Performance-Based Regulation: The Power of Outcomes

RAP/CESC Webinar, Part 1

David Littell, Principal  
U.S. Team  
The Regulatory Assistance Project®

Camille Kadoch, Publications Manager  
U.S. Team  
The Regulatory Assistance Project®
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
  - Avoid disallowances
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.
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
Metrics
Measurable Performance Criteria
Public Metrics Only

- Metrics are publicized on a publically available "dashboard."

Public Metrics with Ranking

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

Public Metrics with Financial Incentives

- 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 generally the desired results from a specific guiding goal, directional incentive and/or operational incentives.
<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>
</tbody>
</table>
2 Why is PBR important?
PBR enables reform of 100-year-old regulatory paradigm

PBR and smart transformation of power sector

Old system = barrier to new technologies, policies
PBR can identify and target positive incentives and outcomes

- Solar distributed generation
- Higher ramping rate for integration of renewables
- Peak load reduction via demand response
- Increase customers enrolled in time-varying rates
- Water savings
- EV rate education and charging station deployment
Questions: Are there . . .

- Good things that are not profitable for the utility? (EE, solar PV)
- Bad things that are profitable to the utility? (Non-beneficial electrification)
- Good things not getting done for lack of interest or motivation? (Smart meters)
- Bad incentives but easily seen or less easily seen? (Swapping lightbulbs)
PBR can harness disruption

Recent history is full of transformative technology changes that were not foreseen by experts.
PBR is versatile

Investor-owned utilities  
municipalities  
State-owned entities  
Cooperatives
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
Incentives

- Create good incentives
- Remove bad incentives
- Establish transparency at each step
- Align benefits and rewards
- Learn from experience
- Simple is good
Clarifying Questions?
Example: Revenues = Incentives + Innovation + Outputs (RIIO), United Kingdom
RIIO

Electricity Distribution Networks Operators

Customer

Safety
- Compliance with HSE Legislation

Environmental
- Oil leakage
- Business carbon footprint
- SFs emissions

Customer Service (scores out of 10)
- Interruptions survey
- Connections survey
- General enquiries survey
- Complaints metric

Connections
- Time to quote
- Time to connect

Reliability
- Customer interruptions
- Length of interruptions

Social obligations (scores out of 10)
- Stakeholder engagement

Example: Cost Control
Multi-Year Rate Plans

- 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 can:

- Reduce frequency of rate cases, freeing up commission for other needs
- 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
Productivity growth of CMP and other U.S. utilities, 1992-2014

Example: Smart Meter Rollout, France
10,000 jobs created in France
(direct or indirect)
(5,000 jobs for mass rollout)

Source: Chauvenet, C. (2016) "G3-PLC, the standard of the LINKY roll-out and beyond." ERDF.
How does it work? (2 parts)

Source: Chauvenet, C. (2016) G3-PLC, the standard of the LINKY roll-out and beyond. ERDF.
How does it work (continued)

Remote Control through AMM

Linky → Data concentrator → Information System

Remote metering and operations

Local balance adjustment production / consumption

Consumers → Producers

Adjust investments efficiency on the grid

Reduce operational cost and delays on the grid

Meter reading system (Linky) and data management

Risk management and predictive maintenance

Diagnostics → Self-Healing → operations
Example: Distributed Energy Resources
Measuring DER deployment
NY REV transition

Is there a DER deployment baseline?

- How would DERs be deployed in a competitive market?
- How much DERs and what types can the distribution and transmission system accommodate? At what costs?
- What is the right (efficient, least-cost) level of DER deployment?
What to measure?

- Number of DER systems deployed
- Total installed capacity of DER on a particular system, or
- Total amount of energy produced from DER units
- Number of units
- Capacity measure in kW or MW, and
- Energy measured in kWhs or MWhs
New York “REV”

- Survey to assess utility performance in DER facilitation avoids the challenge of developing a baseline
- Avoids baselining
- Avoids using exogenous factors to measure
- Avoids detailed interconnection review
Utility revenue within NY REV

Takeaways
Takeaways

- PBR aligns interests of utilities, regulators, customers
- PBR can provide cost containment incentives to utilities
- Poorly designed PBR mechanisms exist, and provide debatable benefits.
- PBR could help reform regulation for the “next generation” utility
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