



# NARUC Center for Partnerships & Innovation Webinar Series

## Lessons Learned in Applying Performance Incentive Mechanisms

### Moderator:

- **Commissioner Marion Gold**, Rhode Island Public Utility Commission

### Speakers:

- **Peter Cappers**, Lawrence Berkeley National Laboratory
- **Commissioner Abigail Anthony**, Rhode Island Public Utility Commission



# Data and Scorecards and PIMs – Oh My!

## *Ways to Drive Utility Performance Improvements*

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Peter Cappers  
Electricity Markets and Policy Group

NARUC Center for Partnership & Innovation Webinar Series  
April 11, 2019



# Cost of Service Regulation

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- Cost of service regulation focuses a utility on delivering safe and reliable electricity at least cost
  - ▣ Regulatory lag and infrequent rate cases push utility's to contain costs (i.e., improve efficiency)
  - ▣ “Used and useful” determinations by regulators will restrict utility efforts to pursue unconstrained capital expenditures, which would grow ratebase and thereby increase utility earnings opportunities (i.e., ensure prudent investment)

# Assessing Utility Performance vis-à-vis Goals

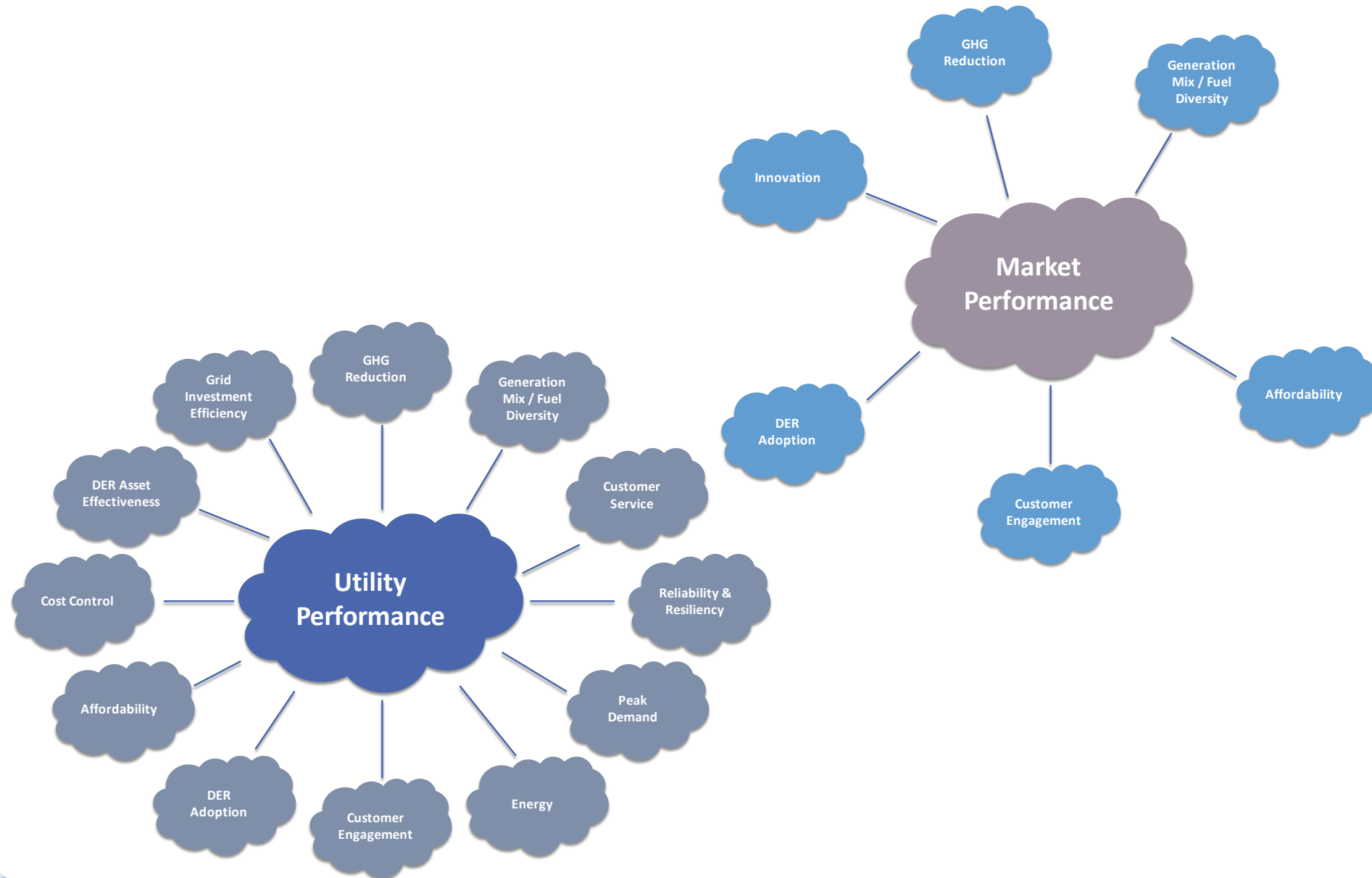




# Opportunity for Misalignment of Utility Performance Goals between Utility and Regulators



# Assessing Utility & Broader Market Performance



# Goal-Outcome-Metric Hierarchy

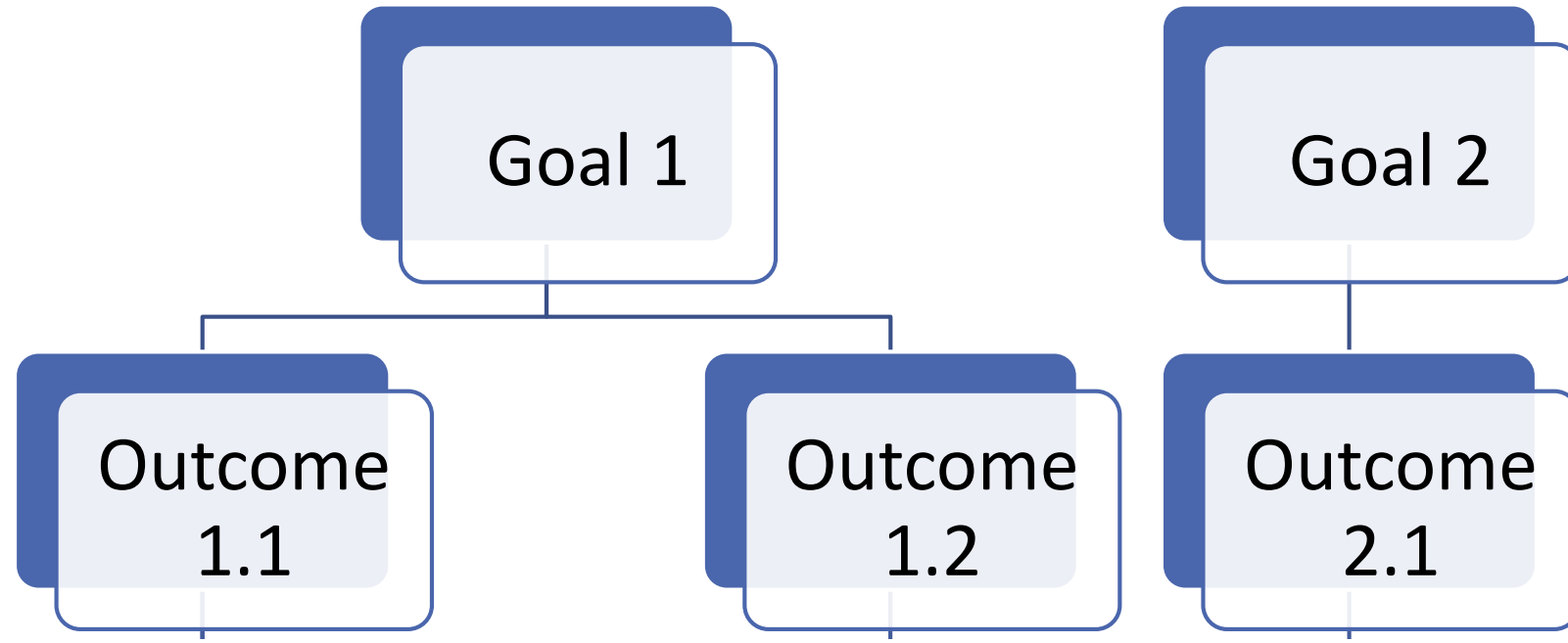
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Source: HPUC (2018). Order No. 3552 in Docket No. 2018-0088

