins—for instance congestion revenues or collection of third-party revenues. This is also the case when the utility uses accelerated depreciation of assets, which in our view might not be sustainable in the long run.

**Volatility of profitability**

52. We may observe a clear difference between the volatility of actual profitability and the volatility of underlying regulatory profitability. In these cases, we could use the regulatory accounts as a proxy to judge the stability of earnings.
53. We use actual returns to calculate the standard error of regression for regulated utility issuers (only if there are at least

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seven years of historical annual data to ensure meaningful results). If we believe recurring mergers and acquisitions or currency fluctuations affect the results, we may make adjustments.

## Part II--Financial Risk Analysis

### D. Accounting

54. Our analysis of a company's financial statements begins with a review of the accounting to determine whether the statements accurately measure a company's performance and position relative to its peers and the larger universe of corporate entities. To allow for globally consistent and comparable financial analyses, our rating analysis may include quantitative adjustments to a company's reported results. These adjustments also align a company's reported figures with our view of underlying economic conditions and give us a more accurate portrayal of a company's ongoing business. We discuss adjustments that pertain broadly to all corporate sectors, including this sector, in "Corporate Methodology: Ratios And Adjustments." Accounting characteristics and analytical adjustments unique to this sector are discussed below.

#### Accounting characteristics

55. Some important accounting practices for utilities include:
- For integrated electric utilities that meet native load obligations in part with third-party power contracts, we use our purchased power methodology to adjust measures for the debt-like obligation such contracts represent (see below).
  - Due to distortions in leverage measures from the substantial seasonal working-capital requirements of natural gas distribution utilities, we adjust inventory and debt balances by netting the value of inventory against outstanding short-term borrowings. This adjustment provides an accurate view of the company's balance sheet by reducing seasonal debt balances when we see a very high certainty of near-term cost recovery (see below).
  - We deconsolidate securitized debt (and associated revenues and expenses) that has been accorded specialized recovery provisions (see below).
  - For water utilities that report under U.K. GAAP, we adjust ratios for infrastructure renewals accounting, which permits water companies to capitalize the maintenance spending on their infrastructure assets (see below). The adjustments aim to make those water companies that report under U.K. GAAP more comparable to those that report under accounting regimes that do not permit infrastructure renewals accounting.
56. In the U.S. and selectively in other regions, utilities employ "regulatory accounting," which permits a rate-regulated company to defer some revenues and expenses to match the timing of the recognition of those items in rates as determined by regulators. A utility subject to regulatory accounting will therefore have assets and liabilities on its books that an unregulated corporation, or even regulated utilities in many other global regions, cannot record. We do not adjust GAAP earnings or balance-sheet figures to remove the effects of regulatory accounting. However, as more countries adopt International Financial Reporting Standards (IFRS), the use of regulatory accounting will become more scarce. IFRS does not currently provide for any recognition of the effects of rate regulation for financial reporting purposes, but it is considering the use of regulatory accounting. We do not anticipate altering our fundamental financial analysis of utilities because of the use or non-use of regulatory accounting. We will continue to analyze the effects of regulatory actions on a utility's financial health.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***Purchased power adjustment**

57. We view long-term purchased power agreements (PPA) as creating fixed, debt-like financial obligations that represent substitutes for debt-financed capital investments in generation capacity. By adjusting financial measures to incorporate PPA fixed obligations, we achieve greater comparability of utilities that finance and build generation capacity and those that purchase capacity to satisfy new load. PPAs do benefit utilities by shifting various risks to the electricity generators, such as construction risk and most of the operating risk. The principal risk borne by a utility that relies on PPAs is recovering the costs of the financial obligation in rates.
58. We calculate the present value (PV) of the future stream of capacity payments under the contracts as reported in the financial statement footnotes or as supplied directly by the company. The discount rate used is the same as the one used in the operating lease adjustment, i.e., 7%. For U.S. companies, notes to the financial statements enumerate capacity payments for the coming five years, and a thereafter period. Company forecasts show the detail underlying the thereafter amount, or we divide the amount reported as thereafter by the average of the capacity payments in the preceding five years to get an approximation of annual payments after year five.
59. We also consider new contracts that will start during the forecast period. The company provides us the information regarding these contracts. If these contracts represent extensions of existing PPAs, they are immediately included in the PV calculation. However, a contract sometimes is executed in anticipation of incremental future needs, so the energy will not flow until some later period and there are no interim payments. In these instances, we incorporate that contract in our projections, starting in the year that energy deliveries begin under the contract. The projected PPA debt is included in projected ratios as a current rating factor, even though it is not included in the current-year ratio calculations.
60. The PV is adjusted to reflect regulatory or legislative cost-recovery mechanisms when present. Where there is no explicit regulatory or legislative recovery of PPA costs, as in most European countries, the PV may be adjusted for other mitigating factors that reduce the risk of the PPAs to the utility, such as a limited economic importance of the PPAs to the utility's overall portfolio. The adjustment reduces the debt-equivalent amount by multiplying the PV by a specific risk factor.
61. Risk factors based on regulatory or legislative cost recovery typically range between 0% and 50%, but can be as high as 100%. A 100% risk factor would signify that substantially all risk related to contractual obligations rests on the company, with no regulatory or legislative support. A 0% risk factor indicates that the burden of the contractual payments rests solely with ratepayers, as when the utility merely acts as a conduit for the delivery of a third party's electricity. These utilities are barred from developing new generation assets, and the power supplied to their customers is sourced through a state auction or third parties that act as intermediaries between retail customers and electricity suppliers. We employ a 50% risk factor in cases where regulators use base rates for the recovery of the fixed PPA costs. If a regulator has established a separate adjustment mechanism for recovery of all prudent PPA costs, a risk factor of 25% is employed. In certain jurisdictions, true-up mechanisms are more favorable and frequent than the review of base rates, but still do not amount to pure fuel adjustment clauses. Such mechanisms may be triggered by financial thresholds or passage of prescribed periods of time. In these instances, a risk factor between 25% and 50% is employed. Specialized, legislatively created cost-recovery mechanisms may lead to risk factors between 0% and 15%, depending on the legislative provisions for cost recovery and the supply function borne by the utility. Legislative

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guarantees of complete and timely recovery of costs are particularly important to achieving the lowest risk factors. We also exclude short-term PPAs where they serve merely as gap fillers, pending either the construction of new capacity or the execution of long-term PPAs.

62. Where there is no explicit regulatory or legislative recovery of PPA costs, the risk factor is generally 100%. We may use a lower risk factor if mitigating factors reduce the risk of the PPAs on the utility. Mitigating factors include a long position in owned generation capacity relative to the utility's customer supply needs that limits the importance of the PPAs to the utility or the ability to resell power in a highly liquid market at minimal loss. A utility with surplus owned generation capacity would be assigned a risk factor of less than 100%, generally 50% or lower, because we would assess its reliance on PPAs as limited. For fixed capacity payments under PPAs related to renewable power, we use a risk factor of less than 100% if the utility benefits from government subsidies. The risk factor reflects the degree of regulatory recovery through the government subsidy.
63. Given the long-term mandate of electric utilities to meet their customers' demand for electricity, and also to enable comparison of companies with different contract lengths, we may use an evergreening methodology. Evergreen treatment extends the duration of short- and intermediate-term contracts to a common length of about 12 years. To quantify the cost of the extended capacity, we use empirical data regarding the cost of developing new peaking capacity, incorporating regional differences. The cost of new capacity is translated into a dollars-per-kilowatt-year figure using a proxy weighted-average cost of capital and a proxy capital recovery period.
64. Some PPAs are treated as operating leases for accounting purposes--based on the tenor of the PPA or the residual value of the asset on the PPA's expiration. We accord PPA treatment to those obligations, in lieu of lease treatment; rather, the PV of the stream of capacity payments associated with these PPAs is reduced to reflect the applicable risk factor.
65. Long-term transmission contracts can also substitute for new generation, and, accordingly, may fall under our PPA methodology. We sometimes view these types of transmission arrangements as extensions of the power plants to which they are connected or the markets that they serve. Accordingly, we impute debt for the fixed costs associated with such transmission contracts.
66. Adjustment procedures:
  - Data requirements:
    - Future capacity payments obtained from the financial statement footnotes or from management.
    - Discount rate: 7%.
    - Analytically determined risk factor.
  - Calculations:
    - Balance sheet debt is increased by the PV of the stream of capacity payments multiplied by the risk factor.
    - Equity is not adjusted because the recharacterization of the PPA implies the creation of an asset, which offsets the debt.
    - Property, plant, and equipment and total assets are increased for the implied creation of an asset equivalent to the debt.
    - An implied interest expense for the imputed debt is determined by multiplying the discount rate by the amount of

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imputed debt (or average PPA imputed debt, if there is fluctuation of the level), and is added to interest expense.

- We impute a depreciation component to PPAs. The depreciation component is determined by multiplying the relevant year's capacity payment by the risk factor and then subtracting the implied PPA-related interest for that year. Accordingly, the impact of PPAs on cash flow measures is tempered.
- The cost amount attributed to depreciation is reclassified as capital spending, thereby increasing operating cash flow and funds from operations (FFO).
- Some PPA contracts refer only to a single, all-in energy price. We identify an implied capacity price within such an all-in energy price, to determine an implied capacity payment associated with the PPA. This implied capacity payment is expressed in dollars per kilowatt-year, multiplied by the number of kilowatts under contract. (In cases that exhibit markedly different capacity factors, such as wind power, the relation of capacity payment to the all-in charge is adjusted accordingly.)
- Operating income before depreciation and amortization (D&A) and EBITDA are increased for the imputed interest expense and imputed depreciation component, the total of which equals the entire amount paid for PPA (subject to the risk factor).
- Operating income after D&A and EBIT are increased for interest expense.

**Natural gas inventory adjustment**

67. In jurisdictions where a pass-through mechanism is used to recover purchased natural gas costs of gas distribution utilities within one year, we adjust for seasonal changes in short-term debt tied to building inventories of natural gas in non-peak periods for later use to meet peak loads in peak months. Such short-term debt is not considered to be part of the utility's permanent capital. Any history of non-trivial disallowances of purchased gas costs would preclude the use of this adjustment. The accounting of natural gas inventories and associated short-term debt used to finance the purchases must be segregated from other trading activities.

68. Adjustment procedures:

- Data requirements:
- Short-term debt amount associated with seasonal purchases of natural gas devoted to meeting peak-load needs of captive utility customers (obtained from the company).
- Calculations:
- Adjustment to debt—we subtract the identified short-term debt from total debt.

**Securitized debt adjustment**

69. For regulated utilities, we deconsolidate debt (and associated revenues and expenses) that the utility issues as part of a securitization of costs that have been segregated for specialized recovery by the government entity constitutionally authorized to mandate such recovery if the securitization structure contains a number of protective features:

- An irrevocable, non-bypassable charge and an absolute transfer and first-priority security interest in transition property;
- Periodic adjustments ("true-up") of the charge to remediate over- or under-collections compared with the debt service obligation. The true-up ensures collections match debt service over time and do not diverge significantly in the short run; and,
- Reserve accounts to cover any temporary short-term shortfall in collections.

70. Full cost recovery is in most instances mandated by statute. Examples of securitized costs include "stranded costs"

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(above-market utility costs that are deemed unrecoverable when a transition from regulation to competition occurs) and unusually large restoration costs following a major weather event such as a hurricane. If the defined features are present, the securitization effectively makes all consumers responsible for principal and interest payments, and the utility is simply a pass-through entity for servicing the debt. We therefore remove the debt and related revenues and expenses from our measures. (See "Securitizing Stranded Costs," Jan. 18, 2001, for background information.)

## 71. Adjustment procedures:

- Data requirements:
  - Amount of securitized debt on the utility's balance sheet at period end;
  - Interest expense related to securitized debt for the period; and
  - Principal payments on securitized debt during the period.
- Calculations:
  - Adjustment to debt: We subtract the securitized debt from total debt.
  - Adjustment to revenues: We reduce revenue allocated to securitized debt principal and interest. The adjustment is the sum of interest and principal payments made during the year.
  - Adjustment to operating income after depreciation and amortization (D&A) and EBIT: We reduce D&A related to the securitized debt, which is assumed to equal the principal payments during the period. As a result, the reduction to operating income after D&A is only for the interest portion.
  - Adjustment to interest expense: We remove the interest expense of the securitized debt from total interest expense.
- Operating cash flows:
  - We reduce operating cash flows for revenues and increase for the assumed interest amount related to the securitized debt. This results in a net decrease to operating cash flows equal to the principal repayment amount.

**Infrastructure renewals expenditure**

72. In England and Wales, water utilities can report under either IFRS or U.K. GAAP. Those that report under U.K. GAAP are allowed to adopt infrastructure renewals accounting, which enables the companies to capitalize the maintenance spending on their underground assets, called infrastructure renewals expenditure (IRE). Under IFRS, infrastructure renewals accounting is not permitted and maintenance expenditure is charged to earnings in the year incurred. This difference typically results in lower adjusted operating cash flows for those companies that report maintenance expenditure as an operating cash flow under IFRS, than for those that report it as capital expenditure under U.K. GAAP. We therefore make financial adjustments to amounts reported by water issuers that apply U.K. GAAP, with the aim of making ratios more comparable with those issuers that report under IFRS and U.S. GAAP. For example, we deduct IRE from EBITDA and FFO.
73. IRE does not always consist entirely of maintenance expenditure that would be expensed under IFRS. A portion of IRE can relate to costs that would be eligible for capitalization as they meet the recognition criteria for a new fixed asset set out in International Accounting Standard 16 that addresses property, plant, and equipment. In such cases, we may refine our adjustment to U.K. GAAP companies so that we only deduct from FFO the portion of IRE that would not be capitalized under IFRS. However, the information to make such a refinement would need to be of high quality, reliable, and ideally independently verified by a third party, such as the company's auditor. In the absence of this, we assume that the entire amount of IRE would have been expensed under IFRS and we accordingly deduct the full expenditure

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from FFO.

74. Adjustment procedures:

- Data requirements:
- U.K. GAAP accounts typically provide little information on the portion of capital spending that relates to renewals accounting, or the related depreciation, which is referred to as the infrastructure renewals charge. The information we use for our adjustments is, however, found in the regulatory cost accounts submitted annually by the water companies to the Water Services Regulation Authority, which regulates all water companies in England and Wales.
- Calculations:
- EBITDA: Reduced by the value of IRE that was capitalized in the period.
- EBIT: Adjusted for the difference between the adjustment to EBITDA and the reduction in the depreciation expense, depending on the degree to which the actual cash spending in the current year matches the planned spending over the five-year regulatory review period.
- Cash flow from operations and FFO: Reduced by the value of IRE that was capitalized in the period.
- Capital spending: Reduced by the value of infrastructure renewals spending that we reclassify to cash flow from operations.
- Free operating cash flow: No impact, as the reduction in operating cash flows is exactly offset by the reduction in capital spending.

**E. Cash flow/leverage analysis**

75. In assessing the cash flow adequacy of a regulated utility, our analysis uses the same methodology as with other corporate issuers (see "Corporate Methodology"). We assess cash flow/leverage on a six-point scale ranging from ('1') minimal to ('6') highly leveraged. These scores are determined by aggregating the assessments of a range of credit ratios, predominantly cash flow-based, which complement each other by focusing attention on the different levels of a company's cash flow waterfall in relation to its obligations.
76. The corporate methodology provides benchmark ranges for various cash flow ratios we associate with different cash flow leverage assessments for standard volatility, medial volatility, and low volatility industries. The tables of benchmark ratios differ for a given ratio and cash flow leverage assessment along two dimensions: the starting point for the ratio range and the width of the ratio range.
77. If an industry's volatility levels are low, the threshold levels for the applicable ratios to achieve a given cash flow leverage assessment are less stringent, although the width of the ratio range is narrower. Conversely, if an industry has standard levels of volatility, the threshold levels for the applicable ratios to achieve a given cash flow leverage assessment may be elevated, but with a wider range of values.
78. We apply the "low-volatility" table to regulated utilities that qualify under the corporate criteria and with all of the following characteristics:
- A vast majority of operating cash flows come from regulated operations that are predominantly at the low end of the utility risk spectrum (e.g., a "network," or distribution/transmission business unexposed to commodity risk and with very low operating risk);
  - A "strong" regulatory advantage assessment;
  - An established track record of normally stable credit measures that is expected to continue;

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- A demonstrated long-term track record of low funding costs (credit spread) for long-term debt that is expected to continue; and
  - Non-utility activities that are in a separate part of the group (as defined in our group rating methodology) that we consider to have "nonstrategic" group status and are not deemed high risk and/or volatile.
79. We apply the "medial volatility" table to companies that do not qualify under paragraph 78 with:
- A majority of operating cash flows from regulated activities with an "adequate" or better regulatory advantage assessment; or
  - About one-third or more of consolidated operating cash flow comes from regulated utility activities with a "strong" regulatory advantage and where the average of its remaining activities have a competitive position assessment of '3' or better.
80. We apply the "standard-volatility" table to companies that do not qualify under paragraph 79 and with either:
- About one-third or less of its operating cash flow comes from regulated utility activities, regardless of its regulatory advantage assessment; or
  - A regulatory advantage assessment of "adequate/weak" or "weak."

**Part III--Rating Modifiers****F. Diversification/portfolio effect**

81. In assessing the diversification/portfolio effect on a regulated utility, our analysis uses the same methodology as with other corporate issuers (see "Corporate Methodology").

**G. Capital structure**

82. In assessing the quality of the capital structure of a regulated utility, we use the same methodology as with other corporate issuers (see "Corporate Methodology").

**H. Liquidity**

83. In assessing a utility's liquidity/short-term factors, our analysis is consistent with the methodology that applies to corporate issuers (See "Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers," Nov. 19, 2013) except for the standards for "adequate" liquidity set out in paragraph 84 below.
84. The relative certainty of financial performance by utilities operating under relatively predictable regulatory monopoly frameworks make these utilities attractive to investors even in times of economic stress and market turbulence compared to conventional industrials. For this reason, utilities with business risk profiles of at least "satisfactory" meet our definition of "adequate" liquidity based on a slightly lower ratio of sources to uses of funds of 1.1x compared with the standard 1.2x. Also, recognizing the cash flow stability of regulated utilities we allow more discretion when calculating covenant headroom. We consider that utilities have adequate liquidity if they generate positive sources over uses, even if forecast EBITDA declines by 10% (compared with the 15% benchmark for corporate issuers) before covenants are breached.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***I. Financial policy**

85. In assessing financial policy on a regulated utility, our analysis uses the same methodology as with other corporate issuers (see "Corporate Methodology").

**J. Management and governance**

86. In assessing management and governance on a regulated utility, our analysis uses the same methodology as with other corporate issuers (see "Corporate Methodology").

**K. Comparable ratings analysis**

87. In assessing the comparable ratings analysis on a regulated utility, our analysis uses the same methodology as with other corporate issuers (see "Corporate Methodology").

**Appendix--Frequently Asked Questions****Does Standard & Poor's expect that the business strategy modifier to the preliminary regulatory advantage will be used extensively?**

88. Globally, we expect management's influence will be neutral in most jurisdictions. Where the regulatory assessment is "strong," it is less likely that a negative business strategy modifier would be used due to the nature of the regulatory regime that led to the "strong" assessment in the first place. Utilities in "adequate/weak" and "weak" regulatory regimes are challenged to outperform due to the uncertainty of such regulatory regimes. For a positive use of the business strategy modifier, there would need to be a track record of the utility consistently outperforming the parameters laid down under a regulatory regime, and we would need to believe this could be sustained. The business strategy modifier is most likely to be used when the preliminary regulatory advantage assessment is "strong/adequate" because the starting point in the assessment is reasonably supportive, and a utility has shown it manages regulatory risk better or worse than its peers in that regulatory environment and we expect that advantage or disadvantage will persist. An example would be a utility that can consistently earn or exceed its authorized return in a jurisdiction where most other utilities struggle to do so. If a utility is treated differently by a regulator due to perceptions of poor customer service or reliability and the "operating efficiency" component of the competitive position assessment does not fully capture the effect on the business risk profile, a negative business strategy modifier could be used to accurately incorporate it into our analysis. We expect very few utilities will be assigned a "very negative" business strategy modifier.

**Does a relatively strong or poor relationship between the utility and its regulator compared with its peers in the same jurisdiction necessarily result in a positive or negative adjustment to the preliminary regulatory advantage assessment?**

89. No. The business strategy modifier is used to differentiate a company's regulatory advantage within a jurisdiction where we believe management's business strategy has and will positively or negatively affect regulatory outcomes beyond what is typical for other utilities in that jurisdiction. For instance, in a regulatory jurisdiction where allowed returns are negotiated rather than set by formula, a utility that is consistently authorized higher returns (and is able to earn that return) could warrant a positive adjustment. A management team that cannot negotiate an approved capital spending program to improve its operating performance could be assessed negatively if its performance lags behind peers in the same regulatory jurisdiction.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***What is your definition of regulatory jurisdiction?**

90. A regulatory jurisdiction is defined as the area over which the regulator has oversight and could include single or multiple subsectors (water, gas, and power). A geographic region may have several regulatory jurisdictions. For example, the Office of Gas and Electricity Markets and the Water Services Regulation Authority in the U.K. are considered separate regulatory jurisdictions. In Ontario, Canada, the Ontario Energy Board represents a single jurisdiction with regulatory oversight for power and gas. Also, in Australia, the Australian Energy Regulator would be considered a single jurisdiction given that it is responsible for both electricity and gas transmission and distribution networks in the entire country, with the exception of Western Australia.

**Are there examples of different preliminary regulatory advantage assessments in the same country or jurisdiction?**

91. Yes. In Israel we rate a regulated integrated power utility and a regulated gas transmission system operator (TSO). The power utility's relationship with its regulator is extremely poor in our view, which led to significant cash flow volatility in a stress scenario (when terrorists blew up the gas pipeline that was then Israel's main source of natural gas, the utility was unable to negotiate compensation for expensive alternatives in its regulated tariffs). We view the gas TSO's relationship with its regulator as very supportive and stable. Because we already reflected this in very different preliminary regulatory advantage assessments, we did not modify the preliminary assessments because the two regulatory environments in Israel differ and were not the result of the companies' respective business strategies.

**How is regulatory advantage assessed for utilities that are a natural monopoly but are not regulated by a regulator or a specific regulatory framework, and do you use the regulatory modifier if they achieve favorable treatment from the government as an owner?**

92. The four regulatory pillars remain the same. On regulatory stability we look at the stability of the setup, with more emphasis on the historical track record and our expectations regarding future changes. In tariff-setting procedures and design we look at the utility's ability to fully recover operating costs, investments requirements, and debt-service obligations. In financial stability we look at the degree of flexibility in tariffs to counter volume risk or commodity risk. The flexibility can also relate to the level of indirect competition the utility faces. For example, while Nordic district heating companies operate under a natural monopoly, their tariff flexibility is partly restricted by customers' option to change to a different heating source if tariffs are significantly increased. Regulatory independence and insulation is mainly based on the perceived risk of political intervention to change the setup that could affect the utility's credit profile. Although political intervention tends to be mostly negative, in certain cases political ties due to state ownership might positively influence tariff determination. We believe that the four pillars effectively capture the benefits from the close relationship between the utility and the state as an owner; therefore, we do not foresee the use of the regulatory modifier.

**In table 1, when describing a "strong" regulatory advantage assessment, you mention that there is support of cash flows during construction of large projects, and preapproval of capital investment programs and large projects lowers the risk of subsequent disallowances of capital costs. Would this preclude a "strong" regulatory advantage assessment in jurisdictions where those practices are absent?**

93. No. The table is guidance as to what we would typically expect from a regulatory framework that we would assess as "strong." We would expect some frameworks with no capital support during construction to receive a "strong" regulatory advantage assessment if in aggregate the other factors we analyze support that conclusion.

*Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry***RELATED CRITERIA AND RESEARCH**

- Corporate Methodology, Nov. 19, 2013
- Group Rating Methodology, Nov. 19, 2013
- Methodology: Industry Risk, Nov. 19, 2013
- Corporate Methodology: Ratios And Adjustments, Nov. 19, 2013
- Ratings Above The Sovereign--Corporate And Government Ratings: Methodology And Assumptions, Nov. 19, 2013
- Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Nov. 19, 2013
- Collateral Coverage And Issue Notching Rules For '1+' And '1' Recovery Ratings On Senior Bonds Secured By Utility Real Property, Feb. 14, 2013
- Methodology: Management And Governance Credit Factors For Corporate Entities and Insurers, Nov. 13, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011
- General Criteria: Rating Government-Related Entities: Methodology And Assumptions, Dec. 9, 2010

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94. These criteria represent the specific application of fundamental principles that define credit risk and ratings opinions. Their use is determined by issuer- or issue-specific attributes as well as Standard & Poor's Ratings Services' assessment of the credit and, if applicable, structural risks for a given issuer or issue rating. Methodology and assumptions may change from time to time as a result of market and economic conditions, issuer- or issue-specific factors, or new empirical evidence that would affect our credit judgment.
95. (And watch the related CreditMatters TV segment titled, "Standard & Poor's Highlights The Key Credit Factors For Rating Regulated Utilities," dated Nov. 21, 2013.)

