October 18, 2019

Best Practices for Performance Incentive Mechanisms as a Form of PBR

District of Columbia Public Service Commission
Alternative Ratemaking Technical Conference

Jessica Shipley
Senior Associate
The Regulatory Assistance Project
PBR may help overcome bad outcomes

- Good things that are not profitable for the utility that don’t get done (Non-wires Solutions, aggregated DERs)
- Bad things that are profitable to the utility that should be prevented (Gold-plating physical assets)
- Good things not getting done for lack of interest or motivation (Platform innovation, 3rd Party innovation)
- Bad incentives not easily seen? (Deferring expenses like tree trimming, customer care, underserved communities)
PBR assessment steps

- Choose a guiding goal to evaluate
- Understand status quo incentives
- Identify measurable performance criteria
- Identify metrics
- Consider directional targets and operational targets
- Track outputs and outcomes
- Assess a penalty or provide incentive payment, if desired
- Assess whether PBR is helpful to meeting the guiding goal
1 Imperative to Rethink Utility Regulation
Transformation of the power sector

Changing technology and policy goals

- Traditional regulation can be barrier to new technologies and policies
- PBR can remove some of these barriers
PBR can target positive incentives and outcomes

- Solar distributed generation
- Peak load reduction via demand response
- Increase customers enrolled in time-varying rates
- Water savings
- EV rate education and charging station deployment
Setting up Successful PIMs
PBR assessment steps

• Choose a guiding goal to evaluate
• Understand status quo incentives
• Identify measurable performance criteria
• Identify metrics
• Consider directional targets and operational targets
• Track outputs and outcomes
• Assess a penalty or provide incentive payment, if desired
• Assess whether PBR is helpful to meeting the guiding goal
Examples of guiding goals

- Make/keep energy affordable for customers
- Improve distribution system reliability
- Reduce GHG emissions
- Increase utilization of zero-emission transportation options
Understand Status Quo Incentives
Develop Measurable Performance Criteria

Examples:
• Declining customer bills
• Reduced customer outages
• Declining carbon emissions in transportation sector
Create metrics

Examples:

- Average monthly energy bills for residential customers
- Frequency & duration of customer outages (SAIDI/SAIFI/CAIDI/MAIFI)
- Number of installed public EV charging stations
Importance of metrics

- Allows Commission to establish and focus on highest priorities
- Creates transparency to measure utility performance
- Enables creation of targets and goals for utility performance
Track outputs & outcomes

- Inputs: measurements of **effort**
  - E.g., hours of labor, dollars of investment
- Outputs: measurements of **what was produced or delivered**
  - E.g., EE program participation rate, MWh savings
- Outcomes: measurements of **impact or achievement** (relative to goals)
  - E.g., reduced customer bills, improved reliability
Example: Distributed Energy Resources
PBR assessment steps

- Choose a guiding goal to evaluate
- Understand status quo incentives
- Identify measurable performance criteria
- Identify metrics
- Consider directional targets
- Consider operational targets
- Track outputs and outcomes
- Assess whether PBR is helpful to meeting the guiding goal
Increase reliance on distributed resources
Status quo

• What incentives exist for utilities to use distributed solutions to meet system needs? Are there incentives for utilities to actively avoid distributed solutions?

• Ditto for innovative rate design or demand response programs that influence load shape?

• Do utilities currently facilitate efficient levels of DG adoption?

• Do utilities currently evaluate non-wires solutions?
Performance Criteria:
Increase DER adoption

Other performance criteria related to the goal:
• Better utilization of flexible loads (e.g. water heaters and EVs)
• Increase EE savings during peak hours
• Increase number of customers participating in DR/load shifting programs
• Increase number of customers participating in time-varying rates
Establish metrics for DERs

• How would DERs be deployed in the absence of any PBR mechanism? Does a baseline of DER deployment need to be established?
• What aspects of DER deployment does the utility directly influence?
• What kinds of data related to DER deployment are readily available and easily verified?
Metric options

- Number of DER systems deployed
- Total installed capacity of DER (MW)
- Total amount of energy produced from DER (MWh)
- DER provider satisfaction with utility interconnection process (requires development of survey metrics)
- Average interconnection time (in days, measured overall, and for each step in utility’s process)
Consider whether directional or operational targets are needed

- **Directional:** Should there be a targeted increase in DER deployment (in % or MW or MWh)? A targeted reduction in average interconnection processing time?
  - What is the right (efficient, least-cost) level of DER deployment? The amount of time for interconnection?
- **Operational:** Are there potential concerns with reliability or cost-effectiveness that should be tracked as a target?
New York REV approach to similar performance criteria

