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Performance-Based Regulation (PBR): Focus on Outcomes

NARUC Staff Subcommittee on Accounting and Finance

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Outline for Today’s Discussion

1. Why is PBR important
2. What is PBR
3. PBR schemes we’ve learned a lot from
4. Successful examples of PBR
5. New and Interesting – NY REV
6. Conclusions
Why is PBR important?
Why PBR?

• Allow regulators and other stakeholders to focus on goals
• Improve utility performance in unsatisfactory areas
• Encourage utilities to maintain, or even improve specific areas (ex customer service/satisfaction)
• Provide greater regulatory guidance to address new and emerging issues, ex: grid modernization
Old system = barrier to new technologies, policies

• Incentives inherent in cost-of-service regulation are to build big, centralized power plants
• Inherent barriers to new technologies and advancements on customer side of the meter
• PBR can align the interests of utilities, regulators, and customers better if done well.
PBR can identify and target positive incentives and outcomes

- Service quality & reliability
- Cost-control
- Solar distributed generation
- Peak load reduction
- Increase customers enrolled in time-varying rates
- Water savings
PBR can harness disruption

- Witnessing transformative technology changes
- Need regulatory structures that work for a wide variety of future scenarios
- PBR specifies expectations and outcomes, but is agnostic as to delivery
PBR is versatile

Investor-owned utilities

municipalities

State-owned entities

Cooperatives
What is PBR?
“All regulation is incentive regulation”

Incentives of traditional regulation

- Build rate base in a rate case
- Exaggerate costs for a future test year
- Increase volume of sales between rate cases, i.e., the “throughput” incentive
- Cost reduction between rate cases

PROFITS & PROGRESS
THROUGH LEAST-COST PLANNING

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Foreword by
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November, 1989

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1989 NARUC Resolution:

“A utility’s least cost plan should be it’s most profitable plan.”
PBR is…

- A regulatory framework to connect achievement of specified policy objectives to utility financial performance and executive compensation
- A PBR scheme is a collection of **performance incentive mechanisms (PIMs)**, namely, metrics and formulas that determine the levels of financial rewards or penalties (i.e., adjustments to allowed revenues) for achievement of the specified objectives
Revenue-Based Regulation (Decoupling) and PBR

- Decoupling eliminates the "throughput" incentive
  - Utility is indifferent to variations in sales, either up or down, due to weather, EE, DG, etc.
- Decoupling is NOT an incentive mechanism
- PBR rewards (or penalizes) a utility for achievement of (failure to achieve) specified outcomes
- They fit together well
History of PBR

• PBR was an evolutionary step, to provide price flexibility for certain services to provide incentives for innovation and cost-cutting

• Applied in telecommunications and rail sectors

• Early applications of PBR were explicitly meant to drive cost savings

• Extensive use of energy efficiency incentive mechanisms (26 states)
Goals and Incentives

• Informed by public policy priorities in the jurisdiction
  • Directional incentives -- Specify measureable performance criteria, goals, and metrics
  • Operational incentives - provide metrics to measure operational considerations.
• Guiding goal = reduce growth in system peak
• Directional incentive = deploy DERs
• Operational incentive = no decrease in reliability
Status quo: will it work?

- Identify, articulate, prioritize goals
- Does conventional regulation meet those goals?
  - Does the system reach achievable levels of cost-effective EE?
  - Do you want more RE or particular types of RE on the system?
- Assess existing incentives for goals
Performance Criteria, Metrics

• Quantifiable measure of a specified performance
• Typically expressed as standard power system measures or consumer impact measures

Examples:
• Service quality, e.g., improved customer service
• EE savings, as a % of utility sales or as reduced consumer bills as a result of EE
• Fuel and purchased power cost control
• Reduced outages, SAIDI / SAIFI / CAIDI / CAIFI
Successful PBR components

1. Clear Goals
2. Measurable Metrics
3. Transparency
4. Value to the Public
5. Align Benefits and Rewards
6. Annual Review: Learn from Experience
7. Compared to What?
8. Simple Designs are Good
9. Evaluation and Verification
10. Public Review
11. Award of rewards or penalties
Outputs, Outcomes

- **Outputs** are specific results of utility actions
- **Outcomes** are how utility services affect ratepayers and society

<table>
<thead>
<tr>
<th>Output</th>
<th>Outcome</th>
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</thead>
<tbody>
<tr>
<td>Certain SAIFI result</td>
<td>Reliable service</td>
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<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>
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PBR schemes that we learned a LOT from
What could possibly go wrong?