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## National Fuel Gas Distribution Corporation New York Division

Period	March 31, 2018
Operating Income	48,459,000
Interest Expense, Long-Term Debt	22,742,000
Net Income:	<u>25,717,000</u>
Depreciation	41,101,000
Amortization	(908,000)
Deferred Taxes	10,570,000
Cash-Flow from Operation pre-Working Capital:	<u>76,480,000</u>
Rate Base	706,245,000
Long-Term Debt	407,503,365
Equity	298,741,635
Dividends*	41,200,000
Income Taxes	16,878,000
EBIT	65,337,000
EBITDA	105,530,000
Funds from Operations (FFO):	76,480,000

S&P Financial Risk Ratios

		Rating	Rank	
Funds from Operations/Debt	18.8%	BBB	5.0	
Debt/EBITDA	3.9	A-	4.0	
Debt/Capital	57.7%	BBB	5.0	
S&P Implied Rating:		Above BBB	4.7	Average

Moody's Financial Strength Ratios (40%)

(CFO pre-WC + Interest)/Interest (7.5%):	4.4x	Baa	4.0	
CFO pre-WC/Debt (15%):	24.3%	A	3.0	
(CFO pre-WC-Dividends)/Debt (10%):	8.7%	Baa	4.0	
Debt/Capitalization (7.5%):	57.7%	Baa	4.0	
Moody's Implied Rating:		Above Baa	3.8	Average

**S&P**Business And Financial Risk Profile Matrix

Business Risk Profile	--Financial Risk Profile--					
	1 Minimal	2 Modest	3 Intermediate	4 Significant	5 Aggressive	6 Highly Leveraged
Excellent	AAA/AA+	AA	A	A-	BBB	--
Strong	AA	A	A-	BBB	BB	BB-
Satisfactory	A-	BBB+	BBB	BB+	BB-	B+
Fair	--	BBB-	BB+	BB	BB-	B
Weak	--	--	BB	BB-	B+	B-
Vulnerable	--	--	--	B+	B	B- or below

Financial Risk Indicative Ratios (Corporates)

	FFO/Debt (%)	Debt/EBITDA (x)	Debt/Capital (%)
Minimal	greater than 60	less than 1.5	less than 25
Modest	45-60	1.5-2.0	25-35
Intermediate	30-45	2-3	35-45
Significant	20-30	3-4	45-50
Aggressive	12-20	4-5	50-60
Highly Leveraged	less than 12	greater than 5	greater than 60

Source: S&amp;P Global Ratings, Methodology: Business Risk/Financial Risk Expanded, September 18, 2012.

**Moody's**

Financial Strength Rank:	1	2	3	4	5	6	7
	Aaa	Aa	A	Baa	Ba	B	Caa
(CFO pre-WC + Interest)/Interest	≥ 8x	6x - 8x	4.5x - 6x	3x - 4.5x	2x - 3x	1x - 2x	< 1x
CFO pre-WC/Debt	≥ 38%	27% - 38%	19% - 27%	11% - 19%	5% - 11%	1% - 5%	< 1%
(CFO pre-WC - Dividends)/Debt	≥ 34%	23% - 34%	15% - 23%	7% - 15%	0% - 7%	(5%) - 0%	< (5%)
Debt/Capitalization	< 29%	29% - 40%	40% - 50%	50% - 67%	59% - 67%	67% - 75%	≥ 75%

\*Assumed 2015 dividend rate.

Source: Moody's Investor Services, Regulated Electric and Gas Utilities, December 23, 2013.

# Regulated Electric and Gas Utilities

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## Summary

This rating methodology explains Moody's approach to assessing credit risk for regulated electric and gas utilities globally and is intended to provide general guidance that helps companies, investors, and other interested market participants understand how qualitative and quantitative risk characteristics are likely to affect rating outcomes for companies in the regulated electric and gas utility industry. This document does not include an exhaustive treatment of all factors that are reflected in Moody's 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.

This rating methodology replaces<sup>1</sup> the Rating Methodology for Regulated Electric and Gas Utilities published in August 2009. While reflecting many of the same core principles as the 2009 methodology, this updated document provides a more transparent presentation of the rating considerations that are usually most important for companies in this sector and incorporates refinements in our analysis that better reflect credit fundamentals of the industry. No rating changes will result from publication of this rating methodology.

This report includes a detailed rating grid and illustrative examples that compare the mapping of rated public companies against the factors in the grid. The grid is a reference tool that can be used to approximate credit profiles within the regulated electric and gas utility sector in most cases. The grid 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 grid is a summary that does not include every rating consideration. The weights shown for each factor in the grid represent an approximation of their importance for rating decisions but actual importance may vary substantially. In addition, the illustrative mapping examples in this document use historical results while ratings are based on our forward-looking expectations. As a result, the grid-indicated rating is not expected to match the actual rating of each company.

<sup>1</sup> This update may not be effective in some jurisdictions until certain requirements are met.



The grid contains four key factors that are important in our assessment for ratings in the regulated electric and gas utility sector, and a notching factor for structural subordination at holding companies:

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. Since an issuer's scoring on a particular grid factor or sub-factor often will not match its overall rating, in Appendix C we include a discussion of some of the grid "outliers" – companies whose grid-indicated rating for a specific sub-factor differs significantly from the actual rating – in order to provide additional insights.

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 grid format. The grid used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex grid that would map grid-indicated ratings 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 key rating factors that drive ratings
- » Comments on the rating methodology assumptions and limitations, including a discussion of rating considerations that are not included in the grid

The Appendices show the full grid (Appendix A), a list of the companies included in our illustrative sample universe of issuers with their ratings, grid-indicated ratings and country of domicile (Appendix B), tables that illustrate the application of the grid to the sample universe of issuers, with explanatory comments on some of the more significant differences between the grid-implied rating for each sub-factor and our actual rating (Appendix C)<sup>2</sup>, our approach to ratings within a utility family (Appendix D), a description of the various types of companies rated under this methodology (Appendix E), key industry issues over the intermediate term (Appendix F), regional and other considerations (Appendix G), and treatment of power purchase agreements (Appendix H).

<sup>2</sup> In general, the rating (or other indicator of credit strength) utilized for comparison to the grid-implied rating is the senior unsecured rating for investment-grade issuers, the Corporate Family Rating (CFR) for speculative-grade issuers and the Baseline Credit Assessment (BCA) for Government Related Issuers (GRIs). Individual debt instrument ratings also factor in decisions on notching for seniority level and collateral. Related documents that provide additional insight in this area are the rating methodologies "[Loss Given Default for Speculative Grade Non-Financial Companies in the US, Canada and EMEA](#)", published June 2009, and "[Updated Summary Guidance for Notching Bonds, Preferred Stocks and Hybrid Securities of Corporate Issuers](#)", published February 2007.

### What's Changed

While incorporating many of the core principles of the 2009 version, this methodology updates how the four key rating factors are defined, and how certain sub-factors are weighted in the grid.

More specifically, this methodology introduces four equally weighted sub-factors into the two rating factors that are related to regulation –the Regulatory Framework and the Ability to Recover Costs and Earn Returns – in order to provide more granularity and transparency on the overall regulatory environment, which is the most important consideration for this sector.

The weighting of the grid indicators for diversification are unchanged, but the proposed descriptive criteria have been refined to place greater emphasis on the economic and regulatory diversity of each utility's service area rather than the diversity of operations, because we think this emphasis better distinguishes credit risk. We have refined the definitions of the Generation and Fuel Diversity sub-factor to better incorporate the full range of challenges that can affect a particular fuel type.

While the overall weighting of the Financial Strength factor is unchanged, the weighting for two sub-factors that seek to measure debt in relation to cash flow has increased. The 15% weight for CFO Pre-WC/Debt reflects our view that this is the single most predictive financial measure, followed in importance by CFO Pre-WC - Dividends/Debt with a 10% grid weighting. The additional weighting of these ratios is balanced by the elimination of a separate liquidity sub-factor that had a 10% weighting in the prior grid.

Liquidity assessment remains a key focus of our analysis. However, we consider it as a qualitative assessment outside the grid because its credit importance varies greatly over time and by issuer and accordingly is not well represented by a fixed grid weight. See “Other Rating Considerations” for insights on liquidity analysis in this sector.

Lower financial metric thresholds have been introduced for certain utilities viewed as having lower business risk, for instance 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). The low end of the scale in the methodology grid has been extended from B to Caa to better capture our views of more challenging regulatory environments and weaker performance.

We have introduced minor changes to financial metric thresholds at the lower end of the scale, primarily to incorporate this extension of the grid.

We have incorporated scorecard notching for structural subordination at holding companies. Ratings already incorporated structural subordination, but including an adjustment in the scorecard will result in a closer alignment of grid-indicated outcomes and ratings for holding companies.

Treatment of first mortgage bonds (primarily in the US), which was the subject of a Request for Comment in 2009 and adopted subsequent to the 2009 methodology, is summarized in Appendix G.

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. Documents that describe our approach to such cross-sector methodological considerations can be found [here](#).

## About the Rated Universe

The Regulated Electric and Gas Utilities rating methodology applies to rate-regulated<sup>3</sup> electric and gas utilities that are not Networks<sup>4</sup>. Regulated Electric and Gas Utilities are companies whose predominant<sup>5</sup> 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 E, 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. 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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.

## Other Related Methodologies

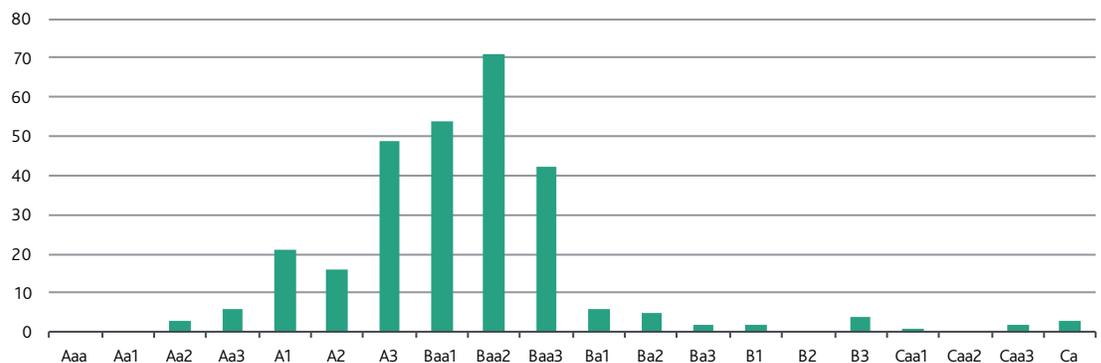
- » [Regulated Electric and Gas Networks](#)
- » [Unregulated Utilities and Power Companies](#)
- » [Natural Gas Pipelines](#)
- » [US Public Power Electric Utilities with Generation Ownership Exposure](#)
- » [US Electric Generation & Transmission Cooperatives](#)
- » [US Municipal Joint Action Agencies](#)
- » [Government Related Issuers: Methodology Update](#)
- » [Global Regulated Water Utilities](#)

The rated universe includes approximately 315 entities that are either utility operating companies or a parent holding company with one or more utility company subsidiaries that operate predominantly in the electric and gas utility business. These companies account for about US\$730 billion of total outstanding long-term debt instruments.

The Regulated Electric and Gas Utility sector is predominantly investment grade, reflecting the stability generally conferred by regulation that typically sets prices and also limits competition, such that defaults have been lower than in many other non-financial corporate sectors. However, the nature of regulation can vary significantly from jurisdiction to jurisdiction. Most issuers at the lower end of the ratings spectrum operate in challenging regulatory environments. Additional information about the ratings and default performance of the sector can be found in our publication [“Infrastructure Default and Recovery Rates, 1983-2012H1”](#). As shown on the following table, the ratings spectrum for issuers in the sector (both holding companies and operating companies) ranges from Aaa to Ca:

## EXHIBIT 1

## Regulated Electric and Gas Utilities' Senior Unsecured Ratings Distribution



Source: Moody's Investors Service, ratings as of December 2013

## About this Rating Methodology

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

### 1. Identification and Discussion of the Rating Factors in the Grid

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

#### Factor / Sub-Factor Weighting - Regulated Utilities

Broad Rating Factors	Broad Rating Factor Weighting	Rating 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 Sufficiency of Rates and Returns	12.5% 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%
<b>Total</b>	<b>100%</b>		<b>100%</b>
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 Grid

We explain our general approach for scoring each grid factor and show the weights used in the grid. We also provide a rationale for why each of these grid 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 Moody's analysts.

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 this document to illustrate the application of the rating grid. 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.

For definitions of Moody's most common ratio terms please see [Moody's Basic Definitions for Credit Statistics, User's Guide](#) (June 2011, document #78480). For a description of Moody's standard adjustments, please see [Moody's Approach to Global Standard Adjustments in the Analysis of Financial Statements for Non-Financial Corporations](#) December 2010 (128137). These documents can be found at [www.moodys.com](http://www.moodys.com) under the Research and Ratings directory.

In most cases, the illustrative examples in this document use historic financial data from a recent three year period. However, the factors in the grid can be assessed using various time 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.

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### 3. Mapping 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).

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

In Appendix C, we provide a table showing how each company in the sample set of issuers maps to grid-indicated ratings for each rating sub-factor and factor. We highlight companies whose grid-indicated performance on a specific sub-factor is two or more broad rating categories higher or lower than its actual rating and discuss the general reasons for such positive and negative outliers for a particular sub-factor.

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### 5. Assumptions, Limitations and Rating Considerations Not Included in the Grid

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

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

To determine the overall grid-indicated rating, 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.

<b>Grid-Indicated Rating</b>	
<b>Grid-Indicated Rating</b>	<b>Aggregate Weighted Total Factor Score</b>
Aaa	$x < 1.5$
Aa1	$1.5 \leq x < 2.5$
Aa2	$2.5 \leq x < 3.5$
Aa3	$3.5 \leq x < 4.5$
A1	$4.5 \leq x < 5.5$
A2	$5.5 \leq x < 6.5$
A3	$6.5 \leq x < 7.5$
Baa1	$7.5 \leq x < 8.5$
Baa2	$8.5 \leq x < 9.5$
Baa3	$9.5 \leq x < 10.5$
Ba1	$10.5 \leq x < 11.5$
Ba2	$11.5 \leq x < 12.5$
Ba3	$12.5 \leq x < 13.5$
B1	$13.5 \leq x < 14.5$
B2	$14.5 \leq x < 15.5$
B3	$15.5 \leq x < 16.5$
Caa1	$16.5 \leq x < 17.5$
Caa2	$17.5 \leq x < 18.5$
Caa3	$18.5 \leq x < 19.5$
Ca	$x \geq 19.5$

For example, an issuer with a composite weighted factor score of 11.7 would have a Ba2 grid-indicated rating. We used a similar procedure to derive the grid indicated ratings shown in the illustrative examples.

## 7. Appendices

The Appendices provide illustrative examples of grid-indicated ratings based on historical financial information and also provide additional commentary and insights on our view of credit risks in this industry.

## Discussion of the Grid Factors

Moody's 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.

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### 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 rating 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<sup>6</sup> 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 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 Grid

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

<sup>6</sup> 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.

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 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
<p>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.</p>	<p>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.</p>	<p>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 prudence 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.</p>	<p>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 prudence 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.</p>
Ba	B	Caa	
<p>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 prudence 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.</p>	<p>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 prudence 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.</p>	<p>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.</p>	

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 Grid

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 publically 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
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>The issuer's interaction with the regulator has led to an adequate track record. The regulator is generally consistent and predictable, but there may be 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.</p>
Ba	B	Caa	
<p>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.</p>	<p>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.</p>	<p>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.</p>	

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## Factor 2: Ability to Recover Costs and Earn Returns (25%)

### Why It Matters

This rating 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 (as was the case when “used and useful” requirements threatened some utilities that experienced years of delay in completing nuclear power plants in the 1980s). 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. During the past five years, 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

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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 Grid

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 Grid

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
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
Ba	B	Caa	
<p>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.</p>	<p>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.</p>	<p>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.</p>	

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
<p>Sufficiency of rates to cover costs and attract capital is (and will continue to be) unquestioned.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
Ba	B	Caa	
<p>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.</p>	<p>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 prudence 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.</p>	<p>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.</p>	

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### 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 during the past five years. These vulnerabilities have varied widely in different countries and have changed over time.

#### *How We Assess Market Position for the Grid*

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 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. 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. 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 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 Grid

Criteria include the fuel type of the issuer's generation and important power purchase agreements, the ability of the issuer to economically 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 higher in this sub-factor. Issuers that have concentration in one or two sources of generation, especially if they are threatened or challenged sources, will score lower.

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% *	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 cyclical, 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 cyclical 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 cyclical 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. Some recent examples would include coal fired plants in the US that are not economic to retro-fit to meet mercury and air toxics standards, plants that cannot meet the effective date of those standards, nuclear plants in Japan that have not been licensed to re-start after the Fukushima Dai-ichi accident, and nuclear plants that are required to be phased out within 10 years (as is the case in some European countries).

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

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## 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 Grid

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. In the illustrative mapping examples in this document, the scoring grid uses three year averages for the financial strength sub-factors. 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.

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*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 Moody's standard adjustments<sup>7</sup>, 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<sup>8</sup>. 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 E) 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.

<sup>7</sup> In certain circumstances, analysts may also apply specific adjustments.

<sup>8</sup> We also examine debt/capitalization ratios as defined in applicable covenants (which typically exclude deferred taxes from capitalization) relative to the covenant threshold level.

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 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	7.5%	≥ 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%

#### 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 grid 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<sup>9</sup>. 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<sup>10</sup> 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 grid outcomes (on average) closer to the actual ratings of HoldCos.

#### How We Assess It

Grid-indicated ratings 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<sup>11</sup>
- » Significant dividend limitations or potential limitations at an important OpCo
- » HoldCo exposure to subsidiaries with high business risk or volatile cash flows

<sup>9</sup> The HoldCo and OpCo may also have intercompany agreements, including tax sharing agreements, that can be another source of cash to the HoldCo.

<sup>10</sup> 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.

<sup>11</sup> While higher leverage at the HoldCo does not increase structural subordination per se, it exacerbates the impact of any structural subordination that exists

- » 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:

- » 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 grid may range from 0 to negative 3 notches. Instances of extreme structural subordination are relatively rare, so the grid 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 D has additional insights on ratings within a utility family.

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

The grid in this rating methodology represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that would enable the grid to map more closely to actual ratings. Accordingly, the four rating factors and the notching factor in the grid 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 to illustrate the mapping in the grid in this document is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we can't 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 access to liquidity is a strong driver of credit risk.

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In choosing metrics for this rating methodology grid, 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 grid would in some cases suggest too much precision in the relative ranking of particular issuers against all other issuers that are rated in various industry sectors.

Ratings may include additional factors that are difficult to quantify or that 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 to precisely express these in the rating methodology grid without making the grid 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 grid.

This variation in weighting rating considerations can also apply to factors that we choose not to represent in the grid. 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.

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### Other Rating Considerations

Moody's considers 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.

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### 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 were swift to cut or defer discretionary spending during the 2007-2009 recession. Dividends represent a quasi-permanent outlay, since utilities will typically only rarely 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 grid 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 has generally 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.

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#### 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 Moody's 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 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.

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### 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. Particularly in the US, we have not observed material differences in the success of utilities' regulatory outreach based on their size. 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 grid 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.

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### 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 ratings grid.<sup>12</sup>

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### 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 grid-indicated ratings for such companies.

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### 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.

<sup>12</sup> See also the cross-sector methodology [How Sovereign Credit Quality May Affect Other Ratings, February 2012](#).

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### 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.

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

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### 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.

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

For the 45 representative utilities shown in the illustrative mapping examples, the grid-indicated ratings map to current assigned ratings as follows (see Appendix B for the details):

- » 33% or 15 companies map to their assigned rating
- » 49% or 22 companies have grid-indicated ratings that are within one alpha-numeric notch of their assigned rating
- » 16% or 7 companies have grid-indicated ratings that are within two alpha-numeric notches of their assigned rating
- » 2% or 1 company has a grid-indicated rating that is within three alpha-numeric notches of its assigned rating

**Grid Indicated Rating Outcomes****Map to Assigned Rating**

American Electric Power Company, Inc.  
 China Longyuan Power Group Corporation Ltd.  
 Chubu Electric Power Company, Incorporated  
 Entergy Corporation  
 FortisBC Holdings Inc.  
 Great Plains Energy Incorporated  
 Hokuriku Electric Power Company  
 Madison Gas & Electric  
 MidAmerican Energy Company  
 Mississippi Power Company  
 Newfoundland Power Inc.  
 Oklahoma Gas and Electric Company  
 Osaka Gas Co., Ltd.  
 Saudi Electricity  
 Wisconsin Public Service Corporation

**Map to Within One Notch**

Appalachian Power Company  
 Arizona Public Service Company  
 China Resources Gas Group Limited  
 Duke Energy Corporation  
 Florida Power & Light Company  
 Georgia Power Company  
 Hawaiian Electric Industries, Inc.  
 Idaho Power Company  
 Kansai Electric Power Company, Incorporated  
 Korea Electric Power Corporation  
 MidAmerican Energy Holdings Co.  
 Niagara Mohawk Power Corporation  
 Northern States Power Minnesota  
 Okinawa Electric Power Company, Incorporated  
 PacifiCorp  
 Pennsylvania Electric Company  
 PNG Companies  
 Public Service Company of New Mexico  
 SCANA  
 Southwestern Public Service Company  
 UGI Utilities, Inc.  
 Virginia Electric Power Company

**Map to Within Two Notches**

Ameren Illinois Company  
 Consumers Energy Company  
 Distribuidora de Electricidad La Paz S.A.  
 Empresa Electrica de Guatemala, S.A. (EEGSA)  
 Gail (India) Ltd  
 Gas Natural Ban, S.A.  
 Ohio Power Company

**Map to Within Three or More Notches**

Western Mass Electric Co.

## Appendix A: Regulated Electric and Gas Utilities Methodology Factor Grid

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

Aaa	Aa	A	Baa
<p>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.</p>	<p>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.</p>	<p>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 prudence 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.</p>	<p>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 prudence requirements that are mostly reasonable, rates will be set in a manner that will permit the utility to make and recover all necessary investments, reasonable clarity as to the manner in which utilities will be regulated and overall guidance for methods and procedures for setting rates; or (ii) under a new framework where independent and transparent regulation exists in other sectors. If there have been changes in utility legislation, they have been credit supportive or at least balanced for the issuer but potentially less timely, and the utility had a voice in the legislative process. There is either (i) an independent judiciary that can arbitrate disagreements between the regulator and the utility, including access to courts at least at the state or provincial level, reasonably clear judicial precedent in the interpretation of utility laws, and a generally strong rule of law; or (ii) regulation has been applied (under a well developed framework) in a manner such that redress to an independent arbiter has not been required. We expect these conditions to continue.</p>
Ba	B	Caa	
<p>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 prudence requirements which may be stringent, provides a general assurance (with somewhat less certainty) that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where the jurisdiction has a history of less independent and transparent regulation in other sectors. Either: (i) the judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law; or (ii) where there is no independent arbiter, the regulation has mostly been applied in a manner such redress has not been required. We expect these conditions to continue.</p>	<p>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 prudence 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.</p>	<p>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.</p>	

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.

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

Aaa	Aa	A	Baa
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>The issuer's interaction with the regulator has led to an adequate track record. The regulator is generally consistent and predictable, but there may be 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.</p>
Ba	B	Caa	
<p>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.</p>	<p>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.</p>	<p>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.</p>	

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

Aaa	Aa	A	Baa
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
Baa	B	Caa	
<p>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.</p>	<p>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.</p>	<p>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.</p>	

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	Aaa	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 prudence 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 deactivate, whether due to the effectiveness of currently existing or expected rules and regulations or due to economic challenges. Some recent examples would include coal fired plants in the US that are not economic to retro-fit to meet mercury and air toxics standards, plants that cannot meet the effective date of those standards, nuclear plants in Japan that have not been licensed to re-start after the Fukushima Dai-ichi accident, and nuclear plants that are required to be phased out within 10 years (as is the case in some European countries).

\* 10% weighting 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
<b>CFO pre-WC + Interest / Interest</b>	<b>7.5%</b>		≥ 8x	6x - 8x	4.5x - 6x	3x - 4.5x	2x - 3x	1x - 2x	< 1x
<b>CFO pre-WC / Debt</b>	<b>15%</b>	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%
<b>CFO pre-WC - Dividends / Debt</b>	<b>10%</b>	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%)
<b>Debt / Capitalization</b>	<b>7.5%</b>	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: Regulated Electric and Gas Utilities – Assigned Ratings and Grid-Indicated Ratings for a Selected Cross-Section of Issuers

	Issuer	Outlook	Actual Rating	BCA / Rating Before Uplift <sup>13</sup>	Grid Indicated Rating	Country
1	Ameren Illinois Company	RUR-Up	Baa2	-	A3	USA
2	American Electric Power Company, Inc.	RUR-Up	Baa2	-	Baa2	USA
3	Appalachian Power Company	RUR-Up	Baa2	-	Baa1	USA
4	Arizona Public Service Company	RUR-Up	Baa1	-	A3	USA
5	China Longyuan Power Group Corporation	Stable	Baa3	Ba1	Ba1	China
6	China Resources Gas Group Ltd.	Stable	Baa1	Baa2	Baa1	China
7	Chubu Electric Power Company, Inc.	Negative	A3	Baa2	Baa2	Japan
8	Consumers Energy Company	RUR-Up	(P)Baa1	-	A2	USA
9	Distribuidora de Electricidad La Paz S.A.	Stable	Ba3	-	Ba1	Bolivia
10	Duke Energy Corporation	RUR-Up	Baa1	-	Baa2	USA
11	Empresa Electrica de Guatemala, S.A.	Positive	Ba2	-	Baa3	Guatemala
12	Entergy Corporation	Stable	Baa3	-	Baa3	USA
13	Florida Power & Light Company	RUR-Up	A2	-	A1	USA
14	FortisBC Holdings Inc.	Negative	Baa2	-	Baa2	Canada
15	Gail (India) Ltd	Stable	Baa2	Baa2	A3	India
16	Gas Natural BAN, S.A.	Negative	B3	-	B1	Argentina
17	Georgia Power Company	Stable	A3	-	A2	USA
18	Great Plains Energy Incorporated	RUR-Up	Baa3	-	Baa3	USA
19	Hawaiian Electric Industries, Inc.	RUR-Up	Baa2	-	Baa1	USA
20	Hokuriku Electric Power Company	Negative	A3	Baa2	Baa2	Japan
21	Idaho Power Company	RUR-Up	Baa1	-	A3	USA
22	Kansai Electric Power Company, Inc.	Negative	A3	Baa2	Baa3	Japan
23	Korea Electric Power Corporation	Stable	A1	Baa2	Baa3	Korea
24	Madison Gas & Electric	RUR-Up	A1	-	A1	USA
25	MidAmerican Energy Company	RUR-Up	A2	-	A2	USA
26	MidAmerican Energy Holdings Co.	RUR-Up	Baa1	-	A3	USA
27	Mississippi Power Company	Stable	Baa1	-	Baa1	USA
28	Niagara Mohawk Power Corporation	RUR-Up	A3	-	A2	USA
29	Newfoundland Power Inc.	Stable	Baa1	-	Baa1	Canada
30	Northern States Power Minnesota	RUR-Up	A3	-	A2	USA
31	Ohio Power Company	Stable	Baa1	-	A2	USA
32	Okinawa Electric Power Company, Inc.	Stable	Aa3	A2	A3	Japan
33	Oklahoma Gas & Electric Company	RUR-Up	A2	-	A2	USA
34	Osaka Gas Co., Ltd.	Stable	Aa3	A1	A1	Japan

<sup>13</sup> BCA means a Baseline Credit Assessment for a government related issuer. Please see [Government Related Issuers: Methodology Update, July 2010](#). In addition, certain companies in Japan receive a ratings uplift due to country-specific considerations. Please see "Support system for large corporate entities in Japan can provide ratings uplift, with limits" in Appendix G.

