Performance-Based Ratemaking

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COSR Under Stress

Traditional cost of service ratemaking (COSR) is in the shop for a tune-up in many states today. For many utilities…

- Load growth slowed by demand-side management (DSM) and distributed generation (DG)
- Cost growth accelerated by need for capex and cleaner energy (and now inflation)

Under COSR, chronically unfavorable business conditions like these lead to frequent rate cases that:

- Raise the cost of regulation
- Weaken cost containment incentives

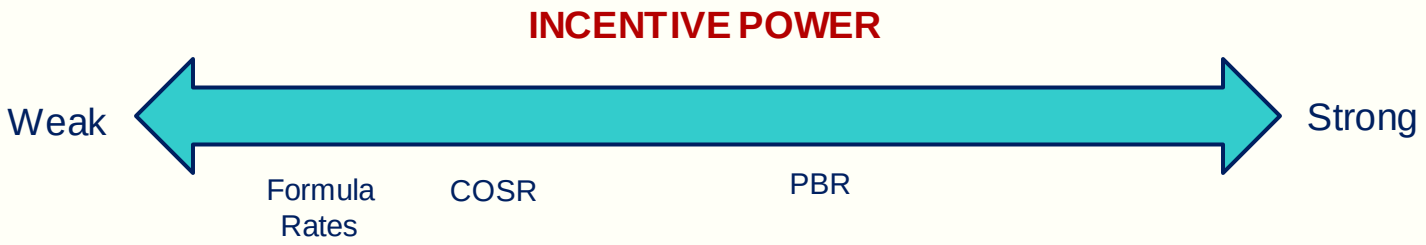
Utilities also have weak incentives to protect the environment.

New Regulatory Frameworks

Problems with COSR have spurred development of alternative regulation options, and some need legislative authorization

- Additional cost trackers to expedite cost recovery
- Formula rates[1] (essentially, comprehensive cost trackers)
- Performance-based ratemaking (PBR)

These approaches have varied incentive properties.

