Performance Regulation

A presentation and discussion with Michigan Energy Officials

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July 24, 2017
1 Performance Regulation

An Overview
“All Regulation is Incentive Regulation”

- Incentives of traditional regulation
  - Build and own to grow rate base
  - Avoid disallowances
Performance Regulation

- Highlights what matters
- Motivates through ego, shame, profits
- Utility outputs
- Social outcomes
Performance Regulation: Why Now?

- Empowered customers
- Innovation potential significant, growing
- Unsettled direction of “role of the utility”
- Threatened utility revenues and net income
- Good government
Utility Outputs
Utility Outputs

- Direct results of utility activities
  - Reliability
  - Customer service
  - Distribution losses
  - Interconnections
  - Energy efficiency
- Measurability is key to use in performance regulation
  - Utilities already measure many outputs
Social Outcomes

Aren’t outcomes what citizens want?
Social Outcomes

• Why we have regulated utilities
  • Universal service
  • Safe and reliable service
  • Affordable service
  • Environmental quality
  • Customer resource access
• Utilities influence, but do not control outcomes
  • Yet aren’t outcomes what citizens want?
How to Raise Performance in Regulation

• Administrative reporting
• Public reporting
Rate Utilities on Performance

- Reliability
- Customer service
- Power plant performance
- Safety
- Energy efficiency
What matters to Michigan citizens?
How to Raise Performance in Regulation

• Administrative reporting
• Public reporting
• Financial implications
  • How much for a return on performance?
Is return on performance the icing?

Is return on performance a significant % of total earnings?
Generic Performance Reg Jargon (states will invent their own terms)

- **Performance (Based) Regulation**
  - The framework
  - Connects goals with targets
  - Measures, feeds back performance results
- **Performance Incentive Mechanism**
  - Specific performance metrics, targets, incentives connects to utility revenue/return
Performance Regulation Don’ts

• Focus on inputs* and spending
• Allow poor knowledge of baseline, BAU
• Set it and forget it
• Assume it will reduce cost of regulation
• Use confounding metrics
• Use hard-to-measure metrics
• Use hard-to-define metrics
Performance Regulation Don’ts

- Spend $10 million on energy efficiency
- Expect same PV interconnects next year as last
- Lock in a plan for 5 years with no reopeners
- Overlook innovation
- Use System Load Factor: the classic confounding metric
- Hard to measure metrics: Energy efficiency?
- Hard to define metrics: Technology
Performance Regulation Do’s: Keep it Simple

- Consider goals of Michigan power sector
- Reflect clear public priorities/goals in outcomes
- Link outputs to outcomes
- Consider standard (national) definitions for metrics
- Consider precise targets that promote innovation
- Commit enough money to change management thinking (Not so much that the public revolts)
Performance Regulation Do’s: Continuous Improvement

- Show to public; deliver value to public
- Consider reporting system before attaching financial implications
- Consider long commitment, but with re-looks
- For financial metrics, associate reward with social value
- Reflect priorities in relative size of financial impact
- Consider benchmarking
Denmark has used PBR to improve system reliability by imposing metrics on the Danish distribution system operators (DSOs). The DSOs are subject to an "outage" or quality of supply benchmarking model, which is applied annually. The goal of the quality of supply benchmarking model is to disincentivize utility outages and to improve network reliability, as measured by the System Average Interruption Frequency Index (SAIFI) and the System Average Interruption Duration Index (SAIDI). SAIFI and SAIDI are internationally recognized metrics commonly defined (even as precise definitions vary) and easily measured.

**Illustrative Example of Danish Quality of Supply Benchmark**

The example includes five DSOs: A, B, C, D and E. Company A has the lowest weighted SAIFI while Company B has the second lowest and so forth. Together, Company A, Company B, Company C and Company D have precisely 80% of the aggregate transmission network.

Source: DERA (2009)

Company D has a weighted SAIFI of 0.09. Thus, companies which have a weighted SAIFI higher than 0.09 are penalised with an up to 1% reduction in their allowed operational costs. In this example, Company E is penalised.
Two kinds of metrics

Bread and Butter

Existing Service
(conducive to penalty)

- Reliability
- Customer Service

Innovation

New
(conducive to reward)

- Demand response enrollment, use
- Electrification
- Resilience
Utility Sources of Net Income

• Return on rate based investment
• More sales than forecast between rate cases
• Return on performance
• Return on certain expenses
• Services based on monopoly role
  • Data
• Competitive services

Check your codes of conduct and affiliate rules
Complementary Policy Idea #1
Return on Expenses

• Consider customer alternatives to utility capital
  • EE, DR, DG, CHP, Storage
• What is utility incentive to deploy if cheaper?
• Idea:
  • ID utility capital before need date
  • Assess whether customer resources are cheaper
  • If so, allow capitalization of, or return on, expenses to secure customer resources
Complementary Policy Idea #2
Multi-Year Rate Plans

• Promote cost management
• Promote utility management focus on performance, service, strategic planning
• Requires comfort with revenue, cost forecasting
Visualizing Performance
A bread and butter metric

- No upside
- Deadband from adequate performance
- Severe penalty for poor performance
A bread and butter metric

- Upside
- Capped, for superior performance
- Deadband from adequate performance
- Severe penalty for poor performance
An innovation metric

