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Incentive-Based Regulation: Tools and Best Practices

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Overview

Traditional utility regulation and the need for reform

Performance-based regulation (PBR) tools and best practices

PBR processes

PBR on-the-ground

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Traditional utility regulation and the need for reform

- *Cost-of-service regulation (COSR)*
- *The problems with COSR*
- *Why we need utility business model reform*

Traditionally, utilities have been compensated under a "cost-of-service" regulation (COSR) model

Steps in the rate-setting process under traditional COSR:

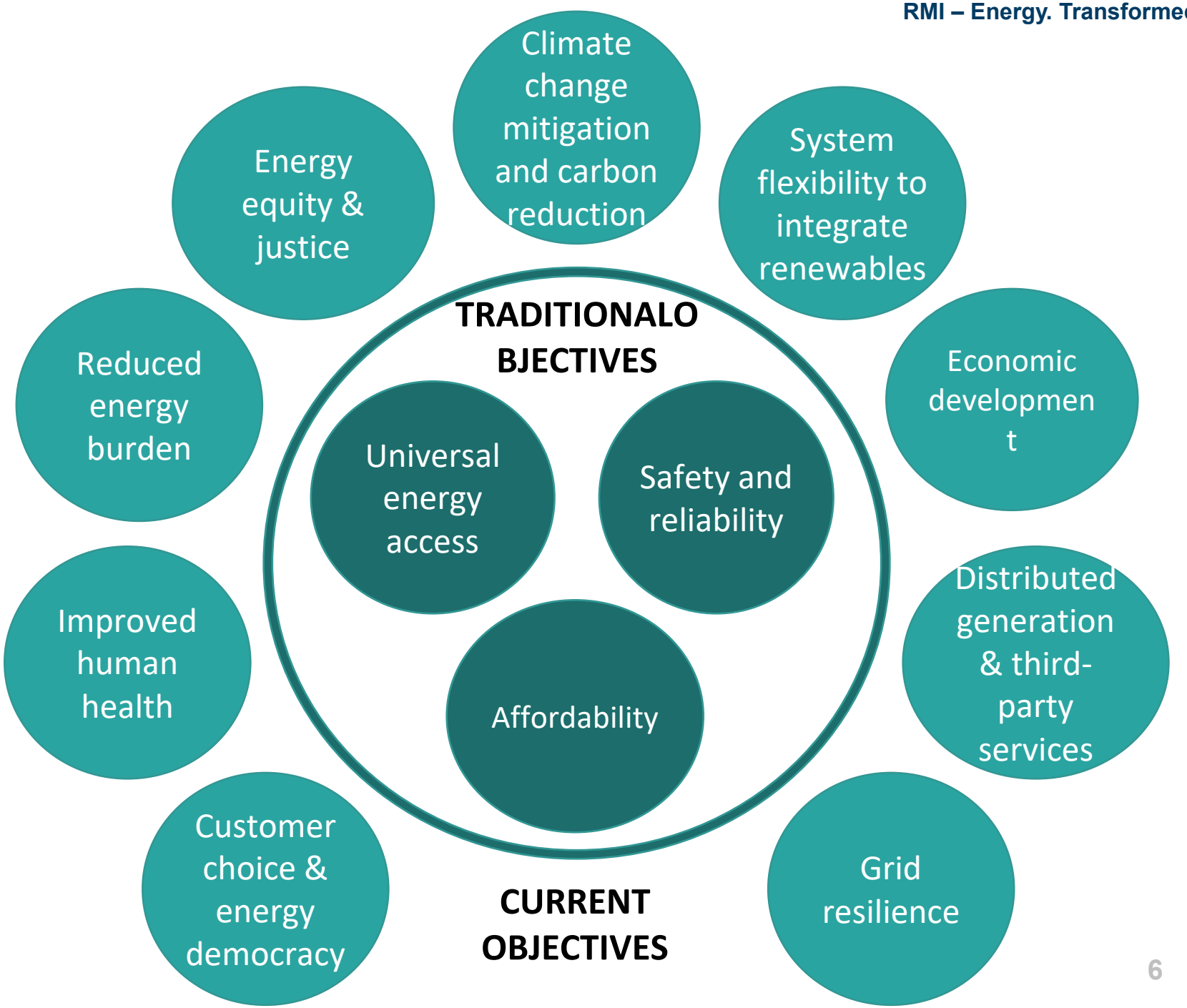
1. The utility files an application to raise rates, and the PUC opens a rate case.*
2. The PUC determines the utility's revenue requirement.

Revenue Requirement	=	Rate Base	x	Rate of Return (ROR)	+	Operating Expenses, Depreciation, and Taxes

1. The PUC sets customer electric rates to recover the revenue requirement based on expected sales.
2. When rates become insufficient to recover costs (e.g., due to inflation, customer growth, etc.), the cycle repeats.

