

A CFO'S VIEW OF THE ENERGY LANDSCAPE

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A CFO'S VIEW OF THE ENERGY LANDSCAPE

# Brian X. Tierney

*Executive Vice President & CFO*

American Electric Power

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## A Changing Utility Fuel Mix

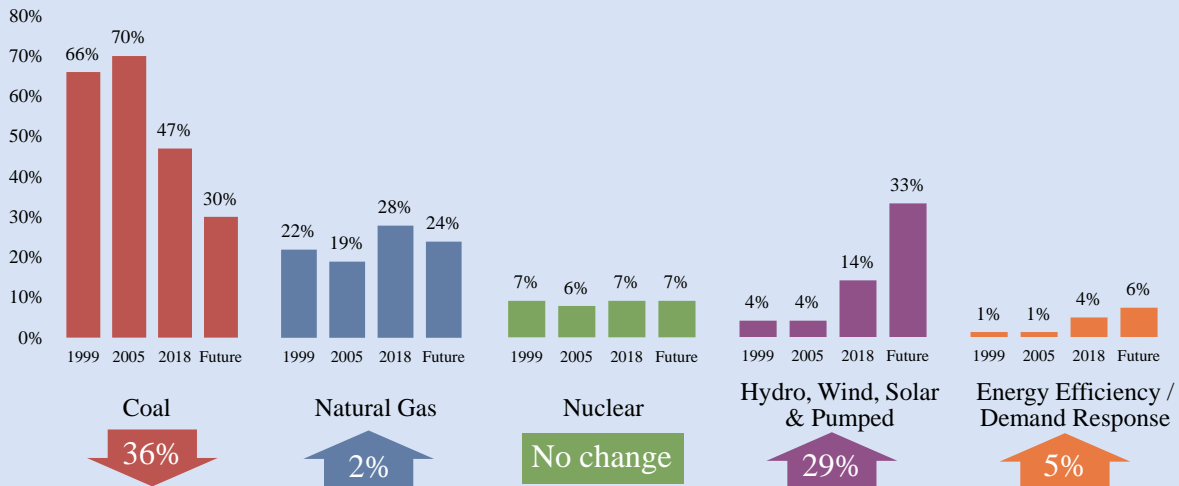
The growth of gas-fired and renewable resources, their effect on generation portfolios and their impact on the future

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## TRANSFORMING OUR GENERATION FLEET

### Capacity

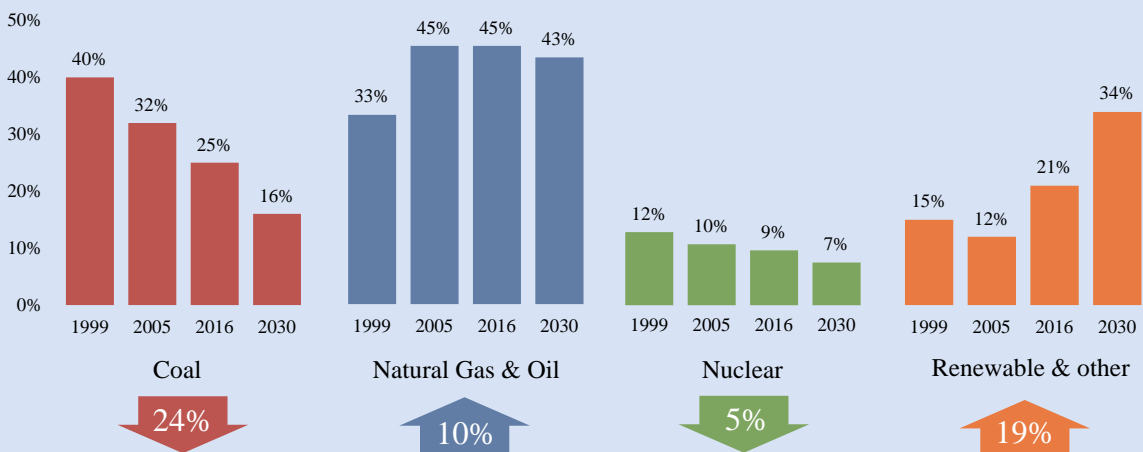


As of June 30, 2018 and excludes impact of Wind Catcher. Future includes IRP forecasted additions and retirements through 2030. Energy Efficiency / Demand Response represents avoided capacity rather than physical assets.

