Performance-Based Regulation State Working Group

Expert Webinar: Alternative Regulation and Incentives for Capital Efficiency

September 7, 2023 | 3:30-4:45pm (ET)

Performance-Based Regulation State Working Group

Working Group Chair: Commissioner Abigail Anthony, Rhode Island
Working Group – 31 Jurisdictions

- Arizona
- British Columbia, Canada
- Colorado
- Connecticut
- District of Columbia
- Delaware
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Kentucky
- Massachusetts
- Maryland
- Maine
- Michigan
- Minnesota
- Missouri
- North Carolina
- Nevada
- Ohio
- Oregon
- Oklahoma
- Pennsylvania
- Puerto Rico
- Rhode Island
- Texas
- Utah
- Vermont
- Washington
- Wisconsin

Please send any feedback or inquiries to enethercutt@naruc.org

Performance-Based Regulation State Working Group

Agenda

Time	Item	Lead
3:30-3:35	Administrative Items & Opening Remarks	Elliott Nethercutt – NARUC Abigail Anthony (RI) – PBRSWG Chair
3:35-4:30	Expert Webinar: Alternative Regulation and Incentives for Capital Efficiency	Dr. Mark Newton Lowry
4:30-4:45	Q&A and Group Discussion	PBRSWG Members
4:45	Closing Remarks	Abigail Anthony (RI) – Chair

Performance-Based Regulation State Working Group

2023 Event Schedule

Date	Topic	Event
Jan 5	Member Roundtable and 2023 NARUC Work Plan	Roundtable
Mar 23	Can New Forms of PBR Advance the Clean Energy Transition?	Expert Webinar
May 4	Modernizing Regulatory Frameworks for the Future of Gas in an Era of Decarbonization	Expert Webinar
June 29	Recent PBR Developments in Indiana and Connecticut	R&I
Sep 7	**Alternative Regulation and Incentives for Capital Efficiency**	**Expert Webinar**
Nov 2	*Alternative Ratemaking and PBR in France, the UK, and Ireland* *Octopus Energy PBR for spending efficiency on IT* *Roundtable on Work Plan for 2024*	*TBD*

- **Roundtable**: members receive a prompt or topic; each has a few minutes to respond with their state's perspective
- **Ruminate & Illuminate**: one state shares their experience with a specific issue, followed by responses from other members with additional input, recommendations, or lessons-learned. NARUC develops a one-page summary.
- **Expert Webinar**: at least one presentation on a topic selected by the chair or proposed by a member. Presentations are recorded and posted on the PBR website (Q&A not recorded; for members only).

Performance-Based Regulation State Working Group

Expert Webinar: Alternative Regulation and Incentives for Capital Efficiency

September 7, 2023 | 3:30-4:45pm (ET)

Mark Newton Lowry *is the president of Pacific Economics Group ("PEG") Research LLC and a noted authority on performance-based regulation, statistical benchmarking, and the measurement of energy utility productivity. He has been active in these related fields for over thirty years, testifying dozens of times on these issues. His clients have included a varied mix of utilities, consumer and environmental groups, and regulators. His practice is international in scope and has included dozens of projects in Canada, where PBR is used in most populous provinces. In the United States, he has been active in recent Hawaii, Massachusetts, North Carolina, and Washington state PBR proceedings and has coauthored two PBR white papers for Lawrence Berkeley National Laboratory. Before entering consulting, Dr. Lowry taught energy economics at the Pennsylvania State University. A northeast Ohio native, he attended Princeton University and earned a Ph.D. in applied economics from the University of Wisconsin.*

Incentivizing Capital Efficiency

Mark Newton Lowry, PhD
President, Pacific Economics Group Research

NARUC PBR State Working Group

7 September 2023

Acknowledgements

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Introduction

US electric utilities are in period of rapid change

Alternatives to traditional cost of service ratemaking ("COSR") --- collectively called "Altreg" --- are increasingly used to address change

Business conditions encourage high capital expenditures ("capex").

Incentives for capital efficiency are thus a key concern when choosing amongst ratemaking options.

This presentation

- explains *performance-based* ratemaking ("PBR") and some other salient Altreg options
- spotlights capital efficiency incentives
- provides an economist's view of contemporary ratemaking

The Age of Altreg

What's Driving Altreg?

Business conditions facing many electric utilities today create chronic financial attrition between rate cases.

- Mounting climate concerns encourage large demand-side management ("DSM") programs and distributed generation ("DG"). Under legacy rate designs, this trims "throughput" margins that utilities earn from load growth.
- Many reasons to boost capex
- Rapid input price inflation

What's Driving Altreg? (cont'd)

Under COSR, these conditions trigger frequent rate cases that

- weaken utility incentives to contain costs of capital and other base rate (non-fuel) inputs
- raise regulatory cost
- distract from important generic issues (e.g., clean energy plans and rate designs)

Business conditions were more favorable to utilities in the "golden age" of COSR (before 1968) when it became a tradition.

Altreg Options

COSR shortcomings have spurred development of Altreg options

Utilities favor options that accelerate revenue growth

- Fully-forecasted test years
- Higher fixed charges
- Revenue decoupling
- Extra cost trackers
- Formula rates
- Multiyear rate plans

Many utilities also prefer Altreg options that require advanced approval of their capex plans

Capex Incentives

Controversy over utility capex in some jurisdictions is bewildering given the key role it will play in clean energy transition

- Clean generation technologies are highly capital-intensive
- Low-cost renewables require transmission access
- Beneficial electrification will prompt capacity expansion
- A reliable, resilient, smart grid is essential

Some of the controversy is driven by vendors of alternatives to utility capex and their surrogates

Capex containment should nonetheless be key concern of regulators

Key to customer welfare in an age of high capex and to public acceptance of clean energy transition

How to Incentivize Capital Efficiency?

Weaken Capex Incentives

Make a utility's revenue less sensitive to its capex

- Competent capex prudence reviews
- External basis for capital revenue escalation

Strengthen Utility Incentives to Use Capex Alternatives

Encourage DSM and DG by removing throughput incentive (e.g., revenue decoupling)

"Positive" incentives for DSM and other operation and maintenance ("O&M") practices that reduce need for capex

Cost Trackers and Formula Rates

Cost Trackers

Basic Idea

Expedite recovery of targeted costs between general rate cases

Tracker (aka balancing account) keeps track of unrecovered cost

Costs deemed prudent usually recovered promptly via rate surcharge (aka “rider”)

