Performance-Based Regulation: Modernizing the Energy Delivery System for Increased Sustainability

District of Columbia Public Service Commission

Alternative Ratemaking Technical Conference

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PBR Initiatives Around the U.S.

Source: Advanced Energy Economy
What is PBR?
“All regulation is incentive regulation.”

Incentives of Traditional Regulation

- Build and own to grow rate base
- Increase volume of sales and electricity usage to enhance profits
- Cut non-capital expenses
- Avoid disallowances
PBR provides a regulatory framework to connect goals, targets, and measures to utility performance or executive compensation.
PBR is... 

- PBR provides a regulatory framework to connect goals, targets, and measures to utility performance or executive compensation.
- Performance Incentive Mechanism (PIMs) are a component of a PBR that adopts specific performance metrics, targets, or incentives to affect desired utility performance that represent the priorities of the jurisdiction.
Elements of PBR

- Understand status quo incentives
- Guiding goal(s): D.C. Energy Plan
- Directional incentives
- Operational incentives
- Measurable performance criteria
- Metrics
- Outputs and outcomes
Guiding Goal
Status Quo: Will it Work?

- Identify, articulate, prioritize goals

- Does conventional regulation meet those goals?

  Assess existing incentives for goals
Directional Incentives
Operational Incentives
Measurable Performance Criteria
Metrics

Photo: Christian Kaindl
• Metrics are publicized on a publically available "dashboard."

• Metrics are publicized and ranked
• Examples: Denmark DSO efficiency ranking, RIIO

• Metrics are publically available, and utilities receive financial awards or penalties depending on achievement of the metrics.
• Examples: NY REV

Figure 6. Metrics continuum
Outputs, Outcomes

• Outputs are specific results of utility actions, often measured as a measurable performance criteria or metrics

• Outcomes are how utility services affect ratepayers and society and are the desired results from a specific guiding goal, directional incentive and/or operational incentive.
<table>
<thead>
<tr>
<th>Output</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain SAIFI result</td>
<td>Reliable service</td>
</tr>
<tr>
<td>Calls to call center answered in less than 20 seconds</td>
<td>Responsive customer service</td>
</tr>
<tr>
<td>Disconnections at less than x per month</td>
<td>Universal service</td>
</tr>
<tr>
<td>Interconnection of DG averaging $X in user costs on average in under Y days</td>
<td>Supported customer generation</td>
</tr>
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</table>
What can be achieved through PBR?
More Focus on Outcomes, Less Focus on Inputs (Costs)

- But costs in cost of service regulation form basis for PBR so COS regulation is often the solid basis on which PBR is built
- PIMs are often added to traditional regulation
- PBR can take a broader approach to modify the regulatory incentives inherent in traditional regulation
Good Practice for Incentives

- Create good incentives
- Remove bad incentives
- Establish transparency at each step
- Align benefits and rewards
- Learn from experience
- Simple is good
What does “bad” PBR look like?
Practices That Can Lead to Difficulty

- Basing performance incentives on inputs
- Rewards or penalties based on exogenous factors ex: weather, economic growth, etc.
- Unclear or uncertain metrics or goals
- Lack of clarity and measurement methodology
- Not understanding utility motivations
Carte Blanche for Cost Cutting
Pacific Northwest Bell

Result:

- Cut customer service
- Charged for customer service phone access
- Incentive to keep customers on hold
California Customer Satisfaction Survey

Fix: Objective Criteria and Third-Party Evaluation
How are avoided costs calculated in the incentive?

Baseline and Incentive Design are Critical

- “Save-A-Watt” program adopts high incentive
- The incentive was avoided investment in plant
- Perceived as excessive incentives to the utility for avoided investment in plant
- “Most expensive energy efficiency program in the nation”
Expert: Save-a-watt a rip-off for consumers

By John Murawski - (Raleigh) News & Observer
AUGUST 01, 2008 12:00 AM

Duke Energy's controversial energy efficiency plan would be a windfall to Duke shareholders and a rip-off to Duke customers, an energy expert told state regulators Thursday.