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## US ELECTRIC GENERATING CAPACITY

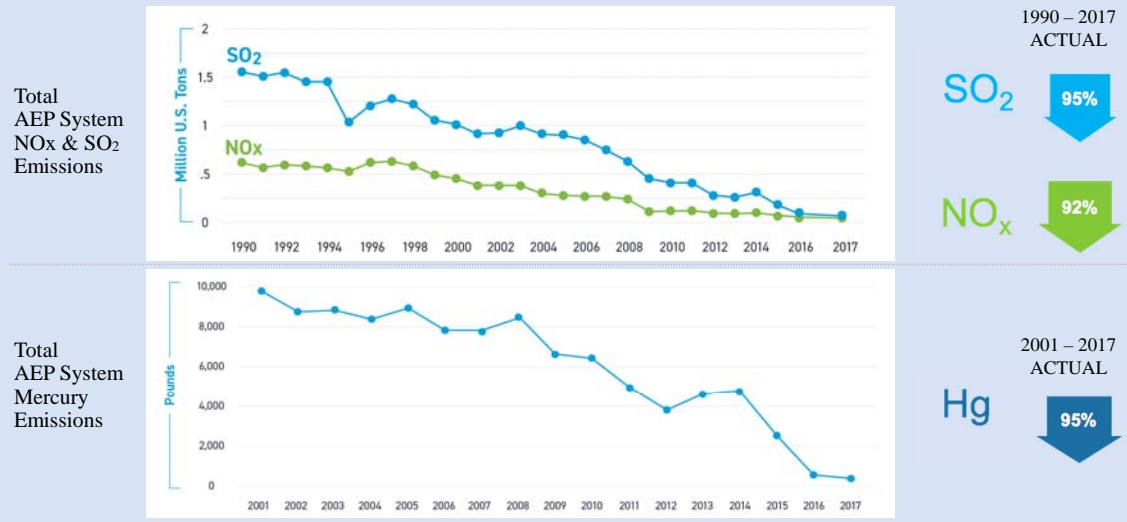


Source EIA-860 Data and EIA Annual Energy Outlook 2018 Projection.

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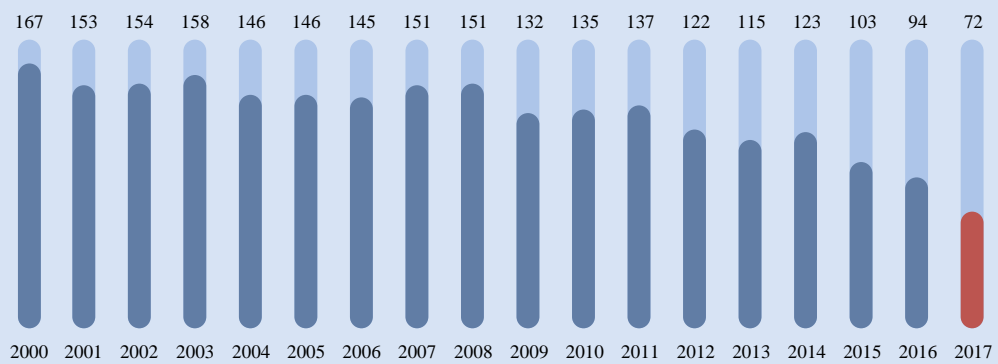
### DRAMATIC REDUCTIONS IN EMISSIONS



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### DRAMATIC REDUCTIONS IN EMISSIONS

Total AEP System - Annual CO<sub>2</sub> Emissions (in million metric tons)