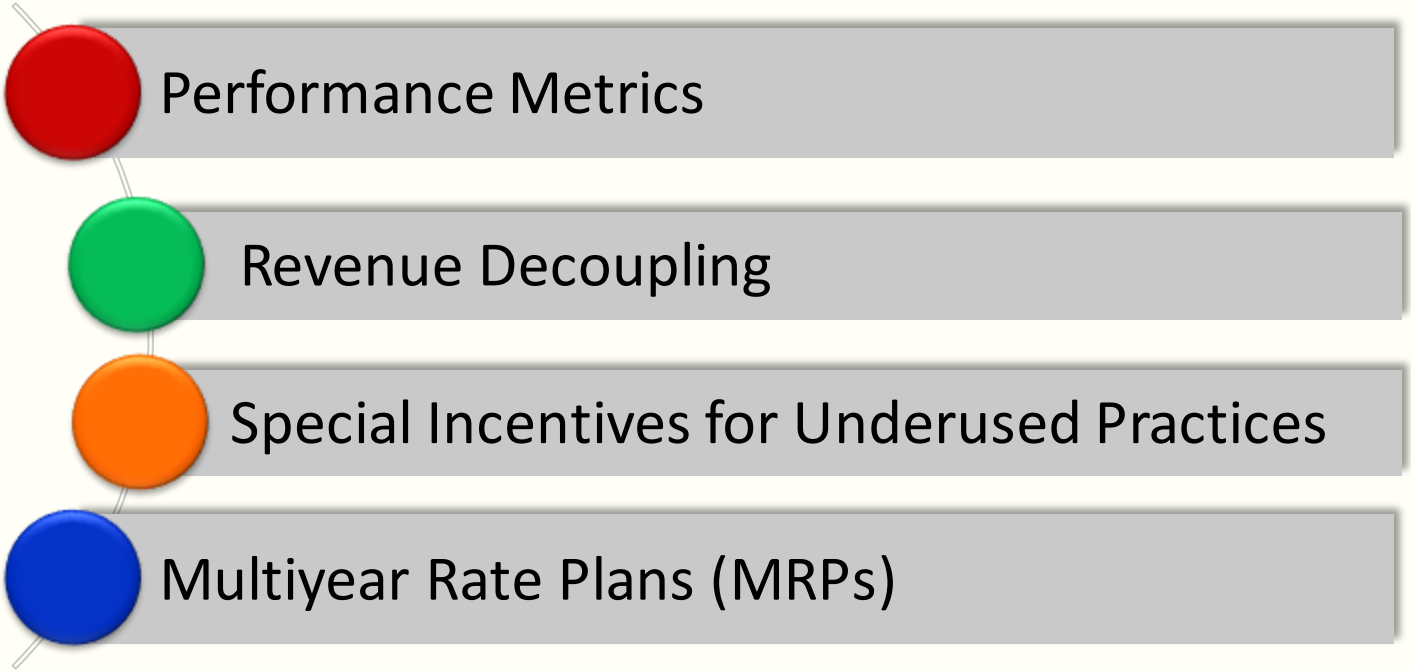


[1] The term formula rate is short for a cost of service formula that causes a utility's revenue to closely track its own cost of service.

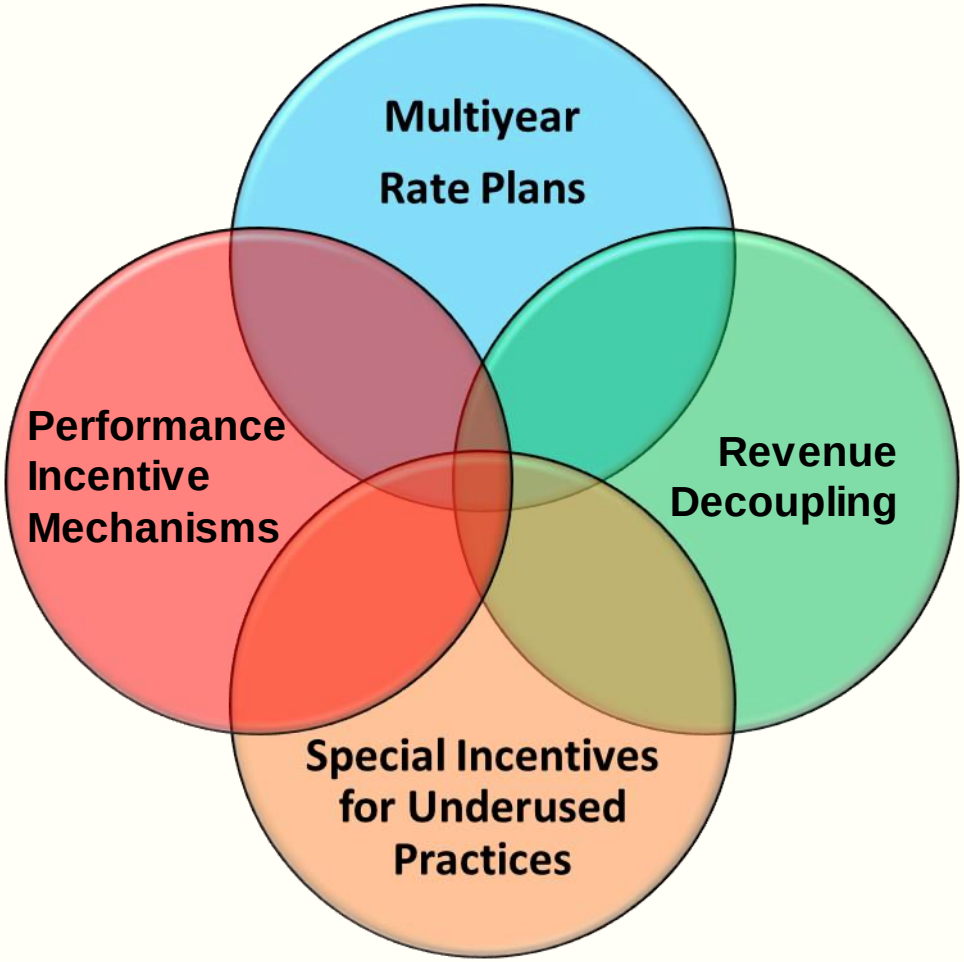
Performance-Based Regulation

PBR: Forms of alternative regulation intended to encourage better utility performance through stronger incentives

4 well-established approaches:



Basic PBR Approaches Often Combined



Performance Metrics

Performance metrics quantify utility activities in key areas.