	Issuer	Outlook	Actual Rating	BCA / Rating Before Uplift <sup>13</sup>	Grid Indicated Rating	Country
35	PacifiCorp	RUR-Up	Baa1	-	A3	USA
36	Pennsylvania Electric Company	Stable	Baa2	-	Baa1	USA
37	PNG Companies LLC	RUR-Up	Baa3	-	Baa2	USA
38	Public Service Company of New Mexico	RUR-Up	Baa3	-	Baa2	USA
39	Saudi Electricity Company	Stable	A1	<i>Baa1</i>	Baa1	Saudi Arabia
40	SCANA Corporation	Stable	Baa3	-	Baa2	USA
41	Southwestern Public Service Company	RUR-Up	Baa2	-	Baa1	USA
42	UGI Utilities, Inc.	RUR-Up	A3	-	A2	USA
43	Virginia Electric and Power Company	RUR-Up	A3	-	A2	USA
44	Western Massachusetts Electric Company	RUR-Up	Baa2	-	A2	USA
45	Wisconsin Public Service Corporation	RUR-Up	A2	-	A2	USA

### Appendix C: Regulated Electric and Gas Utility Grid Outcomes and Outlier Discussion

In the table below positive or negative “outliers” for a given sub-factor are defined as issuers whose grid sub-factor score is at least two broad rating categories higher or lower than a company’s rating (e.g. a B-rated company whose rating on a specific sub-factor is in the Baa-rating category is flagged as a positive outlier for that sub-factor). Green is used to denote a positive outlier, whose grid-indicated performance for a sub-factor is two or more broad rating categories higher than Moody’s rating. Red is used to denote a negative outlier, whose grid-indicated performance for a sub-factor is two or more broad rating categories lower than Moody’s rating.

#### Grid-Indicated Ratings

		Actual Rating / BCA or Rating Before Uplift	Indicated Rating	Indicated Factor 1 Rating	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Hold-Co Notching for Structural Subor- dination
					1a	1b	2a	2b	3a	3b	4a	4b	4c	4d				
					12.50 %	12.50 %	12.50 %	12.50 %	Indicated Factor 3 Rating	5.00 %	5.00 %	Indicated Factor 4 Rating	7.50 %	15.00 %	10.00 %	7.50 %		
1	Ameren Illinois Company	Baa2	A3	Baa	A	Baa	Baa	Aa	Ba	Baa	Baa	-	A	Baa	A	Baa	Aa	n/a
2	American Electric Power Company, Inc.	Baa2	Baa2	A	A	A	Baa	A	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	-1
3	Appalachian Power Company	Baa2	Baa1	A	A	A	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	n/a
4	Arizona Public Service Company	Baa1	A3	A	A	A	Baa	A	Baa	Baa	Baa	Baa	A	A	A	A	A	n/a
5	China Longyuan Power Group Corporation Ltd.	Baa3 / Ba1	Ba1	Ba	Ba	Baa	A	Baa	A	Baa	Baa	A	Ba	Ba	Ba	Baa	B	-1
6	China Resources Gas Group Limited	Baa1 / Baa2	Baa1	Ba	Ba	Baa	Ba	Ba	Baa	Baa	Baa	-	A	Aaa	A	A	A	n/a
7	Chubu Electric Power Company, Incorporated	A3 / Baa2	Baa2	A	Aa	Baa	Baa	Ba	A	Baa	A	Ba	Ba	Aa	Ba	Ba	B	n/a
8	Consumers Energy Company	Baa1	A2	A	A	Aa	A	Aa	A	Ba	Baa	Ba	A	A	A	A	Baa	n/a
9	Distribuidora de Electricidad La Paz S.A.	Ba3	Ba1	B	B	Ba	B	B	Ba	B	B	-	A	Baa	A	A	A	n/a
10	Duke Energy Corp.	Baa1	Baa2	A	A	Aa	Baa	A	Baa	A	A	A	Baa	A	Baa	Baa	A	-2
11	Empresa Electrica de Guatemala, S.A. (EEGSA)	Ba2	Baa3	Ba	Ba	Ba	Ba	Ba	Ba	Ba	Ba	-	Baa	A	Aa	B	A	n/a
12	Entergy Corp	Baa3	Baa3	Baa	A	Baa	Baa	Baa	Baa	A	A	Baa	A	A	A	A	Baa	-2
13	Florida Power & Light Company	A2	A1	A	A	Aa	A	Aa	Baa	A	A	A	Aa	Aaa	Aa	Aa	Aa	n/a
14	FortisBC Holdings Inc.	Baa2	Baa2	A	A	A	A	A	A	A	A	-	Ba	Ba	Ba	Ba	Ba	0
15	Gail (India) Ltd	Baa2 / Baa2	A3	Ba	Ba	Ba	Baa	Baa	Baa	Ba	Ba	-	Aa	Aaa	Aaa	Aaa	Aa	n/a
16	Gas Natural Ban, S.A.	B3	B1	Caa	Caa	Caa	Caa	Caa	Caa	B	B	-	A	Ba	A	Baa	Aaa	n/a

**Grid-Indicated Ratings**

		Actual Rating / BCA or Rating Before Uplift	Indicated Rating	Indicated Factor 1 Rating	Factor 1a	Factor 1b	Indicated Factor 2 Rating	Factor 2a	Factor 2b	Indicated Factor 3 Rating	Factor 3a	Factor 3b	Indicated Factor 4 Rating	Factor 4a	Factor 4b	Factor 4c	Factor 4d	Hold-Co Notching for Structural Subor- dination
					12.50 %	12.50 %		12.50 %	12.50 %		5.00 %	5.00 %		7.50 %	15.00 %	10.00 %	7.50 %	
17	Georgia Power Company	A3	A2	Aa	Aa	Aa	A	Aa	Baa	Baa	Baa	Baa	A	Aa	A	Baa	A	n/a
18	Great Plains Energy Incorporated	Baa3	Baa3	A	A	A	Ba	Baa	Ba	Ba	Baa	Ba	Baa	Baa	Baa	Baa	Baa	-1
19	Hawaiian Electric Industries, Inc.	Baa2	Baa1	A	A	A	A	Aa	A	Ba	Baa	Ba	Baa	A	Baa	Baa	Baa	-1
20	Hokuriku Electric Power Company	A3 / Baa2	Baa2	A	Aa	Baa	Baa	Ba	A	Ba	Baa	Ba	Ba	Aa	Ba	Ba	B	n/a
21	Idaho Power Company	Baa1	A3	A	A	A	A	Aa	Baa	Baa	Baa	A	Baa	Baa	Baa	Baa	A	n/a
22	Kansai Electric Power Company, Incorporated	A3 / Baa2	Baa3	A	Aa	Baa	Baa	Ba	A	Baa	A	Ba	B	Ba	B	Ba	Caa	n/a
23	Korea Electric Power Corporation	A1 / Baa2	Baa3	Baa	Baa	Baa	Ba	Ba	Ba	A	A	A	Ba	Ba	Ba	Ba	Baa	n/a
24	Madison Gas & Electric	A1	A1	A	A	Aa	A	Aa	Baa	Baa	Baa	Baa	Aa	Aa	Aa	Aa	A	n/a
25	MidAmerican Energy Company	A2	A2	A	A	Aa	Ba	Ba	Baa	Baa	Baa	A	A	Aa	A	Aa	A	n/a
26	MidAmerican Energy Holdings Co.	Baa1	A3	A	A	A	Baa	Baa	Baa	A	A	Baa	Baa	Baa	Baa	A	Baa	0
27	Mississippi Power Company	Baa1	Baa1	A	A	A	A	Aa	Baa	Ba	Baa	Ba	Baa	A	Baa	Baa	Baa	n/a
28	Niagara Mohawk Power Corporation	A3	A2	A	A	A	A	Aa	Baa	Baa	Baa	-	A	Aa	A	A	Aa	n/a
29	Newfoundland Power Inc.	Baa1	Baa1	A	A	A	A	A	A	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	n/a
30	Northern States Power Minnesota	A3	A2	A	A	A	A	Aa	Baa	Baa	Baa	Baa	A	A	A	A	A	n/a
31	Ohio Power Company	Baa1	A2	A	A	A	Baa	Baa	A	Ba	Baa	B	A	A	Aa	A	A	n/a
32	Okinawa Electric Power Company, Incorporated	Aa3 / A2	A3	Aa	Aa	Aa	A	A	A	Ba	Ba	Ba	Baa	Aaa	Ba	Baa	B	n/a
33	Oklahoma Gas and Electric Company	A2	A2	A	A	Aa	Baa	Baa	A	Baa	Baa	Baa	A	A	A	A	A	n/a
34	Osaka Gas Co., Ltd.	Aa3 / A1	A1	Aa	Aa	Aa	A	A	A	A	A	-	A	Aaa	A	A	A	n/a
35	PacifiCorp	Baa1	A3	A	A	A	Baa	Aa	Ba	Baa	A	Baa	A	A	A	Baa	A	n/a
36	Pennsylvania Electric Company	Baa2	Baa1	A	A	A	Baa	A	Baa	Baa	Baa	-	Baa	Baa	Baa	Ba	A	n/a

## Grid-Indicated Ratings

	Actual Rating / BCA or Rating Before Uplift	Indicated Rating	Indicated Factor 1 Rating	Factor 1a	Factor 1b	Indicated Factor 2 Rating	Factor 2a	Factor 2b	Indicated Factor 3 Rating	Factor 3a	Factor 3b	Indicated Factor 4 Rating	Factor 4a	Factor 4b	Factor 4c	Factor 4d	Hold-Co Notching for Structural Subor- dination
				12.50 %	12.50 %		12.50 %	12.50 %		5.00 %	5.00 %		7.50 %	15.00 %	10.00 %	7.50 %	
37	PNG Companies	Baa3	Baa2	A	A	Ba	Baa	Ba	Baa	Baa	-	Ba	Ba	Ba	Ba	Baa	n/a
38	Public Service Company of New Mexico	Baa3	Baa2	Baa	A	Baa	Baa	Ba	Baa	Baa	Baa	Baa	A	Baa	A	Baa	n/a
39	Saudi Electricity	A1 / Baa1	Baa1	Baa	Baa	A	Ba	Baa	Ba	A	Baa	Aaa	A	Aaa	A	Baa	n/a
40	SCANA	Baa3	Baa2	Aa	Aa	Aa	Baa	Baa	Baa	Ba	Baa	Ba	Baa	Baa	Baa	Baa	-1
41	Southwestern Public Service Company	Baa2	Baa1	A	A	A	Baa	A	Baa	Ba	Ba	Baa	Baa	Baa	Baa	A	n/a
42	UGI Utilities, Inc.	A3	A2	A	A	A	A	A	A	Baa	Baa	-	A	A	A	A	n/a
43	Virginia Electric Power Company	A3	A2	Aa	Aa	Aa	A	Aa	Baa	Baa	Baa	Baa	A	A	A	A	n/a
44	Western Mass Electric Co.	Baa2	A2	A	A	Aa	A	A	A	Ba	Ba	-	A	Aa	A	A	n/a
45	Wisconsin Public Service Corporation	A2	A2	A	A	Aa	A	Aa	Baa	Baa	Baa	Baa	A	Aa	A	A	n/a

Outliers in Legislative and Judicial Underpinnings of the Regulatory Framework

For Chubu Electric Power Company, Hokuriku Electric Power Company, Kansai Electric Power Company, and Okinawa Electric Power Company, our ratings consider the credit-supportive underpinnings in the Electric Utility Industries Law that have been balanced against higher leverage and lower returns than global peers.

For SCANA Corporation, the South Carolina Base Load Review Act provides strong credit support for companies engaging in nuclear new-build, which also affects the scoring for consistency and predictability of regulation. However, SCANA's rating also considers the size and complexity of the nuclear construction project, which is out of scale to the size of the company, as well as structural subordination.

Outliers in Consistency and Predictability of Regulation

Consumers Energy Company has benefitted from increasingly predictable regulatory decisions in Michigan, as well as improved timeliness due to forward test years and the ability to implement interim rates. However, the substantial debt at its parent, CMS Energy Corporation (Baa3, RUR-up), has weighed on the ratings.

Duke Energy Corporation has received generally consistent and predictable rate treatment at its subsidiary operating companies, but parent debt has impacted financial metrics

The shift in business mix at Western Massachusetts Electric Company will place a greater percentage of its rate base under the jurisdiction of the FERC, generally viewed as having greater consistency and predictability, which is somewhat tempered by its financial metrics.

#### Outliers in Timeliness of Recovery of Operating and Capital Costs

Ameren Illinois Company has a formula rate plan that has a positive impact on timeliness, balanced against rate decisions that have been somewhat below average.

Hawaiian Electric Industries, Inc.'s timeliness has improved considerably due to the introduction in rate-making of a de-coupling mechanism, forward test year and an investment tracker at its utility subsidiary.

For Mississippi Power Company, a fully forward test year and the ability to recover some construction-work-in-progress in rates lead to strong scoring for timeliness. Ratings also consider risks associated with construction of a power plant that will utilize lignite and integrated gasification combined cycle technology, that has experienced material costs overruns and that represents a high degree of asset concentration for the utility.

For MidAmerican Energy Company, the absence of a fuel cost pass-through mechanism at the time of this writing results in its relatively low scoring on timeliness. However, the company has proposed a fuel clause in its current rate case, and the regulatory framework has generally been quite credit supportive, which has helped the utility generate good financial metrics.

The primary utility divisions of PacifiCorp have forward test years that have a positive impact on timeliness, balanced against rate decisions that have been somewhat below average.

#### Outliers in Sufficiency of Rates and Returns

China Longyuan Power Group Corporation Ltd. has benefitted from a higher benchmark tariff for its wind power generation, balanced against a less well developed regulatory framework.

#### Outliers in Market Position

Okinawa Electric Power Company, Incorporated's service territory is a group of small islands with limited economic diversity, which negatively impacts its market position. Generation is highly dependent on coal and oil. These factors are balanced against a strong regulatory framework.

#### Outliers in Generation and Fuel Diversity

Ohio Power Company has been highly dependent on coal-fired generation but will be divesting generation assets in accordance with regulatory initiatives.

#### Outliers in Financial Strength

Distribuidora de Electricidad La Paz S.A. has strong historical financial metrics that are balanced against the somewhat unpredictable regulatory framework and the risk of government intervention in its business.

Gail (India) Limited has strong historical financial metrics that are balanced against higher business risk in its diversified, non-rate-regulated operations, including in oil and gas exploration and production. Financial metrics are expected to weaken somewhat relative to historical levels due to debt funded capex and are thus expected to be more in line with its rating going forward.

Gas Natural BAN S.A. has strong historical financial metrics that are expected to deteriorate due to frozen tariff positions, reflected in weak scores for the regulatory environment. Its ratings are also impacted by debt maturities that are concentrated in the short term and the Government of Argentina's B3 negative rating.

## Appendix D: 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<sup>14</sup> 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

<sup>14</sup> See paragraph at the end of this section for approaches to Hybrid HoldCos.

- » 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

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

Our approach to a Hybrid HoldCo (see definition in Appendix E) 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. 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 the regulatory framework or debt structural features, ratings among family members are likely to be more differentiated. For instance, for utility families with OpCos in the US, where regulatory barriers to free cash movement are relatively high, greater importance is generally placed on the stand-alone credit profile of the OpCo.

Our observation of major defaults and bankruptcies in the US sector generally corroborates a view that regulation creates a degree of separateness of default probability. For instance, Portland General Electric (Baa1 RUR-up) did not default on its securities, even though its then-parent Enron Corp. entered bankruptcy proceedings. When Entergy New Orleans (Ba2 stable) entered into bankruptcy, the ratings of its affiliates and parent Entergy Corporation (Baa3 stable) were unaffected. PG&E Corporation (Baa1 stable) did not enter bankruptcy proceedings despite bankruptcies of two major subsidiaries - Pacific Gas & Electric Company (A3 stable) in 2001 and National Energy Group in 2003.

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. Currently, most entities in US utility families (including HoldCos and OpCos) are rated within 3 notches of each other. However, Energy Future Holdings Corp. (Caa3 senior unsecured) and its T&D subsidiary Oncor Electric Delivery Company LLC (Baa3 senior secured) 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 (e.g., many parts of Asia and Europe) 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 E: 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. In the US, this 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 (primarily FERC). Companies that have been included in this group include certain generation companies (including in Korea and China) 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 (for example, Unregulated Utilities and Power Companies).

**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.

In the US, most ISOs were formed at the direction or recommendation of the Federal Energy Regulatory Commission (FERC), but the ISO that operates solely in Texas falls under state jurisdiction. Some US ISOs also perform certain additional functions such that they are designated as Regional Transmission Organizations (or RTOs).

**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 been rated under the Regulated Networks methodology, and we expect that FERC-regulated transmission-only utilities in the US will also transition to the Regulated Networks when that methodology is updated (expected in 2014).

**Utility Holding Company (Utility HoldCo):** As detailed in Appendix D, 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.

## Appendix F: Key Industry Issues Over the Intermediate Term

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### Political and Regulatory Issues

As highly regulated monopolistic entities, regulated utilities continually face political and regulatory risk, and managing these risks through effective outreach to key customers as well as key political and regulatory decision-makers is, or at least should be, a core competency of companies in this sector. However, larger waves of change in the political, regulatory or economic environment have the potential to cause substantial changes in the level of risk experienced by utilities and their investors in somewhat unpredictable ways.

One of the more universal risks faced by utilities currently is the compression of allowed returns. A long period of globally low interest rates, held down by monetary stimulus policies, has generally benefitted utilities, since reductions in allowed returns have been slower than reductions in incurred capital costs. Essentially all regulated utilities face a ratcheting down of allowed and/or earned returns. More difficult to predict is how regulators will respond when monetary stimulus reverses, and how well utilities will fare when fixed income investors require higher interest rates and equity investors require higher total returns and growth prospects.

The following global snapshot highlights that regulatory frameworks evolve over time. On an overall basis in the US over the past several years, we have noted some incremental positive regulatory trends, including greater use of formula rates, trackers and riders, and (primarily for natural gas utilities) de-coupling of returns from volumetric sales. In Canada, the framework has historically been viewed as predictable and stable, which has helped offset somewhat lower levels of equity in the capital structure, but the compression of returns has been relatively steep in recent years. In Japan, the regulatory authorities are working through the challenges presented by the decision to shut down virtually all of the country's nuclear generation capacity, leading to uncertainty regarding the extent to which increased costs will be reflected in rate increases sufficient to permit returns on capital to return to prior levels. China's regulatory framework has continued to evolve, with fairly low transparency and some time-to-time shifts in favored versus less-favored generation sources balanced by an overall state policy of assuring sustainability of the sector, adequate supply of electricity and affordability to the general public. Singapore and Hong Kong have fairly well developed and supportive regulatory frameworks despite a trend towards lower returns, whereas Malaysia, Korea and Thailand have been moving towards a more transparent regulatory framework. The Philippines is in the process of deregulating its power market, while Indian power utilities continue to grapple with structural challenges. In Latin America, there is a wide dispersion among frameworks, ranging from the more stable, long established and predictable framework in Chile to the decidedly unpredictable framework in Argentina. Generally, as Latin American economies have evolved to more stable economic policies, regulatory frameworks for utilities have also shown greater stability and predictability.

All of the other issues discussed in this section have a regulatory/political component, either as the driver of change or in reaction to changes in economic environments and market factors.

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### Economic and Financial Market Conditions

As regulated monopolies, electric and gas utilities have generally been quite resistant to unsettled economic and financial market conditions for several reasons. Unlike many companies that face direct market-based competition, their rates do not decrease when demand decreases. The elasticity of demand for electricity and gas is much lower than for most products in the consumer economy. When financial markets are volatile, utilities often have greater capital market access than industrial companies in competitive sectors, as was the case in the 2007-2009 recession. However, regulated electric and gas utilities are by no means immune to a protracted or severe recession.

Severe economic malaise can negatively affect utility credit profiles in several ways. Falling demand for electricity or natural gas may negatively impact margins and debt service protection measures, especially when rates are designed such that a substantial portion of fixed costs is in theory recovered through volumetric charges. The decrease in demand in the 2007-2009 recession was notable in comparison to prior recessions, especially in the residential sector. Poor economic conditions can make it more difficult for regulators to approve needed rate increases or provide timely cost recovery for utilities, resulting in higher cost deferrals and longer regulatory lag. Finally, recessions can coincide with a lack of confidence in the utility sector that impacts access to capital markets for a period of time. For instance, in the Great Depression and (to a lesser extent) in the 2001 recession, access for some issuers was curtailed due to the sector's generally higher leverage than other corporate sectors, combined with a concerns over a lack of transparency in financial reporting.

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### Fuel Price Volatility and the Global Impact of Shale Gas

The ability of most utilities to pass through their fuel costs to end users may insulate a utility from exposure to price volatility of these fuels, but it does not insulate consumers. Consumers and regulators complained vociferously about utility rates during the run-up in hydro-carbon prices in 2005-2008 (oil, natural gas and, to a lesser extent, coal). The steep decline in US natural gas prices since 2009, caused in large part by the development of shale gas and shale oil resources, has been a material benefit to US utilities, because many have been able to pass through substantial base rate increases during a period when all-in rates were declining. Shale hydro-carbons have also had a positive impact, albeit one that is less immediate and direct, on non-US utilities. In much of the eastern hemisphere, natural gas prices under long-term contracts have generally been tied to oil prices, but utilities and other industrial users have started to have some success in negotiating to de-link natural gas from oil. In addition, increasing US production of oil has had a noticeable impact on world oil prices, generally benefitting oil and gas users.

Not all utilities will benefit equally. Utilities that have locked in natural gas under high-priced long-term contracts that they cannot re-negotiate are negatively impacted if they cannot pass through their full contracted cost of gas, or if the high costs cause customer dissatisfaction and regulatory backlash. Utilities with large coal fleets or utilities constructing nuclear power plants may also face negative impacts on their regulatory environment, since their customers will benefit less from lower natural gas prices.

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### Distributed Generation Versus the Central Station Paradigm

The regulation and the financing of electric utilities are based on the premise that the current model under which electricity is generated and distributed to customers will continue essentially unchanged for many decades to come. This model, called the central station paradigm (because electricity is generated in large, centrally located plants and distributed to a large number of customers, who may in fact be hundreds of miles away), has been in place since the early part of the 20<sup>th</sup> century. The model has worked because the economies of scale inherent to very large power plants has more than offset the cost and inefficiency (through power losses) inherent to maintaining a grid for transmitting and distributing electricity to end users.

Despite rate structures that only allow recovery of invested capital over many decades (up to 60 years), utilities can attract capital because investors assume that rates will continue to be collected for at least that long a period. Regulators and politicians assume that taxes and regulatory charges levied on electricity usage will be paid by a broad swath of residences and businesses and will not materially discourage usage of electricity in a way that would decrease the amount of taxes collected. A corollary

assumption is that the number of customers taking electricity from the system during that period will continue to be high enough such that rates will be reasonable and generally more attractive than other alternatives. In the event that consumers were to switch en masse to alternate sources of generating or receiving power (for instance distributed generation), rates for remaining customers would either not cover the utility's costs, or rates would need to be increased so much that more customers may be incentivized to leave the system. This scenario has been experienced in the regulated US copper wire telephone business, where rates have increased quite dramatically for users who have not switched to digital or wireless telephone service. While this scenario continues to be unlikely for the electricity sector, distributed generation, especially from solar panels, has made inroads in certain regions.

Distributed generation is any retail-scale generation, differentiated from self-generation, which generally describes a large industrial plant that builds its own reasonably large conventional power plant to meet its own needs. While some residential property owners that install distributed generation may choose to sever their connection to the local utility, most choose to remain connected, generating power into the grid when it is both feasible and economic to do so, and taking power from the grid at other times. Distributed generation is currently concentrated in roof-top photovoltaic solar panels, which have benefitted from varying levels of tax incentives in different jurisdictions. Regulatory treatment has also varied, but some rate structures that seek to incentivize distributed renewable energy are decidedly credit negative for utilities, in particular net metering.

Under net metering, a customer receives a credit from the utility for all of its generation at the full (or nearly full) retail rate and pays only for power taken, also at the retail rate, resulting in a materially reduced monthly bill relative to a customer with no distributed generation. The distributed generation customer has no obligation to generate any particular amount of power, so the utility must stand ready to generate and deliver that customer's full power needs at all times. Since most utility costs, including the fixed costs of financing and maintaining generation and delivery systems, are currently collected through volumetric rates, a customer owning distributed generation effectively transfers a portion of the utility's costs of serving that customer to other customers with higher net usage, notably to customers that do not own distributed generation. The higher costs may incentivize more customers to install solar panels, thereby shifting the utility's fixed costs to an even smaller group of rate-payers. California is an example of a state employing net solar metering in its rate structure, whereas in New Jersey, which has the second largest residential solar program in the US, utilities buy power at a price closer to their blended cost of generation, which is much lower than the retail rate.

To date, solar generation and net metering have not had a material credit impact on any utilities, but ratings could be negatively impacted if the programs were to grow and if rate structures were not amended so that each customer's monthly bill more closely approximated the cost of serving that customer.

In our current view, the possibility that there will be a widespread movement of electric utility customers to sever themselves from the grid is remote. However, we acknowledge that new technologies, such as the development of commercially viable fuel cells and/or distributed electric storage, could materially disrupt the central station paradigm and the credit quality of the utility sector.