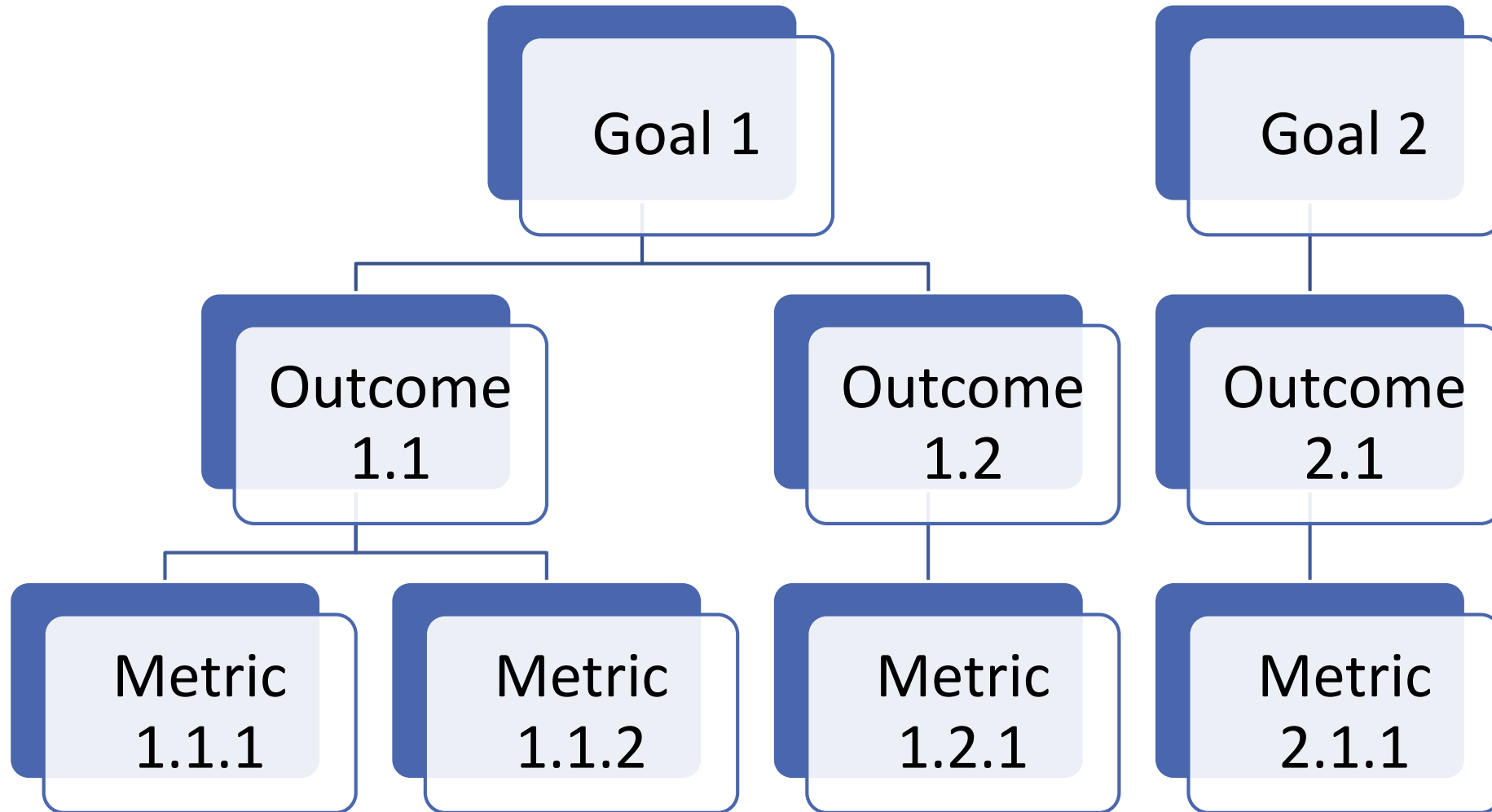
# Goal-Outcome-Metric Hierarchy

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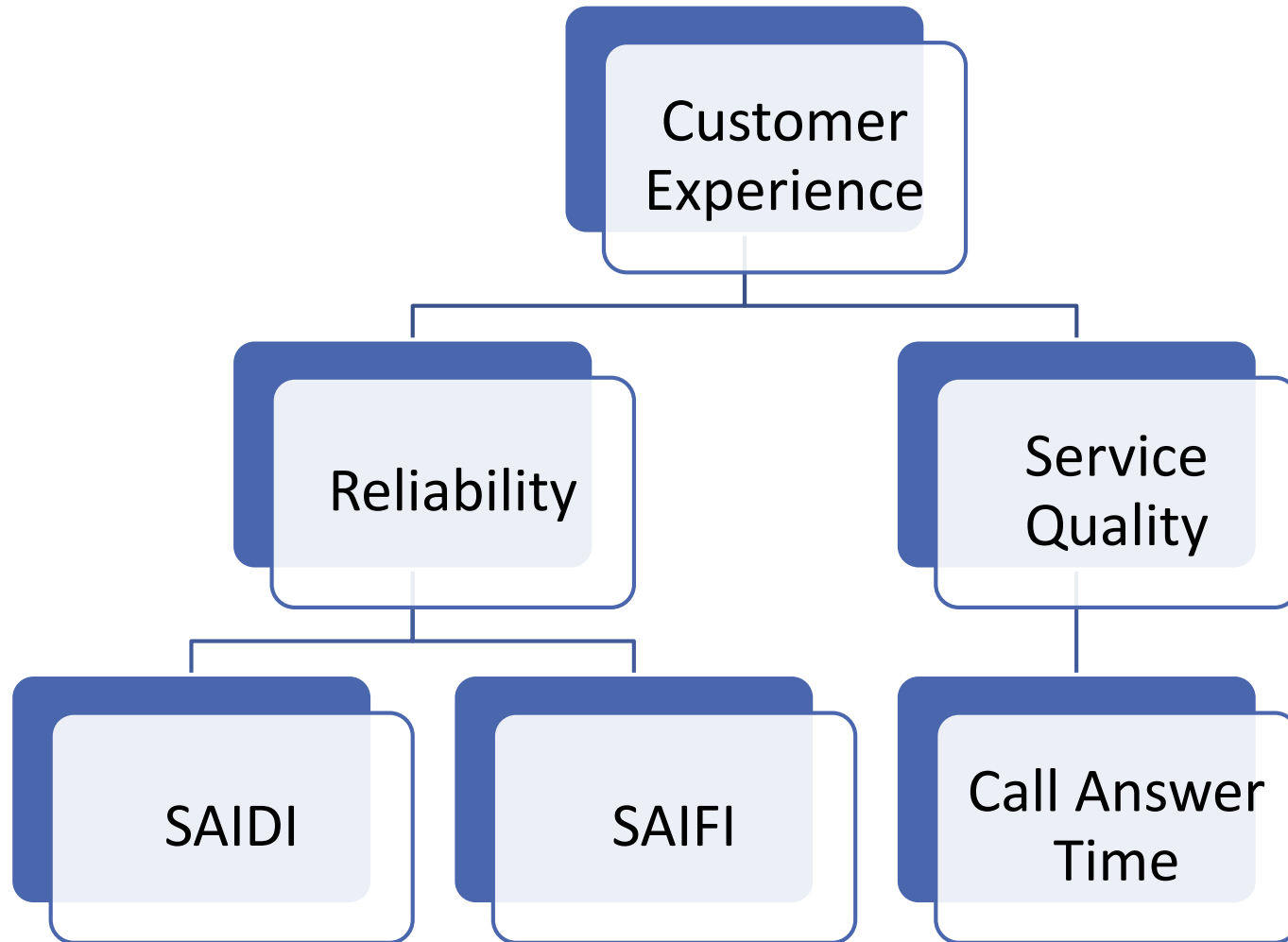
Source: HPUC (2018). Order No. 3552 in Docket No. 2018-0088