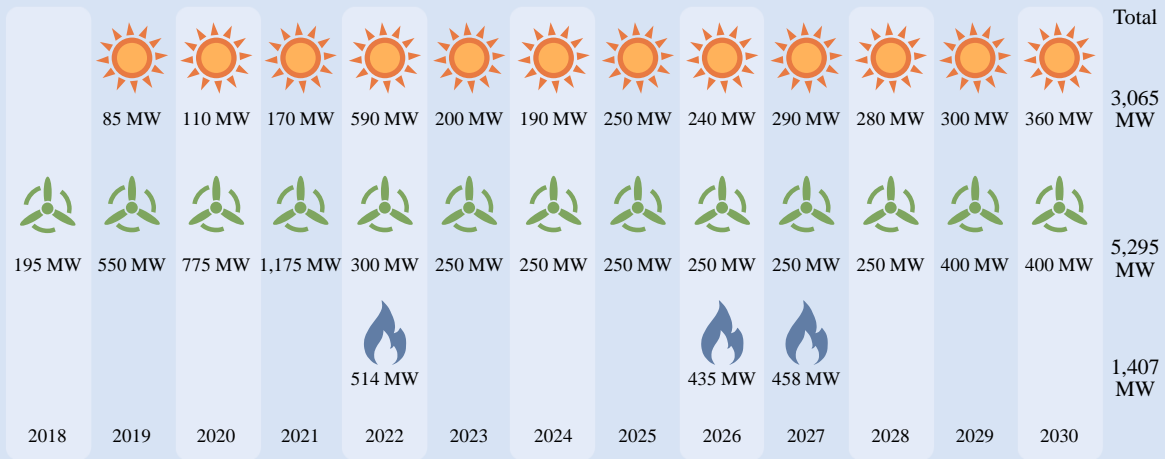
**2000 – 2017 ACTUAL**

CO<sub>2</sub> 57%

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## INVESTING IN A GREENER FUTURE

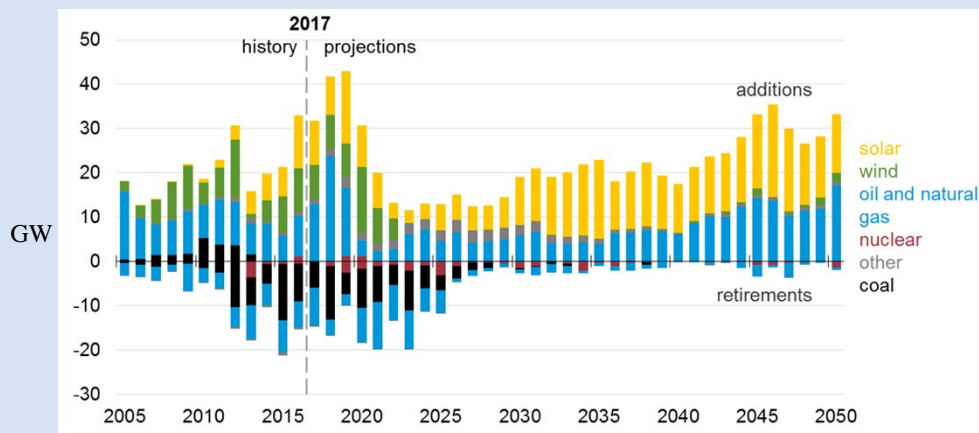
AEP System Planned Generation Resource Additions



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## AEP IS A MICROCOSM OF THE US

Annual electricity generating capacity additions and retirements

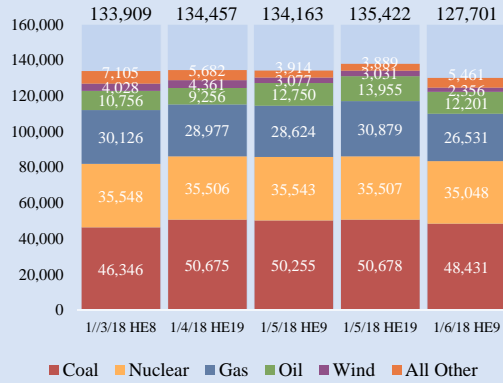


Source: EIA Annual Energy Outlook 2018.