Several potential uses in regulations

- **Metrics Only**
- **Metrics with Target**
- **Performance Incentive Mechanisms (PIMs)**

PIMs can strengthen utility incentives in targeted areas by linking revenue to performance using metrics

Publicly available scorecards[1] use multiple metrics to summarize utility performance.

[1] See Ontario example in Appendix.

Uses of Metrics and PIMs

Target "holes" in regulatory system incentives

Alert utility to key concerns

- Areas of poor performance
- Emerging performance issues — such as system resilience and the functionality of advanced metering infrastructure

>>> Metrics and PIMs are the "utility infielder" of PBR

What Do Metrics and PIMs Target?

PIMs most commonly target:

- Reliability and customer service quality
- Energy efficiency

New performance metrics (sometimes called "policy" metrics) and PIMs address emerging issues challenges:

- Peak load management
- Quality of service to DG customers
- Greenhouse gas emissions
- Promotion of electric vehicles and space heating
- Equity issues

Special Incentives for Underused Practices

The Basic Idea

Utilities can be reluctant to use certain practices, such as those that:

- Are innovative but risky
- Limit utility investment opportunities

Special incentives can nudge utilities in the right direction.

Tools

- Trackers for costs of underused practices (e.g., DSM)
- Return on equity premium for capitalized costs of these practices
- Management fee
- Pilot programs and innovation funds (“Regulatory Sandbox”)

Multiyear Rate Plans

Key Components

- Reduced rate case frequency (e.g., 3-5 year rate case cycle)
- **Attrition relief mechanism** provides automatic relief for cost pressures but is *not linked to utility's contemporaneous cost growth*

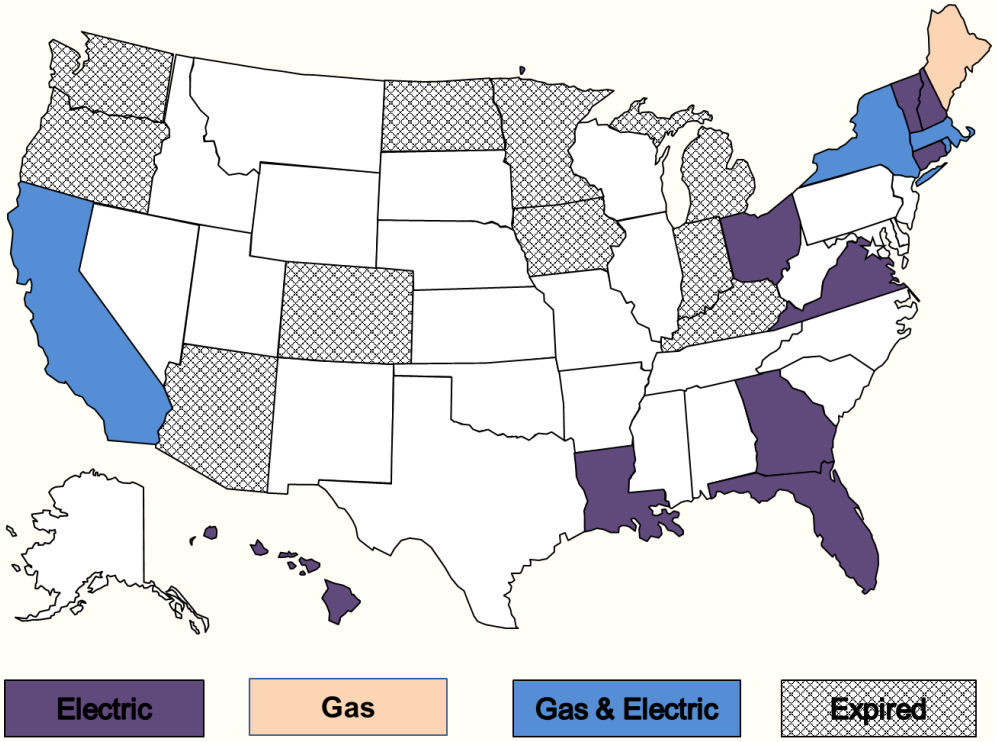
>>> Stronger cost containment incentives, streamlined regulation

- Trackers for some costs (e.g., energy and DSM)

Optional Components

- PIMs (e.g., for reliability, service quality and energy efficiency)
- Revenue decoupling
- Special incentives for underused practices (e.g., pilot programs)
- Flexibility to offer innovative rates and services

MRP Precedents



MRPs are popular in the U.S., especially for electric utilities.