# Goal-Outcome-Metric Hierarchy



Source: HPUC (2018). Order No. 3552 in Docket No. 2018-0088

# Goal-Outcome-Metric Hierarchy



Source: HPUC (2018). Order No. 3552 in Docket No. 2018-0088

# Types of Metrics – Program-Based

Focused on a specific utility outcome through a particular program or initiative, especially those that have been reviewed and approved by regulators

- Appropriate when a specific policy outcome and a specific approved means of achieving that outcome have been identified
- Examples include: DR programs, EE programs, Electric vehicle initiatives, storage, DG initiatives

Source: Synapse (2018). Earnings Adjustment Mechanisms to Support New York REV Goals: Outcome-Based, Program-Based, and Action-Based Options

# Types of Metrics – Action-Based

Focused on specific utility actions/activities but does not measure the broader impacts of those actions or the extent to which those actions lead to desired outcomes

- Appropriate when a utility activity/action is deemed important for achieving broader policy objectives or during transition periods; but outcome of that action may be uncertain or outside of utility's direct control
- Examples include: timeliness of interconnected DG; installation of EV charging stations; provision of third-party and customer access to information

Source: Synapse (2018). Earnings Adjustment Mechanisms to Support New York REV Goals: Outcome-Based, Program-Based, and Action-Based Options



# Types of Metrics – Outcome-Based

Focused on a specific utility outcome for which utility can pursue as it sees fit within some pre-determined regulatory conditions

- Appropriate for measuring specific, high-level outcomes where it is acceptable that it may be difficult to determine whether the outcome was the result of utility actions
- Examples include: Peak demand, Customer energy intensity, Carbon emissions, T&D losses

Source: Synapse (2018). Earnings Adjustment Mechanisms to Support New York REV Goals: Outcome-Based, Program-Based, and Action-Based Options

# Use of Metrics to Explicitly Drive Utility Performance

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- Metrics are developed to provide insight into utility performance on specific outcomes