** Since utilities operate as for-profit monopolies, the rates they charge customers are set through regulation, rather than market-based competition. This means that utilities must receive regulatory approval to raise their rates when their costs increase. In setting rates, regulators generally seek to stimulate outcomes that would naturally occur in a competitive environment, rather than provide guaranteed returns with zero risk.*

To meet 21st-century needs, utility regulation must evolve beyond COSR



Cost-of-service regulation (COSR) was invented to meet the policy goals of the early 20th century — but policy goals have evolved

Early 20th Century	Today
Expand utility systems to new customers	Operate existing systems cost-efficiently
Encourage greater energy usage	Encourage less energy usage
Take advantage of economies of scale by building large, utility-owned plants	Take advantage of distributed resources owned by third parties and customers
Move electricity efficiently from large, centralized plants to end-use customers	Foster innovation to adapt to technological advances and new customer expectations
Expand the use of cheap fossil fuels	Reduce the use of polluting fossil fuels

COSR creates perverse incentives that run counter to the goal of an affordable clean energy transition

GOLD PLATING refers to the utility's incentive to overinvest in capital projects to earn a higher return, which can **undermine affordability.**

CAPEX BIAS creates a utility preference for capital-intensive projects (e.g., large power plants) **over solutions funded through operating expenses, which may be less expensive.**

The **THROUGHPUT INCENTIVE** motivates the utility to increase its "throughput," or sales, to increase its revenue. This can come at **the expense of cheaper, grid-balancing resources like energy efficiency (EE) and demand flexibility.**

RESISTANCE TO THIRD-PARTY AND CUSTOMER-OWNED SOLUTIONS, driven by the utility's preference for asset ownership and the associated returns, can undermine **cost-effectiveness, distributed generation and storage,** and the **equitable distribution of benefits.**

So, what is PBR and incentive-based regulation?

Alternative Regulation (Altreg)

Altreg is an umbrella term for alternatives to COSR. Altreg includes PBR, but also other regulatory alternatives not focused on improving utility incentives.

Performance-Based Regulation (PBR)

- PBR is a regulatory approach that seeks to align utility incentives with the interests of customers and society.
- It does this by compensating utilities based on their performance against target outcomes rather than just costs — and by removing perverse incentives created by traditional cost-of-service regulations.
- It is a collection of tools, not a single thing.
- **Incentive regulation** is a regulatory approach that focuses on strengthening utility performance incentives – so this term is synonymous with PBR.

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PBR tools & best practices

- Revenue decoupling
- Multi-year rate plans
- Capex-opex equalization
- Performance metrics & scorecards
- Performance incentive mechanisms
- Opportunities & challenges

Revenue decoupling removes the throughput incentive and improves revenue stability

What is it?

Revenue decoupling delinks revenues from sales.

When we use this term, we specifically mean a **"Revenue Decoupling Mechanism" (RDM).** An RDM involves three steps:

1. Determine the allowed revenue.
2. Compare it to the actual revenue collected from customers.
3. Make an adjustment to "true up" the difference.