Recent legislation encourages MRPs in NC and WA.

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

MRPs also are popular in Canada, Britain, Australia, and Europe.

Impetus there often comes from policymakers and regulators

Conclusions

PBR is an increasingly popular alternative to traditional utility ratemaking.

Higher ceiling than alternative approaches

Used in many parts of the United States and many foreign countries

Some forms of PBR require new legislation.

A good understanding of PBR fosters good PBR legislation.

Resources

Jim Lazar, Frederick Weston, and Wayne Shirley (2011), *Revenue Regulation and Decoupling: A Guide to Theory and Application.* http://www.raponline.org/document/download/id/902

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Mark Newton Lowry, Matthew Makos and Jeff Deason (Lisa Schwartz, technical editor) (2017), *State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities,* prepared for Lawrence Berkeley National Laboratory. https://emp.lbl.gov/publications/state-performance-based-regulation

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Appendix

MRP Case Study: Xcel Energy - Minnesota

Plan term 4 years; rate case moratorium through November 1, 2019

Revenue Escalation	2016	2017	2018	2019
	2.47%	1.97%	0.0%	1.65%

Cost Trackers

- Fuel & purchased power
- Transmission cost
- DSM expenses
- Renewable generation costs
- Environmental compliance cost
- Annual capital spending (refunds only)

Revenue Decoupling

Performance Metrics

Includes PIMs for reliability and customer service quality

Reference: Minnesota Public Utilities Commission Docket No. E-002/GR-15-826

Attrition Relief Mechanism Design Options

ARM design is the biggest issue in most MRP proceedings.

ARMs may cap growth in rates ("price caps") or allowed revenue.

Several well-established approaches

- Indexing
  e.g., *growth Revenue = growth GDPPI[1] – X + growth Customers*
- Forecasting
- Hybrid (e.g., indexing for O&M revenue, forecast for capital)

[1]GDPPI = Gross Domestic Product Price Index

Ontario Scorecard Metrics

Performance Outcomes	Performance Categories	Measures
Customer Focus Services are provided in a manner that responds to identified customer preferences.	Service Quality	New Residential/Small Business Services Connected on Time
		Scheduled Appointments Met On Time
		Telephone Calls Answered On Time
	Customer Satisfaction	First Contact Resolution
		Billing Accuracy
		Customer Satisfaction Survey Results
Operational Effectiveness Continuous improvement in productivity and cost performance is achieved; and distributors deliver on system reliability and quality objectives.	Safety	Level of Public awareness [measure to be determined]
		Level of Compliance with Ontario Regulation 22/04
		Serious Electrical Incident Index: Number of General Public Incidents
		Serious Electrical Incident Index: Rate per 10, 100, 1000 km of line
	System Reliability	Average Number of Hours that Power to a Customer is Interrupted
		Average Number of Times that Power to a Customer is Interrupted
	Asset Management	Distribution System Plan Implementation Progress
	Cost Control	Efficiency Assessment
		Total Cost per Customer [1]
		Total Cost per Km of Line [1]

Notes:
1. These figures were generated by the Board based on the total cost benchmarking analysis conducted by Pacific Economics Group Research, LLC and based on the distributor's annual reported information.
2. The Conservation & Demand Management net annual peak demand savings include any persisting peak demand savings from the previous years.

Ontario Scorecard Metrics (*continued*)

Performance Outcomes	Performance Categories	Measures	
Public Policy Responsiveness Distributors deliver on obligations mandated by government (e.g., in legislation and in regulatory requirements imposed further to Ministerial directives to the Board).	Conservation & Demand Management	Net Annual Peak Demand Savings (Percent of target achieved) [2]	
		Net Cumulative Energy Savings (Percent of target achieved)	
	Connection of Renewable Generation	Renewable Generation Connection Impact Assessments Completed On Time	
		New Micro-embedded Generation Facilities Connected On Time	
Financial Performance Financial viability is maintained; and savings from operational effectiveness are sustainable.	Financial Ratios	Liquidity: Current Ratio (Current Assets/Current Liabilities)	
		Leverage: Total Debt (includes short-term and long-term debt) to Equity Ratio	
		Profitability: Regulatory Return on Equity	Deemed (included in rates)
			Achieved

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Revenue Decoupling

Decoupling Basics

- Tracker and rider cause *actual* revenue to track *allowed* revenue closely.
- Thus, revenue (and earnings) are "decoupled" from changes in system use.
- **Revenue adjustment mechanism** escalates allowed revenue automatically (e.g., for customer growth).