- Upside
- Capped for superior performance above present level
- No penalty
An innovation metric

- Upside bonus
- Capped for significant specific superior performance
- No penalty
Shared Savings

- 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
Shared Savings

- 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
3 Examples
New York
Reforming the Energy Vision

• Scorecard Metrics
  • On-going task force looking at this
• Earnings Adjustment Mechanisms
  • Peak reduction and system efficiency
  • Energy efficiency
  • Interconnection
  • Customer engagement and information access
  • Affordability (scorecard for now)
• GHG reduction?
Outputs, but also Outcomes

- Integrate activities of market participants to optimize the distribution system
- Encourage Innovation
- Enterprise-wide effort from utility
- Stimulate Competitive Market
- Utilities have never controlled everything
OFGEM: Revenue = Incentives + Innovation = Outputs (RIIO)

- Move from a productivity-based system
- Longer term of stability: 8 years
- Remove capital bias
- Measures of success
  - With rolling averages
### (a) Scorecard for all output categories

<table>
<thead>
<tr>
<th>Output category</th>
<th>Low</th>
<th>Middle</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliability and availability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions for connection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social obligations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How is the utility doing?
Implementation (typical, small sample size)

- Regulator lays out general criteria
- Utility makes a proposal
  - Stand alone proceeding (RIIO)
    - With fast track opportunity
  - Rate Case (NY)
- Collaboration
Innovative Uses for Performance Regulation
A Host of Reasons to Focus on Outcomes and Outputs

- Promote DER Deployment
- Share Utility Data
- Drive Clean Energy Performance
- Emphasize Locational Value
- Focus on GHG and Other Emission Performance
- Deploy Electric Vehicles
- Improve Power Plant Performance
  - Heat rate targets
A Host of Reasons to Focus on Outcomes and Outputs

• Operations
  • Interconnection
  • System efficiency improvements
  • Reliability
• Customer Empowerment
• Competitive Activity
  • Codes of Conduct conformance
purposes, like an N-1 reliability criteria, operational reserve requirements, and so forth. Again, penalties for non-compliance in a traditional, non-PBR, construct may apply.

The new regulatory framework for distributed generation includes very specific performance requirements for the application and interconnection process, but there is no penalty or compensation mechanism associated with these requirements so far. For example, there is a schedule for interconnection with well-defined steps and associated mandatory timelines for DG interconnection, as depicted in Table 1.

Table 1 - Mandated Timeframe for DG Interconnection Application Processing

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsible Entity</th>
<th>Maximum Working Days for Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry of the request</td>
<td>Retail Provider</td>
<td>1</td>
</tr>
<tr>
<td>Verification of information</td>
<td>Distribution Utility</td>
<td>2</td>
</tr>
<tr>
<td>Letter of acceptance when no study or infrastructure is required</td>
<td>Distribution Utility</td>
<td>4</td>
</tr>
<tr>
<td>Letter with study or infrastructure budget</td>
<td>Distribution Utility</td>
<td>10</td>
</tr>
<tr>
<td>Documentation review</td>
<td>Retail Provider</td>
<td>1</td>
</tr>
<tr>
<td>Modification of the interconnection infrastructure</td>
<td>Applicant or Distribution Utility</td>
<td>TBD*</td>
</tr>
<tr>
<td>Relocation of meter</td>
<td>Distribution Utility</td>
<td>5</td>
</tr>
<tr>
<td>Assignment of agreement</td>
<td>Retailer</td>
<td>2</td>
</tr>
<tr>
<td>Integration to the commercial scheme</td>
<td>Retailer</td>
<td>1</td>
</tr>
<tr>
<td>Total time without study or infrastructure modification</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Total time with study or infrastructure modification*</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

*These times do not include the construction of specific upgrades or the response times of the activities that correspond to the Applicant. In Mexico, either the Applicant or the Distribution Utility can make the required grid upgrades.

Mexico Interconnection Metrics
A Host of Reasons to Focus on Outcomes and Outputs

• Peak load reduction
• Time-varying rate participation
• Smart Meter deployment and functionality
  • Including use of Meter Data management
  • Including use of Distributed Energy Resource management
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
Successful implementation of cost-effective energy efficiency can reduce emissions associated with fossil generation (an environmental benefit) and defer or avoid new generation, capacity, transmission, and distribution resources, resulting in cost savings (a traditional focus of utility performance regulation).

Planning has a critical role in informing regulatory outcomes across all three areas, and thus it takes a central location in the Venn diagram below.

**Figure 2. Dimensions of Utility Performance That May Warrant Tracking or Incentives**

- **Traditional Goals**
  - Reliability
  - Power plant performance
  - Employee safety
  - Public safety
  - Lower costs

- **New Business Models**
  - Customer engagement
  - Customer-targeted services
  - Flexible Resources
  - Innovation
  - Resiliency

- **Environmental Goals**
  - Smart grid
  - Renewable energy
  - DG
  - Reduced emissions
  - Improved load factor
  - Reduced losses
  - Customer-engaged services

New Performance Based Outcomes and Metrics: An Illustration

- A zero-based approach
  - Before performance is considered, utility earns 8% based on rate base
    - You can also start at normal return and go up and down
- Normally allowed return consistent with compliance-based performance
- Higher return available for increasing, exemplary level of measured performance

Incorporating a Performance Component into the Rate of Return