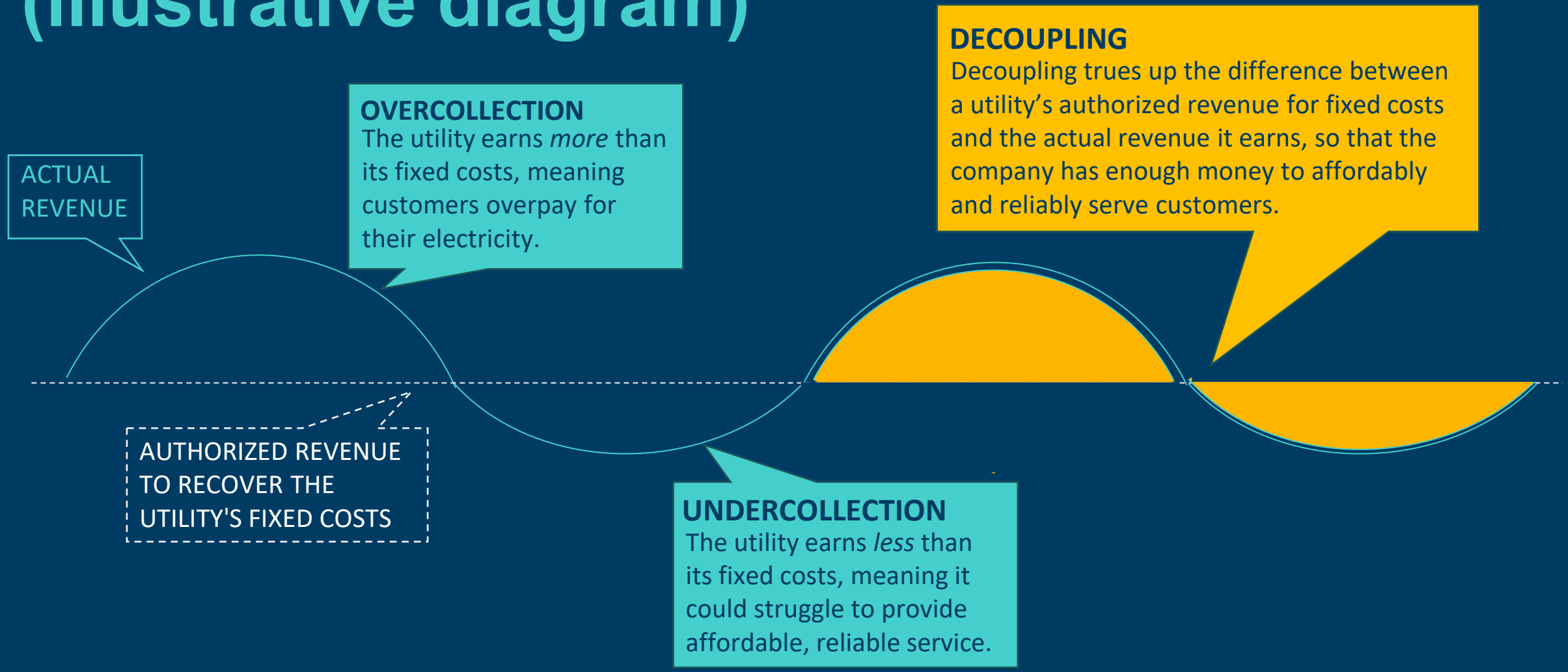
Key Benefits

- Removes the throughput incentive
- Increases utility revenue stability
- Increases confidence in sales forecasts
- Excess revenues are returned to customers between rate cases

Key Drawbacks

- Reduces the earnings opportunities associated with beneficial electrification, which could mean additional tools (e.g., performance incentive mechanisms) may be needed to motivate the utility

How revenue decoupling works in practice (illustrative diagram)



Adapted from *Fresh Energy, "Strategic electrification and revenue decoupling: different purpose, same goal,"* [*https://fresh-energy.org/strategic-electrification-and-revenue-decoupling-different-purpose-same-goal*](https://fresh-energy.org/strategic-electrification-and-revenue-decoupling-different-purpose-same-goal).

PBR TOOL

Multi-year rate plans (MYRPs) incent cost containment

What are they?

MYRPs set the utility's revenue requirement and base rates for more than one year. They usually include:

1. A **rate-case moratorium**
2. A **mechanism that adjusts revenues** over time to reflect changing costs.

When the mechanism adjusts revenues, it is known as a **"revenue cap."** This adjustment can be based on forecasts, an index-based formula, or a hybrid.

Key Benefits

- Encourage cost efficiency
- Reduce the number of rate cases

Key Drawbacks

- MYRP proceedings can be complex and contentious (stakeholder process matters)
- Fewer opportunities to correct course (this can be partly addressed through an off-ramp)
- Near an MYRP's end its cost-efficiency incentives tend to weaken (an efficiency carryover mechanism can address this)
- Layered on cost trackers have the potential to undermine cost-efficiency incentives

Capex-opex equalization reduces capex bias

What is It?

Capex-opex equalization includes a range of strategies to reduce or eliminate capex bias.

Examples include:

- **Opex capitalization,** where a category of opex is amortized and the utility earns a return on it.
- **Performance incentive mechanisms** that target particular categories of opex.
- An **Efficiency Carryover Mechanism (ECM) calibrated** to equalize the incentive to reduce capex and opex during an MYRP.
- Opex and capex can be pooled to form **totex.**

Key Benefits & Drawbacks

- Reduces or eliminates capex bias
- Narrow approaches are likely to be easier to implement and the consequences of getting them “wrong” more limited
- However, more comprehensive approaches can more thoroughly address capex bias, though they tend to be more complex and take longer to implement

Performance metrics and scorecards illuminate utility performance

What are they?

A **metric** is a specific, quantifiable measure used to assess a utility's performance in achieving a desired outcome.

A **scorecard** pairs reported metrics with performance targets.

Public data dashboards should be used to display utility performance against metrics and scorecards to help promote transparency.

Key Benefits

- Increase visibility and reduce information asymmetry
- The stakes for getting metrics and scorecards "wrong" are lower than for performance incentive mechanisms
- Can be used to gather baseline data for later PIMs

Key Drawbacks

- Do not involve financial incentives and thus may fail to drive desired improvements
- Collecting data involves some costs

Performance incentive mechanisms (PIMs) tie utility revenues to desired outcomes

What are they?

A PIM has three components: a metric, a target, and a financial incentive.

PIMs can be structured in many ways. For example:

- Failure to achieve a target triggers a penalty.
- An incremental incentive is applied over a range.
- The utility earns a share of estimated savings. This is known as a **shared-savings mechanism.**

PIMs should be designed to deliver **net benefits**, and rewards should not be larger than needed.