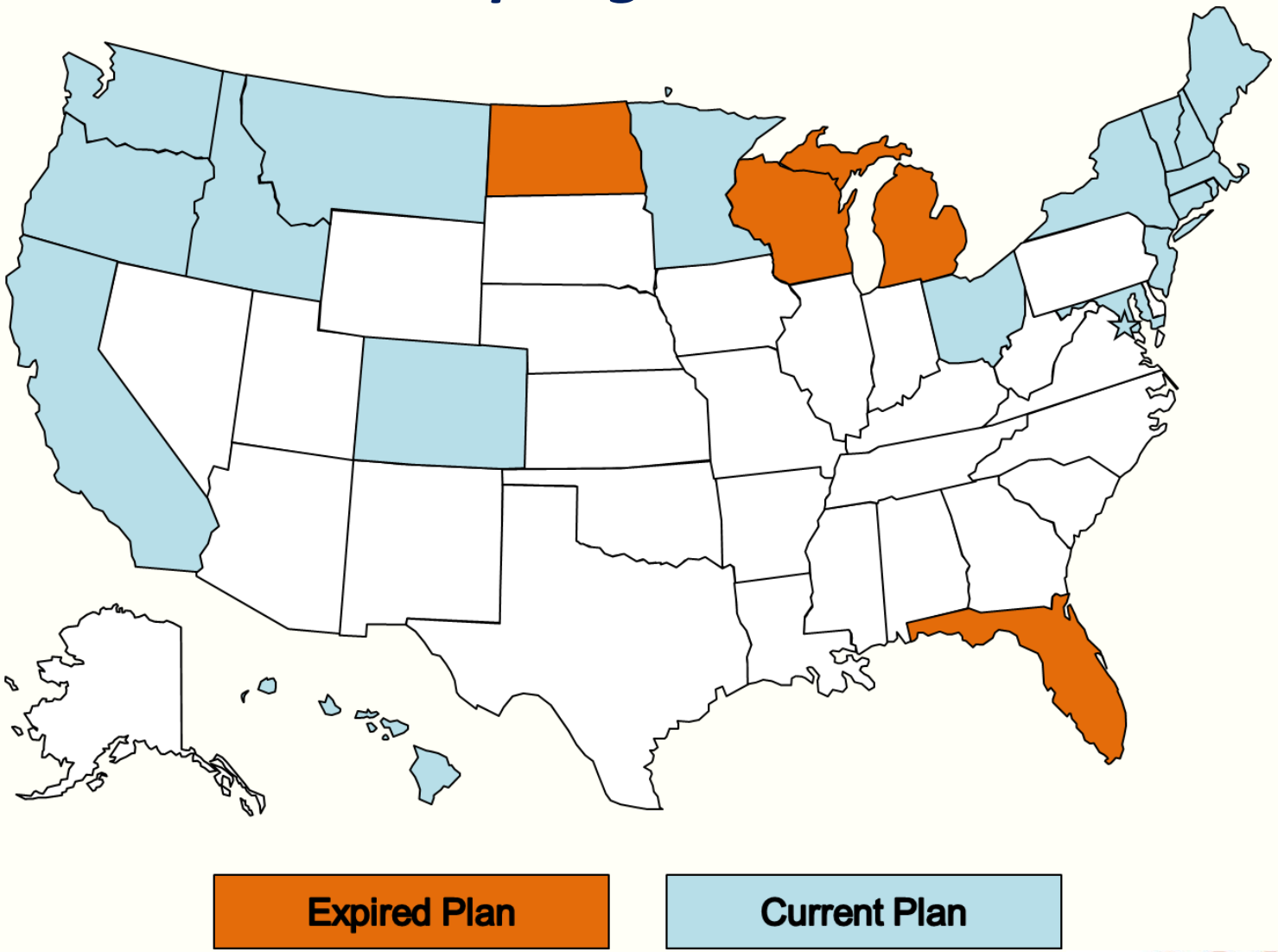
Pro

- Eliminates "lost margin" disincentive for utility to embrace DSM and DG.
- No need for high fixed charges that harm small-volume customers.
- New rate designs that encourage efficient DSM and DG are less risky.
- Stabilizes and accelerates revenue growth, leading to fewer rate cases.