• Disproportionate rewards or penalties
• Unintended consequences
• Regulatory burden
• Poorly designed metrics
• Gaming and manipulation
Practices that can lead to difficulty

- Basing performance incentives on inputs (\$\$ spent)
- 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
Energy Efficiency Funding
U.S. State of Washington, 1980

- 2% increased return on equity for energy efficiency investments
- incentive to spend as much as possible on measures that save as little as necessary
- maximizing the incentive while minimizing the lost revenue to the utility.

This is an example of focusing on inputs (amount spent), poor operational incentives and metrics.
Carte Blanche for Cost Cutting
Pacific Northwest Bell, 1986

5-year rate freeze, no restrictions on the cost-cutting methods

Result:

• Cut customer service
• 1-900 number for customer service
• Incentive to keep customers on hold
Energy Efficiency Incentive Structure, 1990

Puget Sound Power and Light, Washington

- Incentive structure:
  - Part 1: based on how much energy efficiency was achieved,
  - Part 2: how cheaply it was achieved.

- Utility short of the targets in 9 out of 10 topical areas, but received huge incentive
California customer satisfaction survey

- Unspecific customer survey: Please ranking your customer satisfaction on a 1-5 scale
- Under pressure utility representatives offered small gifts to ratepayers to obtain positive answers and ultimately produced falsified results
- Fix: Objective Criteria and Third-Party Evaluation
Importance of transparency, alignment of benefits/rewards

- North Carolina “Save-A-Watt”
- Didn’t give utility incentive to capture all cost-effective efficiency, kept utility focused on low-hanging fruit
- The incentive was avoided investment in plant
- Perceived as paying excessive incentives to the utility for low-hanging fruit savings
- Got a lot of bad press, but learned a lot from it
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

• Focuses on input ($$ spent)
Examples of Successful PBR
Illinois Metrics for Time-of-Use Rates

ComEd customers enrolled in time-varying rates – reporting metric only

- Number of residential customers on the utility tariff with time-variant or dynamic pricing
- Number of residential customers serviced by retail suppliers which have requested monthly data interchange for interval data
- New metric, report only to build experience, transparency
California PBR for nuclear plant capacity factor

Diablo Canyon nuclear plant costs were high

- Rate base of cost overruns rejected
- Performance metric based on plant availability
- Diablo Canyon enjoyed a very high availability rate and operated with a very high capacity factor for much of its service life.
ConEd’s Brooklyn-Queens Demand Management Project
Brooklyn-Queens Demand Mgt. Project
Case 14-E-0302

• Change course from traditional response to reliability challenge
  • **Build $1.2B substation**
  • or
  • **Reduce sustained load for years**
  • **Innovation needed**
    • Utility side response: find 52 MW locally
    • Regulatory response: 10 year amortization of expenses
      • Remove bias between opex and capex

• Incentive—shared savings:
  • Utility—cost recovery of DER assets, ROE adder
  • Customers -- avoided costly distribution charges
New and interesting

New York’s Reforming the Energy Vision – taking PBR to a meta level
Business-as-usual is no longer an acceptable option for New Yorkers

**Challenges**
- Aging infrastructure
- Poor system efficiency
- Flat Sales Growth
- Climate Change

**Opportunities**
- Rapidly falling technology costs
- Rise of Digital Economy and new IT capabilities
- New Business Models

*Historical regulatory approach and utility business models are not well adapted to address challenges and capture opportunities*
The REV Vision

• A grid with an emphasis on customer resources
  • With dispatched resources
  • Aligned with public priorities
  • Systematically innovative

• What does it take to get one of those?
Improved…

• Reliability
  • Outage frequency, duration

• Operations
  • System efficiency, power flows

• Resilience
  • Enable consumers to specify superior service

• Services
  • Create new products, enable new business
Six Policy Objectives for the future of NY’s electricity system

• Enhanced customer knowledge and tools to support bill management
• Market animation and leverage of customer contributions
• System wide efficiency
• Fuel and resource diversity
• System reliability and resiliency
• Reduction of carbon emissions
Conclusions

- PBR is a powerful tool in the regulatory toolbox
- PBR can align utility, ratepayer, and public interests
- PBR succeeds where it is clear, transparent at each step, and aligns rewards and incentives for utilities and customers
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org

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