- Two elements to the “earning adjustment mechanism”
  1. Timeliness in the Standard Interconnection Requirement
  2. Satisfaction of DER applicants with the process

- Commission eliminated these metrics in April 2019 order, citing the much-improved utility interconnection processes
4 Thoughts on Establishing Incentives
Methodologies for incentive mechanisms

- Incentives or penalties added to or subtracted from return on equity
- Lower rate of return (based on cost of debt, for example) with adders based on performance
- Payments for specific milestones instead of increased rate of return
- Shared savings, for example for EE.
Design principles to consider:

- For every performance measure, ensure that the benefits exceed the costs (including the incentive)
  - A way to mitigate customer rate impacts is to reward or assign a greater value to performance that lower costs for customers
- Try to find the balance between the amount of reward that will incentivize the utility without over-compensation
- Reflect importance of achievement of policy goal
Design principles to consider:

- For quantifiable benefits, consider attaching an incentive/penalty
- For non-quantifiable benefits, consider reporting metrics only or a smaller incentive/penalty
- Custom-tailor each incentive/penalty based on potential cost and benefit
  - Relies on good baseline data
No deadband, symmetric compensation

- Based on a compliant result at the origin
- Utility wins or loses revenue based on performance
- Dollar for unit, no limits

Note pressure on measurement and verification of savings
Symmetric deadband & compensation

- Based on a compliant result around a deadband at the origin
- Utility wins or loses revenue based on performance
- Dollar for unit
- No limits

Note pressure on measurement and verification of savings
One-sided penalty

- No upside
- Deadband from adequate performance
- Severe penalty for poor
Asymmetric compensation

- Upside
- Capped, for superior performance
- Deadband from adequate performance
- Severe penalty for poor performance
One-sided reward

- Upside
- Capped for superior performance above present level
- No penalty
Hit the target

- Upside bonus
- Capped for significant specific superior performance
- No penalty
State Examples

PBR and Some PIMs

Adopted a System Efficiency Incentive

PIM is 45% of the net benefits (the remainder go to ratepayers) from annual capacity market savings as a result of incremental BTM PV beyond forecasts, DR not eligible for existing incentives, incremental storage, additional peak reductions from NWA’s or partnerships with third parties.
Rhode Island PUC National Grid Order

Metrics to be tracked that may become eligible for PIMs:

- Installed energy storage capacity
- CO2 avoided through EVs
- Light Duty Government and Commercial Fleet Electrification
- Low-income and multi-unit apartment building EV charging sites
- Distributed Generation Interconnection
# Hawaii regulatory goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Priority Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhance Customer Experience</strong></td>
<td>Traditional, Emergent</td>
</tr>
<tr>
<td></td>
<td>Affordability</td>
</tr>
<tr>
<td></td>
<td>Reliability</td>
</tr>
<tr>
<td></td>
<td>Interconnection Experience</td>
</tr>
<tr>
<td></td>
<td>Customer Engagement</td>
</tr>
<tr>
<td><strong>Improve Utility Performance</strong></td>
<td>Traditional, Emergent</td>
</tr>
<tr>
<td></td>
<td>Cost Control</td>
</tr>
<tr>
<td></td>
<td>DER Asset Effectiveness</td>
</tr>
<tr>
<td></td>
<td>Grid Investment Efficiency</td>
</tr>
<tr>
<td><strong>Advance Societal Outcomes</strong></td>
<td>Traditional, Emergent</td>
</tr>
<tr>
<td></td>
<td>Capital Formation</td>
</tr>
<tr>
<td></td>
<td>Customer Equity</td>
</tr>
<tr>
<td></td>
<td>GHG Reduction</td>
</tr>
<tr>
<td></td>
<td>Electrification of</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
</tr>
<tr>
<td></td>
<td>Resilience</td>
</tr>
</tbody>
</table>
Many regulatory mechanisms operating simultaneously

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Year Rate Case Cycle</td>
<td>Metrics Reporting Requirements</td>
<td>RPS and EEPS Requirements</td>
</tr>
<tr>
<td>Revenue Decoupling (RBA Provision)</td>
<td>Backstop PIMs (SAIDI, SAIFI, Customer Service)</td>
<td>System Planning Requirements</td>
</tr>
<tr>
<td>RAM Attrition Relief Provisions (O&amp;M, Rate Base, Depreciation &amp; Amortization)</td>
<td>Demand Response PIM</td>
<td>Competitive Bidding Framework</td>
</tr>
<tr>
<td>Partial Revenue Cap (RAM Cap)</td>
<td>Renewable Procurement PIMs</td>
<td>Approval of Major Capital Projects, Fuel Contracts, and Purchased Power Contracts</td>
</tr>
<tr>
<td>Major Projects Interim Recovery Mechanism</td>
<td>ECAC/ECRC Fuel Cost Risk Sharing Incentive</td>
<td>Approval of Rules and Standards</td>
</tr>
<tr>
<td>Earnings Sharing Mechanism</td>
<td>ECAC Generation Efficiency Incentive</td>
<td>Approval of Accounting Policies and Financing Arrangements</td>
</tr>
<tr>
<td>Major Projects and Baseline Projects Credit Mechanisms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECAC/ECRC and PPAC fuel and purchased power pass-through</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Hawaii Public Utilities Commission
Illinois metrics for time-of-use rates