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## FUEL DIVERSITY - PJM

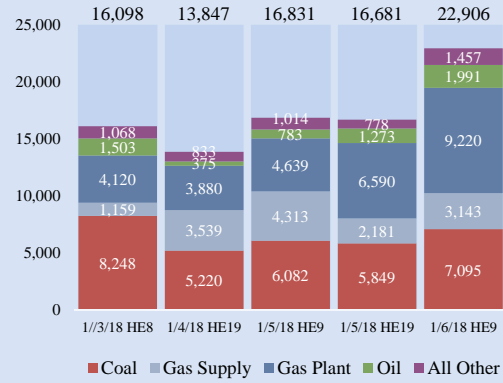
Actual Generation by Fuel Mix (mW)



Generation totals are net of imports.  
This chart shows the fuel source of the generation that was used to serve customer load for the peak hour of each day (January 3 - 6, 2018)

Source: "Cold Weather Operations Summary: December 27, 2017 - January 7, 2018." PJM, January 7, 2018 <http://www.pjm.com/-/media/committees-groups/committees/mic/20180110/20180110-item-11-cold-weather-operations-summary.aspx> HE represents hour ending.

Forced Outages by Primary Fuel (mW)



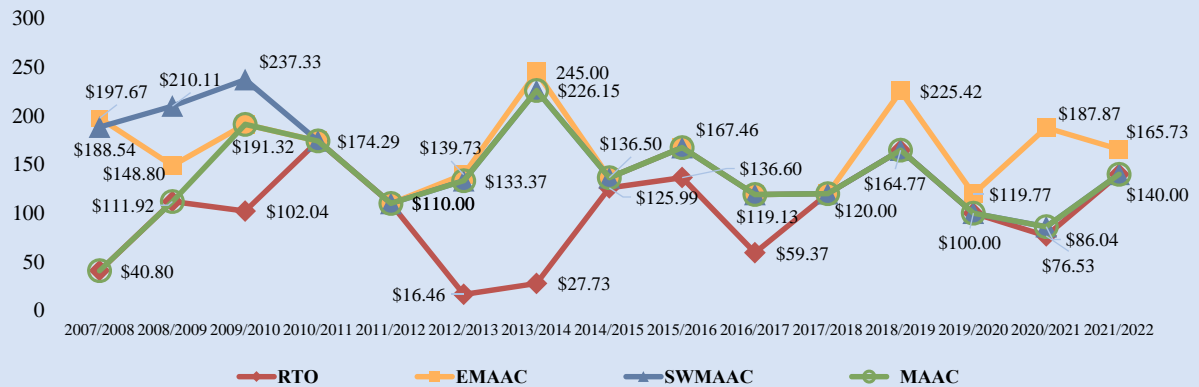
Preliminary eDART-based data.  
By fuel type, this graph represents outages that were unanticipated