Key Benefits

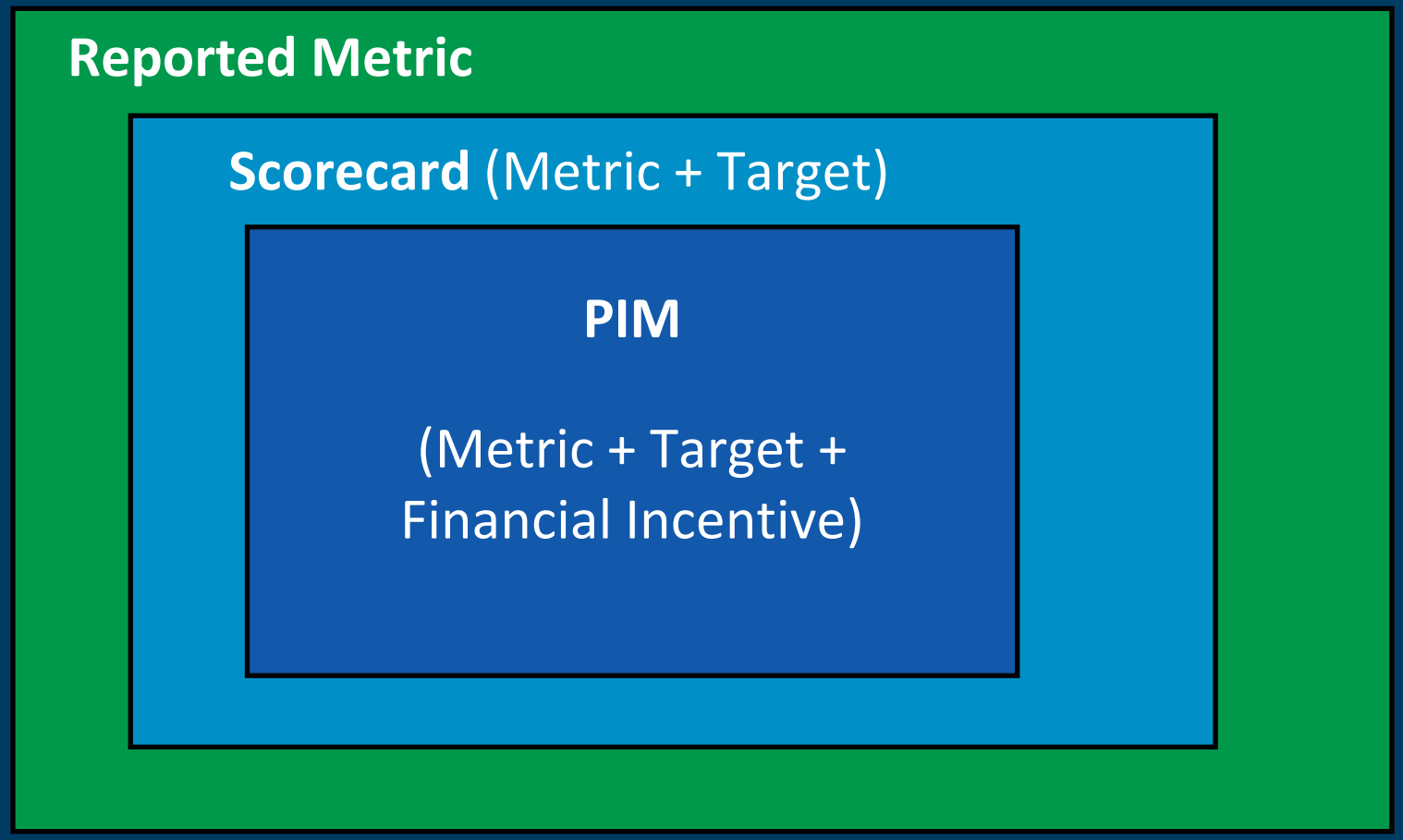
- Can be used to motivate improved performance in specific areas
- Can reduce information asymmetry

Key Drawbacks

- Getting PIMs “right” can be challenging, especially for emergent outcomes
- PIMs may interact with each other, and with other existing incentives
- PIM design can be contentious

Metrics, scorecards, and PIMs are closely related

Reported metrics, scorecards, and PIMs are designed to illuminate performance against a desired outcome.



Even though reported metrics and scorecards do not offer a direct financial incentive, they can create an implicit

For instance, utilities may feel motivated to improve their publicly reported performance, understanding its influence on their standing with customers, regulators, and shareholders. PIMs can provide both a financial and reputational incentive.

PBR tools: opportunities and challenges

	Strategic Opportunity	Things to Watch Out For
Revenue Decoupling	Reduces utility resistance to energy efficiency (EE) and distributed energy resources (DERs)	Reduces the incentive to pursue end-use electrification so other tools may be needed to incent utilities to pursue it
MYRPs	Cost containment helps keep rates affordable Can encourage utility adoption of cost-efficient clean energy and DERs Can be attractive to utilities	If poorly designed, can de-risk earnings, inflate profits, and fail to share efficiency gains with customers Can incent utilities to skimp on necessary costs
Capex-Opex Equalization		PIMs may be needed to incent utilities to focus on critical outcomes while pursuing cost containment
	Can encourage the adoption of	Narrow approaches can be easier

PBR tools: opportunities and challenges

	The Strategic Opportunity	Things to Watch Out For
Metrics & Scorecards	Increase visibility into utility performance Can create a baseline for later PIMs	Since no financial incentives are involved, may fail to motivate performance improvements on their own
PIMs	Focus utilities on specific outcomes (e.g., DER deployment, equity, etc.) Tying substantial revenue to PIMs could significantly realign utility incentives	PUCs may be wary of using PIMs to significantly realign incentives or drive emergent outcomes, given potential ratepayer impacts should the PIM not work as intended Utilities may get away with proposing unambitious targets