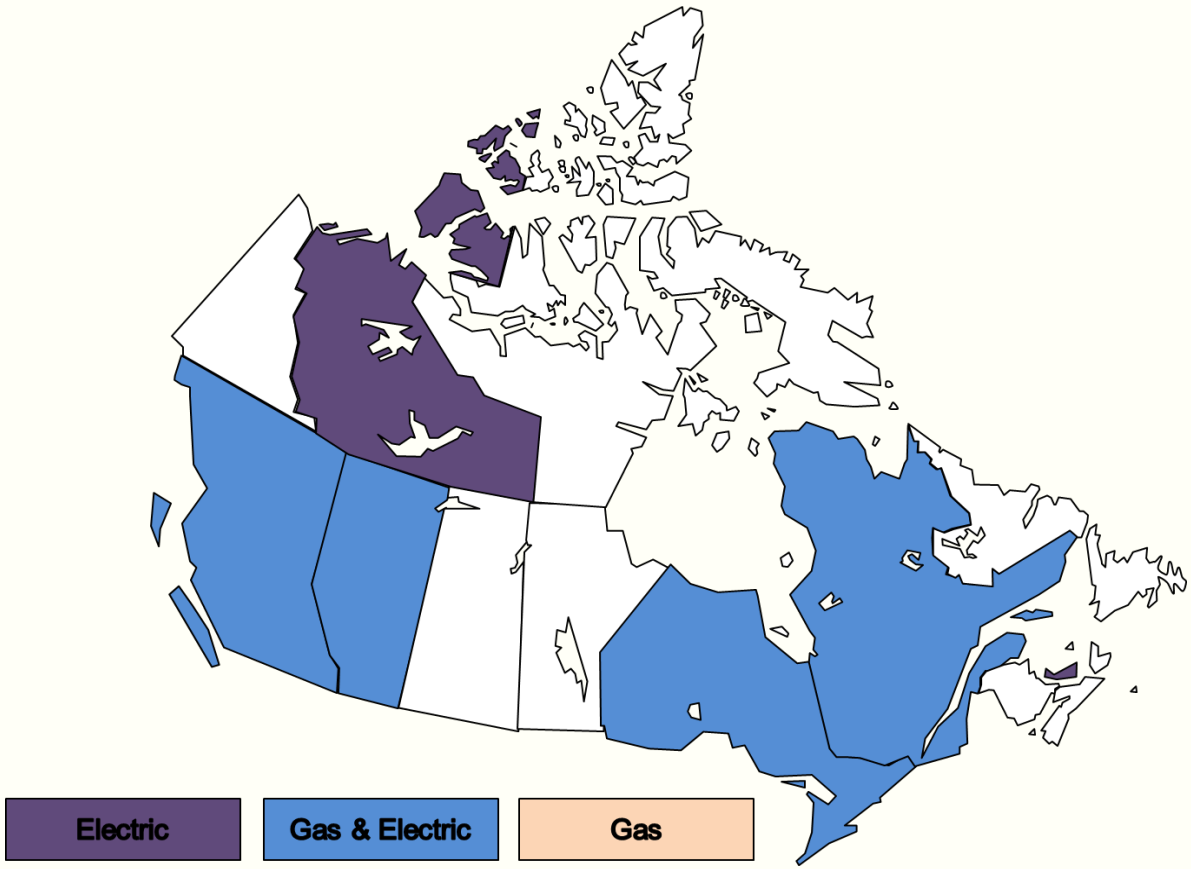
Con

- By denying utilities the margin from electrification of transportation and space heating, it weakens utility incentive to promote them.