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## Nuclear Issues

Utilities with nuclear generation face unique safety, regulatory, and operational issues. The nuclear disaster at Fukushima Daiichi had a severely negative credit impact on its owner, Tokyo Electric Power Company, Incorporated (Ba3, negative), as well as all the nuclear utilities in the country. Japan previously generated about 30% of its power from 50 reactors, but all are currently either idled or shut down, and utilities in the country face materially higher costs of replacement power, a credit negative. Japan also created a new Nuclear Regulation Authority (NRA), under the Ministry of the Environment to replace the Nuclear Safety Commission, which had been under the Ministry of Economy, Trade and Industry. The NRA has not yet set any schedule for completing safety checks at idled plants.

Fukushima Daiichi also had global consequences. Germany's response was to require that all nuclear power plants in the country be shut by 2022. Switzerland opted for a phase-out by 2031. (Most European nuclear plants are owned by companies rated under other the Unregulated Utilities and Power Companies methodology.) Even in countries where the regulatory response was more moderate, increased regulatory scrutiny has raised operating costs, a credit negative, especially in the US, where low natural gas prices have rendered certain primarily smaller nuclear plants uneconomic. Nuclear license renewal decisions in the US are currently on hold until the Nuclear Regulatory Commission comes to a determination on the safety of spent fuel storage in the absence of a permanent repository. Nonetheless, we view robust and independent nuclear safety regulation as a credit-positive for the industry.

Other general issues for nuclear operators include higher costs and lower reliability related to the increasing age of the fleet. In 2013, Duke Energy Florida, Inc. (Baa1, RUR-up) decided to permanently shut Crystal River Unit 3 after it determined that a de-lamination (or separation) in the concrete of the outer wall of the containment building was uneconomic to repair. San Onofre Nuclear Generating Station was permanently closed in 2013 after its owners, including Southern California Edison Company (A3, RUR-up) and San Diego Gas & Electric Company (A2, RUR-up), decided not to pursue a re-start in light of operating defects in two steam generators that had been replaced in 2010 and 2011.

Korea Hydro and Nuclear Power Company Limited (KHNP, A1 stable) and its parent Korea Electric Power Corporation (KEPCO, A1 stable), face a scandal related to alleged corruption and acceptance of falsified safety documents provided by its parts suppliers for nuclear plants. Korean prosecutors' widening probe into KHNP's use of substandard parts at many of its 23 nuclear power plants caused three plants to be temporarily shut down starting in May 2013 and raises the risk the Korean public will lose confidence in nuclear power. However, more than 80% of substandard parts in the idled plants have been replaced, and a restart is expected in late 2013 or early 2014.

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## Appendix G: 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 in the publication [Updated Summary Guidance for Notching Bonds, Preferred Stocks and Hybrid Securities of Corporate Issuers, February 2007](#)), including a one notch differential between senior secured and senior unsecured debt. 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. Additional insights for speculative grade issuers are provided in the publication [Loss Given Default for Speculative-Grade Non-Financial Companies in the US, Canada and EMEA, June 2009](#)).

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 quite pervasive in the past two decades. 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. States that have implemented securitization frameworks include Arkansas, California, Connecticut, Illinois, Louisiana, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, Ohio, Pennsylvania, Texas and West Virginia. 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, Moody's makes its own assessment of the appropriate credit representation but in most cases follows the accounting in audited statements under US Generally Accepted Accounting Principles (GAAP), which in turn considers the terms of enabling legislation. As a result, accounting treatment may vary. In most states utilities have been required to consolidate securitization debt under GAAP, even though it is technically non-recourse.

In general, we view securitization debt of utilities as being on-credit debt, in part because the rates associated with it reduce the utility's headroom to increase rates for other purposes while keeping all-in rates affordable to customers. Thus, where accounting treatment is off balance sheet, we 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).

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### **Strong levels of government ownership in Asia Pacific (ex-Japan) provide rating uplift**

Strong levels of government ownership have dominated the credit profiles of utilities in Asia Pacific (excluding Japan), generally leading to ratings that are a number of notches above the Baseline Credit Assessment. Regulated electric and gas utilities with significant government ownership are rated using this methodology in conjunction with the Joint Default Analysis approach in our methodology for [Government-Related Issuers](#).

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### **Support system for large corporate entities in Japan can provide ratings uplift, with limits**

Moody's ratings for large corporate entities in Japan reflect the unique nature of the country's support system, and they are higher than they would otherwise be if such support were disregarded. This is reflected in the tendency for ratings of Japanese utilities to be higher than their grid implied ratings (currently higher on average by about 2 notches), while utilities globally tend to be more evenly distributed above and below their actual ratings. However, even for large prominent companies, our ratings consider that support will not be endless and is less likely to be provided when a company has questionable viability rather than being in need of temporary liquidity assistance.

## Appendix H: 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 Moody's regards 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 are thus analyzed by Moody's as PPAs.

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### **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.

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### Additional considerations for PPAs

PPAs have a wide variety of financial and regulatory characteristics, and each particular circumstance may be treated differently by Moody's. Factors which determine where on the continuum Moody's treats 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 Moody's recognizes that this is the fundamental reason for their existence. Thus, Moody's 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 Moody's regards 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, Moody's 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. Moody's will particularly focus 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 we 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. Moody's 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 Moody's analysts and a decision will be made as to the importance of the PPA to the risk analysis of the utility.

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### 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, Moody's 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, Moody's 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 otherwise due to limited information.
- » **Net Present Value:** Where the analyst has sufficient information, Moody's 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 Moody's believes 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 Research

### Industry Outlooks:

- » [US Regulated Utilities: Regulation Provides Stability as Business Model Faces Challenges, July 2013 \(156754\)](#)
- » [Asian Power Utilities \(ex-Japan\): Broad Stable Outlook; India an Outlier, March 2013 \(149101\)](#)

### Rating Methodologies:

- » [US Electric Generation & Transmission Cooperatives, April 2013, \(151814\)](#)
- » [How Sovereign Credit Quality May Affect Other Ratings, February 2012 \(139495\)](#)
- » [Unregulated Utilities and Power Companies, August 2009 \(118508\)](#)
- » [Regulated Electric and Gas Networks, August 2009 \(118786\)](#)
- » [Natural Gas Pipelines, November 2012 \(146415\)](#)
- » [US Public Power Electric Utilities with Generation Ownership Exposure, November 2011 \(135299\)](#)
- » [US Electric Generation & Transmission Cooperatives, April 2013 \(151814\)](#)
- » [US Municipal Joint Action Agencies, October 2012 \(145899\)](#)
- » [Government Related Issuers: Methodology Update, July 2010 \(126031\)](#)
- » [Global Regulated Water Utilities, December 2009 \(121311\)](#)

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

The credit ratings assigned in this sector are primarily determined by this credit rating methodology. Certain broad methodological considerations (described in one or more secondary or cross-sector credit rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments in this sector. Potentially related secondary and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings assigned using this credit rating methodology, see [link](#).

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# MOODY'S

## INVESTORS SERVICE

### CREDIT OPINION

26 February 2016

#### Update

#### RATINGS

##### NATIONAL FUEL GAS COMPANY

Domicile	Williamsville, New York, United States
Long Term Rating	Baa3
Type	Senior Unsecured - Dom Curr
Date	18 Feb 2016
Outlook	Stable
Date	18 Feb 2016

Please see the ratings section at the end of this report for more information.

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## National Fuel Gas Company

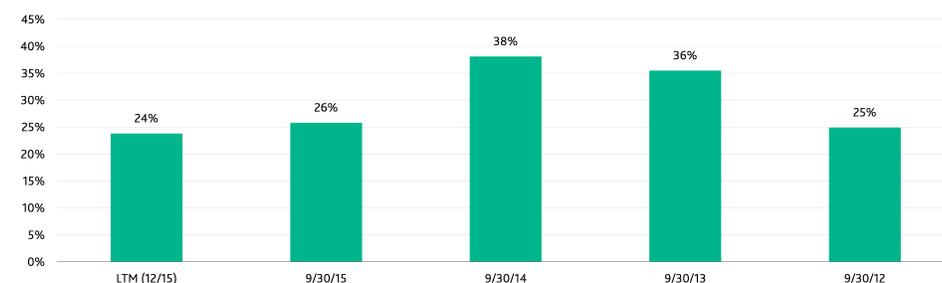
Update following the February 2016 downgrade

### Summary Rating Rationale

National Fuel Gas' (NFG) Baa3 senior unsecured rating reflects the company's integrated business model involving natural gas production, transportation, storage, and distribution; low cost E&P platform supported by its large land position with minimal royalty burden in the Marcellus Shale; and significant stable, fee-based cash flows from its regulated natural gas pipeline and distribution businesses. Additionally, the Baa3 rating is supported by our expectation of adequate liquidity and covenant cushion as well as continued cost reductions in the E&P business. The Baa3 rating also considers weak cash flow prospects from NFG's E&P business segment, slower anticipated growth in midstream volumes and our expectation of elevated financial leverage through 2017 as the company tries to balance its capital spending and dividends against operating cash flows. While the company's stable and significant cash flows from the regulated pipeline and natural gas distribution businesses will continue to provide strong rating support, the company will have limited flexibility to reduce leverage over the next two years in a challenging oil and natural gas price environment. However, the company has the ability to reduce capital spending and delay midstream projects supporting its E&P development program if industry conditions do not improve.

Exhibit 1

#### Retained Cash Flow to Debt



Source: Company Filings and Moody's Financial Metrics

### Credit Strengths

- » Integrated business model with historically conservative financial management
- » Stable and significant cash flows from regulated assets supporting interest and dividends
- » Low-cost gas production platform in northern Appalachia

## Credit Challenges

- » Elevated financial leverage from historical levels
- » Operational and cash flow concentration in the Appalachia
- » The need to spend significant growth capital for scale enhancement

## Rating Outlook

The rating outlook is stable.

## Factors that Could Lead to an Upgrade

To consider an upgrade, we'd look for sustainable positive trends in both upstream and midstream businesses and a retained cash flow to debt ratio above 30%.

## Factors that Could Lead to a Downgrade

A downgrade may result if the company is unable to sustain the retained cash flow to debt ratio above 20% or the debt to EBITDA ratio under 3.5x.

## Key Indicators

Exhibit 2

KEY INDICATORS [1]					
National Fuel Gas Company					
	12/31/2015(L)	9/30/2015	9/30/2014	9/30/2013	9/30/2012
Avg Daily Production (Mboe/d)	67	72	73	55	38
Proved Developed Reserves (Million boe)	253	253	234	183	139
Total Proved Reserves (Million boe)	391	391	319	258	208
Leveraged Full-Cycle Ratio	1.6x	1.9x	2.0x	2.0x	2.4x
E&P Debt / Average Daily Production	\$14,081	\$13,176	\$11,167	\$13,737	\$17,558
E&P Debt / PD boe Reserves	\$3.8	\$3.8	\$3.5	\$4.1	\$3.1
RCF / Total Debt	24%	26%	38%	36%	25%
EBITDA / Interest Expense	7.3x	8.5x	10.0x	8.3x	7.5x
E&P Unleveraged Cash Margin / BOE	\$16	\$16	\$20	\$25	\$29

[1] All ratios are based on "Adjusted" financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Source: Moody's Financial Metrics™

Source: Moody's Financial Metrics

## Detailed Rating Considerations

### ELEVATED LEVERAGE THROUGH 2017

Following a period of heavy capital investments, NFG's leverage has increased from its historically conservative levels. The debt to EBITDA ratio (after adjustments for operating leases and pensions) was 2.8x at December 31, 2015 and it will hover around 3x as the company tries to expand its upstream and midstream asset platforms through 2018. Despite plans to significantly scale back capex in 2016 in response to low commodity prices, the company will continue to spend a substantial amount of growth capital on its midstream business, and as a result, will lack free cash flow through 2018. Ultimately a larger regulated pipeline business will generate high quality, stable cash flows and significantly improve price realizations for its Marcellus natural gas production. However, the upfront investments will push leverage to a higher level for a period. We believe the increase in leverage will be temporary and the company will look to delever once the Northern Access pipeline is complete. If leverage remains elevated above 3.5x, the Baa3 rating will likely come under pressure.

### INTEGRATED BUSINESS MODEL AND MEANINGFUL REGULATED ASSETS SUPPORT RATING

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moody's.com](http://www.moody's.com) for the most updated credit rating action information and rating history.

Despite its long term strategy to grow the E&P business, NFG remains committed to an integrated business model by maintaining and strengthening its regulated operations. Most of the Marcellus natural gas produced by NFG is transported by its midstream subsidiary to other major interstate pipelines. The company plans to grow E&P production in lock-step with the expansion of the midstream business. Vertical integration within the regulated business segments provides an added measure of stability with roughly half of the transportation and storage capacity on National Fuel Gas' system under contract to its utility and energy marketing subsidiaries.

The company's pipeline and storage businesses are regulated by the FERC and the utility business is regulated by New York and Pennsylvania public service commissions. Earnings and cash flow are much less volatile in these regulated businesses relative to its unregulated E&P and gas gathering business segments. The regulated businesses require modest maintenance capex and generate significant free cash flow. In total, regulated businesses will contribute above 55% of EBITDA in fiscal 2016. These stable sources of cash flow can be used to fund the annual interest expense of around \$120 million and an annual dividend of \$135 million with the remainder available for reinvestment.

### Liquidity Analysis

NFG should have adequate liquidity through early 2017 based on our expectation of break-even to slightly negative free cash flow in 2016 following sharply reduced capital spending of about \$600 million and planned dividend payments of \$135 million. The company had \$36 million of cash and a \$750 million committed revolving credit facility that was undrawn at December 31, 2015 and the credit facility matures in December 2019. The company also has a \$500 million 364-day revolver maturing in September 2016. There was \$31 million outstanding at December 31, 2015 under the company's \$500 million commercial paper program, which is backed by NFG's \$750 million revolver. We project that covenant compliance will not be an issue through 2016 to maintain access to the revolver. The credit agreement requires NFG to maintain its ratio of debt to capitalization ratio below 65%, and at December 31, 2015 the ratio was 54%. Given its unsecured revolving credit, NFG has access to significant alternate liquidity by either selling or monetizing assets.

### Corporate Profile

National Fuel Gas Company is a vertically integrated energy holding company that has an exploration & production (E&P) subsidiary (49% of fiscal 2015 EBITDA), midstream businesses comprised of natural gas gathering, interstate pipeline and storage assets (30%), a regulated gas distribution utility (19%), and an energy marketing business (1%). All subsidiaries are wholly-owned by NFG. The company's primary E&P operations are in the Marcellus Shale in Appalachia (87% of fiscal 2015 production, 89% of total reserves), but it also has some exposure to California. Company-wide production averaged 72,000 boe per day (boe/d) in fiscal 2015. The midstream businesses consists of Federal Energy Regulatory Commission (FERC) regulated pipeline and storage facilities located in Pennsylvania and New York and a growing natural gas gathering system in Pennsylvania that primarily gathers NFG's gas production. The natural gas utility serves northwest Pennsylvania and western New York population centers.

### Rating Methodology and Scorecard Factors

#### GRID-INDICATED RATING

We rate NFG primarily as an exploration & production (E&P) company, since we expect this segment to consume the majority of the company's capital in future years and underpin its midstream growth strategy. On a standalone basis, with debt allocated based on the allocation of interest expense to each segment, NFG's E&P business would be comparable to a low Ba rated company. If the midstream business (gathering, interstate pipeline and storage) was evaluated on a standalone basis, its relatively low leverage and significant regulated earnings would be comparable to a high Ba to a low Baa rated company. However, the midstream business has some capital and growth risks. The natural gas utility could independently support a low A rating given the regulatory regime in its service area and its conservative capitalization. On a consolidated basis, the midstream and utility businesses enhance NFG's business risk profile by adding scale, diversity, and earnings stability. This, combined with the company's overall moderate financial leverage, supports the Baa3 rating.

Using Moody's Global Independent Exploration & Production Methodology, NFG's E&P business maps to a low Ba rating based on Moody's forward view through mid-2017. The assigned Baa3 rating reflects the incremental scale, diversity, and earnings stability from the regulated pipeline and gathering businesses.

## Exhibit 3

Rating Factors			Moody's 12-18 Month Forward View As of 2/23/2016 [3]	
National Fuel Gas Company			Measure	Score
Independent Exploration & Production Industry Grid [1][2]			Current LTM 12/31/2015	
Factor 1: Reserves & Production Characteristics (40.0%)			Measure	Score
a) Avg Daily Production (Mboe/d)	67	Ba	70 - 75	Ba
b) Proved Developed Reserves (Million boe)	253	Ba	250 - 260	Ba
c) Total Proved Reserves (Million boe)	391	Ba	380 - 400	Ba
Factor 2: Operating & Capital Efficiency (20.0%)				
a) Leveraged Full-Cycle Ratio	1.6x	Ba	1x - 1.5x	B
Factor 3: Leverage and Cash Flow Coverage (40.0%)				
a) E&P Debt / Average Daily Production	\$14,081	A	\$14000 - \$16000	Baa
b) E&P Debt / PD boe Reserves	\$3.8	A	\$4 - \$5	A
c) RCF / Total Debt	24%	B	20% - 25%	B
d) EBITDA / Interest Expense	7.3x	Ba	5.4x - 6.4x	B
Factor 4: Production Mix Overlay (Composite Score Adjustment)				
a) E&P Unleveraged Cash Margin / BOE	\$16	Caa	\$13 - \$15	Caa
Rating:				
Indicated Rating from Grid Factors 1-3		Ba1		Ba2
Unleveraged Cash Margin: Composite Score Adjustment		-0.2	-0.2	-0.2
a) Indicated Rating from Grid		Ba1		Ba3
b) Actual Rating Assigned				Baa3
[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's				
[2] As of 12/31/2015(L); Source: Moody's Financial Metrics™				
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and				

Source: Moody's Financial Metrics

## Ratings

## Exhibit 4

Category	Moody's Rating
<b>NATIONAL FUEL GAS COMPANY</b>	
Outlook	Stable
Senior Unsecured	Baa3
Commercial Paper	P-3

Source: Moody's Investors Service

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REPORT NUMBER 1016135

# MOODY'S

## INVESTORS SERVICE

### Rating Action: Moody's concludes reviews for 9 US Baa-rated E&P companies and 2 MLPs

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Global Credit Research - 18 Feb 2016

Note: On May 16, 2016, the press release was corrected as follows: In the Ratings Rationale section, the following was added as the twelfth paragraph: "Please click on this link for the outlooks and factors that could lead to an upgrade or downgrade of the ratings for each of the issuers discussed in this press release. This link is an integral part of this press release." Revised release follows.

New York, February 18, 2016 -- Moody's Investors Service (Moody's) concluded rating reviews on nine Baa-rated US exploration and production (E&P) companies, along with two associated midstream entities. Moody's confirmed three companies' ratings, and downgraded three companies' ratings one notch, two companies' ratings two notches, two companies' ratings three notches, and one company's ratings four notches. A list of each company's rating actions is included below.

Oil prices have dropped substantially reflecting continuing oversupply in the global oil markets, very high inventory levels and additional Iranian oil exports coming on line. Furthermore, North American natural gas and natural gas liquids prices remain quite weak. Moody's lowered its oil price estimates on January 21 and expects a slow recovery for oil prices over the next several years. For E&P companies, cash flow declines in tandem with oil and natural gas prices, with the decline weakening credit metrics and liquidity, and increasing their negative free cash flow. The drop in energy prices and corresponding capital markets concerns will also raise financing costs and increase refinancing risks for E&P companies.

The drop in oil prices and weak natural gas prices has caused a fundamental change in the energy industry, and its ability to generate cash flow has fallen substantially. Moody's believes this condition will persist for several years. As a result, Moody's is recalibrating the ratings of many energy companies to reflect this industry shift. However, the impact of the drop in oil prices and low natural gas prices will vary substantially from issuer to issuer. Therefore, Moody's confirmed the current ratings of some companies, while downgrading others by multiple notches.

#### RATINGS RATIONALE

##### Anadarko Petroleum Corporation

Moody's downgraded Anadarko's senior unsecured ratings to Ba1 from Baa2 with a negative outlook. At the same time Moody's assigned a Ba1 Corporate Family Rating (CFR). The downgrade reflects the company's substantially lower forecasted cash flow generation under Moody's commodity price estimates, high debt levels relative to cash flow and Moody's expectation of some production declines caused by reduced capital investment. These concerns are partially offset by the company's low operating and reserve replacement costs, allowing Anadarko to replace reserves at lower break-even commodity prices than many of its large E&P peers. The company benefits from a globally diversified property base that includes a mix of conventional and unconventional onshore and offshore resources, which provides a lower overall production decline rate and capital intensity than peers focused solely on unconventional onshore US properties. Anadarko has large debt maturities in 2016 and 2017 that it plans to refinance, and the company has adequate liquidity, supported by its inventory of undeveloped discoveries and equity ownership in Western Gas Equity Partners (unrated) that provide saleable assets even in a more challenging industry environment.

##### Western Gas Partners, LP

Moody's downgraded Western Gas' senior unsecured ratings to Ba1 from Baa3 with a negative outlook, consistent with the downgrade of its parent company, Anadarko Petroleum. Moody's also assigned a Ba1 Corporate Family Rating (CFR). Western Gas' ratings are supported by its high proportion of fee-based revenues that provides revenue stability, good commodity and basin diversification, and relatively low financial leverage. The partnership's direct commodity price exposure is limited by hedging arrangements with Anadarko, but it does have exposure to fluctuations in production volumes, particularly in its gathering business. While its stand-alone credit attributes could support a Baa3 rating, Western Gas' high customer concentration risk with Anadarko combined with Anadarko's controlling ownership effectively limits its rating to

that of Anadarko's.

#### Cimarex Energy Co.

Moody's confirmed Cimarex Energy Co.'s Baa3 senior unsecured notes ratings with a stable outlook. The Baa3 rating is supported by management's maintenance of highly conservative financial policies through various commodity price cycles. A weak commodity price outlook will pressure the company's returns and cash flow-based leverage metrics in 2016, but with a modest recovery expected by Moody's in 2017. Moreover, we do not project any increases in Cimarex's debt balances through 2017, with cash flow outspending being funded with cash on the balance sheet.

#### Continental Resources, Inc.

Moody's downgraded Continental Resources' senior unsecured notes rating to Ba3 from Baa3. Moody's also assigned a Ba3 Corporate Family Rating (CFR). The Ba3 CFR reflects the company's high level of debt, elevated leverage metrics, geographic concentration, and the lack of oil hedges in the current depressed crude oil price environment. The company is cutting capex by two-thirds in 2016 but this is not expected to result in any meaningful production decline. However, the Ba3 CFR considers the reduced cash margins, credit metrics deterioration, and the weaker leveraged full cycle ratio. Nonetheless, the company's ratings are supported by its high quality asset base and prominent position in two major oil producing plays, and its relatively low finding and development costs. Continental Resources has also been a very strong operator historically and continues to demonstrate its ability to bring down costs as the commodity price downturn has worsened.

#### EQT Corporation

Moody's confirmed EQT's senior unsecured ratings at Baa3 with a stable outlook. The confirmation reflects EQT's high quality acreage position in the Marcellus Shale and very low cost structure that allows it to replace production and reserves even in a weak natural gas price environment. The company's cost structure and overall credit profile benefits from the ownership of strategic transportation and storage assets that move its production volumes to market at low cost. These midstream assets also have substantial asset value to support debt and generate third party cash flow. The company's cash flow based leverage metrics will be somewhat elevated because of exceptionally weak gas prices in 2016, but those metrics remain better than most peers. EQT's consistent hedging practices, policy of maintaining large cash balances relative to debt and multiple sources of capital mitigate the risks of persistently low natural gas prices on its financial metrics.

#### EQT Midstream Partners, LP

Moody's confirmed EQT Midstream's Ba1 Corporate Family Rating (CFR) with a stable outlook. The partnership's Ba1 CFR reflects its stand-alone credit profile of Ba2 with one notch of ratings uplift to reflect its strategic importance to EQT and the continued support of the partnership's growth through conservatively funded asset drop downs from EQT. EQT Midstream's asset base benefits from its close proximity to rising production in the Marcellus Shale and the critical nature of its pipelines for moving natural gas within the region to long haul pipelines. The fee-based nature of its revenues, long-term contracts that mitigate volume risk and low financial leverage further support its ratings. The ratings are restrained by EQT Midstream's basin concentration and the large scale and inherent execution risk of its Mountain Valley Pipeline joint venture, a project to construct a new interstate natural gas pipeline, where EQT Midstream serves as the operator and largest equity owner.

#### Hess Corporation

Moody's downgraded Hess's senior unsecured rating to Ba1 from Baa2 and at the same time assigned a Ba1 Corporate Family Rating (CFR) with a stable outlook. Hess's Ba1 CFR reflects its geographically diversified, oil-weighted production and reserve base, which has been reconfigured into a pure play E&P portfolio of short-cycle, notably the Bakken Shale where Hess is the third largest producer, and long-cycle producing assets. High debt levels relative to cash flow resulting from weak crude oil prices and a weak leveraged full-cycle ratio (LFCR), are cushioned by Hess's strong liquidity position, which fully funds projected negative free cash flow. Liquidity has been bolstered by the net proceeds of February's issuance of equity and preferred stock, supplementing balance sheet cash. Hess has reduced 2016's capital budget in an effort to manage negative free cash flow, and Moody's believes capital spending can fall further in 2017 as major projects in the North Malay Basin and the deepwater Gulf of Mexico are completed and initiate their production. Hess also has the flexibility to further reduce spending in the Bakken Shale should crude prices remain weak, although its acreage is concentrated in the core of the Bakken, including McKenzie County, among the most productive

acreage in the Bakken.

#### Murphy Oil Corporation

Moody's downgraded Murphy Oil Corporation's (Murphy) senior unsecured notes to B1 from Baa3, with a negative outlook. At the same time, Moody's assigned a Ba3 Corporate Family Rating (CFR), which reflects higher financial leverage through 2017, with increasing debt balances and declining production. In addition, the company has a weak liquidity profile, with upcoming bank and bond maturities in 2017. The Ba3 CFR is supported by the scale of Murphy's production and reserves. While Murphy has meaningful production concentration in Malaysia and proved developed reserve concentration in the Canadian oil sands, its remaining production and reserve profile is well diversified across several basins. Murphy's high exposure to liquids production and oil-link sales of liquefied natural gas benefits its cash margins relative to its peers.

