Performance Incentive Mechanisms

Presentation to the Western Interstate Energy Board

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Tim Woolf and Melissa Whited

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Study on Performance Incentive Mechanisms

- Synapse is preparing a guidebook for regulators on Performance Incentive Mechanisms (PIMs)
- PIMs are one element of performance regulation, intended to achieve specific outcomes
- PIMs include four key elements:
  1. Policy goals
  2. Performance targets
  3. Measurement practices and requirements
  4. Rewards and penalties to promote desired outcomes
- Report will be released in several months
- This presentation presents some initial thoughts and findings
- We seek your input on issues that are important to you

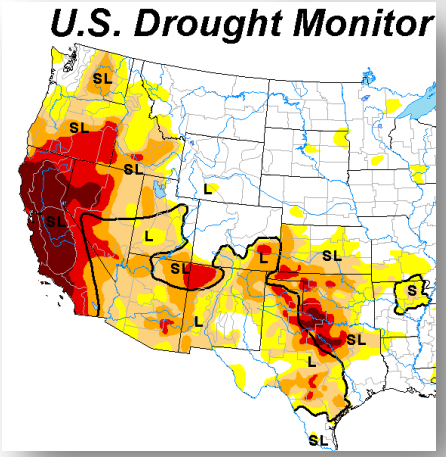
Utility Industry Challenges in the West

- Integration of variable resources
- Environmental performance
  - Criteria pollutants
  - EPA's Clean Power Plan

Image: Glennia, Flickr

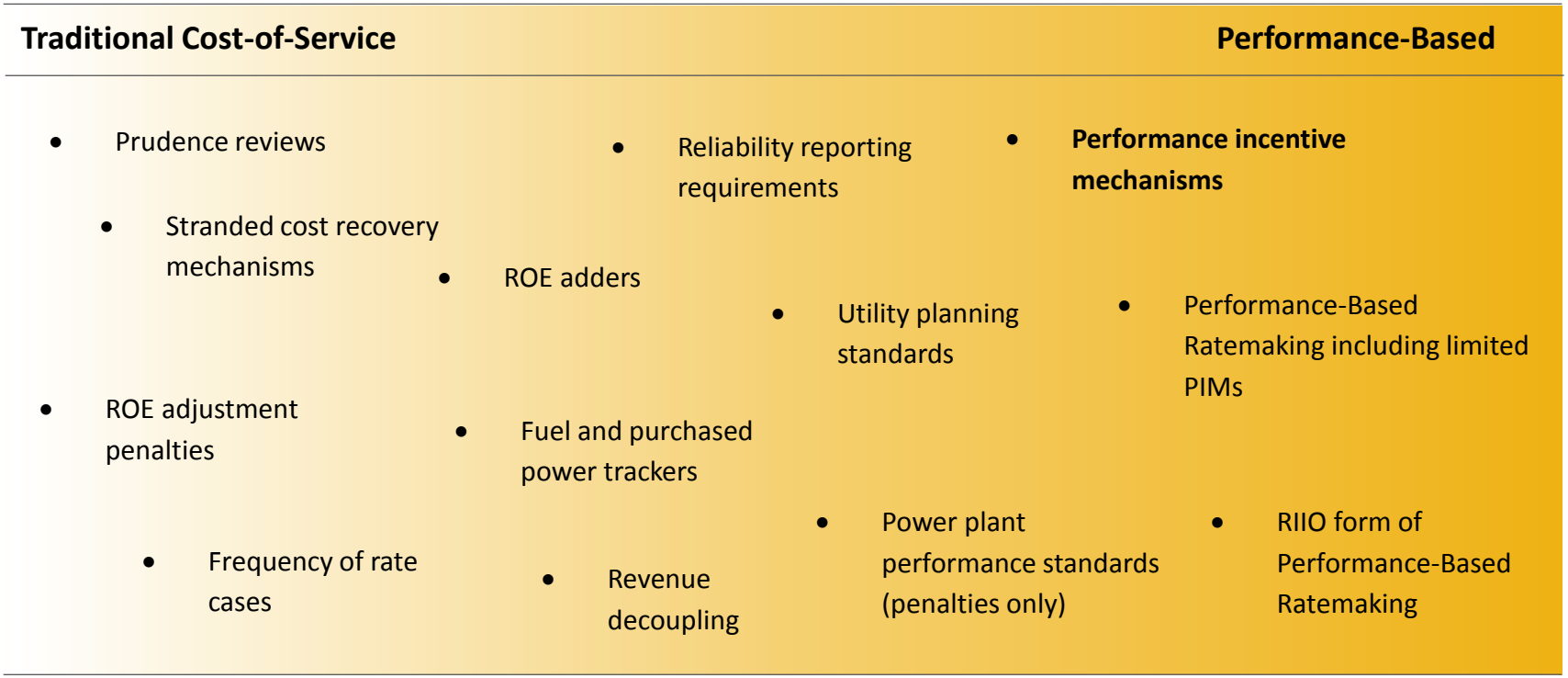
- Distributed generation, distributed storage, microgrids
- Smart grid technologies and opportunities
- Customer migration
- Declining sales
- Aging infrastructure
- Climate-related risks
  - Increased frequency and severity of storms
  - Droughts and heat waves

