Leveraging PBR to Build a More Affordable, Reliable, and Equitable Energy System

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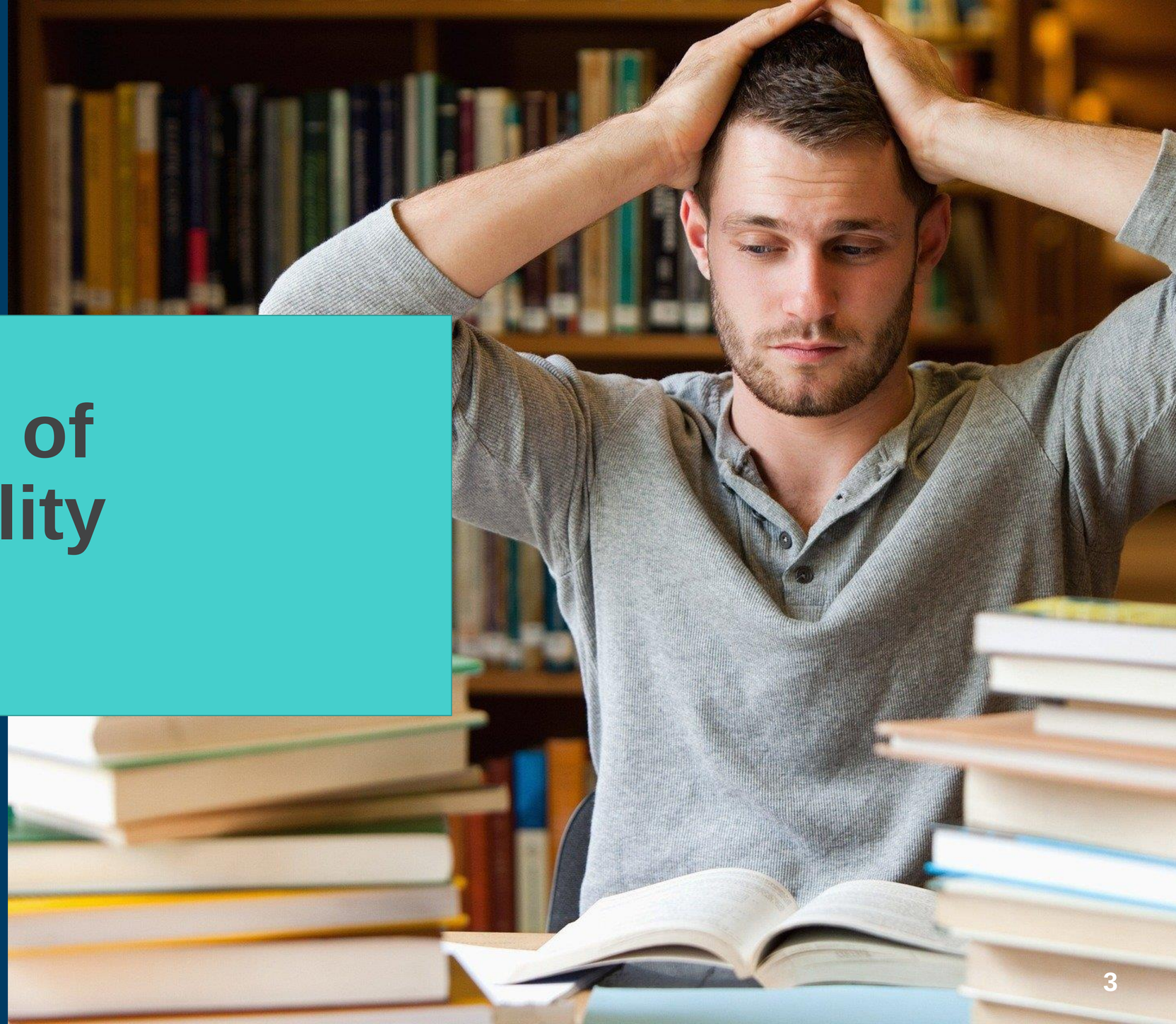
Overview

Traditional utility regulation and the need for reform

Performance-based regulation (PBR) tools and best practices

Incremental vs comprehensive PBR

Shortcomings of Traditional Utility Regulation



The utility business model is central to how utilities operate

- A "business model" is how a company makes money.
- As for-profit, investor-owned businesses, making money is a primary driver of utilities' behavior.
- Therefore, the utility business model influences decisions utilities make and the outcomes those decisions lead to.
- The utility business model is influenced by regulations, state policies, and wholesale market rules (where applicable).

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 regulator opens a rate case.
2. The regulator determines the utility's revenue requirement.