#### National Fuel Gas Company

Moody's downgraded National Fuel Gas' senior unsecured rating to Baa3 from Baa2 with a stable outlook. This reflects weaker cash flow prospects from the E&P business segment, slower anticipated growth in midstream volumes and Moody's expectation of elevated financial leverage through 2017 as the company tries to balance its capital spending and dividends against operating cash flows. While the company's stable and significant cash flows from the regulated pipeline and natural gas distribution businesses will continue to provide strong rating support, the company will have limited flexibility to reduce leverage over the next two years in a challenging oil and natural gas price environment. Despite plans to scale back capex significantly, the company will continue to spend a substantial amount of growth capital to expand its midstream and E&P operations, and as a result, will lack free cash flow through 2018. However, the company has the ability to reduce capital spending and delay midstream projects supporting its E&P development program if industry conditions do not improve. The Baa3 rating is supported by Moody's expectation of adequate liquidity and covenant cushion as well as continued cost reductions in the E&P business.

#### Noble Energy, Inc.

Moody's downgraded Noble to Baa3 from Baa2 with a negative outlook. The downgrade reflects a gradual deterioration in the company's cash flow generation and credit metrics through 2017. Noble has relatively high leverage levels and has longer term funding needs associated with its large scale exploration and development programs. Noble's Baa3 rating is supported by its large scale of operations, geographically diversified asset base and conservative financial management. Management's proactive approach to preserve liquidity by reducing capital spending and dividends, combined with its hedging program, partially offset the impact of weak commodity prices on the company's credit profile. An exploration program with a good track record has resulted in large-scale, valuable discoveries in the Eastern Mediterranean and the deepwater Gulf of Mexico, which could be monetized. Complementing some of these longer life, large and potentially higher risk projects are Noble's shorter cycle, lower risk onshore US unconventional development activity.

#### Southwestern Energy Company

Moody's downgraded Southwestern Energy's senior unsecured notes rating to B1 from Baa3. At the same time, Moody's assigned a B1 Corporate Family Rating (CFR). The B1 CFR reflects Southwestern's low capital efficiency which is highly levered to natural gas prices, elevated leverage metrics, and reserve concentration risk in the Fayetteville and Marcellus Shales. Southwestern has had increasing leverage since early 2015 partially due to its large debt financed Appalachian acquisitions. Southwestern has experienced decreasing EBITDA due to weakening natural gas prices, which are expected to remain low and range-bound over the next several years. Southwestern's inventory of economic drilling location has decreased despite its favorable cost structure due to steep deterioration in commodity prices. Nevertheless, the B1 CFR is supported by its low finding and development costs which are among the best in the industry, and management's historically conservative financial philosophy which has included the strategy of issuing common equity and selling assets in efforts to preserve balance sheet strength. The rating also reflects the likelihood for some further cost reduction and Moody's expectation that Southwestern will not outspend cash flow from operations materially.

Please click on this link [http://www.moodys.com/viewresearchdoc.aspx?docid=PBC\\_189598](http://www.moodys.com/viewresearchdoc.aspx?docid=PBC_189598) for the outlooks and factors that could lead to an upgrade or downgrade of the ratings for each of the issuers discussed in this press release. The link is an integral part of this press release.

The principal methodology used in rating Cimarex Energy Co., Murphy Oil Corporation, Continental Resources, Inc., Southwestern Energy Company, EQT Corporation, Anadarko Petroleum Corporation, Anadarko Finance Company, Kerr-McGee Corporation, Union Pacific Resources Group Inc., Noble Energy,

Inc., Hess Corporation, and National Fuel Gas Company was Global Independent Exploration and Production Industry published in December 2011. The principal methodology used in rating EQT Midstream Partners, LP and Western Gas Partners, LP was Global Midstream Energy published in December 2010. Please see the Ratings Methodologies page on [www.moodys.com](http://www.moodys.com) for a copy of these methodologies.

Issuer: Cimarex Energy Co.

..Confirmations:

...Senior Unsecured Regular Bond/Debenture, Confirmed at Baa3

Outlook Actions:

...Outlook, Changed To Stable From Rating Under Review

Issuer: Murphy Oil Corporation

..Downgrades:

...Senior Unsecured Regular Bond/Debentures, Downgraded to B1 (LGD 5) from Baa3

..Assignments:

... Probability of Default Rating , Assigned Ba3-PD

... Speculative Grade Liquidity Rating , Assigned SGL-4

... Corporate Family Rating , Assigned Ba3

..Outlook Actions:

...Outlook, Changed To Negative From Rating Under Review

Issuer: Continental Resources, Inc.

..Downgrades:

...Senior Unsecured Regular Bond/Debentures, Downgraded to Ba3 (LGD 4) from Baa3

..Assignments:

... Probability of Default Rating , Assigned to Ba3-PD

... Speculative Grade Liquidity Rating , Assigned to SGL-3

... Corporate Family Rating , Assigned to Ba3

..Outlook Actions:

...Outlook, Changed To Stable From Rating Under Review

Issuer: Southwestern Energy Company

..Downgrades:

...Senior Unsecured Commercial Paper , Downgraded to NP from P-3

...Senior Unsecured Regular Bond/Debentures, Downgraded to B1 (LGD 4) from Baa3

..Assignments:

... Speculative Grade Liquidity Rating , Assigned SGL-3

... Probability of Default Rating , Assigned to B1-PD

... Corporate Family Rating, Assigned to B1

## ..Outlook Actions:

...Outlook, Changed To Stable From Rating Under Review

Issuer: Anadarko Finance Company

## ..Downgrades:

...Backed Senior Unsecured Regular Bond/Debenture, Downgraded to Ba1 (LGD 4) from Baa2

## ..Outlook Actions:

...Outlook, Changed To Negative From Rating Under Review

Issuer: EQT Corporation

## ..Confirmations:

...Senior Unsecured Medium-Term Note Program , Confirmed at (P)Baa3

...Senior Unsecured Regular Bond/Debentures, Confirmed at Baa3

...Senior Unsecured Shelf, Confirmed at (P)Baa3

## Outlook Actions:

...Outlook, Changed To Stable From Rating Under Review

Issuer: Anadarko Petroleum Corporation

## ..Downgrades:

...Senior Unsecured Commercial Paper, Downgraded to NP from P-2

...Senior Unsecured Regular Bond/Debentures, Downgraded to Ba1 (LGD 4) from Baa2

...Senior Unsecured Shelf, Downgraded to (P)Ba1 from (P)Baa2

## ..Assignments:

... Probability of Default Rating , Assigned to Ba1-PD

... Speculative Grade Liquidity Rating, Assigned to SGL-3

... Corporate Family Rating, Assigned to Ba1

## ..Outlook Actions:

...Outlook, Changed To Negative From Rating Under Review

Issuer: Kerr-McGee Corporation

## ..Downgrades:

...Senior Unsecured Regular Bond/Debentures, Downgraded to Ba1 (LGD 4) from Baa2

...Backed Senior Unsecured Regular Bond/Debentures, Downgraded to Ba1 (LGD 4) from Baa2

## ..Outlook Actions:

...Outlook, Changed To Negative From Rating Under Review

Issuer: Union Pacific Resources Group Inc.

## ..Downgrades:

...Backed Senior Unsecured Regular Bond/Debentures , Downgraded to Ba1 (LGD 4) from Baa2

..Outlook Actions:

....Outlook, Changed To Negative From Rating Under Review

Issuer: EQT Midstream Partners, LP

..Lowered:

.... Speculative Grade Liquidity Rating , Lowered to SGL-3 from SGL-2

..Confirmations:

.... Probability of Default Rating , Confirmed at Ba1-PD

.... Corporate Family Rating , Confirmed at Ba1

....Senior Unsecured Regular Bond/Debentures, Confirmed at Ba1 (LGD 4)

....Senior Unsecured Shelf, Confirmed at (P)Ba1

..Outlook Actions:

....Outlook, Changed To Stable From Rating Under Review

Issuer: Western Gas Partners, LP

..Downgrades:

....Senior Unsecured Regular Bond/Debentures, Downgraded to Ba1 (LGD 4)from Baa3

....Senior Unsecured Shelf, Downgraded to (P)Ba1 from (P)Baa3

..Assignments:

.... Probability of Default Rating , Assigned Ba1-PD

.... Speculative Grade Liquidity Rating , Assigned SGL-3

.... Corporate Family Rating , Assigned Ba1

..Outlook Actions:

....Outlook, Changed To Negative From Rating Under Review

Issuer: Noble Energy, Inc.

..Downgrades:

....Senior Unsecured Regular Bond/Debentures, Downgraded to Baa3 from Baa2

..Outlook Actions:

....Outlook, Changed To Negative From Rating Under Review

Issuer: Hess Corporation

..Downgrades:

....Senior Unsecured Regular Bond/Debentures, Downgraded to Ba1 (LGD 4) from Baa2

..Assignments:

Probability of Default Rating , Assigned Ba1-PD

.... Speculative Grade Liquidity Rating , Assigned SGL-1

... Corporate Family Rating , Assigned Ba1

..Outlook Actions:

...Outlook, Changed To Stable From Rating Under Review

Issuer: National Fuel Gas Company

..Downgrades:

... Commercial Paper, Downgraded to P-3 from P-2

...Senior Unsecured Medium-Term Note Program, Downgraded to (P)Baa3 from (P)Baa2

...Senior Unsecured Regular Bond/Debentures, Downgraded to Baa3 from Baa2

...Underlying Senior Unsecured Regular Bond/Debentures, Downgraded to Baa3 from Baa2

...Senior Unsecured Shelf, Downgraded to (P)Baa3 from (P)Baa2

..Outlook Actions:

...Outlook, Changed To Stable From Rating Under Review

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## Summary:

# National Fuel Gas Co.

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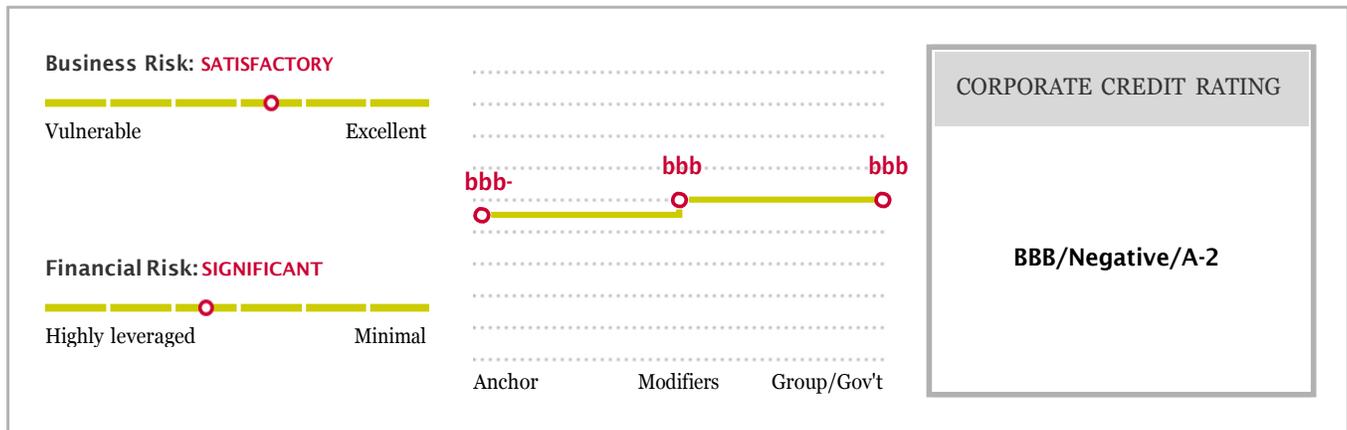
Financial Risk

Liquidity

Ratings Score Snapshot

Related Criteria And Research

# Summary: National Fuel Gas Co.



## Rationale

Business Risk: Satisfactory	Financial Risk: Significant
<ul style="list-style-type: none"> <li>Earnings and cash flow stability of National Fuel Gas Co.'s (NFG) regulated gas utility and pipeline and storage businesses</li> <li>Exposure to the highly cyclical and capital-intensive oil and gas exploration and production (E&amp;P) industry through its subsidiary Seneca Resources Corp. (not rated)</li> <li>Significant acreage position in the Marcellus shale play, most of which carries no royalties and no lease expiration</li> <li>Limited geographic diversity of its E&amp;P operations and the majority of production weighted to weak natural gas prices</li> </ul>	<ul style="list-style-type: none"> <li>Expectation that NFG will outspend operating cash flows over the next few years, with the potential that it will fund shortfalls with debt</li> <li>Credit measures projected to remain weak, with funds from operations (FFO) to debt roughly 30% under our assumptions</li> <li>Dividends of about \$135 million per year</li> </ul>

**Outlook: Negative**

The negative outlook reflects Standard & Poor's Ratings Services' view that National Fuel Gas Co.'s credit measure are likely to remain weak for the rating over the next two years, with FFO to debt of about 30% under our commodity price assumptions.

**Downside scenario**

We could lower the rating if we no longer expect NFG's credit measures to improve such that FFO to debt falls below 30% in fiscal 2018 with no clear path to improvement. Such a scenario could occur due to cost overruns related to midstream expansion projects, or if commodity prices are below our current expectations.

**Upside scenario**

We could consider a stable outlook if credit measures improve such that we project FFO to debt to remain consistently above 30%. Such a scenario could occur if NFG is able control capital spending and operating costs more than we currently expect, or if commodity prices increase above our current assumptions.

**Standard & Poor's Base-Case Scenario**

Assumptions	Key Metrics																
<p>Our forecast reflects the following expectations and assumptions:</p> <ul style="list-style-type: none"> <li>• West Texas Intermediate crude oil of \$40 per barrel for 2016 and \$45 in 2017.</li> <li>• Henry Hub natural gas of \$2.50 per million British thermal units in 2016 and \$2.75 in 2017.</li> <li>• Production of about 165 billion cubic feet equivalent (bcfe) in fiscal 2016, which is in line with the company's current guidance, and modestly higher in fiscal 2017, of which about 90% is composed of natural gas.</li> <li>• Standard &amp; Poor's expectation that E&amp;P will represent about 45%, midstream will represent 35% and utility 20% of total EBITDA this year.</li> <li>• Capital spending of about \$600 million in 2016.</li> <li>• Dividends of about \$135 million per year.</li> </ul>	<table border="1"> <thead> <tr> <th></th> <th>2015A</th> <th>2016E</th> <th>2017E</th> </tr> </thead> <tbody> <tr> <td>Debt/EBITDA (x)</td> <td>2.5</td> <td>2.5-3</td> <td>2.5-3</td> </tr> <tr> <td>FFO/debt (%)</td> <td>34</td> <td>30-35</td> <td>25-30</td> </tr> <tr> <td>DCF/debt (%)</td> <td>(14)</td> <td>(5)-(0)</td> <td>(10)-(5)</td> </tr> </tbody> </table> <p>A--Actual. E--Estimate. FFO--Funds from operations. DCF--Discretionary cash flow.</p> <p>Note: Ratios reflect adjustments including operating leases, pension obligations, accrued interest, asset-retirement obligations, and surplus cash.</p>		2015A	2016E	2017E	Debt/EBITDA (x)	2.5	2.5-3	2.5-3	FFO/debt (%)	34	30-35	25-30	DCF/debt (%)	(14)	(5)-(0)	(10)-(5)
	2015A	2016E	2017E														
Debt/EBITDA (x)	2.5	2.5-3	2.5-3														
FFO/debt (%)	34	30-35	25-30														
DCF/debt (%)	(14)	(5)-(0)	(10)-(5)														

## Business Risk: Satisfactory

We assess National Fuel Gas' business risk as satisfactory, incorporating the competitive positions of its midstream energy operations, natural gas distribution utility, and E&P business.

The midstream business, comprising wholly-owned National Fuel Gas Supply Corp. (Supply Corp.), Empire Pipeline Inc. (Empire), and National Fuel Gas Midstream Corp. (Midstream Corp.), is well positioned to capitalize on the growing need to transport gas out of the Appalachian region for both affiliated companies and third-party shippers. We expect the pipeline and storage and gathering segments to contribute about 35% to overall EBITDA. We view the regulated attributes of Empire's and Supply Corp.'s businesses as supportive of credit quality. The natural gas gathering and storage operations are to some extent exposed to commodity price volatility, though we view the lower-risk nature of the fee-based and firm storage agreements as providing a measure of stability.

The utility business, National Fuel Gas Distribution Corp. (NFGD), serves 740,000 residential and commercial customers across western New York and northwestern Pennsylvania. We view the stable cash flows associated with the regulated distribution company as highly supportive of NFG's overall business risk. We project that the utility will account for about 20% of overall EBITDA in fiscal 2016; however, we expect the utility contribution as a percentage of NFG's total will decline over time given likely growth in the midstream energy and E&P businesses under favorable commodity prices.

NFG's E&P business, Seneca Resources Corp., contributes about 45% of the group's EBITDA. We assess its business risk as relatively weak because of its limited oil and gas reserve scale, exposure to weak natural gas prices, limited geographic diversification, and the high capital intensity and exposure to volatile commodity prices inherent in the E&P industry. As of fiscal year-end September 2015, Seneca had proved reserves of about 2.3 trillion cubic feet equivalent (91% natural gas, 65% proved-developed). The Appalachian region constitutes approximately 90% of year-end reserves, with the remaining in California (primarily oil). The West Coast oil reserves provide NFG with a stable source of production favorably priced relative to natural gas. The company has been directing most of its E&P spending toward increasing reserves and production in the company's Marcellus shale play (787,000 net acres as of Sept. 30, 2015, the majority of which carries no royalty or lease expiration). The company's capital and operating costs per unit of production are among the lowest in the industry and continue to improve due to a higher proportion of drilling and production coming from its increasingly efficient Marcellus position. However, abundant supply and infrastructure constraints contribute to sizable discounts to Henry Hub pricing. The prospect of integration with NFG's growing pipeline and gathering operations in the region partially offset the effect of these differentials on profitability.

## Financial Risk: Significant

The significant financial risk assessment reflects our expectation that NFG's capital spending and dividends will exceed operating cash flows over the next few years, with the shortfall likely to be funded with borrowings. The bulk of the outspending through fiscal 2017 is being driven by several pipeline and gathering expansion projects aimed at serving the Marcellus region. The company has reduced Marcellus drilling in response to low gas prices, and is funding a

portion of spending through a joint development agreement. NFG typically hedges a significant portion of its expected E&P production, including about almost three-quarters in 2016 and half in 2017. The company has historically demonstrated conservative leverage measures, including FFO to total debt of 34% and total debt to EBITDA of 1.5x for the 12-month period ended Sept. 30, 2015. Under our pricing assumptions for crude oil and natural gas, capital spending and dividends, we project negative cash flow after dividends through 2017. FFO to total adjusted debt will be in the 30%-35% range this year and drop into the high-20% area next year, before recovering in 2018. We view this level of leverage as weak but acceptable for the rating.

## Liquidity: Adequate

We characterize liquidity as adequate, reflecting our expectation that liquidity sources divided by uses will be greater than 1.2x over the next 12 months.

Principal Liquidity Sources	Principal Liquidity Uses
<ul style="list-style-type: none"> <li>• Cash and cash equivalents of \$36 million as of Dec. 31, 2015. In January, the company collected a \$94 million receivable from its E&amp;P joint venture partner.</li> <li>• An unsecured \$750 million revolving credit facility that matures in Dec. 2019 (undrawn as of Dec 2015) that is used, in part, to back up a \$500 million commercial paper program. The company had \$31 million of commercial paper outstanding on Dec. 31, 2015. NFG also has a \$500 million 364-day facility maturing in September 2016.</li> <li>• About \$650 million of projected cash FFO over the next 12 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Capital spending approximates cash flow over the next 12 months; and</li> <li>• We expect the company to pay dividends of approximately \$135 per year. However, we do not include these uses of cash in our liquidity analysis because we view them as discretionary and likely to be curtailed in a distressed scenario.</li> </ul> <p>We estimate that a bond indenture covenant will constrain the company from issuing new debt (i.e., debt not used to refinance existing debt) through 2017. This restriction does not limit NFG's ability to borrow under its credit facilities.</p>

### Comparative Rating Analysis

We apply an upward adjustment of one notch for comparable rating analysis. Management continues to reiterate its long-term commitment to the integrated mix of E&P, midstream (including pipeline, storage, and gathering), and regulated utility businesses. We believe the earnings and cash flow stability provided by NFG's regulated businesses provided a level of credit enhancement beyond that reflected in our initial analytical assessment, or anchor.

## Ratings Score Snapshot

### Corporate Credit Rating

BBB/Negative/A-2

### Business risk: Satisfactory

- Country risk: Very low

- Industry risk: Intermediate
- Competitive position: Satisfactory

Financial risk: Significant

- Cash flow/Leverage: Significant

Anchor: bbb-

Modifiers

- Diversification/Portfolio effect: Neutral
- Capital structure: Neutral
- Financial policy: Neutral
- Liquidity: Adequate
- Management and governance: Satisfactory
- Comparable rating analysis: Positive (+1 notch)

## Related Criteria And Research

Related Criteria

- Criteria - Corporates - General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria - Corporates - Industrials: Key Credit Factors For The Midstream Energy Industry, Dec. 19, 2013
- Criteria - Corporates - Industrials: Key Credit Factors For The Oil And Gas Exploration And Production Industry, Dec. 12, 2013
- General Criteria: Methodology For Crude Oil And Natural Gas Price Assumptions For Corporates And Sovereigns, Nov. 19, 2013
- Criteria - Corporates - Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- Criteria - Corporates - General: Corporate Methodology, Nov. 19, 2013
- Criteria - Corporates - General: Corporate Methodology: Ratios And Adjustments, Nov. 19, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities And Insurers, Nov. 13, 2012

## Business And Financial Risk Matrix

Business Risk Profile	Financial Risk Profile					
	Minimal	Modest	Intermediate	Significant	Aggressive	Highly leveraged
Excellent	aaa/aa+	aa	a+/a	a-	bbb	bbb-/bb+
Strong	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
<b>Satisfactory</b>	a/a-	bbb+	bbb/bbb-	<b>bbb-/bb+</b>	bb	b+
Fair	bbb/bbb-	bbb-	bb+	bb	bb-	b
Weak	bb+	bb+	bb	bb-	b+	b/b-
Vulnerable	bb-	bb-	bb-/b+	b+	b	

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<u>Ring Fencing</u>	<u>Con Edison Inc.</u>	<u>Central Hudson/Fortis*</u>	<u>Iberdrola</u>	<u>National Grid - KEDNY &amp; KEDLI</u>	<u>National Grid - Niagara Mohawk Merger JP 2002</u>	<u>National Grid - Niagara Mohawk Rate Plan Provisions Modified 2013</u>
1. Transaction/Implementation Costs		Not charged to ratepayers	Not charged to ratepayers	Not charged to ratepayers	Not charged to ratepayers	N/A
2. Goodwill		Not recorded on utility books to the extent permitted by US GAAP or reflected in rates	Not recorded on utility books (unless required by SEC registration) or reflected in rates**	May be recorded on KEDNY/KEDLI books pursuant to GAAP, but not pushed down on the regulatory books. Excluded from rate base, expenses and capitalization in determining rates or earnings.	Carried on utility books, however never able to be recovered in rates, and no portion of goodwill included in equity portion of capitalization for ratemaking. Debt and equity ratios will be established in rate cases (in a separate document)	Carried on utility books, however never able to be recovered in rates, and no portion of goodwill included in equity portion of capitalization for ratemaking. Debt and equity ratios will be established in rate cases (in separate a document).
3. Goodwill Impairment Tests		Must provide to Commission	Must provide to Staff	Not stated	Not explicitly stated	Not explicitly stated
4. Credit Ratings		Must register with a least 2 agencies	Must register with 2 agencies	Must register with 2 agencies	Must register with a least 2 agencies. If bond ratings fall to below investment grade permission to pay dividends must be obtained from the Commission.	Superseded by #7 and #8 - see below
5. Dividends-Minimum Equity Ratio		1. Must maintain an equity ratio within 200 basis points of the one used to set rates.  2. Dividends are scaled back starting with a rating drop below 'BBB+' by more than one rating agency.	Based on the ratio used for rates. Dividends can not be paid if bond ratings fall to the lowest investment grade level and are on negative watch and the dividend will cause the equity ratio to fall below the level set for earnings sharing purposes.	Can pay dividends in any year provided at least two recognized rating agencies give it an investment-grade credit rating	Not stated	No limitations as long as average total debt does not exceed 55% of capital structure. If it exceeds 55%, limitations in place
6. Financial Integrity Measures	Dividends limited to 100% of income available for dividends calculated on a two-year rolling average. (Appendix C, Section 8, clause iii.)  Debt must be raised directly by utility operating company.  May not make loans to, guarantee obligations of, or pledge assets as security for parent holding company or any unregulated affiliates without the prior permission of the Commission.	dividends limited to average annual income available for common stock	Dividends limited to income and retained earnings	Dividends limited to income available for dividends in that year, plus cumulative retained earnings, plus certain paid in capital	Dividends limited to average annual income available for common stock + \$100M (2001-2002) gradually reduced to \$0 in 2007 and beyond	Dividends limited by applicable law.
7. Imputed Cost of Debt due to Deterioration of Utility Credit Ratings		If Central Hudson's S&P rating drops to BBB+ or lower or the equivalent for Moody's, Fitch or DBRS, and its interest costs increase because of the downgrade, the increased interest costs will not be reflected in Central Hudson's cost of capital in subsequent rate cases. (three-year limit)	If utility credit ratings fall as a result of action by or against and affiliate, the lower cost of debt will be imputed.	If bonds rating falls below A or A3, then any long-term debt will be "priced" as if it has been sold by an A-/A3 utility	Not stated	If bond ratings fall to below BBB- or Baa3 rates will be established based upon a BBB or Baa3 bond rating and any resulting difference in interest expense will be disallowed for ratemaking purposes.
8. Consequences of Loss of Investment Grade Credit Rating		Dividends cannot be paid	If the credit ratings fall to the lowest investment grade rating and there is a negative watch or review downgrade notice or they fall below investment grade, neither NYSEG nor RG&E may transfer, lease, or lend any moneys, assets, rights, or other items of value to any affiliate. They are also constrained in paying dividends if equity ratio in earnings sharing provision isn't met.	1. No dividends are payable. 2. Can't pay dividends at any point in time when its bond rating is at the lowest investment grade and one or more rating agencies have outstanding negative watch or review downgrade notice, or the bond rating of National Grid is at the lowest investment grade rating and there is a negative watch/review downgrade notice by one or more U.S. nationally recognized rating agencies.	Dividends cannot be paid without Commission approval	If bond ratings fall to below BBB- or Baa3 rates will be established based upon a BBB or Baa3 bond rating and any resulting difference in interest expense will be disallowed for ratemaking purposes.
9. Loss of Investment Grade Credit Rating		The companies must file a plan to rectify the downgrade	The companies must file a plan to rectify the downgrade	In the event an action by a rating agency triggers a dividend restriction, it may not transfer, lease, or lend any moneys, assets, rights or other items of value to any affiliate without first obtaining the Commission's permission.	Not stated	Not stated
10. Money Pooling		Utilities may participate where participants are other utilities	Utilities may participate where participants are other utilities	Regulated Money Pool' prohibits it from directly or indirectly loaning or transferring funds borrowed from the money pool to National Grid USA, National Grid plc and all other non-participants in the money pool.	Utility can participate in SEC-approved Money Pool established by parent company	Not stated