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## MARKET DYNAMICS

PJM RPM Base Residual Auction Resource Clearing Prices

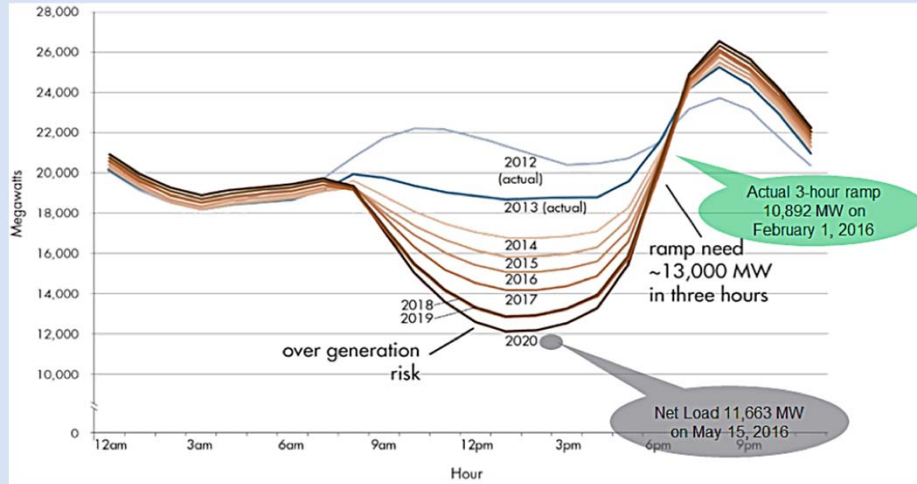
\$/mW/Day



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## INTERMITTENCY OF RENEWABLE RESOURCES

Typical Spring Day in CAISO



Source: California Independent System Operator.

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## HOW RISK IS BEING MANAGED

- Proactive communication
- Engaging stakeholders
- Advocating for risk-based planning
- Advancing enabling technology
- Prudent investment

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UTILITY MERGERS AND ACQUISITIONS  
A DECADE IN PERSPECTIVE

# David Bronicheski

CFO

Algonquin Power & Utilities Corp

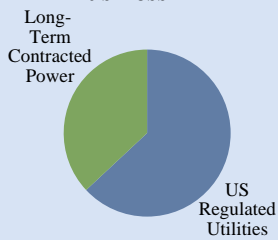
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## ALGONQUIN POWER & UTILITIES CORP.

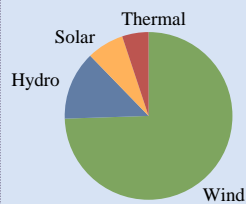
*Growth-Oriented North American Utility With a Global Reach*

### Business Mix



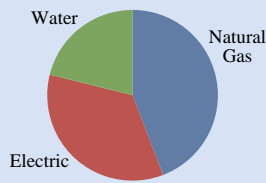
- US \$9.0 billion in power and utility assets
- US \$680 million adj. EBITDA in 2017

### Generation Profile



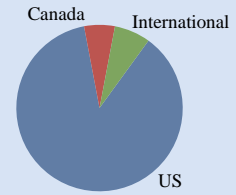
- Diversified independent power and water infrastructure portfolio
- 2.3 GW of installed capacity
- Long term contracted assets, average PPA length of 16 years

### Utility Customers



- Stable and *diversified* US regulated utility business
- 763,000 utility customers
- 34 utilities, 14 regulatory jurisdictions

### Geographic Reach



- Strong, stable base of North American operations
- International development strategy expands opportunity set

Multiple avenues for growth within 5-year, US \$6.4 billion capital program

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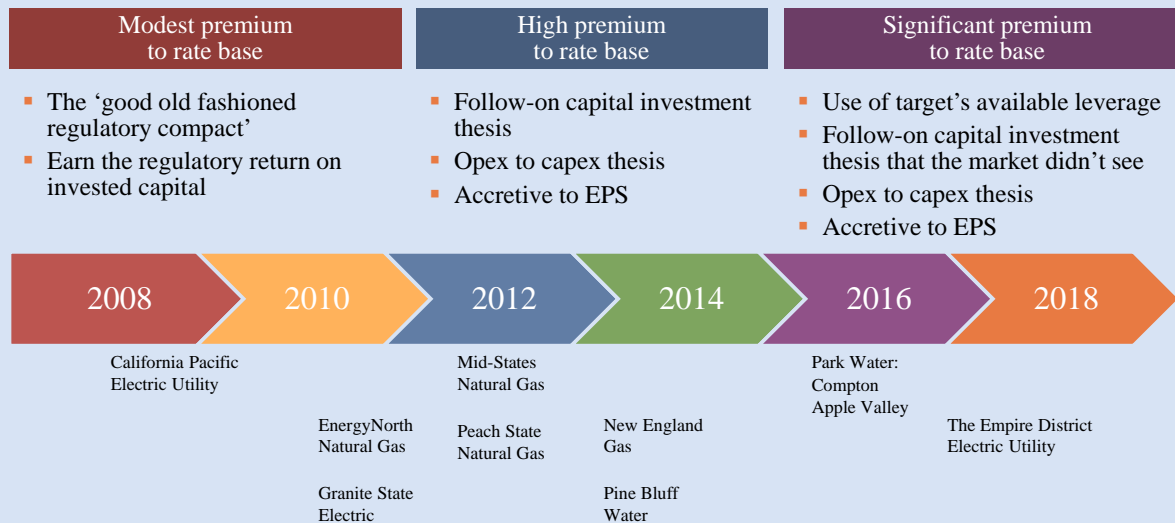
## POWER AND UTILITY NORTH AMERICA FOCUS