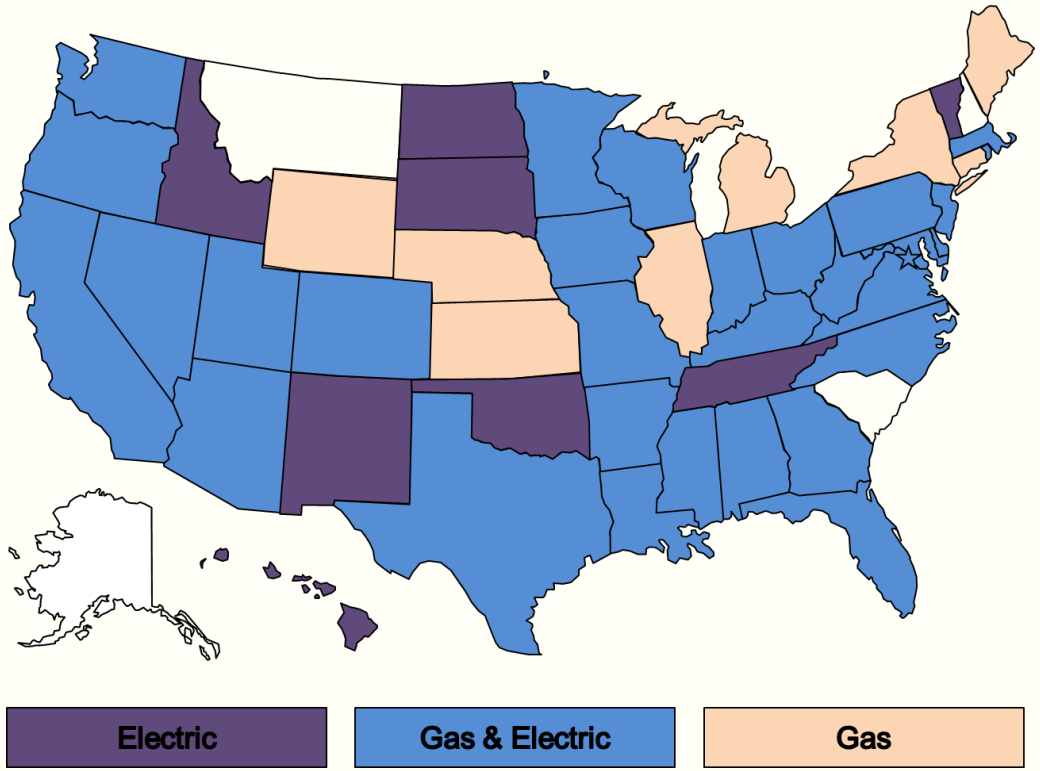
Precedents

Utilities have long been able to track large volatile costs (e.g., fuel and purchased power expenses)

Cost trackers increasingly used for *rapidly rising* costs [e.g., annual cost of capex (incremental depreciation, taxes, & return on rate base)].

Recent Capex Tracker Precedents

Capital cost trackers are most popular form of Altreg though less common for electric than for gas utilities



Capex Tracker: Con

Weaken incentive to contain capex that is tracked

Need for proposed capex often hard to assess

Inadequate utility support for proposed capex

Information asymmetries between utilities and other parties raise concerns about

- "single issue ratemaking"
- exaggeration of capex needs

>>> Prudence of tracked capex should be carefully examined.

Automatic adjustments for inflation or customer growth may be smarter ways to address chronic attrition.

Capex Trackers: Pro

Address important attrition challenge

Reduce rate case frequency

- Stronger incentives to contain costs that *aren't* tracked
- More time and resources available to address
  - prudence of tracked capex
  - other regulatory issues

  Regulators care a lot about regulatory efficiency

Formula Rates

Basic Idea

Most revenue adjusted annually to reflect utility's cost of service

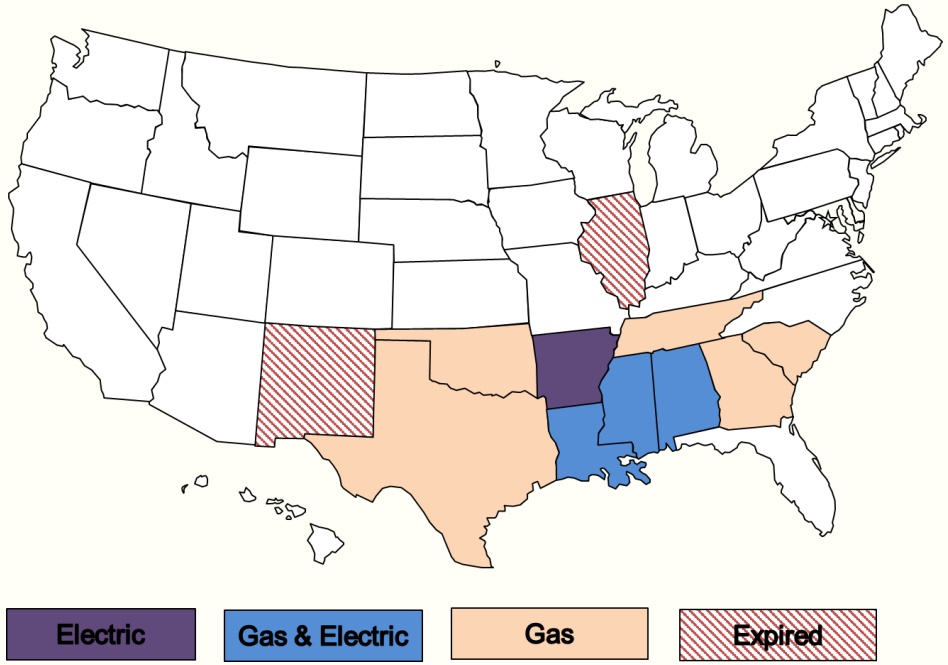
>>> "cost of service formula" is comprehensive cost tracker

Scope and duration of prudence reviews often narrowed

Precedents

Formula rates are the norm for power transmission at the Federal Energy Regulatory Commission ("FERC")

Popular for *retail* electric and (especially) gas ratemaking in the southeast



Note: Shaded jurisdictions reflect regulatory approval of formula rate plans for one or more utilities in their jurisdiction.

Formula Rates (*cont'd*)

Incentive Impact

Formula rates weaken utility incentives to contain capex *and* base O&M expenses

e.g., O&M, capital, and multifactor productivity trends of US power transmitters are all materially negative