PBR processes

- Incremental vs. comprehensive PBR
- Goals, outcomes, and metrics

PBR can be seen as a spectrum from incremental to comprehensive reform

Incremental PBR

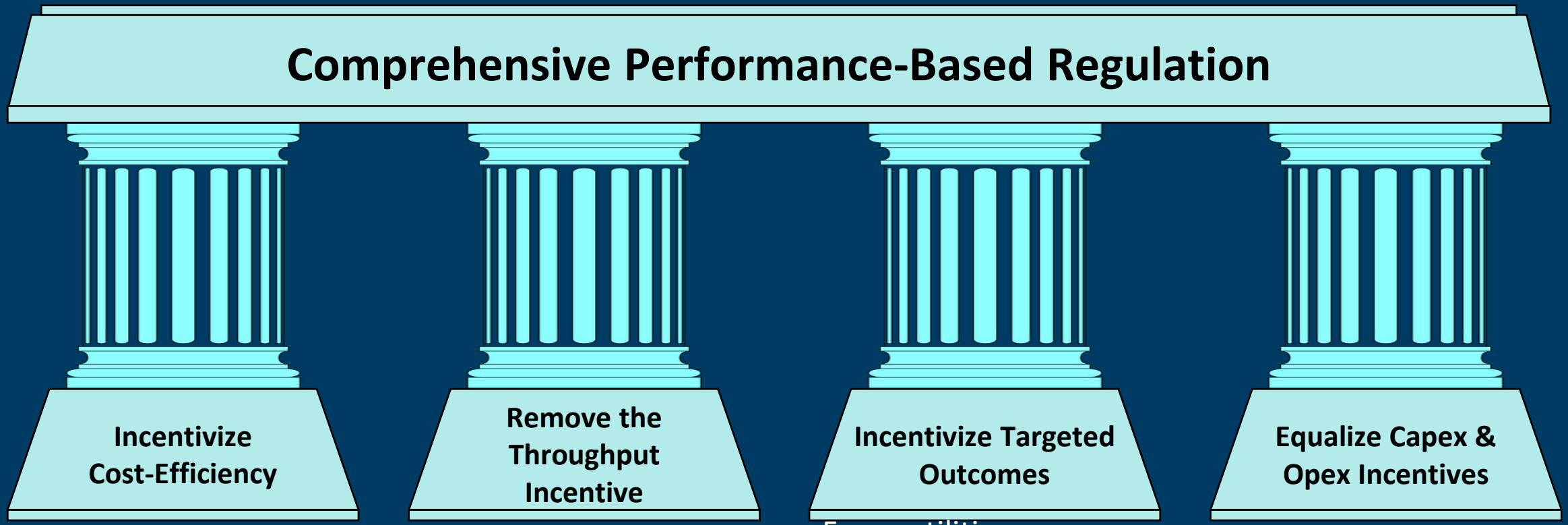
This involves "layering" certain PBR tools onto a traditional COSR-based framework

Comprehensive PBR

This approach fundamentally restructures the framework to improve the incentives it creates

- But what does "fundamentally restructuring" the regulatory framework *really* mean?
- Our "four pillars" model clarifies this.

Comprehensive PBR aims to do four main things



Encourage utilities to spend less money, which means lower costs for customers

Unlock utility investment in energy efficiency and other demand-side resources

Focus utilities on desired policy outcomes, such as renewable energy adoption, equity, resilience, and other emergent topics

Level the playing field between capex (e.g., power plants) and opex (e.g., non-wires alternatives), which can promote cost-effective solutions

Comprehensive PBR is the more robust reform option — but incremental PBR may also be helpful

Incremental PBR can help counteract the impact of perverse incentives that ultimately cost customers money and prevent clean energy and demand-side solutions.

- Incremental PBR is simpler, and typically takes less time to develop.

Comprehensive PBR can help to resolve the cause of the perverse incentives themselves, so the utility has a new, inherent motivation to control costs and invest in clean energy and customer resources.

- Comprehensive PBR is more complex, and can take a long time to develop.

The use of incremental PBR does not preclude the adoption of comprehensive PBR. Rather, learnings gleaned through an incremental PBR framework can help set the stage for more comprehensive PBR down the line.

To design an effective PBR framework, clear goals, outcomes, and metrics are critical

In developing a robust PBR framework, best practice indicates that regulators and stakeholders should first define overarching objectives and more tangible indicators to track progress toward those objectives.

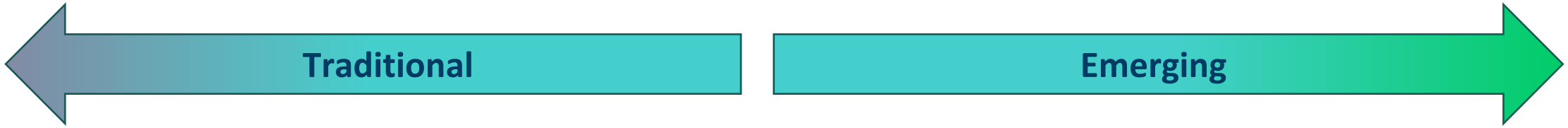
A **GOAL** is a high-level objective of regulation that identifies a desired change or end state, but which may be too broad to be directly measurable.