- Centralized strategy, local execution
- Build strong communication channels
- Don't forget about the importance of face-to-face meetings



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## UTILITY M&A – A DECADE’S PERSPECTIVE



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## LESSONS FROM THE TRENCHES

- Communicate clearly
- Craft a sound financing plan
- Work closely with the regulator
- Start your integration early
- Don't count on significant synergies



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**LESSONS FROM THE TRENCHES**

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**Regulatory Affairs**



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**LESSONS FROM THE TRENCHES**

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## LESSONS FROM THE TRENCHES

- Communicate clearly
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## ALGONQUIN POWER & UTILITIES CORP.

Earnings & Cash Flows	<ul style="list-style-type: none"><li>▪ Long-term contracted cash flows and regulated utility earnings</li><li>▪ Significant forecast growth from commercially secured pipeline</li></ul>
Sustainable Growth in Dividend	<ul style="list-style-type: none"><li>▪ Annual dividend increases for eight consecutive years</li><li>▪ Current annual dividend of US \$0.5128, paid quarterly</li><li>▪ Industry-leading dividend growth</li></ul>
Robust Development Program	<ul style="list-style-type: none"><li>▪ Line-of-sight on US \$6.4 billion of growth over next five years</li><li>▪ New pathways to international growth</li><li>▪ Maintaining business and technology mix</li></ul>
Enterprisewide Focus on Risk Management	<ul style="list-style-type: none"><li>▪ Investment grade capital structure</li><li>▪ Dedicated enterprise risk management and internal audit functions</li></ul>
Management Team	<ul style="list-style-type: none"><li>▪ Over 25 years of power generation development and utility expertise</li><li>▪ Entrepreneurial roots are core to the corporate culture</li></ul>

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A CFO'S VIEW OF THE ENERGY LANDSCAPE

# William D. Rogers

*Executive Vice President & CFO*

CenterPoint Energy, Inc.

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Regulation – an introduction to alternative  
ratemaking to address impacts on the utility industry

William “Bill” Rogers

*EVP & Chief Financial Officer*

CenterPoint Energy, Inc.

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## STATES AND COMMISSIONS CONSIDER ALTERNATIVES TO TRADITIONAL COST OF SERVICE RATEMAKING BASED ON POLICY OBJECTIVES

- Formula rate plans
- Straight fixed-variable rates
- Revenue decoupling
- Lost revenue adjustment mechanisms
- Multi-year rate plans
- Price cap plans

Note: Much of this presentation is sourced from Christensen Associates' May 2016 report to the Public Utility Commission of Texas. This presentation is being provided for informational purposes only and does not purport to be comprehensive. You are encouraged to perform your own independent evaluation and analysis, as applicable.

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## FORMULA RATE PLANS (FRPS)

- Formula rate plans (FRPs) use pre-specified formulas to calculate automatic rate adjustments to keep the utility's actual rate of ROE within or near a specified band around the authorized ROE
- Such plans require specification of the initial base ROE, the band around the authorized ROE, the sharing between customers and shareholders of actual earnings that fall outside the band, any limits on the size of adjustments to the ROE, any performance standards that the utility must meet to qualify for adjustments to the ROE through performance adders, and monitoring and reporting requirements

### Examples



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## STRAIGHT FIXED-VARIABLE RATES