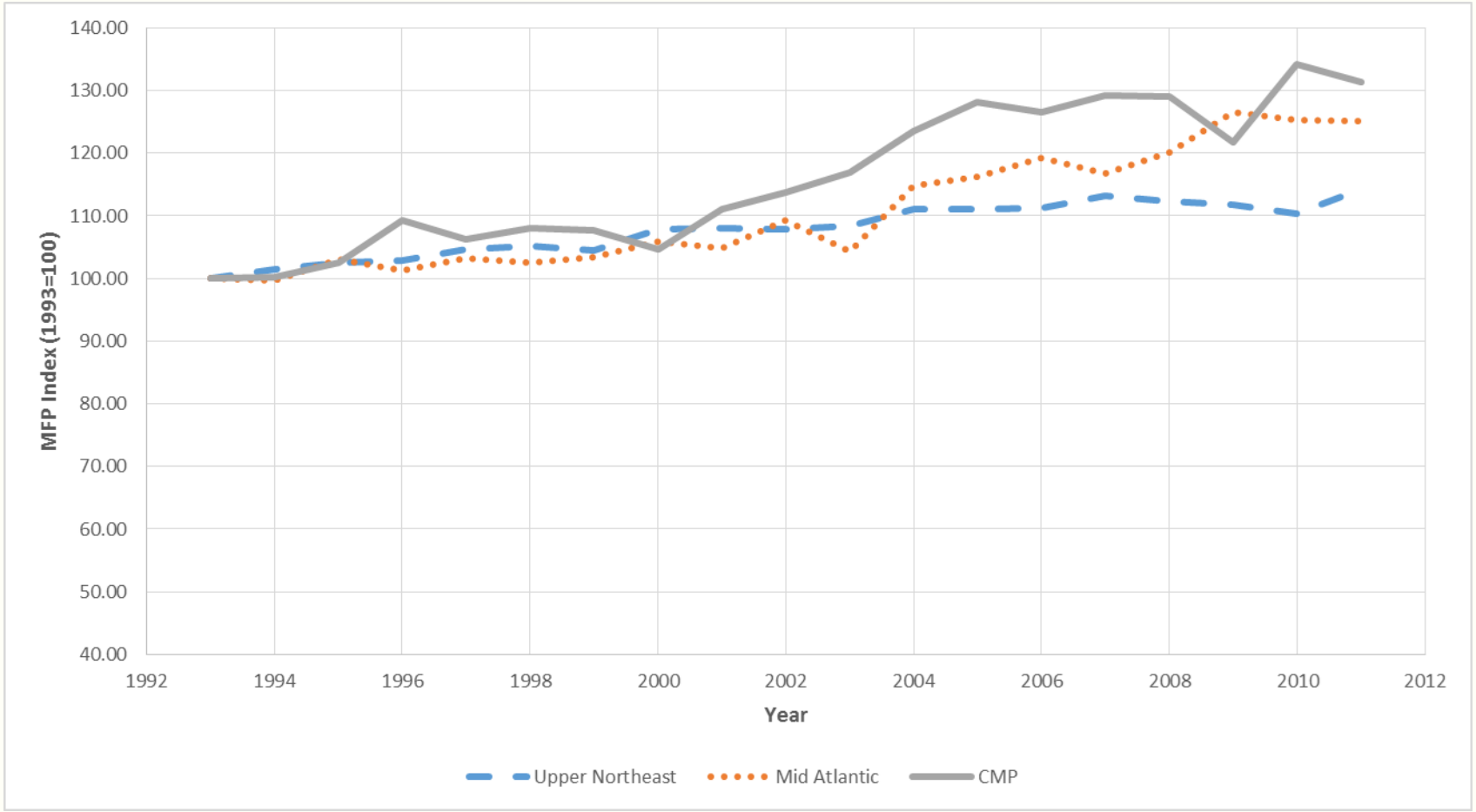
Revenue Decoupling Precedents: Electric



MRPs in Canada



Productivity Growth of Central Maine Power Accelerated under MRPs



About Dr. Lowry

President, Pacific Economics Group Research LLC ("PEG")

- Active in PBR field since 1989
- Specialties: multi-year rate plans, PIMs, revenue decoupling, productivity and statistical benchmarking studies
- Recent clients: British Columbia Utilities Commission, Duke Energy, Hawaiian Electric, Lawrence Berkeley National Laboratory, Ontario Energy Board, Puget Sound Energy, Quebec Industrial Intervenors, Xcel Energy
- Former Penn State University energy economics professor
- PhD Applied Economics, University of Wisconsin