Image: Julia Manzerova



Regulatory Incentives and the Role of PIMs

The Spectrum of Policy Levers that Provide Utility Incentives and Influence Utility Performance



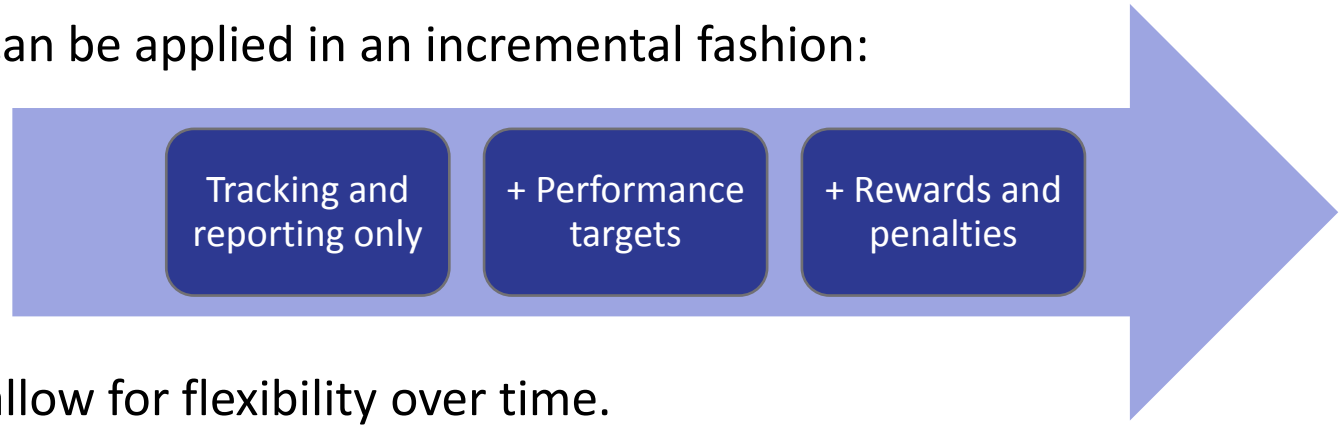
- These policy levers can be combined in many different ways.
- Some combinations build off of rate-of-return, cost-of-service ratemaking.
- Some combinations can be described as more performance-based.

How do PIMs Fit Within Other Policy Levers?

- PIMs are a regulatory requirement to meet pre-determined, specific policy goals and targets.
- PIMs include four key elements:
  1. Policy goals
  2. Performance targets
  3. Measurement practices and requirements
  4. Rewards and penalties to promote desired outcomes
- PIMs can be applied in any regulatory context, and in conjunction with other regulatory policy levers.
- PIMs are often one of the components of performance-based ratemaking (PBR), however:
  - They are not the only part of PBR, and
  - They can be implemented without PBR.