Testifying before the N.C. Utilities Commission, Richard Spellman laid out the case against the save-a-watt proposal after the company's experts and executives had advocated for the proposal during three previous days of hearings.

If approved by the utilities commission, Spellman said, Duke's proposal would be the most expensive energy-efficiency program in the nation, but it would produce negligible energy savings.

Save-a-watt "is a bad deal for Duke ratepayers, but it is a great deal for stockholders in the company," Spellman said. "Do you want to be the one state in the U.S. that ends up with a (cost) that's a lot higher than what's being paid elsewhere?"
FERC Transmission ROE Policies

• To broadly improve transmission reliability and reduce congestion, FERC’s Order No. 679 awards the transmission utility a higher rate of return on equity for new transmission investment.

• There is no requirement to quantify the benefits of a given investment in relationship to overall costs
Example: Cost Control
Multi-Year Rate Plans: Two Decades+ of Experience

- Set rates for longer period
- Allow utility to keep some/all savings if efficient
- First used in CA, NY, New England
- Common now in Australia, UK, Germany, New Zealand, Canada
Multi-Year Rate Plans in Canada (2017)

Multi-Year Rate Plans in the U.S. (2017)

Multi-Year Rate Plans Can:

- Reduce frequency of rate cases, freeing up regulators for other regulatory priorities
- Improve culture of utility management
- Improve utility performance and lower utility costs
- Strengthen incentives for utilities to improve performance (Benefits ideally are shared between utilities and their customers)
- Often need customer service and reliability metrics

## What is a Multi-Year Rate Plan?

### Key Components:

<table>
<thead>
<tr>
<th>Rate case moratorium (usually a 3-5 year rate case cycle)</th>
<th>Attrition Relief Mechanism (ARM) allows for automatic relief from cost pressures, but is not linked to actual costs</th>
<th>Incentivizes cost containment: allow utility to keep some/all savings if efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings Sharing Mechanisms can mitigate risk</td>
<td>Performance incentive mechanisms can be linked to MYRPs to ensure service quality</td>
<td>Other components can work simultaneously with a MYRP (e.g., decoupling, cost trackers, additional PIMs)</td>
</tr>
</tbody>
</table>

*Source: RAP and Rocky Mountain Institute*
Indexed Attrition Relief Mechanisms (ARMs)

- **Inflation**
  - Often represented by a macro-economic price index such as the GDP Price Index ("GDPPI")
  - Custom indexes of utility input price inflation also are sometimes used in ARM design

- **Productivity Factor ("X")**
  - Reflects the average historical multifactor productivity trend of a peer group of utilities
  - Can be based on broad regional or national peer groups
  - Peer group can in principle be customized to mirror special circumstances of the subject utility

- **Exogenous Events ("Z Factor")**
  - Accounts for uncontrolled exogenous events that affect a utility's costs (e.g., the "2017 Tax Cut and Jobs Act")

- **Stretch Factor (Consumer Dividend)**
  - A stretch factor can be included to share with customers the benefit of stronger cost containment incentives expected under the MYRP

Source: RAP and Rocky Mountain Institute
## Multi-Year Rate Plans Feature Different Types of ARMs

### Four Well-Established Methods

<table>
<thead>
<tr>
<th>Forecasts</th>
<th>Indexing</th>
<th>Hybrids</th>
<th>Rate Freeze</th>
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</table>
| • Rate adjustments during the MYRP period are based on cost forecasts  
• Adjustments typically increase revenue on predetermined percentage in a stairstep fashion each year | • An indexed ARM uses industry cost trend research to develop a base productivity trend that is then combined with other factors to arrive at a revenue cap index  
• More on this one! | • Uses a combination of methods  
• In the U.S., has been used so opex is indexed while revenue related to capex has a stairstep approach | • ARM provides no rate escalation; growth depends on billing determinants or tracked costs  
• Can exacerbate the throughput incentive unless combined with revenue regulation |

Cost Trackers in MYRPs

Cost trackers used for expedited recovery of costs - recovered in riders

Cost trackers can challenge PBR because they weaken incentives to improve performance

However, sometimes still used in conjunction with MYRPs to allow for recovery of costs that are difficult to control, and that are hard for the ARM to address

For example, CapEx trackers may be used to compensate to address for annual costs that capex can create, and which are hard to address with an ARM

Source: RAP and Rocky Mountain Institute
Earnings Sharing Mechanisms

- An Earnings Sharing Mechanism (ESM) can provide both “upside” and “downside” sharing of earnings between the utility and customers.
- This results when the rate of return on equity (ROE) deviates significantly from a public utility commission-approved target.
- ESMs often have “deadbands” (neutral zones around the target) in which earnings variances are not shared with customers.
- Some argue that ESMs may mitigate utility cost containment incentives.