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11. Cross Default Provisions		Not allowed	Not allowed	Future cross default provisions not allowed and any existing ones post merger are to be eliminated within 6 months of the closing of the merger.	Not stated in documents but financing orders disallow cross default provisions.	Not stated in documents but financing orders disallow cross default provisions.
12. Bankruptcy Preferred Stock		Required	Required	Require	Required by May 24, 2011 Order in Cases 06-M-0878 (KeySpan Merger) 01-M-0075 (Niagara Mohawk Merger)	Required carry-over from 06-M-0878 and 01-M-0075.
13. Accounting Method	Must follow US GAAP*	Must follow US GAAP	Must follow US GAAP	Follow US GAAP	Not explicitly stated	Not explicitly stated
14. Sarbanes-Oxley Protections	(Merger took place before SOX was passed.)	Continue as if public company	Continue as modified	File Sarbanes-Oxley	N/A - Prior to SOX	Not stated
15. Independent Audits	Required*	Required	Required	Has independent audits	Not explicitly stated	Not stated
16. Access to Books and Records	Access to books and records of HoldCo and any subsidiary thereof. (Appendix C, Section 10, Clause i.)	-Access to upstream owners books and records (subject to relevance)	-Access to upstream owners books and records (subject to relevance)**	Access to upstream owners' books and records. Access to affiliate books and records (monitor transactions)	Full access to parent company and other subsidiaries books	Full access to parent company and other subsidiaries books
		-Access to affiliates books and records (if transactions occur)	-Access to affiliates books and records (if transactions occur)			
17. Parent and affiliate consolidated financial statements		Must annually file complete set of financial statements that it files with Canadian securities regulators, which are in US GAAP, for Fortis, Inc. and its major regulated and unregulated energy company subsidiaries in the US in US dollars. US business entities with annual revenues less than ten percent of total Fortis revenues may be aggregated, provided each entity included is fully identified. To the extent available will also provide from a recognized financial reporting service such as SNL Financial or Bloomberg, Fortis Inc.'s "as reported" quarterly and annual Balance Sheet, Income Statement and Statement of Cash Flows in U.S. dollars with the underlying currency translation assumptions.	Required in former SEC format (U-9C-3 and U-5S). These forms provided consolidating financial statements that were previously required under the PUHCA of 1935 but eliminated when energy holding co. regulation transferred to FERC in energy act of 2005. These have been found to be useful since you can see stand alone audited financial statements and capitalization of each subsidiary	Required in former SEC format (U-9C-3 and U-5S). These forms provided consolidating financial statements that were previously required under the PUHCA of 1935 but eliminated when energy holding co. regulation transferred to FERC in energy act of 2005. These have been found to be useful since you can see stand alone audited financial statements and capitalization of each subsidiary	Required in former SEC format (U-9C-3 and U-5S). These forms provided consolidating financial statements that were previously required under the PUHCA of 1935 but eliminated when energy holding co. regulation transferred to FERC in energy act of 2005. These have been found to be useful since you can see stand alone audited financial statements and capitalization of each subsidiary	Required in former SEC format (U-9C-3 and U-5S). These forms provided consolidating financial statements that were previously required under the PUHCA of 1935 but eliminated when energy holding co. regulation transferred to FERC in energy act of 2005. These have been found to be useful since you can see stand alone audited financial statements and capitalization of each subsidiary
18. Information on Domestic Holding Company Capital Structure			Information to be provided in rate cases.	Not stated	Not stated	Not stated
19. SEC Registration		Will not be registered with the SEC	Required to issue 144a debt. Full SEC registration will be required when it is found to be cost effective.	File with SEC	Not stated	Not stated
20. Tax Sharing Agreement		Not stated	Required as part of compliance filings***	Not stated	Not stated	Not stated
21. Indemnification of utilities from affiliate tax liabilities		Required	Required	Not stated	Not stated	Not stated
22. Utilities stand alone taxes/ held harmless from adverse tax consequences		Not stated	Required	Not stated	Not stated	Not stated
<b><u>Affiliate Transactions/Code of Conduct</u></b>						
23. Filing of changes		Must provide notice to PSC Secretary and Staff 30 days prior to amending	Changes to be filed with Director of OAAF and Secretary	Changes to be filed with Director of OAAF	Subject to review and approval by both DPS and SEC	Changes to be filed with Commission Secretary
24. Use of affiliate's name	No restrictions (Appendix C, Section 9, clause i.)	A competitive affiliate operating within Central Hudson's service territory may not use the name "Central Hudson"	No restrictions/no royalty imputed	No restrictions/no royalty imputation	No restrictions/no royalty imputed	No restrictions/no royalty imputed for National Grid companies
25. Preferential treatment of affiliates	Prohibited (Appendix C, Section 9, clause i.)	Central Hudson may not give preferential treatment to affiliates	DISCO may not give preferential treatment to affiliates	DISCO may not give preferential treatment to affiliates	May not give preferential treatment to affiliates	May not give preferential treatment to affiliates
26. Disclosure of customer information to affiliates	Prohibited without customer authorization. (Appendix C, Section 9, clause v.)	Prohibited without customer authorization	Prohibited	Prohibits	No sales leads allowed to be given to affiliates	No sales leads allowed to be given to affiliates
27. Company Liaison	Designated by senior officer of company. Alternate must also be designated. (Appendix C, Section 10, clause v.)	Designated by company	Designated by company	Designated by company	Not stated	Not stated

<u>Ring Fencing</u>	<u>Con Edison Inc.</u>	<u>Central Hudson/Fortis*</u>	<u>Iberdrola</u>	<u>National Grid - KEDNY &amp; KEDLI</u>	<u>National Grid - Niagara Mohawk Merger JP 2002</u>	<u>National Grid - Niagara Mohawk Rate Plan Provisions Modified 2013</u>
28. Books and Records/Offices	Unregulated subsidiaries may not be located in the same building as regulated subsidiaries. (Appendix C, Section 4, clause i.)	Central Hudson shall maintain separate books and records from affiliates. Must request Commission approval to establish a separate workspace for a competitive affiliate in an existing CH office.	-DISCO books and offices separate	DISCO books separate but can occupy same building with regulated affiliates	Shall maintain separate books and records from affiliates	Shall maintain separate books and records from affiliates
			-DISCO may not give preferential access to its property to affiliates			
29. Cost Allocation Guidelines		Fully allocated cost	Fully allocated cost required	Fully allocated cost required	Fully allocated cost required	Fully allocated cost required
30. DISCO Asset Transfers	Governed by Section 70 of the Public Service Law. Higher of net book or market value. Commission may evaluate at its discretion to ensure compliance. (Appendix C, Section 5, clause i-ii.)	Governed by Section 70 of the Public Service Law	Higher of book or market value	Higher of book or market value	Higher of book or market value and subject to commission approval	Higher of book or market value and subject to commission approval
31. Cost Allocation Reporting		Annual - Transfers of assets, shared employees, employee transfers, employee loans for emergencies, contracts, cost allocations, affiliate transactions and competitor or customer complaints concerning the course of conduct between CH & any affiliate related to these Standards.	Annual - Transfers of assets, cost allocations, employee transfers, affiliate transactions and complaints concerning conduct.	Annual meeting with senior staff addressing capital attraction, financial performance, asset/employee transfer, etc.	Annual - Transfers of assets, cost allocations, employee transfers and employees in common benefit plans, OEEE special services. Quarterly - all National Grid's SEC filings with the Commission.	Annual - Transfers of assets, cost allocations, employee transfers and employees in common benefit plans, Quarterly - all National Grid's SEC filings with the Commission.
32. Sharing of DISCO Employees	Separate operating employees for unregulated subsidiaries. Regulated subsidiaries may share operating employees. (Appendix C, Section 6, Clause i.)	Separate operating employees	Separate operating employees	Separate operating employees	Utility and unregulated affiliates must have separate operating employees	Utility and unregulated affiliates must have separate operating employees
33. Directors/Officers	Officers of HoldCo may be officers of regulated subsidiaries. (Appendix C, Section 6, clause iii.)	Director/Officer of Central Hudson may not serve as Director/Officer of competitive affiliate	No interlocking directors with non-regulated businesses	No interlocking directors and non-regulated businesses except for the Treasurer and/or Secretary	Utility and unregulated affiliates must have separate directors/officers	Utility and unregulated affiliates must have separate directors/officers
34. Employee transfers	Transferred employees to/from unregulated subsidiary may not be transferred back for 18 months at minimum, excepting those covered by collective bargaining agreement or loaning of employees during emergency situation. (Appendix C, Section 6, clause iv.)	Transferred employees to/from affiliate competing with Central Hudson must stay for 1 year minimum	-Transferred employees to/from DISCO must stay for 1 year minimum	Transferred employees to/from DISCO must resign from former position and must stay for minimum of 1 year. Employees can be shared for emergencies	Restrictions on transfers between utility and unregulated affiliate Employee transfer credit of 25% of salary - waived for first 4 years after merger	Restrictions on transfers between utility and unregulated affiliate Employee transfer credit of 25% of salary
			-Employees can be shared for emergencies			
35. Compensation tying	Compensation of regulated subsidiary employees may not be tied to performance of unregulated subsidiaries. Compensation of shared HoldCo & regulated subsidiary officers may be tied to aggregate performance of HoldCo. (Appendix C, Section 6, clause vii.)	Can be tied to aggregate performance of Central Hudson and any affiliate, including compensation based on Fortis's stock performance	Can be tied to aggregate performance of parent or its stock	Can be tied to aggregate performance of parent or its stock	Cannot be tied to affiliates	Cannot be tied to affiliates
36. Goods and Services	Shared services may be provided at fully loaded cost. (Appendix C, Section 7, clause i.)	No shared services planned and must provide 180 days notice prior to any planned material shared service initiative that will require Commission approval.	Shared services may be provided to DISCO at fully loaded cost	Shared services may be provided to DISCO at fully loaded cost. Goods may be provided to DISCO at lower of cost or market.	Regulations on both currently provided incidental services and proposed new services	Not stated
			-Goods may be provided to DISCO at lower of cost or market.			
<b>Governance</b>						
37. Reporting		<u>Quarterly report</u> : management employee transfers.	<u>Quarterly report</u> : key personnel, major corporate transactions, changes in capitalization, Board of Director Agendas			

<u>Ring Fencing</u>	<u>Con Edison Inc.</u>	<u>Central Hudson/Fortis*</u>	<u>Iberdrola</u>	<u>National Grid - KEDNY &amp; KEDLI</u>	<u>National Grid - Niagara Mohawk Merger JP 2002</u>	<u>National Grid - Niagara Mohawk Rate Plan Provisions Modified 2013</u>
38. Board of Directors-Composition		Majority must be independent	1/3 of Networks Board shall be independent	Not stated	Majority will be outside directors (not affiliated with parent company)	Majority will be outside directors (not affiliated with parent company)
			Majority of utility board must be eligible directors (not affiliated with parent or other affiliates)			
			A lead independent director will be established			
39. Board of Directors-Representation		Majority must reside in New York, with at least two residing in service territory.	1/2 of independent directors live/work in service territory or have utility experience	Not stated	Not stated	Not stated
40. Separate Chairman and CEO		Not stated	Required for utilities and utility holdco	Not stated	Not stated	Not stated
41. Conflicts of Interest		Not stated	Disclosure of Board level conflicts of interest required	Not stated	Not stated	Not stated
42. Audit and Compliance Committee Composition (ACC)		Majority must be independent directors	2/3 shall be independent directors as well as the Chairman of the ACC	Not stated	Not stated	Not stated
43. Corporate Headquarters		In service territory	In service territory	Not stated	In Syracuse	In Syracuse
44. Officer/Executive Locations		At least 50% of officers must Reside in service territory.	Majority of executives to work in service territory	Not stated	In New York State	Only senior mgt involved in day to day operations are required to be In New York State
45. Communications with Board		Not stated	Staff and Commissioners may submit written communications to the Secretary of the Networks Board of Directors	Not stated	Not stated	Not stated
46. Community involvement		Central Hudson must maintain at not less than current (2011) levels for ten years after the closing (2013-2022).	Not stated	Not stated	Not stated	Not stated
47. Service Quality		Continuation of customer service, reliability and safety mechanisms with increased negative revenue adjustments for failure to meet targets	Specific performance (and capital expenditure commitments) and reporting and penalties set forth in Safety, Reliability, and Service Protection Conditions (Appendix 2).	Continuation of customer service, reliability and safety mechanisms with increased negative revenue adjustments for failure to meet targets	Specific objectives and penalties set forth in Service Quality Assurance Program	Specific objectives and penalties set forth in Service Quality Assurance Program
48. Employees		Current employees retained four years after closing under current conditions of employment	Iberdrola committed that existing employee compensation and benefits will remain substantially unchanged for a period of at least eighteen months after consummation of the merger.	Not stated	Not stated	Not stated
<b><u>Economic/Rate Benefits</u></b>						
49. Synergy Savings / Sharing		\$1.85 million per year guaranteed for first five years (\$9.25 million)	None	50/50, after 5 year rate plan, 100% to customers	Synergy Savings - Phase in to \$130M per year allocated 62% to NY Efficiency Gains - Phase in to \$60M per year allocated 100% to NY	N/A
50. Other Positive Benefits		1. \$35 million storm deferral write-off 2. \$5 million economic development fund	\$275 million of PBA credits	\$106M KEDNY, \$154M KEDLI		N/A
51. Other Economic Benefits		Establishment of a pilot program to test ideas for economically expanding gas service to new customers	\$200 million wind investment and if not made, a \$25 million payment (pro-rated based on actual investments) to economic development fund will be required	Not stated		N/A
52. Rates and Earnings Sharing Mechanism (ESM)		1. Rate Freeze through 7/13/15. 2. 10.0% to 10.5% ESM deadband per current Rate Plan eliminated and 50/50 sharing starts at 10.0%.	13 Month Rate Freeze followed by the implementation of an ESM (customers get 80% in excess of 10.1% ROE)	5 year rate plan, KEDNY \$75M rate increase over 5 years, KEDLI \$60M year 1 rate increase and \$100M increase over 4 years. Earnings sharing begins at 10.50% ROE with graduated levels of sharing.	Customers get: 50% ROE 11.75-14% 75% ROE 14-16% 90% ROE > 16%	Customers get: 50% ROE 9.3-10.3% 75% ROE 10.3-11.3% 90% ROE > 11.3%
53. Follow on Merger Savings		Must be shared.	Must be shared.	Not stated	Must be shared.	Not stated
54. Fossil Generation Divestiture		Not stated	Required for affiliates in NYS and they cannot own fossil generation in NYS in future.	Divest Ravenswood Station	Not stated	Not stated

\* Includes enhancements to the Joint Proposal offered by the Joint Petitioners in 5/30/13 letter to Commissioners

\*\*Pending Commission Ordering of SEC Registration in a Future Financing.

\*\*\*Pending Review of the Language in the Compliance

Notes:

- (1) The SEC registration requirement may obligate the utilities to record goodwill on their books.

**This is a summary of conditions through the eyes of Staff. The official position of the Commission is contained in the orders in the respective cases**

National Fuel Gas Distribution New York Division  
Universe of Gas Utilities

Company	Symbol	Moody's Rating	S&P Rating	2015 % Reg. Rev.	% of Utility Reg Score	Moody's Score	Moody's	S&P Score	S&P	Dividend Paying?	Div Score	Not in M&A Activity?	M&A Score	Regulated by State Commission	State Reg Score	Total Score	Proxy Group
1. Atmos Energy Corp.	ATO	A2	A	76%	1	6	1	6	1	Yes	1	Yes	1	Yes	1	6	Selected
2. NiSource Inc. <sup>1</sup>	NI	Baa2	BBB+	100%	1	9	1	8	1	Yes	1	Yes	1	Yes	1	6	Selected
3. Northwest Natural Gas Co.	NWN	(P)A3	A+	97%	1	7	1	5	1	Yes	1	Yes	1	Yes	1	6	Selected
4. Spire Inc (Laclede Group)	SR	Baa2	A-	96%	1	9	1	7	1	Yes	1	Yes	1	Yes	1	6	Selected
5. Piedmont Natural Gas Inc. <sup>2</sup>	PNY	A2	A	83%	1	6	1	6	1	Yes	1	No	0	Yes	1	5	No, M&A
6. South Jersey Industries Inc.	SJI	NR	BBB+	55%	0	NA	0	8	1	Yes	1	Yes	1	Yes	1	4	No, lacks investment grade
7. Chesapeake Utilities	CPK	NR	NR	66%	0	NA	0	NA	0	Yes	1	Yes	1	Yes	1	3	No, lacks investment grade
8. UGI Corp.	UGI	NR	NR	16%	0	NA	0	NA	0	Yes	1	Yes	1	Yes	1	3	No, lacks investment grade
9. Southwest Gas	SWX	A3	BBB+	59%	0	7	1	8	1	Yes	1	Yes	1	Yes	1	5	No, % of Reg Revenue
10. WGL Holdings Inc.	WGL	A3	A+	49%	0	7	1	5	1	Yes	1	Yes	1	Yes	1	5	No, % of Reg Revenue
11. New Jersey Resources Corp. <sup>3</sup>	NJR	(P)A2	NR	29%	0	6	1	NA	0	Yes	1	Yes	1	Yes	1	4	No, % of Reg Revenue
11. Total number of natural gas companies.																	

<sup>1</sup>Used the subsidiary rating for NiSource Inc. because the subsidiary accounts for 99% of the regulated revenue.

<sup>2</sup>Piedmont Natural Gas Inc. is involved in merger activity.

<sup>3</sup>New Jersey Resources Corp's subsidiary, New Jersey Natural Gas Co., has an "A" rating by S&P, although the parent company, New Jersey Resources Corp., is not rated by the S&P.

Moody's	S&P	Score	Grade
Aaa	AAA	1	Investment
Aa1	AA+	2	Investment
Aa2	AA	3	Investment
Aa3	AA-	4	Investment
A1	A+	5	Investment
A2	A	6	Investment
(P)A2	A	6	Investment
A3	A-	7	Investment
(P)A3	A-	7	Investment
(P)Baa1	BBB+	8	Investment
Baa1	BBB+	8	Investment
Baa2	BBB	9	Investment
(P)Baa2	BBB	9	Investment
Baa3	BBB-	10	Investment
Ba1	BB+	11	Non-Investment
BB	Ba2	12	Non-Investment
BB-	Ba3	13	Non-Investment

National Fuel Gas Distribution New York Division  
Universe of Electric Utilities

Company	Region	Moody's Rating	S&P Rating	2015 % of Utility Reg Rev.	% of Utility Reg Score	Moody's Rank	Moody's Score	S&P Rank	S&P Score	Dividend Paying?	Div Score	Not in M&A Activity?	M&A Score	Regulated by State Commission	State Reg Score	Total Score	Proxy Group
1. Alliant Energy Corp.	2	Baa1	A-	97%	1	8	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
2. Ameren Corp.	2	Baa1	BBB+	100%	1	8	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
3. American Electric Power Co. Inc.	2	Baa1	BBB	82%	1	8	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
4. Avista Corp.	3	Baa1	BBB	98%	1	8	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
5. Black Hills Corp.	3	Baa1	BBB	93%	1	8	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
6. CenterPoint Energy Inc.	2	Baa1	A-	74%	1	8	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
7. CMS Energy Corp.	2	Baa2	BBB+	95%	1	9	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
8. Consolidated Edison Inc.	1	A3	A-	89%	1	7	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
9. Edison International	3	A3	BBB+	100%	1	7	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
10. El Paso Electric Co.	3	Baa1	BBB	89%	1	8	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
11. Entergy Corp.	2	Baa3	BBB+	82%	1	10	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
12. Eversource Energy	1	Baa1	A	93%	1	8	1	6	1	Yes	1	Yes	1	Yes	1	6	selected
13. First Energy Corp.	1	Baa3	BBB-	71%	1	10	1	10	1	Yes	1	Yes	1	Yes	1	6	selected
14. IDACORP Inc.	3	Baa1	BBB	91%	1	8	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
15. MG&E Energy <sup>4</sup>	2	A1	AA-	99%	1	5	1	4	1	Yes	1	Yes	1	Yes	1	6	selected
16. Northwestern Corporation	3	A3	BBB	100%	1	7	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
17. OGE Energy Corp.	2	A3	A-	74%	1	7	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
18. Pacific Gas and Electric Company	3	Baa1	BBB	100%	1	8	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
19. Pinnacle West Capital Corp.	3	A3	A-	100%	1	7	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
20. PNM Resources Inc.	3	Baa3	BBB+	86%	1	10	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
21. Portland General Electric Co.	3	A3	BBB	94%	1	7	1	9	1	Yes	1	Yes	1	Yes	1	6	selected
22. PPL Corp.	1	Baa2	A-	100%	1	9	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
23. SCANA Corp.	1	Baa3	BBB+	77%	1	10	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
24. Sempra Energy	3	Baa1	BBB+	90%	1	8	1	8	1	Yes	1	Yes	1	Yes	1	6	selected
25. WEC Energy Group (Wisconsin)	2	A3	A-	99%	1	7	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
26. Xcel Energy Inc.	3	A3	A-	99%	1	7	1	7	1	Yes	1	Yes	1	Yes	1	6	selected
1. ITC Holdings Corp.	2	Baa2	A-	100%	1	9	1	7	1	Yes	1	Yes	1	No	0	5	No, State Reg
2. Duke Energy Corp. <sup>5</sup>	1	Baa1	A-	93%	1	8	1	7	1	Yes	1	No	0	Yes	1	5	No M&A
3. Empire District Electric Co. <sup>5</sup>	2	Baa1	BBB	99%	1	8	1	9	1	Yes	1	No	0	Yes	1	5	No M&A
4. Great Plains Energy Inc. <sup>5</sup>	2	Baa2	BBB+	100%	1	9	1	8	1	Yes	1	No	0	Yes	1	5	No M&A
5. Hawaiian Electric Industries Inc. <sup>5</sup>	3	Baa1	BBB-	90%	1	8	1	10	1	Yes	1	No	0	Yes	1	5	No M&A
6. Southern Co. (The) <sup>5</sup>	1	Baa2	A-	88%	1	9	1	7	1	Yes	1	No	0	Yes	1	5	No M&A
7. Westar Energy Inc. <sup>5</sup>	2	Baa1	BBB+	83%	1	8	1	8	1	Yes	1	No	0	Yes	1	5	No M&A
8. ALLETE, Inc.	2	A3	BBB+	67%	0	7	1	8	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
9. Dominion Resources, Inc.	1	Baa2	BBB+	65%	0	9	1	8	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
10. DTE Energy Co.	2	A3	BBB+	60%	0	7	1	8	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
11. Exelon Corp.	1	Baa2	BBB	38%	0	9	1	9	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
12. NextEra Energy, Inc.	1	Baa1	A-	67%	0	8	1	7	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
13. Otter Tail Corp.	2	Baa2	BBB	51%	0	9	1	9	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
14. Public Service Enterprise Group	1	(P)Baa2	BBB+	62%	0	9	1	8	1	Yes	1	Yes	1	Yes	1	5	No % Utility Reg
15. Vectren Corp.	2	NR	A-	60%	0	NA	0	7	1	Yes	1	Yes	1	Yes	1	4	No % Utility Reg

41. Total number of companies.

S&P	Score	Grade
AAA	1	Investment
AA+	2	Investment
AA	3	Investment
AA-	4	Investment
A+	5	Investment
A	6	Investment
A	6	Investment
A-	7	Investment
A-	7	Investment
BBB+	8	Investment
BBB+	8	Investment
BBB	9	Investment
BBB	9	Investment
BBB-	10	Investment
BB+	11	Non-Investment

S&P	Moody's	Score
AAA	Aaa	1
AA+	Aa1	2
AA	Aa2	3
AA-	Aa3	4
A+	A1	5
A	A2	6
A-	A3	7
BBB+	(P)Baa1	8
BBB+	Baa1	8
BBB	Baa2	9
ZZZ	(P)Baa2	9
BBB-	Baa3	10
BB+	Ba1	11
BB	Ba2	12
BB-	Ba3	13
B+	B1	14
B	B2	15
B-	B3	16
CCC+	Caa1	17

<sup>1-3</sup> Value Line Investment Survey, 1-Electric Utility East (5/20/16), 2- Central (6/17/16), 3-West (6/29/16).

<sup>4</sup> Used its subsidiary; Madison Gas and Electric's credit ratings.

<sup>5</sup> Involved in merger activity.