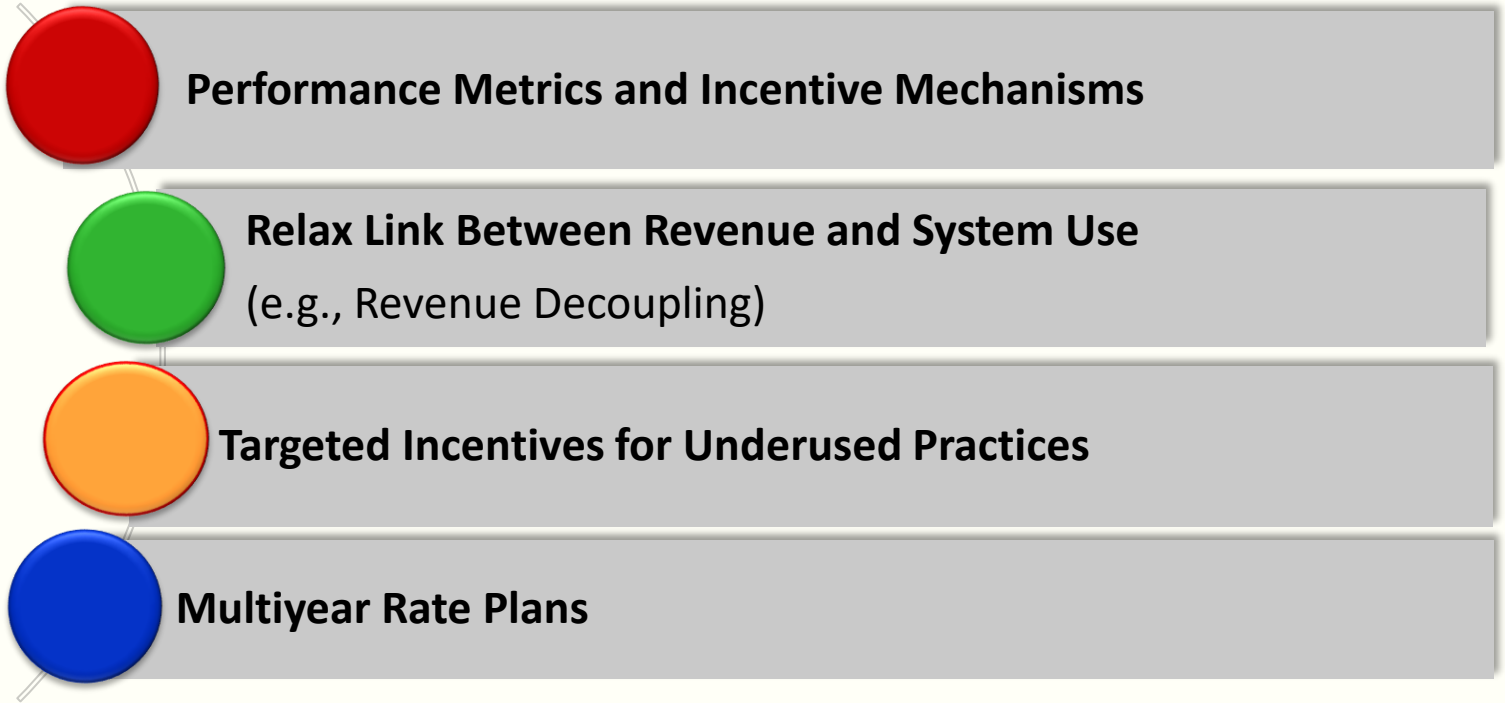
>>> Formula rates often resisted by regulators and require legislative mandate for implementation (e.g., AR, IL, TN)

Performance-Based Ratemaking

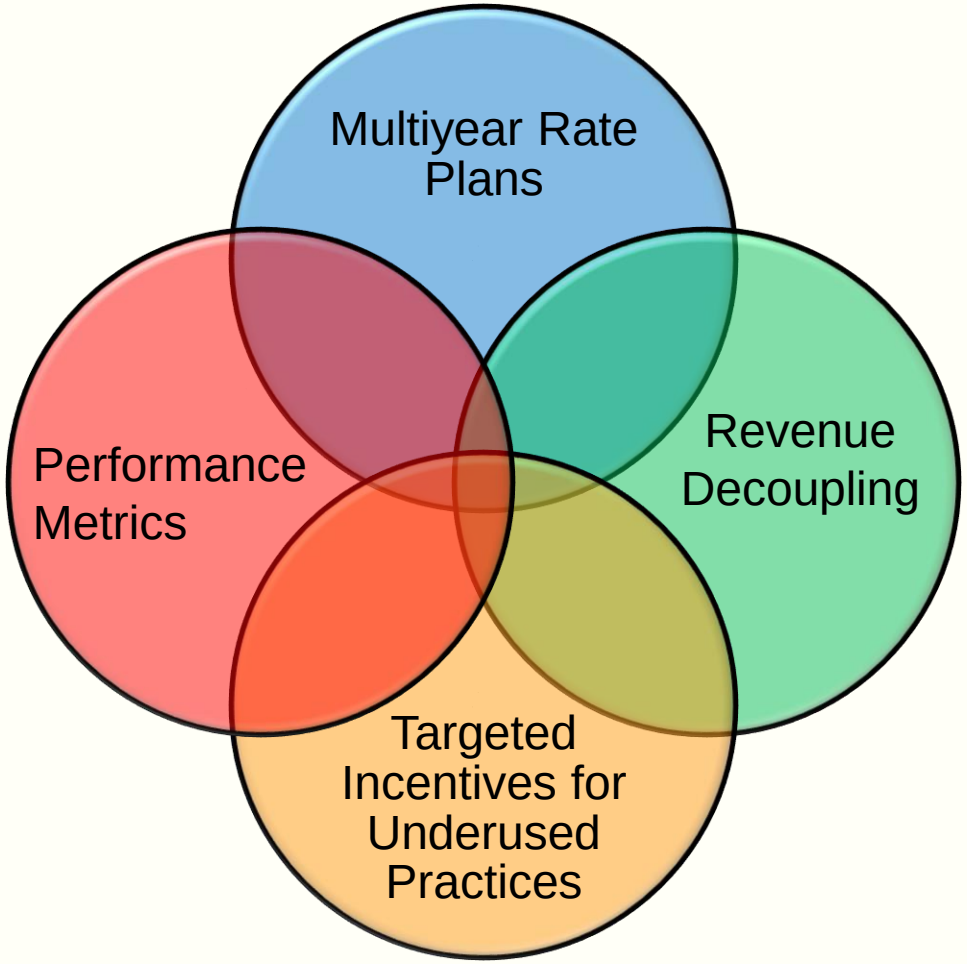
Performance-Based Ratemaking

PBR encompasses regulatory options designed to strengthen utility performance incentives.

Four salient approaches



Basic PBR Approaches are Often Combined



Britain's "RIIO" approach to ratemaking combines all 4

Relaxing the Revenue/Usage Link

Basic Idea

Weaken link between base rate revenue & system use

Desirable if growth in system use entails substantial negative externalities or large costs for new capacity