ComEd customers enrolled in time-varying rates

- 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
Maryland’s behavioral demand response program

PBR to promote peak demand reduction

- Opt-out peak rebate program - $1.25/kWh rebate for energy reduction on Energy Savings Days with 24-hour notice
- BGE may capitalize the operating expenses associated with Smart Energy Rebate (SER) program
- BGE could not recover any of the AMI costs, or earn the 9.75% return on equity on its smart grid program until the utility proved that the deployment had a positive benefit-cost
- The SER program was instrumental in maximizing the AMI business case and ultimately recovering the costs ($687 million capex)
## SER Program Summary to Date

<table>
<thead>
<tr>
<th>Year</th>
<th># of Energy Savings Days</th>
<th>Eligible Customers</th>
<th>Average Bill Credit</th>
<th>Peak Demand Reduction (MW)</th>
<th>Total Bill Credits to Customers</th>
<th>% Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>4</td>
<td>315,000</td>
<td>$9.03</td>
<td>96</td>
<td>$7 M</td>
<td>82%</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
<td>860,000</td>
<td>$6.55</td>
<td>209</td>
<td>$5.6 M</td>
<td>76%</td>
</tr>
<tr>
<td>2015</td>
<td>4</td>
<td>1,020,000</td>
<td>$6.67</td>
<td>309</td>
<td>$15.5 M</td>
<td>81%</td>
</tr>
<tr>
<td>2016</td>
<td>3</td>
<td>1,074,000</td>
<td>$6.73</td>
<td>336</td>
<td>$11 M</td>
<td>71%</td>
</tr>
<tr>
<td>2017</td>
<td>2</td>
<td>1,095,000</td>
<td>$6.13</td>
<td>330</td>
<td>$6.1 M</td>
<td>74%</td>
</tr>
</tbody>
</table>

## SER Wholesale Market Benefits to Customers, 2013 to 2015

<table>
<thead>
<tr>
<th>Benefits from Peak Demand Reductions</th>
<th>Benefits from Energy Reductions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale Capacity Revenue</td>
<td>$46 M</td>
<td>Wholesale Energy Revenue</td>
</tr>
<tr>
<td>Avoided Capacity Cost</td>
<td>$87 M</td>
<td>Avoided Energy Cost</td>
</tr>
<tr>
<td>Capacity Price Mitigation</td>
<td>$234 M</td>
<td>Wholesale Energy Price Suppression</td>
</tr>
<tr>
<td>Benefits</td>
<td>$406 M</td>
<td>Share of Total</td>
</tr>
<tr>
<td>Share of Total</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>21%</td>
<td>2%</td>
</tr>
</tbody>
</table>

---

https://info.aee.net/hubfs/MD%20DR%20Final.pdf
**Michigan DR incentives**

**Case No. U-18369** (9/15/17): “financial incentive for DR is reasonable and ... providers and other interested parties may propose appropriate incentives as part of the DR reconciliation proceeding”

**Consumers Energy DR Reconciliation (Case No. U-20164) (7/18/19)**

- Tied to IRP goal of 49 MW/yr. incremental DR growth
- 0.26% FIM for each 1% between 50-100% of IRP goal
- 2% of DR O&M for assessing DR in 5+ NWA solutions

---

*DR used as part of a non-wires alternative project earn an annual payment of 2%*

Source: Michigan PSC
ConEd’s Brooklyn-Queens Demand Management Project
Localized DERs to achieve lowest cost service

• Utility provided incentives such as direct payments to DER providers or customers
• Facilitated competitive procurements among DER providers
• Shared savings consisted of ratepayers avoiding additional distribution costs; Con Edison receiving some of these savings in the form of a ROE adder
6 Takeaways
Takeaways

• Recognize PBR is a powerful tool in the regulator’s 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

Jessica Shipley
Senior Associate
Regulatory Assistance Project (RAP)®

Portland, Oregon
United States

+1 503 816 2639
jshipley@raponline.org
raponline.org