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

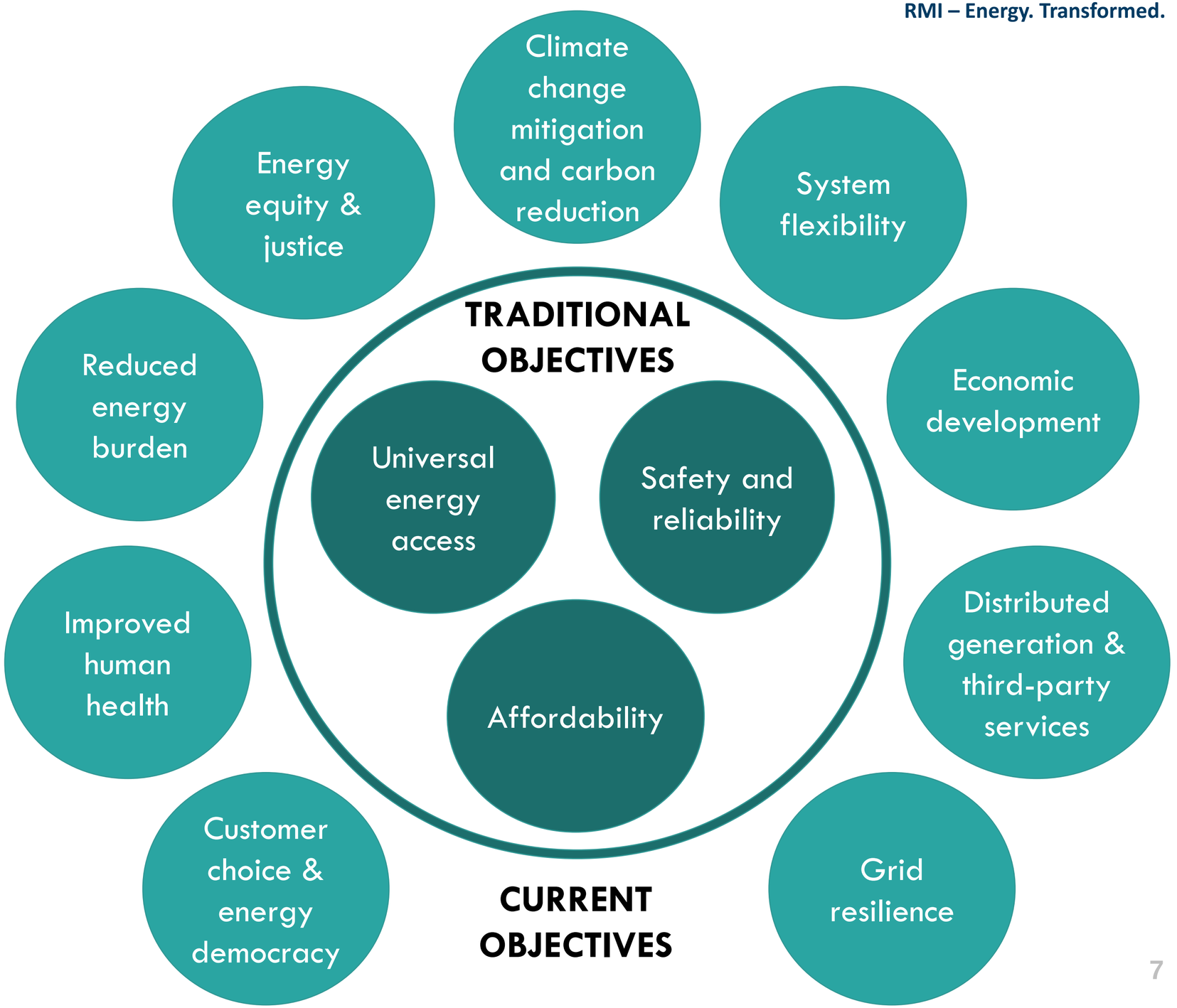
3. The regulator sets customer electric rates to recover the revenue requirement based on expected sales.
4. When rates become insufficient to recover costs (e.g., due to inflation, customer growth, etc.), the cycle repeats.

Capital expenditures (capex) become part of the utility's rate base (by which the ROR is multiplied) and are depreciated over time, while operating expenses (opex) are passed through to customers.

Traditional 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

To meet 21st-century needs, utility regulation may need to evolve beyond COSR



COSR can create 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.**

Example: How traditional COSR can undermine utility investment in cost- effective transmission alternatives like grid-enhancing technologies (GETs) and demand-side management (DSM)

GOLD PLATING encourages utilities to overspend on traditional transmission rather than on GETs (which are generally much cheaper).

The **THROUGHPUT INCENTIVE** discourages utilities from supporting resources like DSM that could decrease their energy sales (and thus revenues).

Less investment in cost-effective alternatives and higher customer bills!

CAPEX BIAS leads utilities to invest in capital-intensive projects (which they can earn a return on) instead of DSM (which, as opex, do not generate profits for the utility).

Due to their **RESISTANCE TO THIRD-PARTY AND CUSTOMER-OWNED SOLUTIONS**, utilities are unlikely to support GETs or DSM investments that they do not own or directly control.

COSR can result in insufficient attention to key outcomes

- Utilities can influence many **outcomes** that matter to customers and society. For example:
  - **How a utility manages calls affects customer satisfaction.**
  - **How it utilizes AMI shapes customers' choices.**
  - **Its fuel choices impact carbon emissions.**
- But under traditional COSR, the utility business model has no direct link to its performance in these areas.