- To foster a better match between utility revenues and costs, straight fixed-variable (SFV) rates allow utilities to recover substantially all fixed costs through fixed monthly charges or peak demand charges that are independent of the volumes of electrical energy consumed
- Volumetric charges are used to recover substantially all variable costs that depend primarily upon the energy consumed

### Examples



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## REVENUE DECOUPLING

- The revenue decoupling concept was developed in the 1980s for the explicit purposes of encouraging energy efficiency and of removing utility incentives to increase sales
- While SFV rates address the latter purpose, they do so by reducing the energy component of retail electricity rates, thereby reducing conservation incentives
- Revenue decoupling, by contrast, assures utility recovery of fixed costs without significantly reducing retail energy prices

### Examples



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## LOST REVENUE ADJUSTMENT MECHANISMS (LRAMS)

- LRAMS are similar to revenue decoupling in their intention of making utilities indifferent to sales lost due to conservation and, in some instances, distributed generation
- To the extent that a utility's fixed costs are recovered through rates dependent upon usage, conservation impinges upon the utility's ability to recover its fixed costs
- LRAMS enable utilities to recover the fixed costs that would otherwise be lost due to conservation, thus removing some important incentives for the utility to oppose alternatives to utility generation

### Examples



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## MULTI-YEAR RATE PLANS

- Multi-year rate plans are established during general rate case proceedings
- Multi-year plans establish future rate changes according to future conditions that are forecast during these proceedings
- With the occasional exception of indexation to external cost factors as described below, multi-year rate plans do not adjust rates in response to the future conditions that actually occur
- General rate case filings are generally prohibited during the term of the multi-year plan

### Examples



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## PRICE CAP PLANS

- Price cap plans seek to encourage utilities to reduce costs by making retail electricity prices (or average unit revenues) exogenous to the utility
- Prices (or average unit revenues) are allowed to increase no faster than some measure of inflation, such as the prices of specified inputs (like fuels) or economy-wide inflation
- At the same time, prices (or average unit revenues) are reduced according to some measure of productivity improvement for the electric power industry

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## OTHER INCREMENTAL REVISIONS TO RATEMAKING

Future test years

California  Minnesota  Wisconsin  Michigan 

Earnings sharing mechanisms

Cost trackers

Texas  Arkansas  Louisiana  Florida 

Infrastructure surcharges

Performance incentive regulations

Arkansas  Mississippi  Louisiana 

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**REVENUE MODELS AND CERTAINTY OF REVENUES ARE CRITICAL TO...**

Understanding a company’s enterprise risk management philosophy and risk appetite and designing risk mitigation and transfer strategies

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**GAS UTILITY REVENUE ADJUSTMENT MECHANISMS**

*Applicable to CenterPoint Energy*

Jurisdiction	Mechanism	Description	Filing
Arkansas	Formula Rate Plan (FRP)	<ul style="list-style-type: none"> <li>Fully projected test year, with true-up, using previously approved ROE. Calculates an Earned Return Rate (ERR)</li> <li>ERR is compared to Targeted Return Rate (TRR). If ERR above/below TRR +/- 50 basis points rates are adjusted to TRR</li> <li>Increase/decrease shall not exceed 4% of rate classes revenue</li> </ul>	<ul style="list-style-type: none"> <li>Required filing</li> <li>File between 4 / 4-6</li> <li>Effective first business day of October</li> </ul>
Louisiana	Rate Stabilization Plan (RSP)	<ul style="list-style-type: none"> <li>Actual earned ROE (ER) is compared to allowed ROE (AR) and if ER is +/- 50 basis points of AR rates are adjusted to AR</li> <li>Adjustment to the commodity rate</li> </ul>	<ul style="list-style-type: none"> <li>Required filing</li> <li>File by Oct. 1st.</li> <li>Effective 90 days after filing.</li> </ul>
Minnesota	Decoupling	<ul style="list-style-type: none"> <li>Adjustment based on revenues per customer - actual revenues compared to authorized revenue per customer times the greater of actual number of customers or customers used to determine rate</li> <li>No cap on refunds, surcharges subject to 10% of non-gas margins</li> </ul>	<ul style="list-style-type: none"> <li>Required filing</li> <li>File by 9 / 1</li> <li>Effective 9 / 1 subject to PUC approval</li> </ul>
Mississippi	Rate Regulation Adjustment (RRA)	<ul style="list-style-type: none"> <li>An earned ROE (ER) is compared to the allowed ROE (AR) and rates are adjusted if</li> <li>ER 100 BPs &lt; AR, rates increased to bring ER to AR</li> <li>ER 100 BPs &gt; AR then 75% of the revenues that are &gt;50 BPs above AR are then returned to customers</li> <li>Any change in rates split 50 / 50 between customer charge and commodity rate</li> </ul>	<ul style="list-style-type: none"> <li>Required filing</li> <li>Filed by May 1st.</li> <li>Expected to be effective by September 1st.</li> </ul>