National Fuel Gas Distribution New York Division  
Proxy Group Statistics of Business and Financial Risk

#	Company	Symbol	Moody's Rating	S&P Rating	% Utility <sup>2</sup> Revenue	Equity <sup>3</sup> Ratio	S&P Business <sup>4</sup> Profile	Business Risk Weight	S&P Financial <sup>4</sup> Profile	Financial Risk Weight	Business Category
1.	Alliant Energy Corp.	LNT	Baa1	A-	96.9%	49.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
2.	Ameren Corp.	AEE	Baa1	BBB+	99.6%	50.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
3.	American Electric Power Co. Inc.	AEP	Baa1	BBB	81.8%	51.0%	Strong	2.0	Significant	4.0	Electric
4.	Avista Corp.	AVA	Baa1	BBB	98.1%	49.0%	Strong	2.0	Significant	4.0	Electric & Gas Combo
5.	Black Hills Corp.	BKH	Baa1	BBB	93.5%	42.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
6.	Centerpoint Energy Inc.	CNP	Baa1	A-	73.8%	30.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
7.	CMS Energy Corp.	CMS	Baa2	BBB+	95.5%	32.0%	Excellent	1.0	Aggressive	5.0	Electric & Gas Combo
8.	Consolidated Edison Inc.	ED	A3	A-	89.0%	50.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
9.	Edison International	EIX	A3	BBB+	99.7%	47.5%	Excellent	1.0	Significant	4.0	Electric
10.	El Paso Electric Co.	EE	Baa1	BBB	88.5%	45.0%	Strong	2.0	Significant	4.0	Electric
11.	Entergy Corporation	ETR	Baa3	BBB+	82.1%	42.0%	Strong	2.0	Significant	4.0	Electric & Gas Combo
12.	Eversource Energy	ES	Baa1	A	93.1%	53.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
13.	First Energy Corp.	FE	Baa3	BBB-	70.8%	40.0%	Strong	2.0	Significant	4.0	Electric
14.	IDACORP Inc.	IDA	Baa1	BBB	90.6%	54.0%	Excellent	1.0	Aggressive	5.0	Electric
15.	MGE Energy, Inc. <sup>5</sup>	MGEE	A1	AA-	98.6%	65.0%	Excellent	1.0	Intermediate	3.0	Electric & Gas Combo
16.	Northwestern Corp.	NWE	A3	BBB	99.9%	46.0%	Strong	2.0	Significant	4.0	Electric & Gas Combo
17.	OGE Energy Corp.	OGE	A3	A-	73.8%	56.5%	Strong	2.0	Intermediate	3.0	Electric & Gas Combo
18.	PG&E Corp.	PCG	Baa1	BBB	100.0%	49.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
19.	Pinnacle West Capital Corp.	PNW	A3	A-	99.9%	54.5%	Excellent	1.0	Intermediate	3.0	Electric
20.	PNM Resources Inc.	PNM	Baa3	BBB+	86.3%	46.0%	Excellent	1.0	Aggressive	5.0	Electric
21.	Portland General Electric Co.	POR	A3	BBB	94.1%	52.0%	Strong	2.0	Significant	4.0	Electric
22.	PPL Corp.	PPL	Baa2	A-	99.7%	35.0%	Excellent	1.0	Significant	4.0	Electric
23.	SCANA Corp.	SCG	Baa3	BBB+	76.8%	45.0%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
24.	Sempra Energy	SRE	Baa1	BBB+	90.5%	46.5%	Strong	2.0	Significant	4.0	Electric & Gas Combo
25.	WEC Energy Group	WEC	A3	A-	98.5%	49.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
26.	Xcel Energy Inc.	XEL	A3	A-	99.3%	45.0%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
	<b>Median of Electric Co.</b>		Baa1	BBB+	<b>93.8%</b>	<b>48.3%</b>	Excellent	1.0	Significant	4.0	
	<b>Average of Electric Co.</b>		Baa1	BBB+	<b>91.2%</b>	<b>47.2%</b>	Close to Excellent	1.3	Significant	4.0	
27.	Atmos Energy	ATO	A2	A	75.7%	55.0%	Excellent	1.0	Significant	4.0	Gas Utility
28.	NiSource Inc. <sup>6</sup>	NI	Baa2	BBB+	99.8%	38.0%	Excellent	1.0	Significant	4.0	Gas Utility
29.	Northwest Natural Gas	NWN	(P)A3	A+	97.0%	57.5%	Excellent	1.0	Intermediate	3.0	Gas Utility
30.	Spire Inc (Laclede Group)	SR	Baa2	A-	95.9%	45.5%	Excellent	1.0	Intermediate	3.0	Gas Utility
	<b>Median of Gas Co.</b>		A3/Baa1	A/A-	<b>87.7%</b>	<b>50.3%</b>	Excellent	1.0	Significant-Intermediate	3.5	
	<b>Average of Gas Co.</b>		A3/Baa1	A/A-	<b>87.7%</b>	<b>49.0%</b>	Excellent	1.0	Significant-Intermediate	3.5	
	<b>Median of Staffs Proxy Group</b>		Baa1	BBB+	<b>94.05%</b>	<b>48.3%</b>	Excellent	1.0	Significant-Intermediate	4.0	
	<b>Average of Staffs Proxy Group</b>		Baa1	BBB+	<b>91.12%</b>	<b>47.5%</b>	Close to Excellent	1.3	Close to Significant	3.9	

## Case 16-G-0257

**National Fuel Gas Distribution New York Division**  
**National Fuel Gas Company (Parent Co.) Business and Financial Risk**

#	Company	Symbol	Moody's Rating	S&P Rating	% Utility <sup>7</sup> Revenue	Equity <sup>3</sup> Ratio	S&P Business <sup>4</sup> Profile	Business Risk Weight	S&P Financial <sup>4</sup> Profile	Financial Risk Weight	Business Category
1.	National Fuel Gas Company	NFG	Baa3	BBB	40.7%	42.3%	Satisfactory	3.0	Significant	4.0	Diversified Natural Gas Co.

**Ms Bulkeley's Proxy Group - Electric & Gas Combo Business and Financial Risk**

#	Company	Symbol	Moody's Rating	S&P Rating	% Utility <sup>2</sup> Revenue	Equity <sup>3</sup> Ratio	S&P Business <sup>4</sup> Profile	Business Risk Weight	S&P Financial <sup>4</sup> Profile	Financial Risk Weight	Business Category
1.	Alliant Energy Corp.	LNT	Baa1	A-	96.9%	49.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
2.	Ameren Corp.	AEE	Baa1	BBB+	99.6%	50.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
3.	Atmos Energy Corp.	ATO	A2	A	75.7%	55.0%	Excellent	1.0	Intermediate	3.0	Gas Combo
4.	Avista Corp.	AVA	Baa1	BBB	98.1%	49.0%	Strong	2.0	Significant	4.0	Electric & Gas Combo
5.	Centerpoint Energy Inc.	CNP	Baa1	A-	73.8%	30.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
6.	CMS Energy Corp.	CMS	Baa2	BBB+	95.5%	32.0%	Excellent	1.0	Aggressive	5.0	Electric & Gas Combo
7.	Consolidated Edison Inc.	ED	A3	A-	89.0%	50.5%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
8.	DTE Energy Company	DTE	A3	BBB+	60.7%	49.0%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
9.	Spire Inc (Laclede Group)	SR	Baa2	A-	95.9%	45.5%	Excellent	1.0	NR		Electric & Gas Combo
10.	New Jersey Resources Corp.	NJR	NR	0	28.6%	56.0%	NR		NR		Gas Combo
11.	Northwest Natural Gas	NWN	(P)A3	A+	97.0%	57.5%	Excellent	1.0	Intermediate	3.0	Gas Combo
12.	Northwestern Corp.	NWE	A3	BBB	99.9%	46.0%	Strong	2.0	Significant	4.0	Gas Combo
13.	SCANA Corp.	SCG	Baa3	BBB+	76.8%	45.0%	Excellent	1.0	Significant	4.0	Gas Combo
14.	Sempra Energy	SRE	Baa1	BBB+	90.5%	46.5%	Excellent	1.0	Significant	4.0	Gas Combo
15.	South Jersey Industries, Inc.	SJI	NR	BBB+	55.1%	52.0%	Excellent	1.0	Significant	4.0	Gas Combo
16.	Southwest Gas Corporation	SWX	A3	BBB+	59.0%	52.5%	Strong	2.0	Intermediate	3.0	Electric & Gas Combo
17.	Vectren Corporation	VVC	NR	A-	57.3%	50.5%	Strong	2.0	Intermediate	3.0	Electric & Gas Combo
18.	WGL Holdings, Inc.	WGL	A3	A+	49.9%	56.0%	Excellent	1.0	Intermediate	3.0	Gas Combo
19.	Xcel Energy Inc.	XEL	A3	A-	99.3%	45.0%	Excellent	1.0	Significant	4.0	Electric & Gas Combo
	<b>Median</b>		Baa1	BBB+	<b>89.0%</b>	<b>49.5%</b>	Excellent	1.0	Significant	4.0	
	<b>Average of Proxy Group</b>		Baa1	BBB+	<b>78.9%</b>	<b>48.3%</b>	Close to Excellent	1.2	Close to Significant	3.8	

Grade	Score	Moody's	S&P
Investment	1	Aaa	AAA
Investment	2	Aa1	AA+
Investment	3	Aa2	AA
Investment	4	Aa3	AA-
Investment	5	A1	A+
Investment	6	A2	A
Investment	7	A3	A-
Investment	8	Baa1	BBB+
Investment	9	Baa2	BBB
Investment	10	Baa3	BBB-
Non-Investment	11	Ba1	BB+
Non-Investment	12	Ba2	BB
Non-Investment	13	Ba3	BB-

Business Risk Profile	Business Risk Score	Financial Risk Profile	Financial Risk Score
Excellent	1.0	Minimal	1.0
Strong	2.0	Modest	2.0
Satisfactory	3.0	Intermediate	3.0
Fair	4.0	Significant	4.0
Weak	5.0	Aggressive	5.0
Vulnerable	6.0	High Leveraged	6.0

<sup>1</sup>Latest Credit Ratings from Standard & Poor's & Moody's Credit Reports.

National Fuel Gas Distribution New York Division  
Discounted Cash Flow Model (DCF)

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
			Q2-2016								Number
			Stock	EPS	DPS	DPS	DPS	BPS	BPS	BPS	of Shares
	<u>Company</u>	<u>Beta</u> <sup>1</sup>	<u>Price</u> <sup>2</sup>	<u>2020</u>	<u>2016</u>	<u>2017</u>	<u>2020</u>	<u>2016</u>	<u>2017</u>	<u>2020</u>	<u>2016</u>
1.	Alliant Energy Corp.	0.75	36.85	\$ 2.45	\$ 1.18	\$ 1.25	\$ 1.50	\$ 18.05	\$ 18.75	\$ 20.00	230.00
2.	Ameren Corp.	0.75	49.20	3.25	1.72	1.78	2.05	29.45	30.45	33.75	242.63
3.	American Electric Power	0.70	65.10	4.25	2.27	2.39	2.75	37.90	39.45	44.00	493.00
4.	Avista Corp.	0.75	40.94	2.50	1.37	1.42	1.60	25.40	26.05	28.50	64.00
5.	Black Hills Corp.	0.90	60.00	4.00	1.68	1.84	2.20	30.55	32.65	39.25	53.00
6.	CenterPoint Energy Inc.	0.85	22.07	1.40	1.03	1.07	1.19	8.20	8.40	9.25	431.00
7.	CMS Energy Corp.	0.70	41.86	2.50	1.24	1.32	1.60	15.05	16.05	19.25	280.00
8.	Consolidated Edison	0.55	74.74	4.25	2.68	2.76	3.00	46.65	48.05	52.25	305.20
9.	Edison International	0.70	71.71	5.00	1.96	2.10	2.60	36.70	38.60	45.00	325.81
10.	El Paso Electric	0.70	45.19	2.50	1.23	1.23	1.50	25.90	26.80	29.50	40.55
11.	Entergy Corp.	0.70	76.80	6.75	3.42	3.52	4.00	53.60	55.75	63.50	178.40
12.	Eversource	0.75	56.76	3.75	1.78	1.90	2.20	33.85	35.05	39.50	317.19
13.	FirstEnergy Corp.	0.70	33.51	3.25	1.44	1.44	1.60	30.50	31.95	36.75	427.00
14.	IDACORP, Inc.	0.75	73.99	4.50	2.08	2.24	2.70	42.65	44.45	49.75	50.40
15.	MGE Energy, Inc.	0.70	51.55	3.25	1.20	1.25	1.40	21.15	22.15	25.00	35.00
16.	NorthWestern Corp.	0.70	59.00	4.00	2.00	2.08	2.32	34.05	35.25	39.50	48.50
17.	OGE Energy Corp.	0.95	29.96	2.25	1.16	1.28	1.65	17.25	17.85	19.75	199.70
18.	PG&E Corp.	0.65	59.48	4.50	1.82	1.90	2.35	35.70	37.75	44.25	505.00
19.	PNM Resources	0.80	32.92	2.35	0.88	0.96	1.30	22.70	23.60	25.50	80.00
20.	Pinnacle West Capital	0.70	74.16	4.75	2.56	2.68	3.10	42.70	44.25	48.75	111.50
21.	Portland General Electric	0.75	40.72	2.75	1.26	1.34	1.60	26.25	27.25	30.50	89.00
22.	PPL Corp.	0.70	37.75	3.00	1.52	1.58	1.76	15.60	16.60	20.25	676.00
23.	SCANA Corp.	0.70	70.03	4.75	2.30	2.42	2.60	39.70	41.75	47.50	143.00
24.	Sempra Energy	0.80	105.85	8.25	3.02	3.24	3.90	49.30	51.35	61.25	250.50
25.	WEC Energy Group	0.65	59.74	3.50	1.98	2.08	2.40	28.30	29.35	32.75	315.70
26.	Xcel Energy, Inc.	0.65	41.32	2.75	1.36	1.44	1.70	21.70	22.55	25.50	508.00
27.	Atmos Energy	0.75	74.16	4.00	1.68	1.80	2.15	31.35	32.50	36.65	107.00
28.	NiSource Inc	NMF	23.86	1.40	0.64	0.68	0.80	12.05	12.30	14.20	320.00
29.	Northwest Natural Gas	0.65	55.45	3.15	1.87	1.88	2.05	28.85	29.65	32.85	27.75
30.	Spire Inc.	0.70	65.26	4.20	1.92	1.96	2.20	38.10	39.65	44.45	44.00

**Median: 0.70**

**Average: 0.73**

Sources:

<sup>1</sup>Value Line Investment Survey.

<sup>2</sup>Stock prices are from Yahoo Finance.

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National Fuel Gas Distribution New York Division  
Discounted Cash Flow Model (DCF)

(A)	(B)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(V)	(W)	(X)
	<u>Company</u>	Number of Shares <u>2020</u>	DPS Growth <u>2020</u>	Retention Rate <u>2020</u>	Return on Equity <u>2020</u>	<u>B x R</u>	Increase in Shares	MBR -1 <u>2016</u>	<u>S x V</u>	Sustainable Growth	Long Form ROE
1.	Alliant Energy Corp.	230.00	6.27	0.39	12.38	4.80	0.00	1.04	0.00	4.80	8.22%
2.	Ameren Corp.	242.63	4.82	0.37	9.79	3.62	0.00	0.67	0.00	3.62	7.27%
3.	American Electric Power	500.00	4.79	0.35	9.83	3.47	0.35	0.72	0.25	3.72	7.42%
4.	Avista Corp.	66.00	4.06	0.36	8.90	3.21	0.77	0.61	0.47	3.68	7.11%
5.	Black Hills Corp.	61.00	6.14	0.45	10.50	4.73	3.58	0.96	3.45	8.17	10.98%
6.	CenterPoint Energy Inc.	435.00	3.61	0.15	15.38	2.31	0.23	1.69	0.39	2.70	7.58%
7.	CMS Energy Corp.	288.00	6.62	0.36	13.38	4.82	0.71	1.78	1.26	6.08	9.17%
8.	Consolidated Edison	310.00	2.82	0.29	8.25	2.43	0.39	0.60	0.24	2.66	6.32%
9.	Edison International	325.81	7.38	0.48	11.40	5.47	0.00	0.95	0.00	5.47	8.44%
10.	El Paso Electric	41.00	6.84	0.40	8.61	3.44	0.28	0.74	0.21	3.65	6.52%
11.	Entergy Corp.	178.40	4.35	0.41	10.86	4.42	0.00	0.43	0.00	4.42	8.91%
12.	Eversource	317.19	5.01	0.41	9.68	4.00	0.00	0.68	0.00	4.00	7.36%
13.	FirstEnergy Corp.	439.00	3.57	0.51	9.05	4.59	0.70	0.10	0.07	4.66	8.77%
14.	IDACORP, Inc.	50.60	6.42	0.40	9.22	3.69	0.10	0.73	0.07	3.76	6.91%
15.	MGE Energy, Inc.	36.00	3.85	0.57	13.26	7.55	0.71	1.44	1.02	8.57	10.61%
16.	NorthWestern Corp.	49.50	3.71	0.42	10.32	4.33	0.51	0.73	0.37	4.71	8.07%
17.	OGE Energy Corp.	201.50	8.83	0.27	11.58	3.09	0.22	0.74	0.17	3.25	8.01%
18.	PG&E Corp.	525.00	7.34	0.48	10.44	4.99	0.98	0.67	0.65	5.64	8.87%
19.	PNM Resources	80.00	10.63	0.45	9.33	4.17	0.00	0.45	0.00	4.17	7.47%
20.	Pinnacle West Capital	113.50	4.97	0.35	9.90	3.44	0.45	0.74	0.33	3.77	7.41%
21.	Portland General Electric	89.80	6.09	0.42	9.19	3.84	0.22	0.55	0.12	3.96	7.35%
22.	PPL Corp.	691.00	3.66	0.41	15.31	6.33	0.55	1.42	0.78	7.11	10.86%
23.	SCANA Corp.	150.00	2.42	0.45	10.22	4.62	1.20	0.76	0.92	5.54	8.67%
24.	Sempra Energy	258.50	6.38	0.53	13.87	7.31	0.79	1.15	0.91	8.22	11.03%
25.	WEC Energy Group	315.70	4.89	0.31	10.88	3.42	0.00	1.11	0.00	3.42	6.96%
26.	Xcel Energy, Inc.	508.00	5.69	0.38	11.01	4.20	0.00	0.90	0.00	4.20	7.73%
27.	Atmos Energy	120.00	6.10	0.46	11.13	5.15	2.91	1.37	3.97	9.12	11.25%
28.	NiSource Inc	325.00	5.57	0.43	10.10	4.33	0.39	0.98	0.38	4.71	7.54%
29.	Northwest Natural Gas	28.00	2.93	0.35	9.75	3.41	0.22	0.92	0.21	3.61	6.89%
30.	Spire Inc.	48.00	3.93	0.48	9.63	4.59	2.20	0.71	1.57	6.15	8.91%
	<b>Median:</b>	<b>Median:</b>	<b>4.99</b>	<b>0.41</b>	<b>10.27</b>	<b>4.26</b>		<b>0.74</b>	<b>0.24</b>	<b>4.31</b>	<b>7.87%</b>
	<b>Average:</b>	<b>Average:</b>	<b>5.32</b>	<b>0.40</b>	<b>10.77</b>	<b>4.33</b>		<b>0.88</b>	<b>0.59</b>	<b>4.92</b>	<b>8.29%</b>

Sources:

<sup>1</sup>Value Line Investment Survey.<sup>2</sup>Stock prices are from Yahoo Fina

U.S. Utility Index Hits Record In Flight to Safety After Brexit - Bloomberg

# U.S. Utility Index Hits Record In Flight to Safety After Brexit

Mark Chediak      Jim Polson

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June 24, 2016 — 12:23 PM EDT

The Standard & Poor's 500 Utilities Index touched a record high Friday as investors fled to less risky investments after voters in the United Kingdom decided in a referendum to leave the European Union.

The index rose as much as 0.9 percent to 258.15, its highest level ever. The sector was one of the few in positive territory Friday as global stocks tumbled and the broader S&P 500 Index fell as much as 2.9 percent.

"Utilities are bond proxies," Michael Underhill, who manages less than \$1 billion including utility stocks at Capital Innovations LLC, said Friday by phone. "These are the kinds of things that are protective, defensive in this kind of market environment."

Utilities are typically viewed by investors as a safe haven in times of volatility because of their steady earnings and dividends. The sector also has looked attractive given historically low interest rates and U.S. treasury bond yields, with the S&P Utilities Index climbing 21 percent in the past 12 months. Utility stocks are especially sensitive to borrowing costs because of their high capital expenses and the time it takes for regulators to set their revenues.

"Pressure on U.S. interest rates, from the dollar strengthening and perceived Fed accommodation, is likely to boost utility valuations, at least on a relative basis," Kit Konolige, an analyst with Bloomberg Intelligence, wrote in a research note Friday.

One exception on Friday was PPL Corp., the U.S. utility owner that's gotten more than 60 percent of its profit from U.K. operations. The stock fell as much as 5.3 percent, the most in more than a year.

**Case 16-G-0257**National Fuel Gas Distribution New York Division  
**Staff Proxy Group Stock Prices**

No.	<u>Company</u>	Ticker	Q2 2016 Average Price	Apr - 2016		May - 2016		Jun - 2016	
				High	Low	High	Low	High	Low
1.	Alliant Energy Corp *	LNT	\$36.85	37.59	34.08	37.21	35.08	40.24	36.92
2.	Ameren Corp.	AEE	\$49.20	51.06	46.29	49.27	46.30	53.59	48.69
3.	American Electric Power Co. Inc.	AEP	\$65.10	66.47	61.42	65.96	62.61	70.10	64.04
4.	Avista Corp.	AVA	\$40.94	41.37	38.48	42.17	38.83	44.81	40.00
5.	Black Hills Corp	BKH	\$60.00	60.93	56.16	62.26	57.10	63.53	60.02
6.	Centerpoint Energy Inc.	CNP	\$22.07	21.51	20.46	22.73	21.25	24.11	22.35
7.	CMS Energy Corp.	CMS	\$41.86	42.87	38.92	42.19	39.85	45.86	41.49
8.	Consolidated Edison Inc.	ED	\$74.74	77.23	70.73	76.76	70.31	80.44	72.94
9.	Edison International	EIX	\$71.71	72.41	67.71	73.25	68.47	77.71	70.72
10.	El Paso Electric	EE	\$45.19	46.63	43.68	46.79	42.42	47.27	44.37
11.	Entergy Corporation	ETR	\$76.80	80.06	73.25	77.90	72.67	81.36	75.56
12.	Eversource Energy	ES	\$56.76	59.09	54.51	58.26	53.90	59.95	54.86
13.	First Energy Corp	FE	\$33.51	36.29	31.68	34.19	31.37	34.92	32.60
14.	IDACORP Inc.	IDA	\$73.99	74.99	70.40	74.47	69.83	81.36	72.91
15.	MGE Energy, Inc.	MGEE	\$51.55	52.66	47.90	52.73	49.42	56.54	50.05
16.	Northwestern Corp	NWE	\$59.00	62.51	55.91	59.44	55.34	63.30	57.52
17.	OGE Energy Corp.	OGE	\$29.96	29.62	27.27	31.07	28.97	32.75	30.09
18.	PG&E Corp.	PCG	\$59.48	60.09	56.48	60.18	56.39	63.95	59.76
19.	PNM Resources Inc	PNM	\$32.92	33.93	30.62	33.49	31.20	35.46	32.79
20.	Pinnacle West Capital Corp.	PNW	\$74.16	75.81	70.23	74.65	70.11	81.08	73.07
21.	Portland General Electric Co.	POR	\$40.72	40.03	37.77	41.94	39.47	44.12	40.96
22.	PPL Corp	PPL	\$37.75	38.30	36.14	39.08	37.10	39.52	36.33
23.	SCANA Corp.	SCG	\$70.03	71.27	66.02	71.22	66.58	75.67	69.40
24.	Sempra Energy	SRE	\$105.85	106.05	100.40	107.28	101.17	114.03	106.16
25.	WEC Energy Group	WEC	\$59.74	60.32	55.46	60.51	57.25	65.30	59.62
26.	Xcel Energy Inc.	XEL	\$41.32	42.04	38.43	41.98	39.69	44.78	40.99
27.	Atmos Energy	ATO	\$74.16	74.86	70.41	75.10	70.84	81.35	72.42
28.	NiSource Inc	NI	\$23.86	24.01	21.97	24.31	22.60	26.53	23.73
29.	Northwest Natural Gas Co	NWN	\$55.45	54.29	49.46	57.95	51.12	64.84	55.06
30.	Spire Inc (Laclede Group)	SR	\$65.26	67.66	62.65	66.20	61.00	70.87	63.15

\* Alliant Energy Corp's stock prices reflect a 2 for 1 stock split on May 20.

**Source:**

Yahoo Finance

## Long-Range Consensus U.S. Economic Projections

II. For comparison, this table includes a selection of the long-range consensus projections found on the preceding page, plus the latest long-range assumptions from the Obama Administration's Office of Management and Budget (OMB) and the Congressional Budget Office (CBO).

