Next Generation Performance-Based Regulation for Carbon

NARUC
Carbon pricing webinar

David Littell, Senior Advisor
U.S. Program
The Regulatory Assistance Project®

Bernstein Shur
100 Middle Street
Portland, Maine 04101

Email: dlittell@bernsteinshur
dlittell@raponline.org
Twitter: @DavidPLittell
Introduction

The Regulatory Assistance Project (RAP) is a global NGO providing technical and policy assistance to government officials, agency staff, and others on energy and environmental issues.

- Foundation-funded; some contracts with U.S. DOE, EPA, State PUCs

- Advisor, consultant role, non-advocacy; no interventions
Outline

• Performance-based regulation – keys to success
• State examples
  • Hawaii
  • Minnesota
  • Rhode Island
  • New York
1 Performance Based Regulation – keys to success
States’ progress in grappling with PBR is uneven

Various combinations of drivers are advancing PBR in 19 states and D.C.

- **Early Exploration**: Initial inquiries often marked by a report examining PBR options
- **Initial Stakeholder Engagement**: Soliciting comments and/or conducting workshops assessing PBR options
- **Advanced Stakeholder Engagement**: Soliciting comments and/or conducting workshops in discussing specifics of PBR options
- **Implementation**: Decisions have been made or are close to being made to deploy PBR options
- **Conclusion of Inquiry**: Decisions have been made not to consider the PBR framework

Source: EnerKno and Wood Mackenzie Power & Renewables; Tracking of the proceedings available on the EnerKno Platform
Performance-based regulation (PBR) is…

• A regulatory framework to connect achievement of specified objectives to utility financial performance and executive compensation

• A PBR plan can include 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
Set guiding goals
From the goals consider performance criteria (directional targets)

Guiding goal: improve distribution system reliability

Directional target: 5% improvement in SAIFI from baseline value
Expressing targets with measurable performance criteria, expressed in standard metrics is a best practice.
Metrics

- Quantifiable measure of a specified performance
- Typically expressed as standard **power system measures** or **consumer impact measures**
Performance criteria to metrics

- Quantifiable measure of a specified performance
- Typically expressed as standard **power system measures** or **consumer impact measures**
- Examples:
  - Service quality: improved customer service time
  - EE savings: measure % EE savings of utility sales or reduced consumer bills as a result of EE
  - Reduced outages: SAIDI / SAIFI / CAIDI / CAIFI
• Metrics are publicized on a publicly 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
State examples of carbon PBR consideration
Hawaii
D&O 36326 establishes the regulatory guiding principles, goals, and outcomes to guide Phase 2

The following guiding principles will inform the development of the PBR framework:

1. **Customer-centric approach**, including immediate “day 1” savings for customers when the new regulations take effect;

2. **Administrative efficiency** to reduce regulatory burdens to the utility and stakeholders;

3. **Utility financial integrity** to maintain the utility’s financial health, including access to low-cost capital

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

Hawaii Public Utilities Commission
Hawaii PBR mechanisms

EXHIBIT 16
PBR Mechanisms Adopted in Phase 1 Decision and Order

<table>
<thead>
<tr>
<th>Revenue Adjustment Mechanisms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRP with Indexed Revenue Adjustment</td>
<td>Five-year Control Period with Externally-indexed Revenue Adjustment allowing interim revenue changes pursuant to an indexed formula: &lt;br&gt;Annual Revenue Adjustment = (Inflation) - (X-Factor) + (Z-Factor) - Customer Dividend</td>
</tr>
<tr>
<td>Earnings Sharing Mechanism (ESM)</td>
<td>Apply an ESM that provides both &quot;upside&quot; and &quot;downside&quot; sharing of earnings between the utility and customers when earnings fall outside a Commission approved range</td>
</tr>
<tr>
<td>Major Projects Interim Recovery (MPIR)</td>
<td>Examine the MPIR adjustment mechanism to determine how it can continue to provide relief for appropriate projects during the MRP consistent with other approved PBR objectives and mechanisms</td>
</tr>
<tr>
<td>Revenue Decoupling and Existing Cost Trackers</td>
<td>Continue to utilize revenue decoupling (i.e., the Revenue Balancing Account), to true up revenues to an annual revenue target and existing cost tracking mechanisms (e.g., PPAC, ECRC, etc.) to track and recover certain approved costs</td>
</tr>
<tr>
<td>Off-Ramps</td>
<td>Develop off-ramp mechanisms to provide for review of approved PBR mechanisms, pursuant to specified circumstances or conditions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Mechanisms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Incentive Mechanisms (PIMs)</td>
<td>Implement a set of PIMs designed to help drive achievement of the following priority outcomes: Interconnection Experience; Customer Engagement; and DER Asset Effectiveness</td>
</tr>
<tr>
<td>Shared Savings Mechanisms</td>
<td>Develop shared savings mechanisms to address priority outcomes including Grid Investment Efficiency and Cost Control, mitigate capex bias, and reward pursuit of cost effective solutions to meet customer needs</td>
</tr>
<tr>
<td>Scorecards and Reported Metrics</td>
<td>Publish Scorecards with targeted performance levels to track progress against the priority outcomes of Interconnection Experience, Customer Engagement, Cost Control, and GHG Reduction and utilize Reported Metrics to highlight performance on the priority outcomes of Affordability, Customer Equity, Electrification of Transportation, Capital Formation, and Resilience</td>
</tr>
</tbody>
</table>