An **OUTCOME** is a concrete result that shows progress toward one or more goals. Outcomes are observable and measurable, though there may be multiple ways to measure them.

A **METRIC** is a specific, quantifiable measure used to track and assess progress toward an outcome.

- An **activity-based metric** tracks a utility action or intermediate step that is expected to lead to an outcome.
- A **program-based metric** tracks the progress of a utility program.
- An **outcome-based metric** tracks the outcome of interest.

There is a wide range of emergent outcomes that PBR can incentivize



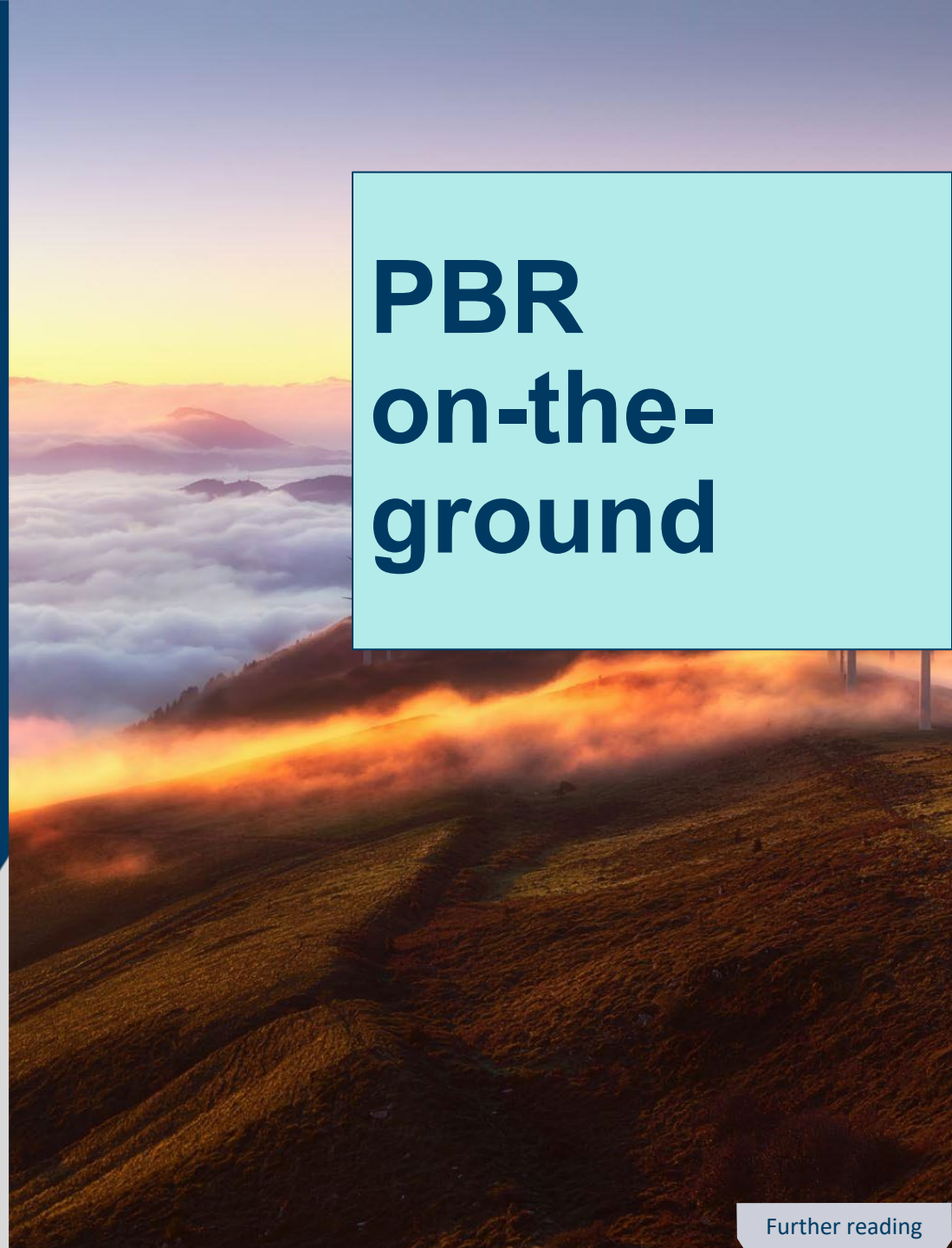
RMI's PIMs Database focuses on the following emergent outcomes:

Energy Efficiency
Renewables
DERs
Grid Modernization
Customer Satisfaction
Affordability
Resilience
Demand Flex
Interconnection Times
Pollution
Phone Hold Times
Reliability
Climate-Forward Efficiency*
Electrification
Safety
Line Losses
System Utilization
Customer Engagement
Equity
Electrification of Transportation
Reliability
Program Participation
Cost Control
GHGs