Data Reporting

# Use of Metrics to Explicitly Drive Utility Performance

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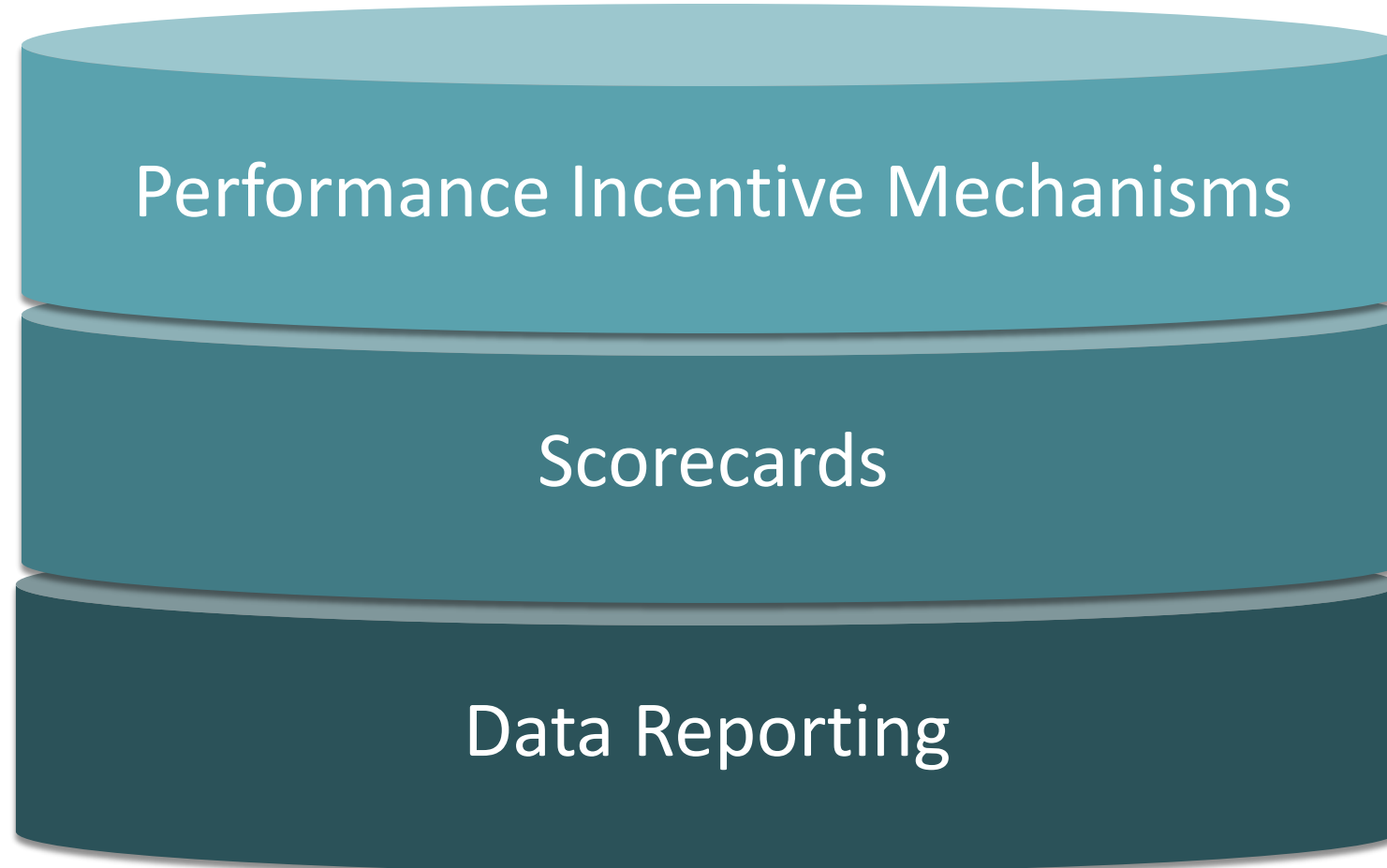
- Metrics are developed to assess utility performance relative to targets on specific outcomes



# Use of Metrics to Explicitly Drive Utility Performance

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- Metrics are developed to financially reward/penalize utility performance relative to targets on specific outcomes



# New York *REV Initiative (NGrid Proposed)*

- Peak Demand Reduction
- DER Utilization
- Incremental EE
- LED Street Lighting
- Energy Intensity
- Beneficial Electrification

Performance Incentive Mechanisms

- Carbon Reduction
- Resiliency
- SIR Timeliness
- Average Cost per Interconnection
- Interconnection Cost Variance
- Voluntary TOU Participation by EV Drivers

Scorecards

Data Reporting

# Hawaii PBR Proceeding (Staff Proposal)

- Reliability
- Interconnection Experience
- Customer Engagement
- DER Asset Effectiveness

Performance Incentive Mechanisms

- GHG Reduction
- Cost Control
- Customer Engagement
- Interconnection Experience

Scorecards

- Affordability
- Transport Electrification
- Capital Formation
- Resilience
- Customer Equity

Data Reporting

# PIM Design Considerations

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- Set a Quantitative Standard of Performance
  - ▣ Targets and any associated financial incentives should focus only on **promoting achievement of superior performance or penalizing poor performance**
- Designed to reflect some sharing of net benefits
  - ▣ An **assessment of net benefits** is required to set **an upper limit on the value of the PIM**, and then parties can debate about appropriate **sharing % between ratepayers and utility shareholders**
- Minimize “double recovery” of PIMs that achieve the same or similar outcome
  - ▣ Care will need to be taken to ensure that **the design of PIMs are coordinated** so that multiple utility activities are **not double-counting the same benefits and receiving reward for the same outcome(s)**

## PIM Design Considerations (2)

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- Consider setting an overall cap on PIMs (e.g. 100 basis points)
  - ▣ **Limits overall risk to ratepayers** and may help manage concerns about **potential rate impacts and excessive earnings opportunities** for utilities
- Do not underestimate the challenges of designing and negotiating effective PIMs that motivate the desired improvements in utility performance
  - ▣ **Information asymmetry, limited time and resources, and lack of technical expertise** can put Commissions and Staff at a distinct disadvantage



# PIMs in Action – 2018 Results

## Central Hudson and Gas

Metric					EAM
	Min	Mid	Max	Achieved	Received
Peak Demand (MW)	1,091.00	1,083.00	1,072.00	1,193.00	\$0
DER Utilization (MWh)	4,837.00	5,522.00	6,207.00	1,067.00	\$0
Incremental Energy Efficiency (Net GWh)	53,262.00	63,658.00	79,102.00	81,965.00	\$487,500
Energy Intensity: Residential Sales/Customer	7.68	7.59	7.51	8.07	\$0
Energy Intensity: Commercial Sales/Customer	48.24	48.05	47.85	49.12	\$0
Residential VTOU Participation	1.51%	2.13%	2.74%	0.38%	\$0
Beneficial Electrification (MT CO2)	4,257.00	12,123.00	19,988.00	51,893.00	\$243,750
Interconnection	TBD	TBD	TBD	TBD	\$0
Total					\$731,250

PIMs represent  
1.4% contribution  
to earnings

Source: CHGE (2019). Annual Report on Electric and Gas EAMs. Cases 17-E-0459, 17-G-0460. Filed on March 1.