Revenue decoupling is most common approach

Uses tracker and rider to make *actual* revenue track *allowed* revenue closely

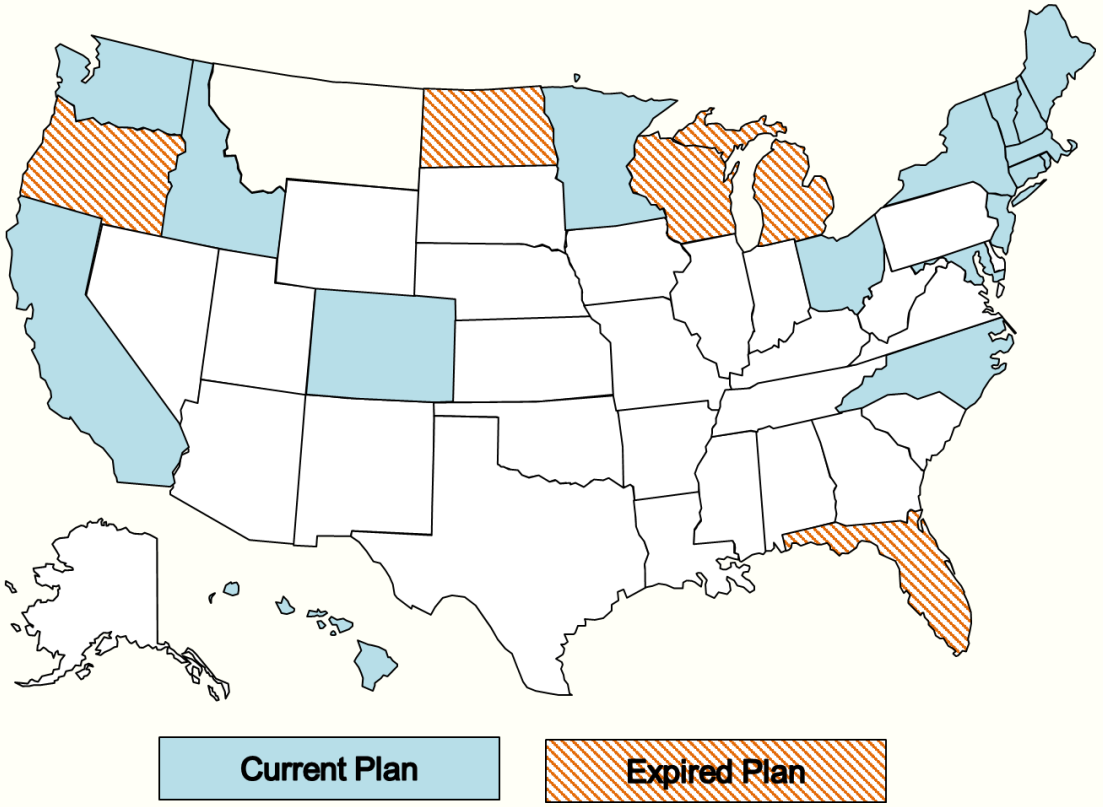
>>> revenue (and earnings) “decoupled” from system use

Revenue Decoupling Precedents: Electric

California was revenue decoupling pioneer

Decoupling now generally popular in states that strongly encourage DSM and DG

Decoupling even more popular for gas distributors



Revenue Decoupling and Capex

Decoupling eliminates “throughput” incentive, encouraging utilities to embrace DG and wide range of DSM initiatives that can trim capex

No need for high fixed charges that discourage DSM and DG

Encourages innovative rate designs (e.g., time-sensitive base rates) that reduce capex.

Reduces frequency of general rate cases

Metrics, PIMS, and Capital Efficiency

Performance incentive mechanisms ("PIMs") link revenue to performance as measured using metrics and targets

PIMs widely used to encourage utility conservation programs even when utility has revenue decoupling

Provides "positive" incentive to contain capex

PIMs for peak load management are increasingly popular

- System load peakedness
- Non-wire alternatives ("NWAs") to distribution grid investments
  e.g., Brooklyn-Queens Demand Management Project

Cost Benchmarking

Sophisticated studies used in several jurisdictions to benchmark total cost (and increasingly capital cost)

[e.g., MA, Alberta, Ontario, Québec]

Power Distribution Capital Cost Benchmarking

Step 1: Estimate parameters of econometric capital cost model

EXPLANATORY VARIABLE	PARAMETER ESTIMATE	T-STATISTIC	P-VALUE
Area of Service Territory	0.058	18.080	0.000
Number of Customers	0.438	38.580	0.000
Ratcheted Max Distribution Peak	0.559	55.910	0.000
Percent Electric Customers	0.148	6.420	0.000
Percent Overhead Lines	-0.240	-5.690	0.000
Net DX O&M share of Net TX + DX + Generation O&M	0.043	4.700	0.000
Percent AMI	0.015	15.110	0.000
Percent Service Territory Congested Urban	0.011	7.250	0.000
Standard Deviation of Elevation of Service Territory	0.013	9.980	0.000
Trend	-0.004	15.110	0.000
Constant	10.660	-6.050	0.000
	Adjusted R^2	0.971	
	Sample Period	2002-2019	
	Number of Observations	1,383	

Notes: Most variables logged so that parameter estimates are also cost elasticity estimates
Source: Joint Report filed by PEG and utility witness in Ontario Energy Board proceeding EB-2021-0110

Step 2: Use parameter estimates to calculate capital cost benchmark for specific utility [e.g., Rhode Island Energy ("RIE")]

$$Benchmark\ Cost^{RIE} = 10.660 + 0.438 \times Customers^{RIE} + \ldots$$

Targeted Incentives for Underused Practices

Rationale

Utilities tend to underuse certain inputs and practices, like those that reduce utility investment opportunities

- utility and outsourced DSM programs
- power purchases
- facility maintenance and refurbishment

Targeted incentives can “nudge” utilities in right direction

Targeted Incentives (cont'd)

Encouraging Capex Reduction Practices

Track their costs (e.g., DSM)

Capitalize these costs (if O&M expenses)

- Some utilities capitalize DSM expenses (e.g. DE, British Columbia)
- British regulator capitalizes share of total expenditures ("totex")

Management fee (e.g., DSM)

Pilot programs that encourage capex containment

Multiyear Rate Plans

Key Components

- Reduced rate case frequency (e.g., 3-5 year rate case cycle)
- Attrition relief mechanism ("ARM") automatically relieves cost pressures but *isn't linked* (*like a tracker*) *to utility's actual cost growth during plan*

>>> Stronger cost containment incentives, streamlined regulation

- Costs *dedicated* for tracking (e.g., energy) are "Y factored"
- Costs that *may* be tracked (e.g., severe storms) are "Z factored"

Optional Components

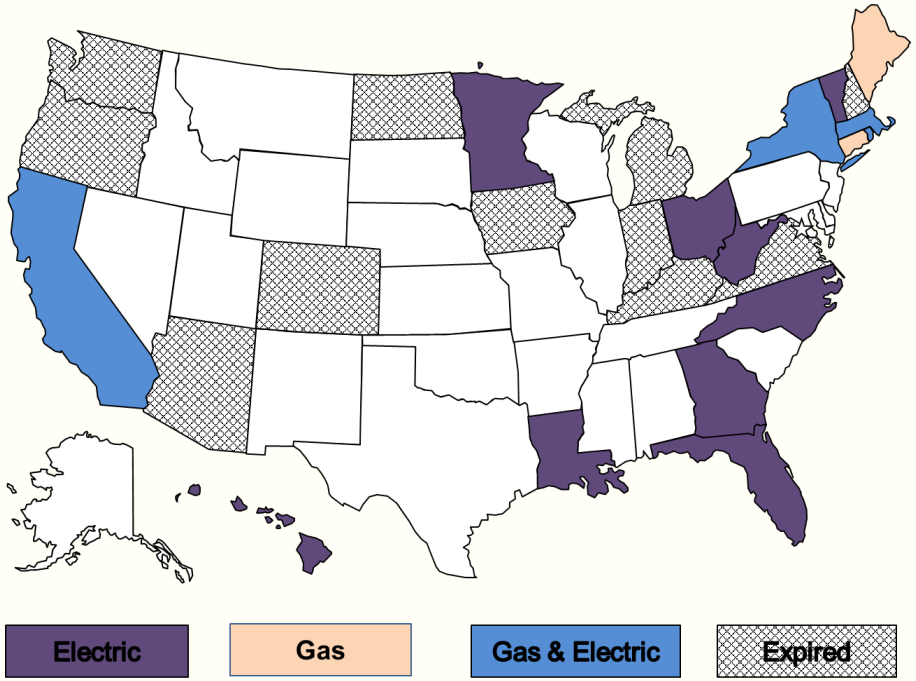
- PIMs for reliability and customer service quality
- Additional metrics and PIMs (e.g., conservation and peak load management)
- Cost benchmarking
- Revenue decoupling
- Targeted incentives for underused practices (e.g., pilot programs)
- Earnings sharing mechanism

MRP Precedents

MRPs first used on large scale in railroad and telecom industries

MRPs now popular in US for retail electric utility rates.