States with Earnings Sharing Mechanisms

- Of these 11 states, 10 include asymmetrical provisions for sharing earnings in excess of the authorized ROE level (i.e., above the deadband), but not below the authorized ROE.

Efficiency Carryover Mechanisms (ECMs)

ECMs maintain the utility’s incentive to control costs and optimize spending throughout the MYRP period by allowing the utility to carry forward a portion of savings from one MYRP period into the next.

Without an ECM, a utility has a greater incentive to implement cost-saving measures in the beginning of an MYRP period.

Utilities also may be incentivized to defer certain expenditures in the early years of an MYRP period to increase the revenue levels reflected in an MYRP’s test year.

ECMs also can have a sharing component that allows customers to benefit from savings achieved or bear a portion of cost overruns.

Efficiency gains are calculated using benchmarks.

Can compare a proposed revenue requirement for a new MYRP to the revenue requirement established by an expiring MYRP.

Alternatively, a benchmark can be based on statistical cost research.

Source: RAP and Rocky Mountain Institute
Off-Ramps Can Provide Option to Avoid Unintended Outcomes

**MYRP Term Length**

- The term of MYRPs, meaning the period of time between one rate case and the next, largely determines the strength of incentives to control costs.
- MYRPs usually range in length from three to five years.
- The longer the time between rate reviews, the greater the opportunities for the utility to realize additional earnings by performing above expectations.

**Examples**

- PG&E (CA) → 3 years with stair-step ARM
- ATCO Electric and ATCO Gas (Alberta) → 5 years with indexed ARM
- Xcel (MN) → 4 years with stair-step ARM
- Northern Powergrid and Northern Gas Networks (U.K.) → 8 years with indexed ARM*
- Florida Light and Power (FL) → 4 years with stair-step ARM

*This term will be reduced to 5 years in the next phase of RIIO.

**Off-Ramps**

- Off ramps (or “re-openers”) are provisions that allow for a review of a MYRP or for termination.
- Most common specified trigger for review or termination are returns falling below or above authorized levels.

**Examples**

- FortisBC’s MYRP includes a provision for review when post-sharing returns are either 200 basis points above or below the authorized ROE.

Source: RAP and Rocky Mountain Institute
5 Takeaways for PBR, Multi-Year Rate Plans and How Complex It Can Get
Electricity Distribution Networks Operators

Customer

Safety
- Compliance with HSE Legislation: Yes

Environmental
- Oil leakage: Below target
- Business carbon footprint: Below target
- SF6 emissions: Below target

Customer Service (scores out of 10)

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<th></th>
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Connections
- Time to quote: Below target
- Time to connect: Below target

Reliability
- Customer interruptions: Below target
- Length of interruptions: Below target

Social obligations (scores out of 10)
- Stakeholder engagement: 6.90

Key:
- Green: Met target in year 1 or RIIO-ED1
- Amber: Partially met target in year 1 or RIIO-ED1
- Red: Failed to meet target in year 1 or RIIO-ED1

No formal targets were set for environmental outputs. The performance score reflects the change from the previous year.

Target score should be below 8.33.

Takeaways on PBR and MYRPs

- PBR aligns interests of utilities, regulators, customers – does not strictly track COS but should reflect cost pressure
- MYRPs can provide cost containment incentives to utilities resulting in lower rates
- MYRPs carry risk from auto rate increases, complex mechanisms and limited regulator review
- Earnings sharing mechanisms can ensure actual ROE doesn’t deviate too far from PUC-approved targets
About RAP

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