## National Grid

Metric					EAM
	Min	Mid	Max	Achieved	Received
Peak Demand (Net MW)	6,801.00	6,747.00	6,712.00	6,494.00	\$4,100,000
DER Utilization (MWh)	191,416.00	250,104.00	283,302.00	195,247.00	\$532,639
Incremental Energy Efficiency (Net GWh)	278,321.00	312,042.00	355,324.00	308,601.00	\$1,618,365
LED Street Lighting (MWh)	9,124.00	13,686.00	18,248.00	2,487.00	\$0
Energy Intensity: Residential Sales/Customer	0.80%	1.00%	1.22%	1.09%	\$1,571,529
Energy Intensity: Commercial Sales/Customer	0.86%	1.10%	1.34%	1.54%	\$2,400,000
Beneficial Electrification (MT CO2)	13,533.00	23,592.00	41,546.00	26,653.00	\$1,036,393
Total					\$11,258,926

PIMs represent  
6.4% contribution  
to earnings

Source: NGrid (2019). Annual Report on Electric and Gas EAMs. Cases 17-E-0238, 17-G-00239. Filed on March 1.

# Questions/Comments

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# **Recent Experience with Performance Incentives in Rhode Island**

**Abigail Anthony, Commissioner  
Rhode Island Public Utilities Commission  
April 11, 2019**

# **PURPOSE**

- **Describe power sector conditions in Rhode Island relevant to regulatory models.**
- **Describe recent experience evaluating performance incentive mechanisms proposed by the utility and parties.**
- **Explain current effort to provide clear regulatory guidance on performance incentive mechanisms.**

# **Conditions in RI Power Sector**

- **Effectively one electric & gas utility**
- **Restructured with full access to competitive electric supply**
- **Decoupled revenue from sales**
- **Aggressive clean energy targets and GHG goals**
- **Least cost procurement and cost-effectiveness in statutes and PUC policy**
- **“Pre-modern” grid**
- **No universal policy on performance incentives**
- **No policy statement on the role or need for performance regulation**

# **Example Incentives in RI**

## ***(Other than ROE)***

### **Energy Efficiency**

- **Annual incentives since at least the 1990s**
- **Current EE incentives are based on savings**

### **Service Penalties**

- **SAIDI**
- **SAIFI**
- **Customer Service**

# **Example Incentives in RI**

## ***(Other than ROE)***

### **Long-term Renewable Energy Contracts**

- **“Remuneration” set in statute**
- **2.75% of cost of contract payments up to statutory MW target**

### **Feed-in Tariff**

- **1.75% of cost of tariff payments**
- **Effectively automatic unless PUC sets performance requirements**

### **Distributed Generation Interconnection**

- **Shareholders pay damages, if awarded by court**
- **Up to combined value of remuneration in given year**



# **EE Performance Incentive Policy**

**PUC's Least-Cost Procurement Standards provide some guidance on purpose and design of PIMs for energy efficiency and demand side management:**

- Clear objectives for the company**
- Clear and focused metrics,**
- Do not duplicate incentives**
- Do not provide multiple incentives for attaining the same objective**
- Do not provide different incentives for attaining the same goal**

# **Recent Performance Incentive Policy**

## **National Grid-Proposed Performance Standards for Feed-in Tariff**

- **A combination of three metrics**
- **For “Simple” interconnections, 90% of accounts have:**
  - **Meter sets within 10 days of proof of electrical inspection**
  - **First bill within 45 days of meter set**
- **For “Complex” interconnections, 90% of accounts have first bill within 60 days of meter set**

# **Recent Performance Incentive Policy**

## **National Grid-Proposed Performance Standards for Feed-in Tariff**

- **Rejected unanimously by PUC**
- **PUC, in part, applied Least-Cost Procurement incentive principles**
- **National Grid was already meeting the target metric**
- **Expected no new challenge to continue to meet target**
- **Achievement was not a clear benefit to customers**
- **It was not shown customers would get most of the benefit**

# **Rate Case and Power Sector Transformation**

- **National Grid filed a distribution rate case in November 2017**
- **Also filed a Power Sector Transformation (PST) initiative**
  - **Grid modernization investments**
  - **Vehicle & heating electrification programs**
  - **Performance incentive metrics (PIMs)**
- **PST application was relatively high-level, details to be provided in annual filings.**