*Measured in terms of GHG reduction and/or explicitly connected to GHG policy goal

PBR on-the-ground

- Current landscape of PBR
- Performance mechanism examples

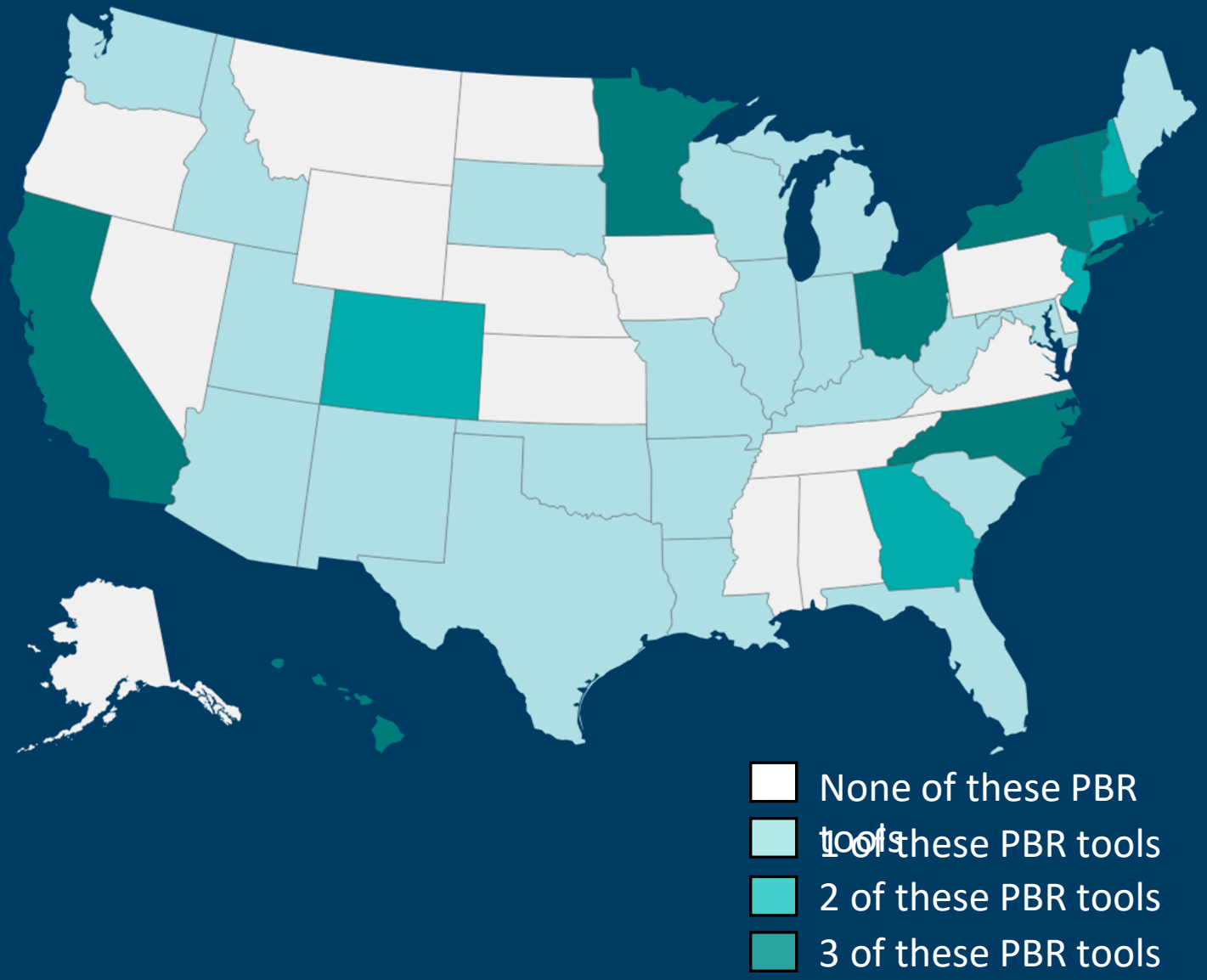


Further reading

States with PBR

The following map shows which states use decoupling, MYRPs, and PIMs; which states use two of these tools; and which states use just one tool.

Source: Mark Lowry, Performance-Based Regulation for Energy Utilities (October 2023), NARUC Regulatory Training Initiative



15+ states have adopted PIMs tied to emergent outcomes, such as equity, grid resilience, and demand flexibility

Hawaii

The Hawaii PUC adopted a portfolio of PIMs for Hawaiian Electric as part of its comprehensive PBR framework adopted in 2020. These include incentives tied to:

- Comprehensive cost control
- Faster DER interconnection
- Advanced metering infrastructure (AMI) utilization
- Energy efficiency for low-to-moderate income customers

New York

New York provides a great example of how PIMs can evolve over time. The New York PSC has approved a variety of PIMs for each utility in the state over the years, including:

- Greenhouse gas reduction
- DER interconnection and utilization
- Beneficial electrification