Why Performance Incentive Mechanisms?

- Current regulation may not provide incentive for utilities to achieve specific goals (e.g., lowest cost, customer satisfaction, innovation).
- If utilities have not been successful at meeting specific goals, then PIMs can be used to articulate those goals and provide the right incentives.
- PIMs can be applied in an incremental fashion:



- PIMs allow for flexibility over time.
- PIMs represent a low-risk regulatory option.
  - Relative to other “performance-based” options.

Examples of Existing or Proposed PIMs

Operation and Costs

- Power plant performance (Florida, Hawaii)
- System average energy costs (Washington)
- Cost of renewable generation (California)
- O&M costs (Alabama, Louisiana, Maine, Hawaii)
- Cost reductions in transmission constraints and inefficiencies (Connecticut)
- Cost reductions through off-system sales (numerous jurisdictions)

Specific Resource Goals

- Compliance with renewable portfolio standards (numerous jurisdictions)
- Energy efficiency and demand savings attainment (numerous jurisdictions)
- Resource diversity (Nevada)

Adapting to Change

- Customer retail choice (Michigan, New York)
- Grid modernization (Illinois)
- Distributed generation installations (Connecticut, Hawaii)
- Renewable energy curtailments (Hawaii)
- Innovation (United Kingdom)
- Long-term planning (Hawaii)

Performance Incentive Mechanisms in Action

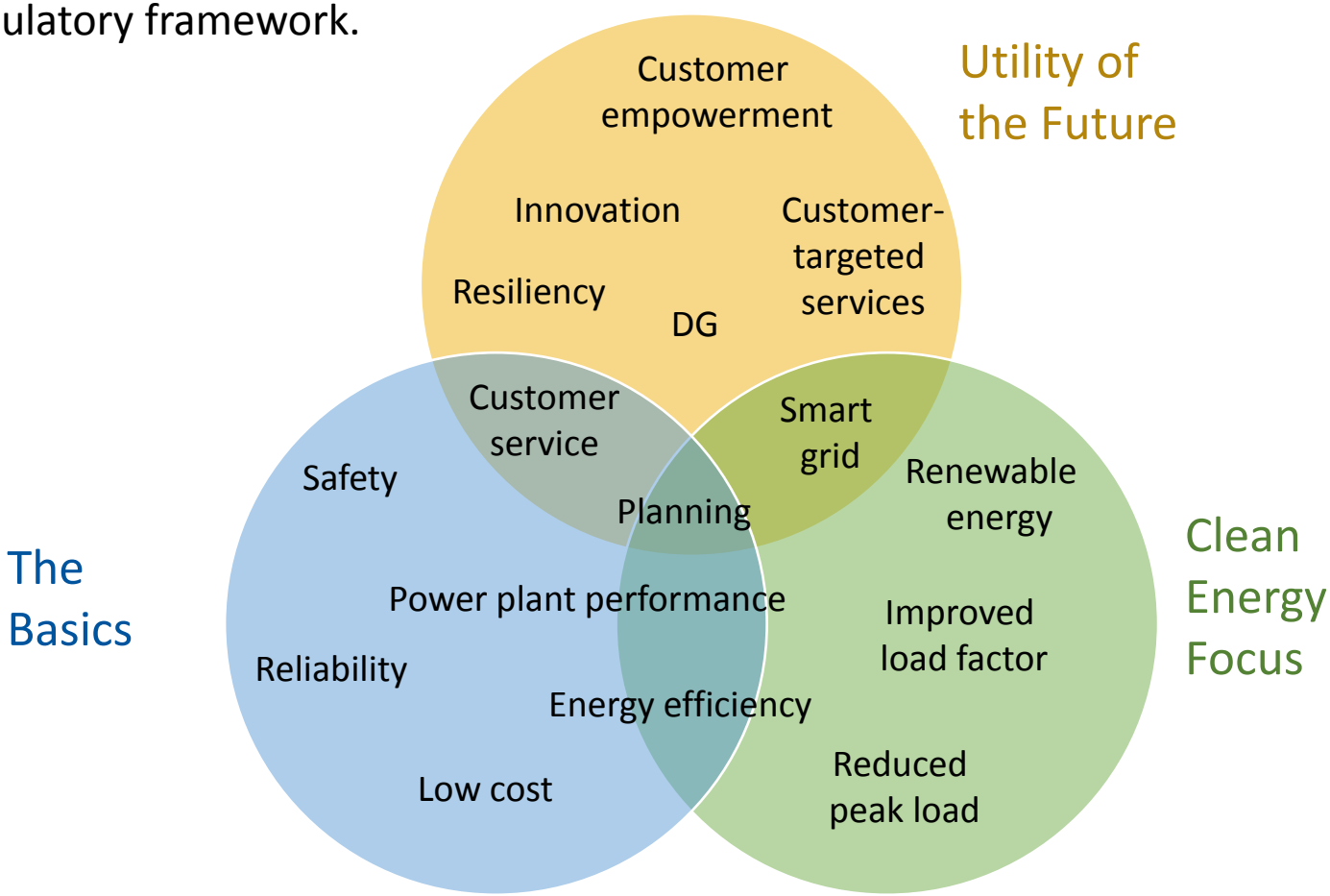
Anatomy of a Performance Incentive Mechanism