# Rate Case and PST Initial Proposal

- Max. basis points
- 1 BP was approx. \$60k

Category and Supporting Metrics		2019	2020	2021
<b>System Efficiency</b>		<b>23.5</b>	<b>23.5</b>	<b>23.5</b>
Monthly Transmission Peak Demand Reduction		3	3	3
Forward Capacity Market Peak Demand Reduction		18	18	18
EV Off-Peak Charging Rebate Participation		2.5	2.5	2.5
<b>Distributed Energy Resources</b>		<b>29.5</b>	<b>29.5</b>	<b>29.5</b>
DG-Friendly Substation Transformers		10	10	10
DR -- Connected Solutions Participation		5	5	5
DR -- C&I Participation		5	5	5
Electric Heat Initiative		2	2	2
Electric Vehicles		3.5	3.5	3.5
Behind-the-Meter Storage		2	2	2
Utility-Owned Storage		2	2	2
<b>Network Support Services</b>		<b>22</b>	<b>22</b>	<b>22</b>
VVO Pilot Impacts		2	2	2
AMF Customer Engagement and Deployment		2	2	2
Interconnection -- Time to ISA		6	6	6
Interconnection -- Avg days to system modification		6	6	6
Interconnection -- Estimated vs actual costs		6	6	6
<b>Total</b>		<b>75</b>	<b>75</b>	<b>75</b>

# **Rate Case and Power Sector Transformation Settlement**

- **Unanimous settlement agreement filed with PUC**
  - **Three years of rates to fund O&M, and PST investments**
    - **Grid modernization**
    - **Vehicle & heat electrification**
    - **Distributed generation, storage investments**
- **PIMs**
- **Earnings sharing mechanism aimed at PBR**



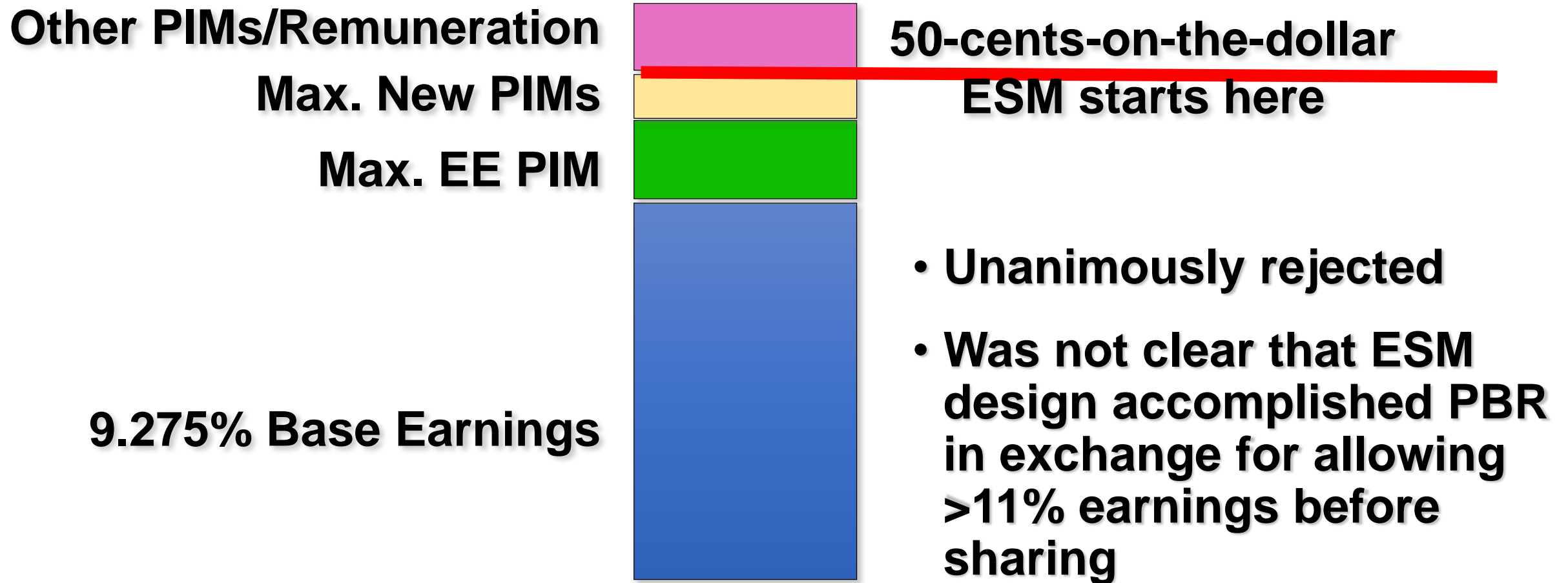
# Rate Case and PST Settlement Agreement