California and Northeast (e.g., MA, ME, and NY) were MRP pioneers



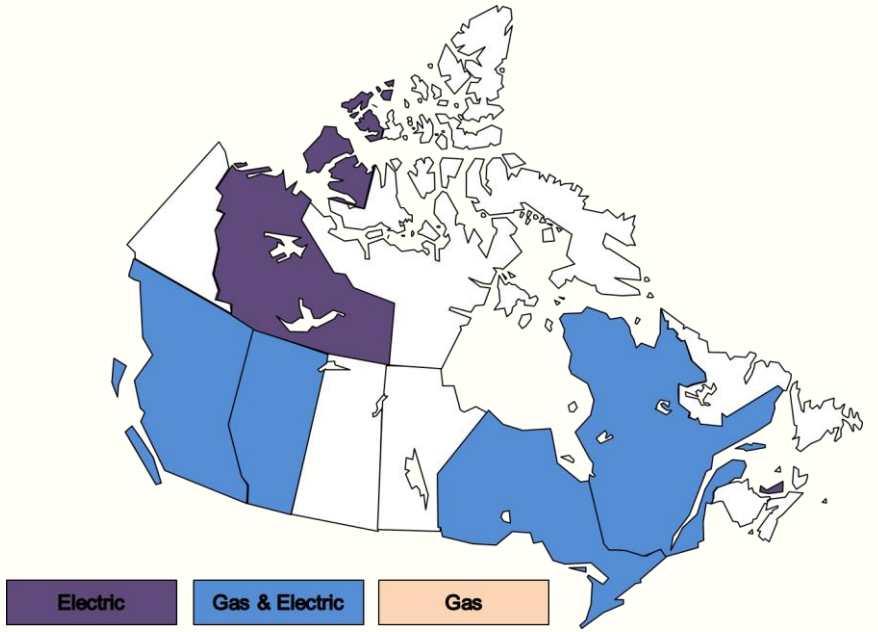
Recent legislation encourages MRPs in North Carolina and Washington.

Regulatory schemes in some states are *called* MRPs but function more like formula rates due to fine-print cost reconciliation mechanisms (e.g., DC, IL, MD).

MRPs are *more* popular in Canada, Britain, Australia, Latin America, and Europe.

Alberta and Ontario are prominent Canadian practitioners.

Impetus for MRPs abroad often comes from policymakers and/or regulators.



This initiative proceeds from the assumption that rate-base rate of return regulation offers few incentives to improve efficiency, and produces incentives for regulated companies to maximize costs and inefficiently allocate resources… Regulators … must critically analyze in detail management judgments and decisions that, in competitive markets and under other forms of regulation, are made in response to market signals and economic incentives. The role of the regulator in this environment is limited to second guessing…The Commission is seeking a better way to carry out its mandate so that the legitimate expectations of the regulated utilities and of customers are respected.

Alberta Utilities Commission, "AUC letter of February 26, 2010," pages 1-2, Exhibit 1.01 in Proceeding 566.

ARM Design Options

Predetermined Revenue Requirement "Stair Steps"

e.g., 3% in 2024, 2% in 2025, 1% in 2026

Capital revenue may be based on

- multiyear plant addition forecasts
- multiyear repeats of test year or average recent historical additions

Precedents: CA, MN, NC, NY

Due to concerns about exaggerated capex forecasts, capex underspends may be clawed back or shared mechanistically (e.g., 50/50) with customers

This weakens capex containment incentives

MRP Case Study: Consolidated Edison of NY

Plan Term 3 years; plan began January 1, 2023

Stairstep ARM

2023	2024	2025
6.6%	6.2%	5.8%

Capex underspends trued up at end of plan

Revenue Decoupling All services with exclusions (e.g., business customers with discounted rates)

Earnings Sharing Mechanism

PIMs

- Reliability
- Customer service
- **Energy efficiency**
- Policy PIMs encourage **non-wires alternatives projects**, **reductions in peak load,** distributed solar generation, distributed storage, beneficial electrification, **managed charging**, and timeliness of large-scale transportation electrification interconnections

Reference: New York Public Service Commission Case 22-E-0064

ARM Design Options (cont'd)

Indexing

e.g., *growth Revenue Cap Index*

= *Inflation – Productivity Growth Target + growth Customers*

Precedents: MA, Alberta, Ontario, Québec

Utilities often ask for supplemental capital revenue
[e.g., MA, Ontario, Alberta, and now CT]

Capital revenue supplements have varied incentive properties

- cost tracker [e.g., MA]
- fixed budget with clawbacks of underspends [e.g., ON]
- fixed budget no clawbacks [e.g., Alberta]
- no supplemental revenue [e.g. Québec]

MRP Case Study: Massachusetts Electric

Plan term 5 years

Indexed ARM

$$Base\ Revenue_{Class,t} = Base\ Revenue_{Class,t-1} * (1 + Inflation - X - Consumer\ Dividend +/- Z)$$

where… Inflation: growth Gross Domestic Product Price Index
X = -1.72%
Consumer Dividend: 0 – 0.55% based on inflation and performance in annual total cost benchmarking

Revenue Decoupling

Management Fee for long-term renewable contracts

Trackers for various costs including purchased power, **DSM**, **smart grid**, electric vehicle pilot, and enhanced vegetation management

PIMs for DSM, reliability, customer service quality, DG service quality

Reference: Massachusetts Department of Public Utilities 18-150

ARM Design Options (cont'd)

Hybrid

e.g., Index O&M revenue

Stair steps for capital revenue

Precedents: "old-school" CA MRPs [e.g., Southern California Edison]

Tracker/Freeze

Track some growing capital (e.g. generation) costs and otherwise freeze rates

Precedents: [e.g., OH, FL, LA, RI, WV]

Impact of MRPs on Capital Productivity

PEG measured trends in power distribution capital productivity of utilities operating under MRPs

$$growth\ Productivity^{Capital} = growth\ Customers - growth\ Inputs^{Capital}$$

	Average Annual Capital Productivity Growth (1996-2013)
Central Maine Power	**1.72%**
Northeast US	**0.55%**