Example of a Performance Incentive Mechanism

Policy Goal	**Improved Reliability:** Reduced Frequency of Outages			
Components	Performance Target	Measurement	Financial Reward or Penalty	
Specifics	SAIFI = 1.10 interruptions per customer Based on 5-year historical performance Excludes major storms	Annual reports provided to Commission. Commission Staff review of data workbooks and major storm exclusions	Deadband of +/- 0.05 Symmetrical penalty and reward	Maximum reward/penalty: 0.5% of annual T&D revenues

1. Choosing Policy Goals

- PIMs should be designed to reflect state energy policy goals.
- PIMs should recognize the incentives already provided by the existing (or new) regulatory framework.



Choosing Policy Goals
Example: Complying with EPA's Clean Power Plan

State Compliance Plans

Least-Cost Planning

- States will need to conduct least-cost planning to identify compliance strategy
- Results will inform choice of PIMs

Image: Dan McKay

Goal: Reduce CO_2 at lowest cost

Potential PIMs

- Improve power plant performance
- Cost-effective energy efficiency
- Reduce T&D losses (to reduce generation requirements)
- Energy storage technology procurement
- Integrate renewable distributed generation

Image: Indigo Skies Photography

2. Establishing a Performance Target

Performance Targets

Key Principles

- Should reflect a specific desired outcome related to a policy goal
- Outcome should be one that can be measured and verified

Setting the Target

Using Benchmarks

- Targets are often based on a specific benchmark:
  - E.g., Historical performance of the utility or performance of peer utilities
- Target can encourage different types of performance:
  - Maintaining satisfactory performance, or
  - Improving performance over time, or
  - Evolving benchmarks over time.

Who sets targets?

- Legislature
- Commissions
- Stakeholder process

Establishing Performance Targets
Example: Energy Efficiency Programs

Energy Efficiency Targets

Desired Outcomes

- Successful, efficiently delivered, cost-effective efficiency programs.

Performance Targets

- MWh savings, or
- KW savings, or
- Other impacts.

Benchmarks

- Often set relative to retail sales
  - E.g., annual MWh savings = 1.5% of sales
- Can be applied to customer sectors or total efficiency portfolio

Who sets Performance Targets

- Sometimes done through legislation.
- Sometimes done through regulatory review.
- Stakeholder processes can be very helpful in setting targets:
  - E.g., EE advisory council, EE management board, collaboratives

3. Measuring Performance

Choice of Measurement Metric

Key Principles

- Objectively measurable
- Largely within utility's control, and free of arbitrary influence
- Should measure ability to achieve desired outcomes rather than simply rewarding the amount of spending.