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## GAS UTILITY REVENUE ADJUSTMENT MECHANISMS

Applicable to CenterPoint Energy

Jurisdiction	Mechanism	Description	Filing
Oklahoma	Performance Based Rate Change (PBRC)	<p>An earned ROE (ER) is compared to the allowed ROE (AR) and rates are adjusted if:</p> <ul style="list-style-type: none"> <li>ER 50 BPs &lt; AR, rates increased to bring ER to AR;</li> <li>ER 50 BPs &gt; AR then 75% of the revenues that are &gt;50 BPs above AR are then returned to customers through a temporary credit</li> <li>Any change in rates split 50/50 between customer charge and commodity rate</li> </ul>	<ul style="list-style-type: none"> <li>Required filing</li> <li>File by March 1<sup>st</sup></li> <li>Typically effective 3<sup>rd</sup> Quarter</li> </ul>
Texas	Gas Reliability Infrastructure Program (GRIP)	<ul style="list-style-type: none"> <li>Capital investment tracker mechanism – based on annual incremental investment</li> <li>Includes return on investment, depreciation and certain taxes</li> <li>A full rate case required within 5 ½ years of initial GRIP</li> <li>Subject to prudence review in next rate case</li> </ul>	<ul style="list-style-type: none"> <li>Initial filing within 2 years of rate case, required thereafter</li> <li>Typically filed by 3/31</li> <li>Typically effective 2<sup>nd</sup> and/or 3<sup>rd</sup> quarter</li> </ul>

Note: Various jurisdictions have Weather Normalization Adjustment Riders and Energy Efficiency Riders that are updated periodically.

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## ELECTRIC REVENUE ADJUSTMENT MECHANISMS

Applicable to CenterPoint Energy

Jurisdiction	Mechanism	Description	Filing
Texas	Distribution Cost Recovery Factor (DCRF)	<ul style="list-style-type: none"> <li>Allows recovery of return on changes in invested capital since the last rate proceeding as well as changes to appropriate depreciation and taxes.</li> <li>Annual Earnings Monitoring Report must reflect that utility is not earning more than authorized weather-adjusted ROR</li> <li>Subject to reconciliation and prudence of investment in next rate case</li> <li>Limit of 4 between comprehensive base-rate proceedings</li> </ul>	<ul style="list-style-type: none"> <li>Discretionary*</li> <li>Annual filing</li> <li>File between 4/1-8</li> <li>Effective September 1<sup>st</sup> or later</li> </ul> <p>* CEHE agreed to file a 2018 DCRF per 2017 DCRF settlement</p>
Texas	Transmission Cost of Service (TCOS)	<ul style="list-style-type: none"> <li>Reflects approved return on the changes in invested capital since previous TCOS filing as well as changes to appropriate depreciation and taxes</li> <li>Subject to reconciliation and prudence of investment in next rate case</li> </ul>	<ul style="list-style-type: none"> <li>Discretionary</li> <li>May file twice per year</li> </ul>

Note: CEHE also files Transition Charge true-ups (Related to securitization), Energy Efficiency Cost Recovery Factor adjustment and Transmission Cost Recovery Factor adjustments as well.

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