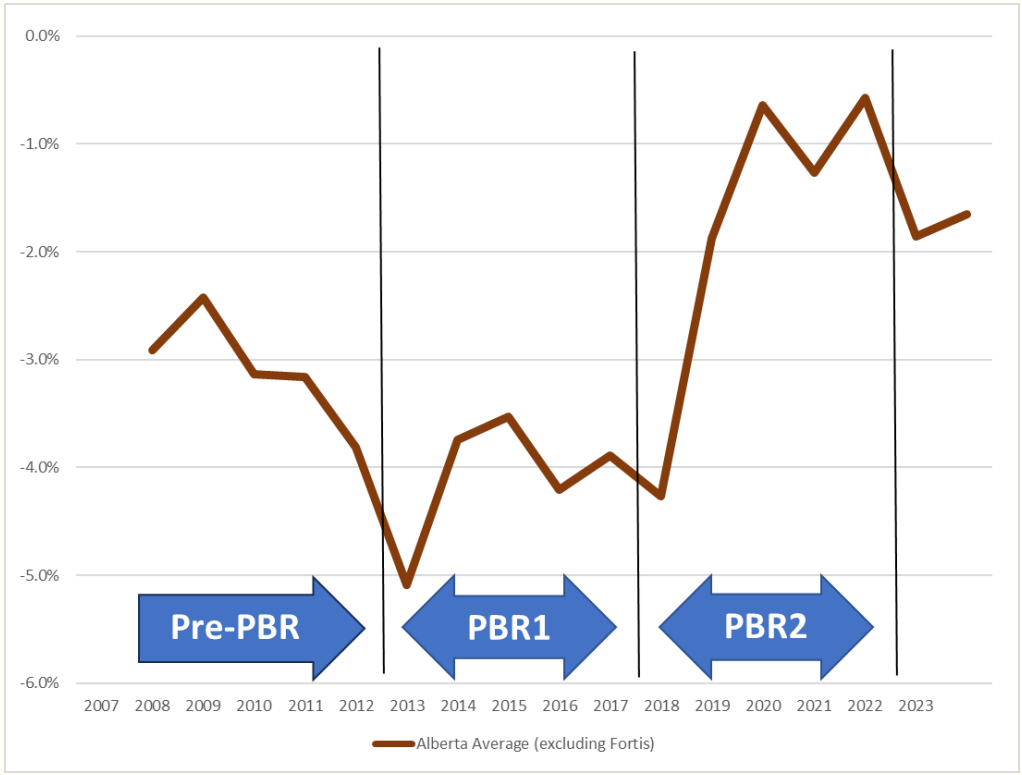
Reference: Lowry, Mark Newton, Matthew Makos, and Jeff Deason. *State Performance-Based Regulation Using Multiyear Rate Plans for US Electric Utilities*. Ed. Schwartz, Lisa C. 2017. LBNL-2001039, p. 6.5.

Impact of MRPs on Capital Productivity (cont'd)

Alberta power distributors have completed 2 rounds of mandatory MRPs

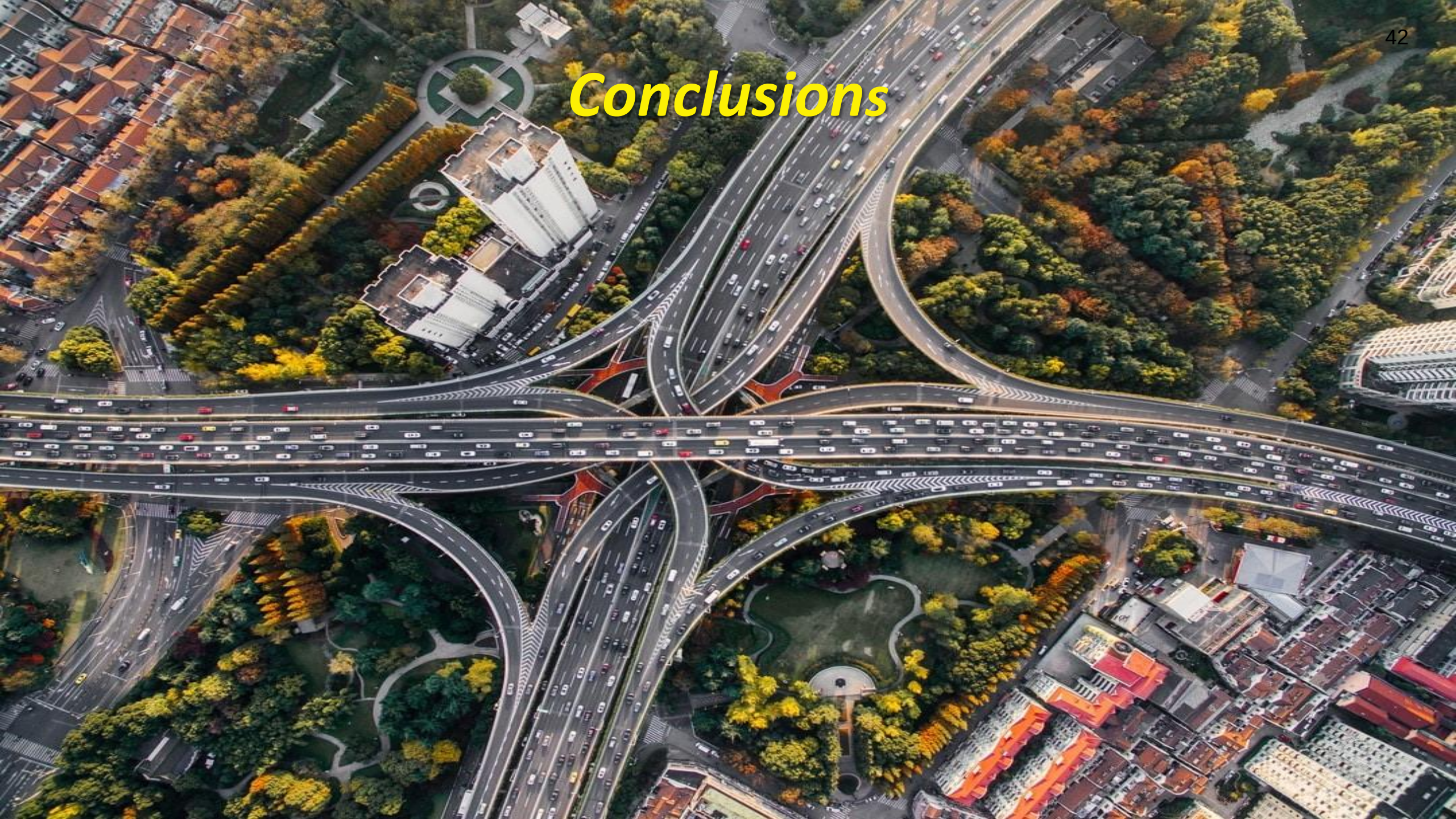
Capital productivity surged when capex cost trackers in PBR1 were replaced in PBR2 with fixed budgets based on historical costs, not forecasts[1]

Average Capital Productivity Growth of Three Alberta Power Distributors (2007-2023)



[1] Lowry, Mark Newton, David Hovde, Rebecca Kavan, and Matthew Makos. "Impact of Multiyear Rate Plans on Power Distributor Productivity: Evidence from Alberta," *The Electricity Journal*, Volume 36, Issue 5, June 2023.