Illinois

The Illinois Commerce Commission adopted a portfolio of PIMs for ComEd and Ameren in 2022, which include:

- Reduction in utility disconnections
- Increased reliability, including in environmental justice communities
- Peak load reduction

Colorado

Colorado has adopted multiple PIMs for Xcel Energy to date. These include:

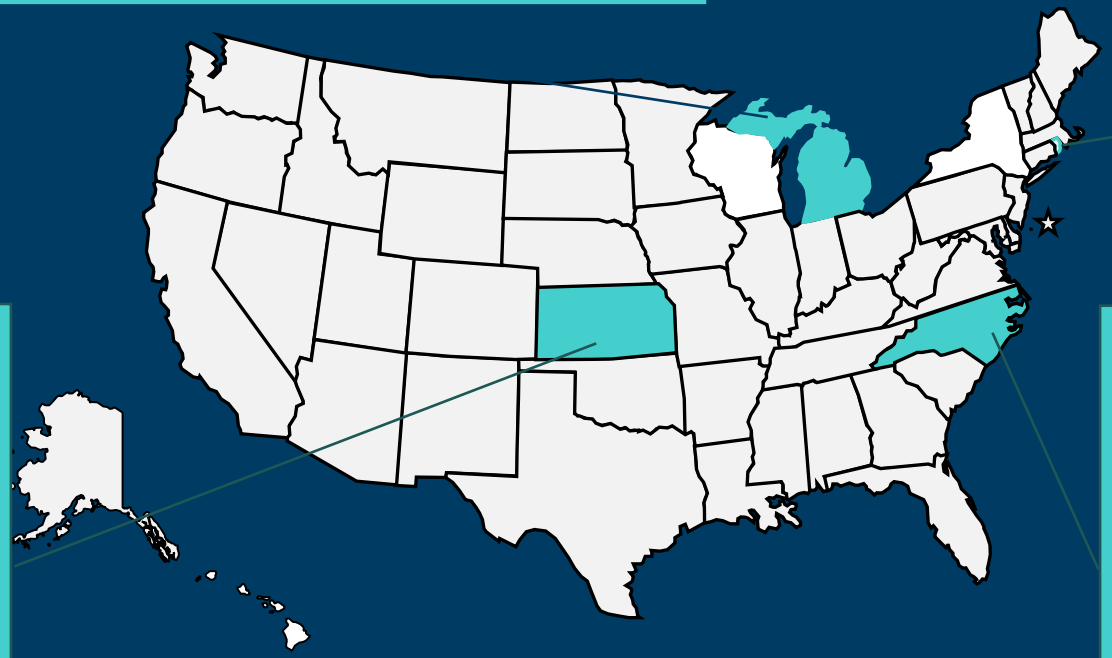
- Equitable transportation electrification
- Climate-forward demand-side management

Check out RMI's PIMs Database for more information on current PIM designs in the United States

More innovative PIMs examples

DTE & Consumers (MI)
DTE's upside-only PIM incentivizes MW peak load reductions past a target identified in the company's integrated resource plan ("IRP"), while Consumers' upside-only PIM incentivizes incremental MWs of demand response capacity growth

Rhode Island Energy (RI)
Upside-only PIM incentivized the company to achieve targeted MWs of annual peak capacity savings through customer programs and non-wires alternatives ("NWA")



Evergy (KS)
A symmetrical PIM incentivizes the company to increase the capacity factor (%) for the Western Plains Wind Farm relative to a target to ensure ratepayer savings from utility ownership

Duke Energy Progress (NC)
Upside-only PIM with multiple metrics incentivizes the company to increase: (1) the total number of net metering projects; (2) commercial & industrial customer renewable program capacity; and (3) utility-scale renewable resources each year

Hawaii's portfolio of diverse performance mechanisms

Goals	Outcomes	Examples of Metrics, Scorecards, and PIMs
Enhance Customer Service	Affordability	- Payment Arrangement metric - Disconnections metric
	Reliability	- Transmission & Distribution (T&D) System Average Interruption Duration Index (SAIDI) PIM - Generation System Average Interruption Frequency Index (SAIFI) PIM
	Interconnection Experience	- Interconnection Approval PIM - Independent Power Producer (IPP) Interconnection scorecard
	Customer Engagement	- Advanced Metering Infrastructure (AMI) Utilization PIM - Program Participation scorecard
Improve Utility Performance	Cost Control	- Collective SSM - Rate Base per Customer metric
	DER Asset Effectiveness	- Grid Service PIM - DER Grid Service Utilization metric
	Grid Investment Efficiency	- Avoided T&D Investment metric - Non-Wires Alternatives Total Cost metric
Advance Societal Outcomes	Capital Formation	- Credit Ratings metric - Third-Party Generation metric
	Customer Equity	- LMI Energy Efficiency PIM - LMI Program Participation metric
	GHG Reduction	- RPS-A PIM - GHG Emissions scorecard
	Electrification of Transportation	- Fleet Electrification scorecard - Measured Electric Vehicles (EV) Load scorecard
	Resilience	- Critical Load metric - Emergency Response Training metric

Thank you!

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