Source: Rocky Mountain Institute, Powering Paradise, 2020
Hawaii PBR proceeding – current status (April 2020)

- PIMs, SSMs, scorecards, reported metrics
- Proposed GHG emission reduction PIM:

<table>
<thead>
<tr>
<th>Metric</th>
<th>Target</th>
<th>Incentive Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoided greenhouse gas emissions in metric tons of CO2 equivalent</td>
<td>Baseline determined by RPS and Energy Efficiency Portfolio Standard (EEPS) interim targets; would be lesser of a straight-line path to zero renewable energy or the pathway established by a production simulation for the planning period that incorporates all known additions and retirement of generation</td>
<td>Multiple reward tiers based on accelerated GHG reduction as compared to baseline</td>
</tr>
</tbody>
</table>
Minnesota
Minnesota

Outcome: Environmental performance

Track-only performance criteria proposed by Xcel:

• Total carbon emissions by (1) utility-owned facilities and PPA’s and (2) all sources
• Carbon intensity (emissions per MWh) by (1) utility-owned facilities and PPA’s and (2) all sources
• Total criteria pollutant emissions
• Criteria pollutant emission intensity (criteria pollutant emissions per MWh)
• CO2 emissions avoided by electrification of transportation – Alternative & Original approach; CO2 rate would not be verified as of April 30
• CO2 emissions avoided by electrification of buildings, agriculture, and other sectors; CO2 rate would not be verified as of April 30
Rhode Island
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

Adopted a System Efficiency Incentive

PIM is 45% of the net benefits (the remainder go to ratepayers) from actions that increase system efficiency:

- Annual capacity market savings from incremental (more than expected) behind-the-meter solar
- DR not eligible for other incentives
- Incremental storage
- Additional peak reductions from non-wires alternatives or partnerships with third parties count
NY REV: Categories of Metrics for Earnings Adjustment Mechanism

- Decided generically in a policy order
  - System Efficiency
  - Energy Efficiency
  - Customer Engagement and Data Access
  - Interconnection
  - Carbon Reduction
  - Affordability (set aside to scorecard for now)
New York REV: Carbon

Imputing carbon reduction to specific measures
- PV solar, heat pumps, EVs, storage

No societal target
- Pushback: metrics should be under utility control
<table>
<thead>
<tr>
<th>METRICS CONSIDERED</th>
<th>Peak Reduction/ System Efficiency</th>
<th>Energy Efficiency</th>
<th>Customer Engagement</th>
<th>Interconnection</th>
<th>Affordability</th>
<th>carbon/clean energy standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>net NY peak MW reduced</td>
<td>incremental savings, electricity and gas</td>
<td>surveys</td>
<td>timeliness</td>
<td></td>
<td></td>
<td>customer participation in a wind program</td>
</tr>
<tr>
<td>Load factor</td>
<td>Energy intensity*</td>
<td>purchases per visit</td>
<td>surveyed satisfaction</td>
<td></td>
<td></td>
<td>total RECs</td>
</tr>
<tr>
<td>DER utilization</td>
<td>participation rate</td>
<td>purchases per quote</td>
<td>abandoned apps</td>
<td></td>
<td></td>
<td>EV charging make ready</td>
</tr>
<tr>
<td>substation load factor</td>
<td>LED street light conversion</td>
<td>DR customer retention</td>
<td>Cost per applicant</td>
<td></td>
<td></td>
<td>Oil heat conversions to heat pumps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E-Commerce Transactions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Energy intensity: energy per residential customer, per commercial customer, per employee, per program participant, per low/moderate income customer
<table>
<thead>
<tr>
<th>Metrics</th>
<th>Considered</th>
<th>C</th>
<th>Interconnection</th>
<th>Affordability</th>
<th>carbon/clean</th>
<th>customer participation in a wind program</th>
<th>total RECs</th>
<th>EV charging make ready</th>
<th>Oil heat conversions to heat pumps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Reduction/</td>
<td>net NY peak MW reduced</td>
<td>incremental savings, electricity and</td>
<td>surveys</td>
<td>timeliness</td>
<td>customer</td>
<td>customer participation in a wind program</td>
<td>total RECs</td>
<td>EV charging make ready</td>
<td>Oil heat conversions to heat pumps</td>
</tr>
<tr>
<td>System Efficiency</td>
<td></td>
<td>gas</td>
<td></td>
<td></td>
<td>satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interconnection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DER utilization</td>
<td>participation rate</td>
<td>purchases per visit</td>
<td>surveyed</td>
<td>abandoned apps</td>
<td>EV charging make ready</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>substation load factor</td>
<td>LED street light conversion</td>
<td>DR customer retention</td>
<td>Cost per</td>
<td></td>
<td>Oil heat conversions to heat pumps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Commerce Transactions</td>
<td>E-Commerce Transactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RED = <strong>NOT ADOPTED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Energy intensity: energy per residential customer, per commercial customer per employee, per program participant, per low/moderate income customer
Think it through . . .

- Goal → metric → performance → outcome framework
- Take advantage of others' ideas, wisdom and experience
- Consider what can go wrong
- Reevaluate, review, improve
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
Resources

- Next-Generation Performance-Based Regulation: Volume 1
  (Introduction—Global Lessons for Success)

- Next-Generation Performance-Based Regulation: Volume 2 (Primer—Essential Elements of Design and Implementation)

- Next-Generation Performance-Based Regulation: Volume 3
  (Innovative Examples from Around the World)

- raponline.org