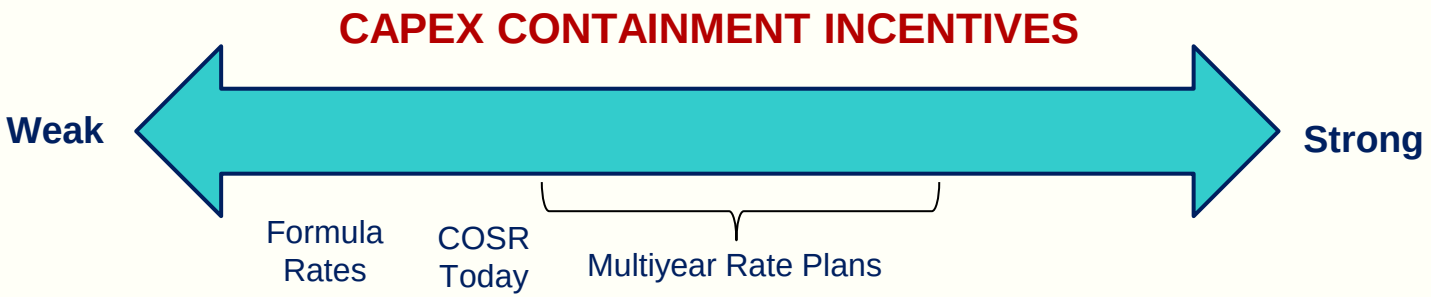
Conclusions



Conclusions

In an era of high capex needs, capital efficiency should be a key goal of ratemaking

Available ratemaking options yield varied capex incentives.



All 4 PBR approaches can help.

High capex needs complicate design of ratemaking systems that have strong capital efficiency incentives but make these incentives more important

Appendix

Acronyms

AMI	Advanced metering infrastructure
COSR	Cost of service regulation
DG	Distributed generation
DSM	Demand-side management
MFP	Multifactor Productivity
MRP	Multiyear rate plans
O&M	Operation and maintenance
PBR	Performance-based ratemaking
PIM	Targeted performance incentive mechanism
VIEU	Vertically integrated electric utility

Glossary of Terms

Advanced Metering Infrastructure ("AMI"): An integrated system of smart meters, communications networks, and data management systems that enables two-way communication between the electric company and customers.

Attrition Relief Mechanism ("ARM"): A key component of MRPs which automatically adjusts rates or revenue to address electric company cost pressures between general rate reviews without closely tracking the growth of all of the company's *own* costs. Methods used to design ARMs include forecasts and indexation to quantifiable external cost drivers such as inflation and customer growth.

Base Rates: The components of an electric company's rates which provide compensation for costs of non-energy inputs such as labor, materials, services, and capital.

Beneficial Electrification: Replacement of fossil fueled equipment such as motor vehicles and space heaters with alternatives that rely on electric energy.

Capex: Capital expenditures.

Cost of Service Regulation ("COSR"): The traditional North American approach to ratemaking which resets base rates in irregularly timed rate cases to reflect the cost of service that regulators deem prudent.

Cost Tracker: A mechanism providing expedited recovery of targeted costs that are deemed prudent by regulators. A tracker is an account of costs that are eligible for recovery. The balance in such an account is typically recovered promptly via rate riders. Tracker treatment was traditionally limited to costs that are large, volatile, and largely beyond the control of the electric company. In more recent years, trackers have been used to address rapidly rising costs and costs of underused practices.

Distributed Energy Resources ("DERs"): Technologies, services, and practices that can improve efficiency or generate, manage, or store energy on the customer side of the meter. DERs include energy efficiency and demand response programs, distributed generation, energy management systems, and batteries.

Glossary of Terms (*cont'd*)

Earnings Sharing Mechanism ("ESM"): An ESM automatically shares surplus and/or deficit earnings, between electric companies and customers, which result when the rate of return on equity deviates from its commission-approved target. ESMs often have dead bands in which earnings associated with a certain range of ROE variances aren't shared.

Electric Vehicle Supply Equipment ("EVSE"): Equipment that enables the supply of electricity to electric vehicles.

Federal Energy Regulatory Commission ("FERC"): The federal agency responsible for regulating rates for services offered in interstate commerce. These services include power transmission, bulk power sales, and interstate gas pipeline transportation and storage.

Fixed Charges: Charges for utility services that do not vary with customer use of the system,

Formula Rate Plan ("FRP"): A formula rate plan is designed to make a company's revenue closely track its own cost of service. It typically entails a mechanism for truing up a utility's revenue to the portion of its actual costs that regulators deem prudent. Formula rates are widely used by the FERC in power transmission regulation.

Greenhouse Gas ("GHG"): A gas that contributes to atmospheric warming by absorbing infrared radiation. GHGs include carbon dioxide, methane, nitrous oxide, and ozone.

Lost Revenue Adjustment Mechanism ("LRAM"): A ratemaking mechanism that compensates electric companies for the estimated base revenue that is lost from specific causes such as their demand-side management programs and distributed generation. LRAMs require estimates of load impacts.

Marketing/Pricing Flexibility: Flexibility afforded to electric companies to fashion rates and other terms of service in certain markets. Light-handed regulation of rates and services with certain attributes is commonly used to provide flexibility. Services that have been deemed eligible for flexibility include optional tariffs for standard services, optional value-added (aka discretionary) services, and services to competitive markets.

Glossary of Terms (*cont'd*)

Multi-Year Rate Plan ("MRP"): A common approach to PBR that typically features a multiyear moratorium on general rate reviews, an attrition relief mechanism, and several PIMs.

Off-Ramp Mechanism: An MRP provision that permits the reconsideration or suspension of an MRP under pre-specified conditions (e.g., persistent high or low ROEs).

Ofgem: The Office of Gas and Electricity Markets, the regulator of gas and electric utilities in Great Britain.

Performance-Based Regulation ("PBR"): An approach to ratemaking designed to strengthen electric company performance incentives. Some PBR approaches also streamline ratemaking.

Performance Incentive Mechanism ("PIM"): A mechanism consisting of one or more metrics, targets, and financial incentives (rewards and/or penalties) which is designed to strengthen performance incentives in a targeted area such as reliability or energy efficiency.

Performance Metric System: A system of metrics used to appraise the performance of an electric company in one or more areas (e.g., reliability, environmental performance, and cost). These systems may include metrics without targets, metrics with targets, and PIMs.

Productivity: The ratio of outputs to inputs is a rough measure of operating efficiency which controls for the impact of input prices and operating scale on cost. Studies of productivity trends have been used in many MRP proceedings to set the X factor term of indexed ARM formulas.

Rate Cases: In the calculation of the revenue requirement, the rate base is the value of plant on which the electric company earns a pro forma return. It typically reflects the net (depreciated) historical value of plant and an adjustment for accumulated deferred income taxes.

Rate Review: A proceeding to reset an electric company's base revenue requirement to better reflect the cost of service. These proceedings may also consider other issues such as rate designs.

Glossary of Terms (*cont'd*)

Rate Case Moratorium: A set period of time without general rate cases.

Rate Rider: A mechanism, frequently outlined on tariff sheets, which allows an electric company to receive rate adjustments between rate cases.

Rate of Return on Equity ("ROE"): The rate of return on the value of equity capital invested. The target ROE is a prominent issue in rate cases.

Revenue Adjustment Mechanism ("RAM"): A common component of revenue decoupling which escalates allowed revenue based on an external driver of cost growth such as customer growth.

Revenue Cap Index: A formula sometimes used for escalating allowed revenue in MRPs which typically includes an inflation index and an X factor.