ECONOMIC VARIABLE		YEAR					Five-Year Averages	
		2018	2019	2020	2021	2022	2018-22	2023-27
		Percent Change, Full Year-Over-Prior Year						
1. Real GDP (chained, 2009 dollars)	CONSENSUS	2.2	2.1	2.2	2.1	2.1	2.1	2.1
	OMB <sup>1,2</sup>	2.4	2.3	2.3	2.3	2.3	2.3	2.3
	CBO <sup>1,2</sup>	2.3	1.8	1.9	2.2	2.1	2.1	2.0
2. GDP Chained Price Index	CONSENSUS	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	OMB <sup>1,2</sup>	1.8	2.0	2.0	2.0	2.0	2.0	2.0
	CBO <sup>1,2</sup>	1.9	2.0	2.0	2.0	2.0	2.0	2.0
3. Nominal GDP (current dollars)	CONSENSUS	4.3	4.2	4.2	4.2	4.1	4.2	4.2
	OMB <sup>1,2</sup>	4.3	4.4	4.3	4.4	4.4	4.4	4.3
	CBO <sup>1,2</sup>	4.2	4.3	4.3	4.3	4.2	4.3	4.3
4. Consumer Price Index (for all urban consumers)	CONSENSUS	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	OMB <sup>1,2</sup>	2.1	2.3	2.2	2.3	2.3	2.2	2.3
	CBO <sup>1,2</sup>	2.4	2.4	2.4	2.4	2.4	2.4	2.4
		Annual Average						
5. Treasury Bills, 3-Month (percent per annum)	CONSENSUS	2.3	2.7	2.9	3.0	3.0	2.8	3.0
	OMB <sup>1,2</sup>	2.6	2.1	3.3	3.4	3.4	3.0	3.3
	CBO <sup>1,2</sup>	2.5	3.2	3.2	3.2	3.2	3.1	3.2
6. Treasury Notes, 10-Year (yield per annum)	CONSENSUS	3.4	3.7	3.8	3.9	3.9	3.7	3.9
	OMB <sup>1,2</sup>	3.9	4.1	4.2	4.2	4.2	4.1	4.2
	CBO <sup>1,2</sup>	3.9	4.1	4.1	4.1	4.1	4.1	4.1
7. Unemployment Rate (% of civilian labor force)	CONSENSUS	4.6	4.7	4.7	4.8	4.8	4.7	4.9
	OMB <sup>1,2</sup>	4.6	4.6	4.7	4.7	4.8	4.7	4.9
	CBO <sup>1,2</sup>	4.6	4.8	5.0	5.0	5.0	4.9	5.0

III. In this table, we compare the results of our most recent survey with those of our survey in October 2015<sup>3</sup>.

ECONOMIC VARIABLE		YEAR					Five-Year Averages	
		2018	2019	2020	2021	2022	2018-22	2023-27
		Percent Change, Full Year-Over-Prior Year						
1. Real GDP (chained, 2009 dollars)	March Consensus	2.2	2.1	2.2	2.1	2.1	2.1	2.1
	October Consensus	2.4	2.2	2.2	2.2	na	na	na
2. GDP Chained Price Index	March Consensus	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	October Consensus	2.1	2.1	2.1	2.1	na	na	na
3. Nominal GDP (current dollars)	March Consensus	4.3	4.2	4.2	4.2	4.1	4.2	4.2
	October Consensus	4.6	4.4	4.4	4.3	na	na	na
4. Consumer Price Index (for all urban consumers)	March Consensus	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	October Consensus	2.4	2.4	2.3	2.3	na	na	na
		Annual Average						
5. Treasury Bills, 3-Month (percent per annum)	March Consensus	2.3	2.7	2.9	3.0	3.0	2.8	3.0
	October Consensus	2.8	3.1	3.1	3.1	na	na	na
6. Treasury Notes, 10-Year (yield per annum)	March Consensus	3.4	3.7	3.8	3.9	3.9	3.7	3.9
	October Consensus	3.8	4.0	4.0	4.0	na	na	na
7. Unemployment Rate (% of civilian labor force)	March Consensus	4.6	4.7	4.7	4.8	4.8	4.7	4.9
	October Consensus	4.7	4.7	4.8	4.9	na	na	na

<sup>1</sup>Analytical Perspectives, Budget of the United States Government, Fiscal Year 2017, Office of Management and Budget, February 2016. CBO and OMB projections only extend through 2026, so averages for the 2023-2027 time-period are based on CBO and OMB projections for the four-year period 2023-2026. <sup>2</sup>OMB and CBO projections were prepared prior to release of Bureau of Economic Analysis initial estimate of Q4 2015 and full year 2015 National Income and Product Account data on January 29<sup>th</sup>, 2016. <sup>3</sup>Blue Chip Economic Indicators, October 10, 2015.

National Fuel Gas Distribution New York Division  
Staff Calculation of Generic Finance Method (GFC)

**Return on Equity (Summary)**

	Return	
Merrill Lynch Cost of Market <sup>1</sup> :	Implied	Required
Apr 2016	11.10%	10.90%
May 2016	11.00%	10.90%
June 2016	11.00%	10.80%
Expected Market Return ( <i>R<sub>m</sub></i> )	<b>10.95%</b>	
Treasury Rates <sup>2</sup> :	10 year	30 year
Apr 2016	1.81%	2.62%
May 2016	1.81%	2.63%
June 2016	1.64%	2.45%
Risk Free Rate ( <i>R<sub>f</sub></i> ):	<b>2.16%</b>	
Market Risk Premium ( <i>MRP</i> ):	<b>8.79%</b>	
Proxy Group Beta ( <i>B</i> ):	0.70	Median
Proxy Group DCF ROE:	8.29%	Mean
Traditional CAPM ROE:	8.31%	
Zero Beta CAPM ROE:	8.97%	
Generic CAPM ROE:	8.64%	
2/3 DCF 1/3 CAPM Weighting Return on Equity:	<b><u>8.40%</u></b>	

<sup>1</sup>Merrill Lynch, Quantitative Profiles Reports for April, May and June of 2015; average of Implied and Required Returns for S&P 500.

<sup>2</sup>Federal Reserve Statistical Release H.15: [FRB: Federal Reserve Statistical Release H.15 - Historical Data](#)

National Fuel Gas Distribution New York Division

Proxy Group Comparison of Regulated Revenue (Staff's vs. Bulkley's Proxy Group)

Staff's Proxy Group - Electric Combo Statistics						
#	Company	Symbol	Moody's Ratings	S&P Ratings	2015 % Utility Revenue	Business Category
1.	Alliant Energy Corp	LNT	Baa1	A-	96.9%	Electric & Gas Combo
2.	Ameren Corp.	AEE	Baa1	BBB+	99.6%	Electric & Gas Combo
3.	American Electric Power Co. In	AEP	Baa1	BBB	81.8%	Electric
4.	Avista Corp.	AVA	Baa1	BBB	98.1%	Electric & Gas Combo
5.	Black Hills Corp	BKH	Baa1	BBB	93.5%	Electric & Gas Combo
6.	Centerpoint Energy Inc.	CNP	Baa1	A-	73.8%	Electric & Gas Combo
7.	CMS Energy Corp	CMS	Baa2	BBB+	95.5%	Electric & Gas Combo
8.	Consolidated Edison Inc.	ED	A3	A-	89.0%	Electric & Gas Combo
9.	Edison International	EIX	A3	BBB+	99.7%	Electric
10.	El Paso Electric Co.	EE	Baa1	BBB	88.5%	Electric
11.	Entergy Corporation	ETR	Baa3	BBB+	82.1%	Electric & Gas Combo
12.	Eversource Energy	ES	Baa1	A	93.1%	Electric & Gas Combo
13.	First Energy Corp	FE	Baa3	BBB-	70.8%	Electric
14.	IDACORP Inc.	IDA	Baa1	BBB	90.6%	Electric
15.	MGE Energy, Inc. *	MGEE	A1	AA-	98.6%	Electric & Gas Combo
16.	Northwestern Corp	NWE	A3	BBB	100.0%	Electric & Gas Combo
17.	OGE Energy Corp.	OGE	A3	A-	73.8%	Electric & Gas Combo
18.	PG&E Corp.	PCG	Baa1	BBB	100.0%	Electric & Gas Combo
19.	Pinnacle West Capital Corp.	PNW	A3	A-	99.9%	Electric
20.	PNM Resources Inc.	PNM	Baa3	BBB+	86.3%	Electric
21.	Portland General Electric Co.	POR	A3	BBB	94.1%	Electric
22.	PPL Corp	PPL	Baa2	A-	99.7%	Electric
23.	SCANA Corp.	SCG	Baa3	BBB+	76.8%	Electric & Gas Combo
24.	Sempra Energy	SRE	Baa1	BBB+	90.5%	Electric & Gas Combo
25.	WEC Energy Group	WEC	A3	A-	98.5%	Electric & Gas Combo
26.	Xcel Energy Inc.	XEL	A3	A-	99.3%	Electric & Gas Combo
	Median		Baa1	BBB+	<b>93.8%</b>	
	Average of Proxy Group		Baa1	BBB+	<b>91.2%</b>	

Bulkley's - Combo Utility Proxy Group Statistics						
#	Company	Symbol	Moody's Ratings	S&P Ratings	2015 % Utility Revenue	Business Category
1.	Alliant Energy Corp	LNT	Baa1	A-	96.9%	Electric & Gas Combo
2.	Ameren Corp.	AEE	Baa1	BBB+	99.6%	Electric & Gas Combo
3.	Atmos Energy Corp.	ATO	A2	A	75.7%	Gas Utility
4.	Avista Corp.	AVA	Baa1	BBB	98.1%	Electric & Gas Combo
5.	Centerpoint Energy Inc.	CNP	Baa1	A-	73.8%	Electric & Gas Combo
6.	CMS Energy Corp	CMS	Baa2	BBB+	95.5%	Electric & Gas Combo
7.	Consolidated Edison Inc.	ED	A3	A-	89.0%	Electric & Gas Combo
8.	DTE Energy Company	DTE	A3	BBB+	60.7%	Electric Utility
9.	Spire Inc (Laclede Group)	SR	Baa2	A-	95.9%	Gas Utility
10.	New Jersey Resources Corp	NJR	Aa2*	A	28.6%	Gas Utility
11.	Northwest Natural Gas	NWN	(P)A3	A+	97.0%	Gas Utility
12.	Northwestern Corp	NWE	A3	BBB	100.0%	Electric & Gas Combo
13.	SCANA Corp.	SCG	Baa3	BBB+	76.8%	Electric & Gas Combo
14.	Sempra Energy	SRE	Baa1	BBB+	90.5%	Electric & Gas Combo
15.	South Jersey Industries, Inc.	SJI	A2	BBB+	55.1%	Gas Utility
16.	Southwest Gas Corporation	SWX	A3	BBB+	59.0%	Gas Utility
17.	Vectren Corporation	VVC	A2	A-	57.3%	Electric Utility
18.	WGL Holdings, Inc	WGL	A3	A+	49.9%	Gas Utility
19.	Xcel Energy Inc.	XEL	A3	A-	99.3%	Electric & Gas Combo
	Median		A3	A-	<b>89.0%</b>	
	Average of Proxy Group		A3	A-	<b>78.9%</b>	

Staff's Proxy Group - Gas Utility Statistics						
#	Company	Symbol	Moody's Ratings	S&P Ratings	2015 % Utility Revenue	Business Category
1.	Atmos Energy	ATO	A2	A	75.7%	Gas Utility
2.	NiSource Inc	NI	Baa2	BBB+	99.8%	Gas Utility
3.	Northwest Natural Gas	NWN	(P)A3	A+	97.0%	Gas Utility
4.	Spire Inc (Laclede Group)	SR	Baa2	A-	95.9%	Gas Utility
	Median		A3/Baa1	A/A-	<b>96.4%</b>	
	Average of Proxy Group		A3/Baa1	A/A-	<b>92.1%</b>	

Bulkley's - Natural Gas Utility Proxy Group Statistics						
#	Company	Symbol	Moody's Ratings	S&P Ratings	2015 % Utility Revenue	Business Category
1.	Atmos Energy	ATO	A2	A	75.7%	Gas Utility
2.	Spire Inc (Laclede Group)	SR	Baa2	A-	95.9%	Gas Utility
3.	New Jersey Resources Corp	NJR	Aa2*	A	28.6%	Gas Utility
4.	Northwest Natural Gas	NWN	(P)A3	A+	97.0%	Gas Utility
5.	South Jersey Industries, Inc.	SJI	A2	BBB+	55.1%	Gas Utility
6.	Southwest Gas Corporation	SWX	A3	BBB+	59.0%	Gas Utility
7.	WGL Holdings, Inc	WGL	A3	A+	50.0%	Gas Utility
	Median		A3	A	<b>59.0%</b>	
	Average of Proxy Group		A3	A/A-	<b>65.9%</b>	



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**The Value Line Investment Survey – Quality Control Procedures**  
Last Updated January 1, 2014

Each stock in The Value Line Investment Survey is assigned to a specific analyst. This analyst must complete an in-depth, multi-month training program before he/she can contribute to The Survey. The analyst will then build and maintain a customized Excel model for each company under their coverage.

After the analyst completes the first draft of a report, it is then subject to a thorough editing process, which includes a review from at least one senior analyst that is very familiar with that particular industry. This may include several rounds of back-and-forth questions and other communication.

When the senior analyst is satisfied, the report is then exposed to a number of other reviews and checks. For instance, a fellow analyst will evaluate the report. It will also be scrutinized by Value Line's Statistics, Quality Control, and Proofreading Departments.

As a final check, an additional senior analyst will read the report one last time, which occurs immediately before all reports are sent to our printer and prepared for Web site posting.

If you have any questions, concerns, or comments about Value Line's report creation process, please contact:

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# Annual Energy Outlook 2015

## with projections to 2040



*Independent Statistics & Analysis*  
U.S. Energy Information  
Administration

## Changes in release cycle for EIA's *Annual Energy Outlook*

To focus more resources on rapidly changing energy markets and the ways in which they might evolve over the next few years, the U.S. Energy Information Administration (EIA) is revising the schedule and approach for production of the *Annual Energy Outlook* (AEO). Starting with this *Annual Energy Outlook 2015* (AEO2015), EIA is adopting a two-year release cycle for the AEO, with full and shorter editions of the AEO produced in alternating years. AEO2015 is a shorter edition of the AEO.

The shorter AEO includes a limited number of model updates, which are selected predominantly to reflect historical data updates and changes in legislation and regulations. A complete listing of the changes made for AEO2015 is shown in Appendix E. The shorter edition includes a Reference case and five alternative cases: Low Oil Price, High Oil Price, Low Economic Growth, High Economic Growth, and High Oil and Gas Resource.

The shorter AEO will include this publication, which discusses the Reference case and alternative cases, as well as the report, *Assumptions to the Annual Energy Outlook 2015*.<sup>13</sup> Other documentation—including model documentation for each of the National Energy Modeling System (NEMS) models and the *Retrospective Review*—will be completed only for the years when a full edition of the AEO is produced.

To provide a basis against which alternative cases and policies can be compared, the AEO Reference case generally assumes that current laws and regulations affecting the energy sector remain unchanged throughout the projection (including the assumption that laws that include sunset dates do, in fact, expire at the time of those sunset dates). This assumption enables policy analysis with less uncertainty regarding unstated legal or regulatory assumptions.

## Economic growth

The AEO economic forecasts are trend projections, with no major shocks assumed and with potential growth determined by the economy's supply capability. Growth in aggregate supply depends on increases in the labor force, growth of capital stocks, and improvements in productivity. Long-term demand growth depends on labor force growth, income growth, and population growth. The AEO2015 Reference case uses the U.S. Census Bureau's December 2012 middle population projection: U.S. population grows

**Table 2. Growth in key economic factors in historical data and in the Reference case**

	AEO2015 (2013-40)	Previous 30 Years
<b>Real 2009 dollars (annual average percent change)</b>		
GDP	2.4	2.8
GDP per capita	1.7	1.8
Disposable income	2.5	2.9
Consumer spending	2.4	3.1
Private investment	3.0	3.5
Exports	4.9	6.1
Imports	4.0	6.0
Government expenditures	0.9	1.7
GDP: Major trading countries	1.9	2.4
GDP: Other trading countries	3.8	4.7
<b>Average annual rate</b>		
Federal funds rate	3.2	4.5
Unemployment rate	5.3	6.3
Nonfarm business output per hour	2.0	2.0

Source: AEO2015 Reference case D021915a, based on IHS Global Insight T301114.wf1.

at an average annual rate of 0.7%, real GDP at 2.4%, labor force at 0.6%, and nonfarm labor productivity at 2.0% from 2013 to 2040.

Table 2 compares key long-run economic growth projections in AEO2015 with actual growth rates over the past 30 years. In the AEO2015 Reference case, U.S. real GDP grows at an average annual rate of 2.4% from 2013 to 2040—a rate that is 0.4 percentage points slower than the average over the past 30 years. GDP expands in the Reference case by 3.1% in 2015, 2.5% in 2016, 2.6% from 2015 to 2025, and 2.4% from 2015 to 2040. As a share of GDP, consumption expenditures account for more than two-thirds of total GDP. In terms of growth, it is exports and business fixed investment that contribute the most to GDP. Growth in these is relatively strong during the first 10 years of the projection and then moderates for the remaining years. The growth rates for both exports and business fixed investment are above the rate of GDP growth with exports dominating throughout the projection (Figure 1).

In the AEO2015 Reference case, nominal interest rates over the 2013-40 period are generally lower than those observed for the preceding 30 years, based on an expectation of lower inflation rates in the projection period. At present, the term structure of interest rates is still at the lowest level seen over the past 40 years. In 2012, the federal funds rate averaged 0.1%. Longer-term nominal interest rates are projected to average around 6.0%, which is lower than the previous 30-year average of 7.8%. After 2015, interest rates in ensuing

<sup>13</sup>U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2015*, DOE/EIA-0554(2015) (Washington, DC, to be published), <http://www.eia.gov/forecasts/aeo/assumptions>.

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**Criteria | Corporates | General:**

## **Methodology: Business Risk/Financial Risk Matrix Expanded**

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*(Editor's Note: We originally published this criteria article on Sept. 18, 2012. We're republishing it following our periodic review completed on Aug. 21, 2015. This article has been partially superseded by the article titled, "Corporate Methodology," published on Nov. 19, 2013, for issuers within the scope of that criteria, but remains in effect for the following sectors or entities: project developers, transportation equipment leasing, and auto rental companies.*

*Table 1 in this criteria article supersedes table 1 in the articles titled: Key Credit Factors: "Global Criteria For Rating Real Estate Companies," published on June 21, 2011; "Methodology And Assumptions On Risks In The Global High Technology Industry," published Oct. 15, 2009; "Methodology And Assumptions On Business And Financial Risks In The U.S. Movie Exhibitors Industry," published Aug. 28, 2009; "Methodology And Assumptions On Risks In The Hotel And Lodging Industry," published Aug. 11, 2009; "Methodology And Assumptions On Risks In The Aerospace And Defense Industries," published June 24, 2009; "Methodology And Assumptions On Risks In The Mining Industry," published June 23, 2009; "Business And Financial Risks In The Auto Component Suppliers Industry," published Jan. 28, 2009; "Business And Financial Risks In The Global Pharmaceutical Industry," published Jan. 22, 2009; "Business And Financial Risks In The U.S. For-Profit Health Care Facilities Industry," published Jan. 21, 2009; "Business And Financial Risks In The Investor-Owned Utilities Industry," Nov. 26, 2008; "Business And Financial Risks In The Commodity And Specialty Chemical Industry," published Nov. 20, 2008; "Business And Financial Risks In The Global Building Products And Materials Industry," Nov. 19, 2008; and "Business And Financial Risks In The Retail Industry," published Sept. 18, 2008.)*

1. Standard & Poor's Ratings Services is refining its methodology for corporate ratings related to its business risk/financial risk matrix, which we published as part of "2008 Corporate Ratings Criteria" on April 15, 2008. We subsequently updated this matrix in the article "Criteria Methodology: Business Risk/Financial Risk Matrix Expanded," published May 27, 2009. In order to provide greater transparency on the methodology used to evaluate corporate ratings, this article updates table 1 of the May 27, 2009, article to reflect how we analyze companies with an excellent business risk profile and minimal financial risk profile, as well as companies with a vulnerable business risk profile and a highly leveraged financial risk profile. This article amends and supersedes both the 2008 and 2009 articles mentioned above. This article is related to "Principles Of Credit Ratings," published on Feb. 16, 2011.
2. We introduced the business risk/financial risk matrix in 2005. The relationships depicted in the matrix represent an essential element of our corporate analytical methodology (see table 1).

**Table 1**

<b>Business And Financial Risk Profile Matrix</b>						
<b>Business Risk Profile</b>	<b>--Financial Risk Profile--</b>					
	<b>Minimal</b>	<b>Modest</b>	<b>Intermediate</b>	<b>Significant</b>	<b>Aggressive</b>	<b>Highly Leveraged</b>
Excellent	AAA/AA+	AA	A	A-	BBB	--
Strong	AA	A	A-	BBB	BB	BB-
Satisfactory	A-	BBB+	BBB	BB+	BB-	B+
Fair	--	BBB-	BB+	BB	BB-	B
Weak	--	--	BB	BB-	B+	B-

*Criteria | Corporates | General: Methodology: Business Risk/Financial Risk Matrix Expanded***Table 1**

<b>Business And Financial Risk Profile Matrix (cont.)</b>						
<b>Business Risk Profile</b>	<b>--Financial Risk Profile--</b>					
	<b>Minimal</b>	<b>Modest</b>	<b>Intermediate</b>	<b>Significant</b>	<b>Aggressive</b>	<b>Highly Leveraged</b>
<b>Vulnerable</b>	--	--	--	B+	B	B- or below

These rating outcomes are shown for guidance purposes only. Actual rating should be within one notch of indicated rating outcomes.

3. The rating outcomes refer to issuer credit ratings. The ratings indicated in each cell of the matrix are the midpoints of a range of likely rating possibilities. This range would ordinarily span one notch above and below the indicated rating.

## Business Risk/Financial Risk Framework

4. Our corporate analytical methodology organizes the analytical process according to a common framework, and it divides the task into several categories so that all salient issues are considered. The first categories involve fundamental business analysis; the financial analysis categories follow.
5. Our ratings analysis starts with the assessment of the business and competitive profile of the company. Two companies with identical financial metrics can be rated very differently, to the extent that their business challenges and prospects differ. The categories underlying our business and financial risk assessments are:

### Business risk

- Country risk
- Industry risk
- Competitive position
- Profitability/Peer group comparisons

### Financial risk

- Accounting
- Financial governance and policies/risk tolerance
- Cash flow adequacy
- Capital structure/asset protection
- Liquidity/short-term factors

6. We do not have any predetermined weights for these categories. The significance of specific factors varies from situation to situation.

## Updated Matrix

7. We developed the matrix to make explicit the rating outcomes that are typical for various business risk/financial risk combinations. It illustrates the relationship of business and financial risk profiles to the issuer credit rating.
8. We tend to weight business risk slightly more than financial risk when differentiating among investment-grade ratings. Conversely, we place slightly more weight on financial risk for speculative-grade issuers (see table 1, again).

*Criteria | Corporates | General: Methodology: Business Risk/Financial Risk Matrix Expanded*

9. This version of the matrix represents a refinement—not any change in rating criteria or standards—and, consequently, no rating changes are expected. However, the expanded matrix should enhance the transparency of the analytical process.

## Financial Benchmarks

**Table 2**

Financial Risk Indicative Ratios (Corporates)			
	FFO/Debt (%)	Debt/EBITDA (x)	Debt/Capital (%)
Minimal	greater than 60	less than 1.5	less than 25
Modest	45-60	1.5-2.0	25-35
Intermediate	30-45	2-3	35-45
Significant	20-30	3-4	45-50
Aggressive	12-20	4-5	50-60
Highly Leveraged	less than 12	greater than 5	greater than 60

## How To Use The Matrix--And Its Limitations

10. The rating matrix indicative outcomes are what we typically observe—but are not meant to be precise indications or guarantees of future rating opinions. Positive and negative nuances in our analysis may lead to a notch higher or lower than the outcomes indicated in the various cells of the matrix.
11. In certain situations there may be specific, overarching risks that are outside the standard framework, e.g., a liquidity crisis, major litigation, or large acquisition. This often is the case regarding issuers at the lowest end of the credit spectrum—i.e., the 'CCC' category and lower. These ratings, by definition, reflect some impending crisis or acute vulnerability, and the balanced approach that underlies the matrix framework just does not lend itself to such situations.
12. Similarly, some matrix cells are blank because the underlying combinations are highly unusual—and presumably would involve complicated factors and analysis.
13. The following hypothetical example illustrates how the tables can be used to better understand our rating process (see tables 1 and 2).
14. We believe that Company ABC has a satisfactory business risk profile, typical of a low investment-grade industrial issuer. If we believed its financial risk were intermediate, the expected rating outcome should be within one notch of 'BBB'. ABC's ratios of cash flow to debt (35%) and debt leverage (total debt to EBITDA of 2.5x) are indeed characteristic of intermediate financial risk.
15. It might be possible for Company ABC to be upgraded to the 'A' category by, for example, reducing its debt burden to the point that financial risk is viewed as minimal. Funds from operations (FFO) to debt of more than 60% and debt to EBITDA of only 1.5x would, in most cases, indicate minimal financial risk.

*Criteria | Corporates | General: Methodology: Business Risk/Financial Risk Matrix Expanded*

16. Conversely, ABC may choose to become more financially aggressive—perhaps it decides to reward shareholders by borrowing to repurchase its stock. It is possible that the company may fall into the 'BB' category if we view its financial risk as significant. FFO to debt of 20% and debt to EBITDA of 4x would, in our view, typify the significant financial risk category.
17. Still, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees. They can vary in nonstandard cases: For example, if a company's financial measures exhibit very little volatility, benchmarks may be somewhat more relaxed.
18. Moreover, our assessment of financial risk is not as simplistic as looking at a few ratios. It encompasses:
  - A view of accounting and disclosure practices;
  - A view of corporate governance, financial policies, and risk tolerance;
  - The degree of capital intensity, flexibility regarding capital expenditures and other cash needs, including acquisitions and shareholder distributions; and
  - Various aspects of liquidity—including the risk of refinancing near-term maturities.
19. The matrix addresses a company's standalone credit profile, and does not take account of external influences, which would pertain in the case of government-related entities or subsidiaries that in our view may benefit or suffer from affiliation with a stronger or weaker group. The matrix refers only to local-currency ratings, rather than foreign-currency ratings, which incorporate additional transfer and convertibility risks. Finally, the matrix does not apply to project finance or corporate securitizations.

## Related Criteria And Research

- Principles Of Credit Ratings, Feb. 16, 2011
  - Criteria Methodology: Business Risk/Financial Risk Matrix Expanded, May 27, 2009
  - 2008 Corporate Ratings Criteria, April 15, 2008
20. These criteria represent the specific application of fundamental principles that define credit risk and ratings opinions. Their use is determined by issuer- or issue-specific attributes as well as Standard & Poor's Ratings Services' assessment of the credit and, if applicable, structural risks for a given issuer or issue rating. Methodology and assumptions may change from time to time as a result of market and economic conditions, issuer- or issue-specific factors, or new empirical evidence that would affect our credit judgment.

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