Category and Supporting Metrics	Maximum Annual Earnings Opportunity (\$1,000)		
	2019	2020	2021
<b>System Efficiency</b>	<b>\$456</b>	<b>\$717</b>	<b>\$1,039</b>
Annual MW Capacity Savings	\$456	\$717	\$1,039
<b>Distributed Energy Resources</b>	<b>\$694</b>	<b>\$815</b>	<b>\$998</b>
Installed Energy Storage Capacity	\$139	\$139	\$148
CO2: Electric Vehicles	\$276	\$367	\$497
Light Duty Government and Commercial Fleet Electrification	\$92	\$122	\$166
CO2: Electric Heat	\$187	\$187	\$187
<b>PST Enablement</b>	<b>\$282</b>	<b>\$283</b>	<b>\$189</b>
Activated Apartment Building and Disadvantaged Community EVSE	\$94	\$94	\$0
Interconnection -- Time to ISA	\$188	\$189	\$189
<b>Total</b>	<b>\$1,432</b>	<b>\$1,815</b>	<b>\$2,227</b>

- Also included a separate capital efficiency incentive (reward or penalty)
- 1 Basis point was approx. \$47k

# **Rate Case and PST Settlement Agreement**

## ***Earnings Sharing Mechanism***





# Rate Case and PST Settlement Agreement

Category and Supporting Metrics		Maximum Annual Earnings Opportunity (\$1,000)		
		2019	2020	2021
System Efficiency		\$456	\$717	\$1,039
Annual MW Capacity Savings	Approved with modifications	\$456	\$717	\$1,039
Distributed Energy Resources		\$694	\$815	\$998
<del>Installed Energy Storage Capacity</del>	Tracking only	\$139	\$139	\$148
<del>CO2: Electric Vehicles</del>		\$276	\$367	\$497
<del>Light Duty Government and Commercial Fleet Electrification</del>		\$92	\$122	\$166
<del>CO2: Electric Heat</del>	Program rejected	\$187	\$187	\$187
PST Enablement		\$282	\$283	\$189
<del>Activated Apartment Building and Disadvantaged Community EVSE</del>		\$94	\$94	\$0
<del>Interconnection – Time to ISA</del>		\$188	\$189	\$189
Total		\$1,432	\$1,815	\$2,227

- ~~Also included a separate capital efficiency incentive (reward or penalty)~~ Moved to consider in separate docket
- Votes were unanimous

# **Observations from Evaluating PIMs**

**Some common problems with PIM proposals**

- Commission cannot compare the costs and benefits of the proposal.**
- Financial rewards based on assumptions about unquantified benefits.**
- Incentive for action or outcome already exists.**
- PIM design does not hold the utility accountable to any outcome.**
- Connection between utility actions and metric unclear.**

# Example

- **Proposal to reward the Company with 2% of the System Reliability Procurement Plan budget for identifying areas where large non-EV public transportation fleets are located.**
- **Benefits described as promoting the availability of distribution grid information for DER stakeholders.**
- **No identified quantitative benefits, no effort to quantify the benefit or value of the information the Company proposed to make available.**
- **If the Company cannot or does not demonstrate why the information is valuable, how can the Commission determine that it is worth rewarding the utility for providing it?**

# **Observations from Evaluating PIMs**

- **Need for clear, complete, consolidated guidance on Commission's policy for the appropriate use and design of PIMs.**
- **Draft guiding principles to support stakeholders' development of PIMs, and Commission's review of PIMs.**
- **Holding utility accountable to grid modernization/AMF benefits; risk sharing for pre-approved spending.**
- **Wide applicability (water, gas, electric, etc.)**

# **Cm. Anthony's Proposed Principles on PIMs**

- **PRINCIPLE 1**: A performance incentive mechanism can be considered when the utility lacks an incentive (or has a disincentive) to better align utility performance with the public interest and there is evidence of underperformance or evidence that improved performance will deliver incremental benefits.
- **PRINCIPLE 2**: Incentives should be designed to enable a comparison of the cost of achieving the target to the potential quantifiable and cash benefits.
- **PRINCIPLE 3**: Incentives should be designed to maximize customers' share of total quantifiable, verifiable net benefits. Consideration will be given to the inherent risks and fairness of allocation of both cash and non-cash system, customer, and societal benefits.

# **Cm. Anthony's Proposed Principles on PIMs**

- **PRINCIPLE 4**: An incentive should offer the utility no more than necessary to align utility performance with the public interest.
- **PRINCIPLE 5**: The utility should be offered the same incentive for the same benefit. No action should be rewarded more than an alternative action that produces the same benefit.

Full document available:

<http://www.ripuc.org/eventsactions/docket/Open%20Meeting%20Notice%203-18-19.pdf>

# **Next Steps**

- **Seek stakeholder input.**
- **Work towards Guidance Document on PIMs.**
- **Consider earnings sharing mechanism for capital investment.**



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# Upcoming CPI Webinars

## Thursdays, 3-4pm ET / 12-1pm PT

**May 16, 2019: Lessons Learned in Performance Incentive Mechanisms**

**June 13, 2019: All Hands on Deck: Cooperation among Regulators, Utilities, and State Agencies during Emergencies**

**July 11, 2019: The 411: Cybersecurity Fundamentals that Drive Infrastructure Resilience**

Register at: [www.naruc.org/cpi](http://www.naruc.org/cpi)