Revenue Decoupling: A mechanism for relaxing the link between an electric company's revenue and use of its system, which makes periodic rate adjustments to ensure that actual revenue closely tracks allowed revenue between rate cases. A companion revenue adjustment mechanism typically escalates allowed revenue between rate reviews for a key cost driver such as customer growth.

Revenue Requirement: The annual revenue that the electric company is entitled to collect as compensation for the cost of service. The amount is periodically recalculated in rate reviews to reflect costs and may be escalated by other mechanisms (e.g., cost trackers and ARMs) between rate reviews. The corresponding cost is typically the sum of operation and maintenance expenses, depreciation, taxes, and a return on rate base less other operating revenues.

RIIO: The British approach to PBR. The acronym stands for Revenues = Incentives + Innovation + Outputs. RIIO involves MRPs that include a forecast-based attrition relief mechanism, revenue decoupling, and an extensive set of metrics and PIMs.

Glossary of Terms (*cont'd*)

Scorecard: A summary of an electric company's performance, using various metrics, which is often reported on a publicly available website.

Test Year: A specific period in which an electric company's costs and billing determinants are considered in a rate review. Some states use a historical test year and adjust billing determinants and costs for known and measurable changes. Other states use a fully forecasted test year that considers other possible changes.

Throughput Incentive: Under traditional regulation, electric companies can increase earnings by increasing sales or billing demand between rate reviews because the marginal cost of incremental system use is typically well below marginal revenue due to usage charges recovering some fixed costs.

Totex: Under RIIO, capital, operation, and maintenance expenditures are combined into one category: "total expenditures," or "totex" when setting the revenue requirement. The company earns a return on a pre-determined portion of totex. This treatment seeks to balance the incentive to spend on capital and O&M inputs.

X-Factor (aka Productivity Factor): A term in an indexed ARM formula which reflects the typical impact of productivity growth on cost growth. The X factor may also incorporate a stretch factor and an adjustment for the inaccuracy of the inflation measure that is used in the ARM formula.

MRP Case Study: Xcel Energy - Minnesota

Plan term 3 years, 2022-2024

Stair step Base Revenue Escalation

Capital cost savings refunded

Revenue Decoupling (a/k/a sales true-up)

Cost Trackers

- Fuel & purchased power
- Transmission cost
- DSM expenses
- Renewable generation costs
- Environmental compliance cost

PIMs for DSM, reliability, and customer service quality

Advanced Rate Design docket to be opened

Reference: Minnesota Public Utilities Commission Docket No. E-002/GR-21-630

MRP Case Study: Hawaiian Electric Companies

Plan Term 5 years beginning June 2021

Revenue Cap Index growth GDPPI - Productivity Factor - Consumer Dividends

Productivity Factor = 0
Consumer Dividends = 0.22% + fixed dollar amount each year

Cost trackers for energy, exceptional O&M and capital projects, renewable energy interconnections

Revenue Decoupling All services

Earnings Sharing Mechanism Symmetric with a +/- 300 basis point deadband

PIMs

- Reliability & customer service quality
- Policy PIMs encourage low-to-moderate income energy efficiency program participation and savings; timely DG interconnection approvals and interconnections of large-scale renewables; **demand response procurement**; early renewable portfolio standard compliance; AMI utilization; and generation reliability.

Expedited Pilot Review Process

Reference: Hawaii Public Utilities Commission Docket 2018-0088

Suggestions for Further Reading

Green Mountain Power: Multi-Year Regulation Plan 2023-2026, October 1, 2022. https://greenmountainpower.com/wp-content/uploads/2022/09/Multi-Year-Regulation-Plan.pdf

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Mark Newton Lowry

- President of Pacific Economics Group Research, LLC
- 30+ years in energy utility economics
- Specialties: Altreg/PBR, input price, productivity, and benchmarking studies, expert witness testimony
- Recent PBR clients: British Columbia Utilities Commission, Consumers' Coalition of Alberta, Duke Energy, Edison Electric Institute, Green Mountain Power, Hawaiian Electric, Lawrence Berkeley National Laboratory, National Conference of State Legislatures, Ontario Energy Board, Public Service of New Mexico, Puget Sound Energy, Québec industrial intervenors, Xcel Energy
- Former Penn State University energy economics professor
- PhD Applied Economics, University of Wisconsin
- Wisconsin resident, Northeast Ohio native

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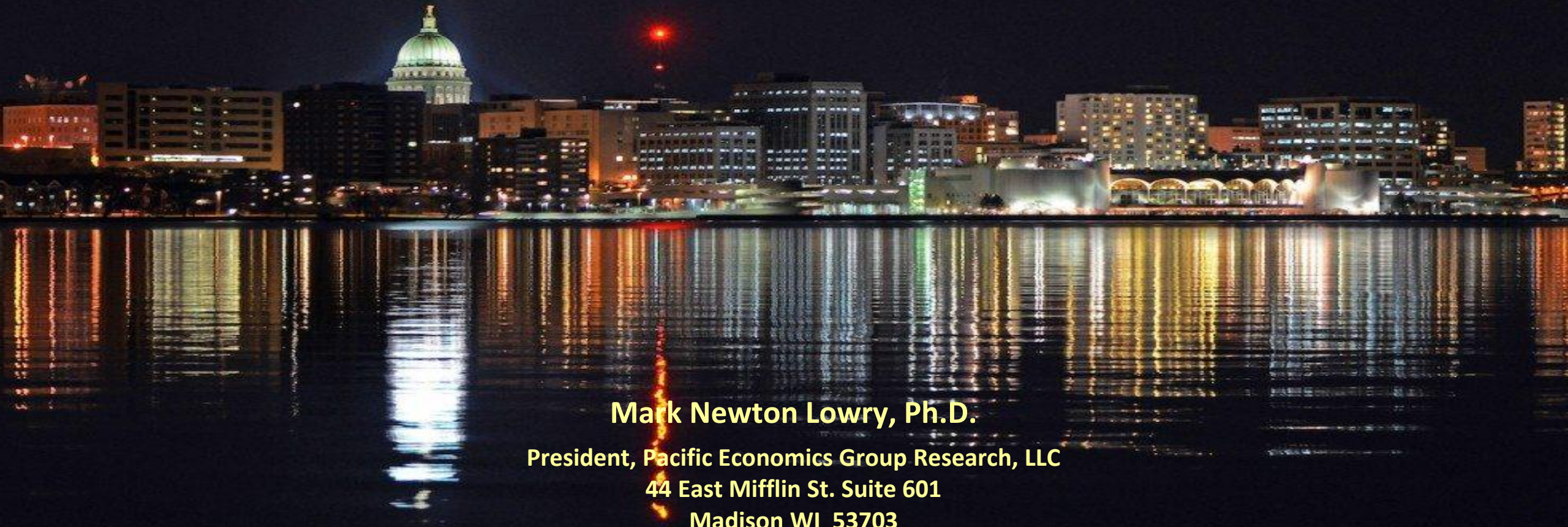
Contact Dr. Lowry



Mark Newton Lowry, Ph.D.

President, Pacific Economics Group Research, LLC
44 East Mifflin St. Suite 601
Madison WI 53703
Office: 608.257.1522 ext. 23 Mobile: 608.345.5251
mnlowry@pacificeconomicsgroup.com