Examples

Outage Frequency	• SAIFI = total number of interruptions/total number of customers
Customer Service	• Customer satisfaction as measured through surveys
Energy Efficiency	• Net benefits ($); MWh savings in particular sectors or programs; MW peak demand reduction
DG	• Utility response time to customer desiring to interconnect
Energy Costs	• Costs relative to annual baseline

Measuring Performance
Example: Customer Satisfaction Surveys

Massachusetts Customer Surveys

July 2014 Commission Order

DPU has used surveys to measure utility performance for more than 10 years

- Surveys provide a better indication of satisfaction than telephone answer speed or billing performance
- Objectivity: "… as long as the surveys are conducted in a statistically valid manner they produce useful information on customers' experience"

Two Revised Surveys

No longer use a "general satisfaction" survey.

1. First Contact Response
   - Whether customers had to contact Company again to resolve their issue
2. Ease of Doing Business
   - Rating from 1 to 10

4. Setting a Financial Incentive

Setting Financial Rewards and Penalties

Key Principles

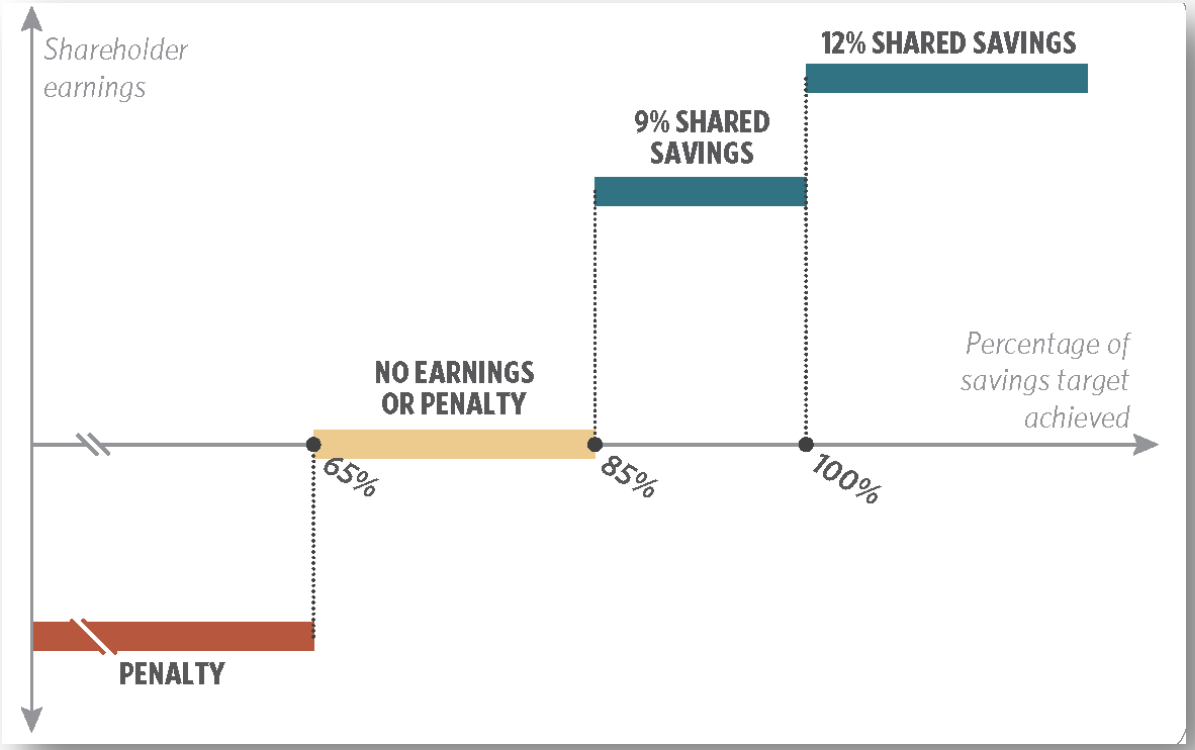
- Sufficient financial consequences to capture the attention of utility management, without being excessive in relation to the outcome.
- Balance benefits to customers with incentive to utility
- Symmetrical incentives are generally preferred
- Avoid dramatic swings in utility earnings based on small changes in utility performance
- Avoid perverse incentives (e.g., too much focus on one area)

Setting a Financial Incentive
Example – Energy Efficiency Risk and Reward

California Risk and Reward Incentive Mechanism

Example

- The step function was critiqued due to sharp swings in utility earnings



First Step: Tracking and Reporting Performance

Tracking and reporting performance

- Aspects of utility performance can be tracked and reported without any specific target or financial incentive
- Tracking and reporting allows for monitoring of performance over time
- Could be used to determine whether a PIM is warranted
- Could be transformed into one or more PIMs
- This approach is low-risk, with little regulatory burden
- Regulators may want to develop a set of core performance reporting requirements

Reporting and Tracking

Example: Illinois Smart Grid Reporting Metrics

- **Reduction in greenhouse gas emissions**: Marginal emissions changes due to load shifting for all smart meter load at an hourly level:

  Hourly Marginal Emissions = ([Current Year Hourly Smart Meter Load/customer] – [Previous Year Hourly Smart Meter Load/customer]) * [Hourly Marginal Emissions Rate] * Smart Meter customers

- **Load served by distributed resources**: % of annual zonal electric load provided by DG
- **Time required to connect distributed resources to grid**: Time to respond to a project application, and time from receipt of application until energy flows from project to grid
- **Peak load reductions** (enabled by demand response): MW and percent of peak load reduced
- **Products with grid interoperability** (retail product market animation): Number of AMI meters with consumer devices registered to operate with the Home Area Network chip
- **Time-varying rate enrollments** (e.g., peak time rebates)**:** Number and % of customers
- **System load factor:** Average load divided by peak load

Core reporting and tracking requirements

Each state could consider a core set of performance aspects to monitor.

The set of core performance areas could be set by each state, depending upon the performance issues facing that state.

For example:

- Reliability
- Capital, fuel and O&M Costs
- Customer satisfaction
- Compliance with environmental regulations and demands (e.g., carbon, EPA regulations, water consumption)
- Overall system efficiency (e.g., system load factor, T&D losses, use per customer)

Preliminary Regulatory Guidance

Implementation Steps

Regulators can take incremental steps, depending upon their state's needs.

1. Articulate context and regulatory goals:
   - Are there goals that are not being met?
   - Is the context changing?
   - Does the utility need to respond to changes?
2. Identify core performance areas to track
3. Tracking and reporting
4. Identify areas of performance that warrant PIMs
5. Set performance targets
6. Establish penalties and rewards
7. Monitor, revise, improve

PIM Design Principles

1. Reflect state energy policy goals
2. Recognize incentives already provided by existing (or new) regulatory framework
3. Address areas of utility performance that
   - have not been satisfactory, or
   - are not adequately addressed by current regulatory incentives
4. Based on clearly-defined goals and activities that can be adequately monitored, quantified and verified
5. Apply PIMs only to activities where the utility plays a distinct and clear role in bringing about the desired outcome
6. Avoid multiple, cross-purpose incentives
7. Sufficient rewards/penalties to capture attention of utility management, without being excessive in relation to the outcome

Soliciting Your Input

- What kind of regulatory guidance would be most useful?
- What aspect of PIMs requires additional discussion or elaboration?
  - Tracking and reporting
  - Policy goals
  - Targets
  - Measurement and data requirements
  - Financial incentives
- Is your state more concerned about:
  - traditional aspects of performance (operations, costs, reliability), or
  - aspects of performance related to current and future challenges?

Contact

Tim Woof and Melissa Whited
Synapse Energy Economics

617-661-3248
twoolf@synapse-energy.com
mwhited@synapse-energy.com

About Synapse Energy Economics

- Synapse Energy Economics is a research and consulting firm specializing in energy, economic, and environmental topics. Since its inception in 1996, Synapse has grown to become a leader in providing rigorous analysis of the electric power sector for public interest and governmental clients.
- Staff of 30+ experts
- Located in Cambridge, Massachusetts