The consequences of this may include…

- **Customers have trouble getting in touch with their utility.**
- **Customers pay for AMI but receive few benefits.**
- **The utility does not aggressively pursue emissions reductions.**

Why can't regulators just mandate better performance?

- Sometimes they can — but this can be complicated by information asymmetry.

Information Asymmetry

The gap between what the utility knows and what its regulator knows.

- This can make it hard for regulators to know what options are available to the utility.
- It is a particular problem when utility incentives are misaligned with regulatory goals, because the utility may be able to take advantage of the regulator's uncertainty.
- But when the utility's interest is aligned with those of customers and society, it is more likely to select the best solutions. This is the basic premise of PBR.

The PBR Toolkit

What is Performance-Based Regulation?

PBR is a regulatory approach that seeks to better align the utility's incentives with the interests of customers and society.

- PBR is not new, but it has been attracting more attention due to the growing mismatch between traditional COSR and modern policy goals.
- PBR is not a single reform, but a whole toolkit.

PBR TOOL

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.

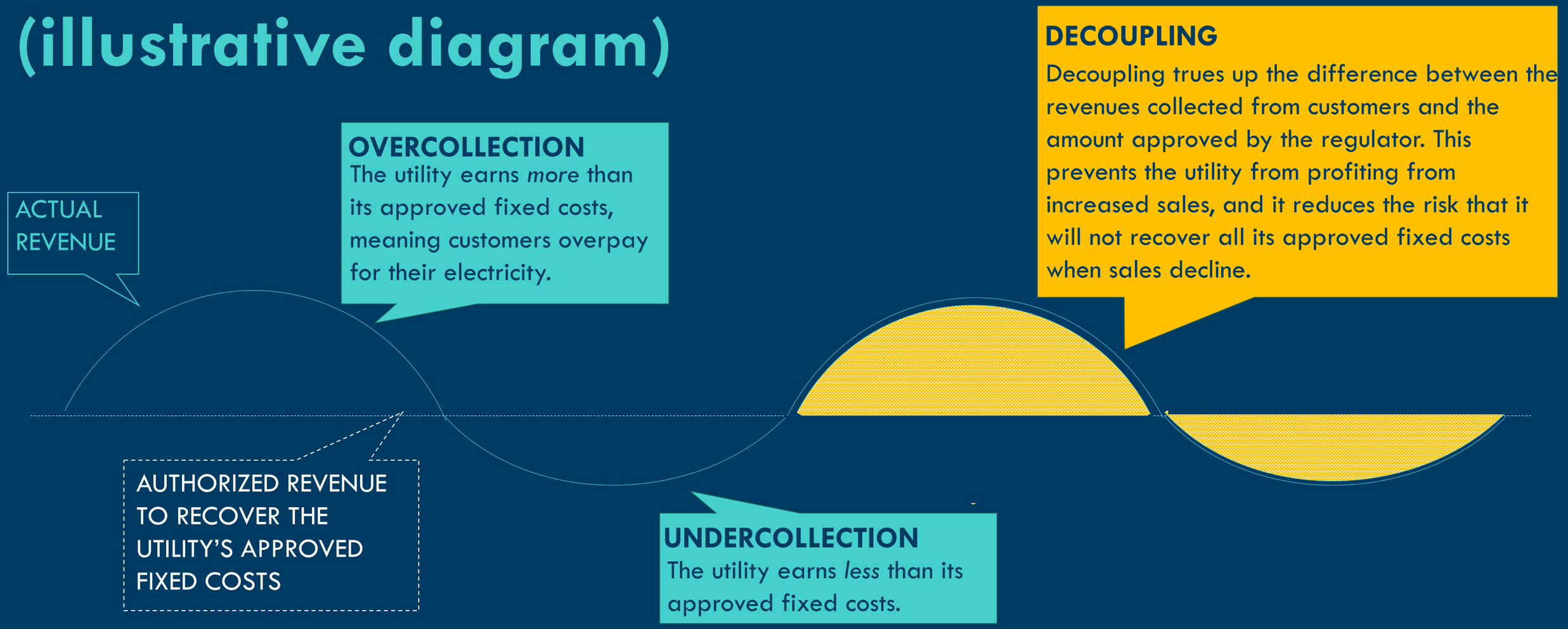
Key Benefits

- 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.

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)
- Layered on cost trackers have the potential to undermine cost-efficiency incentives

PBR TOOL

Capex-opex equalization reduces capex bias

What is It?

Capex bias leads utilities to prefer investing in capital over opex-based alternatives, even when they cost less or provide more benefits to customers. Capex-opex equalization creates an equivalent incentive for both opex and capex.

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

Narrow in Scope ← → Broad in Scope

- Opex capitalization
- PIMs
- SSMs
- Modified clawback mechanism
- Calibrated Earnings Carryover Mechanism (ECM)
- Totex ratemaking

PBR TOOL

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

PBR TOOL

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 (SSM)**.

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

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
Climate-Forward Efficiency*
Reliability
Electrification
Safety
Customer Engagement
Line Losses
Equity
System Utilization
Electrification of Transportation
Reliability
Cost Control
GHGs
Program Participation

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

Incremental vs Comprehensive PBR

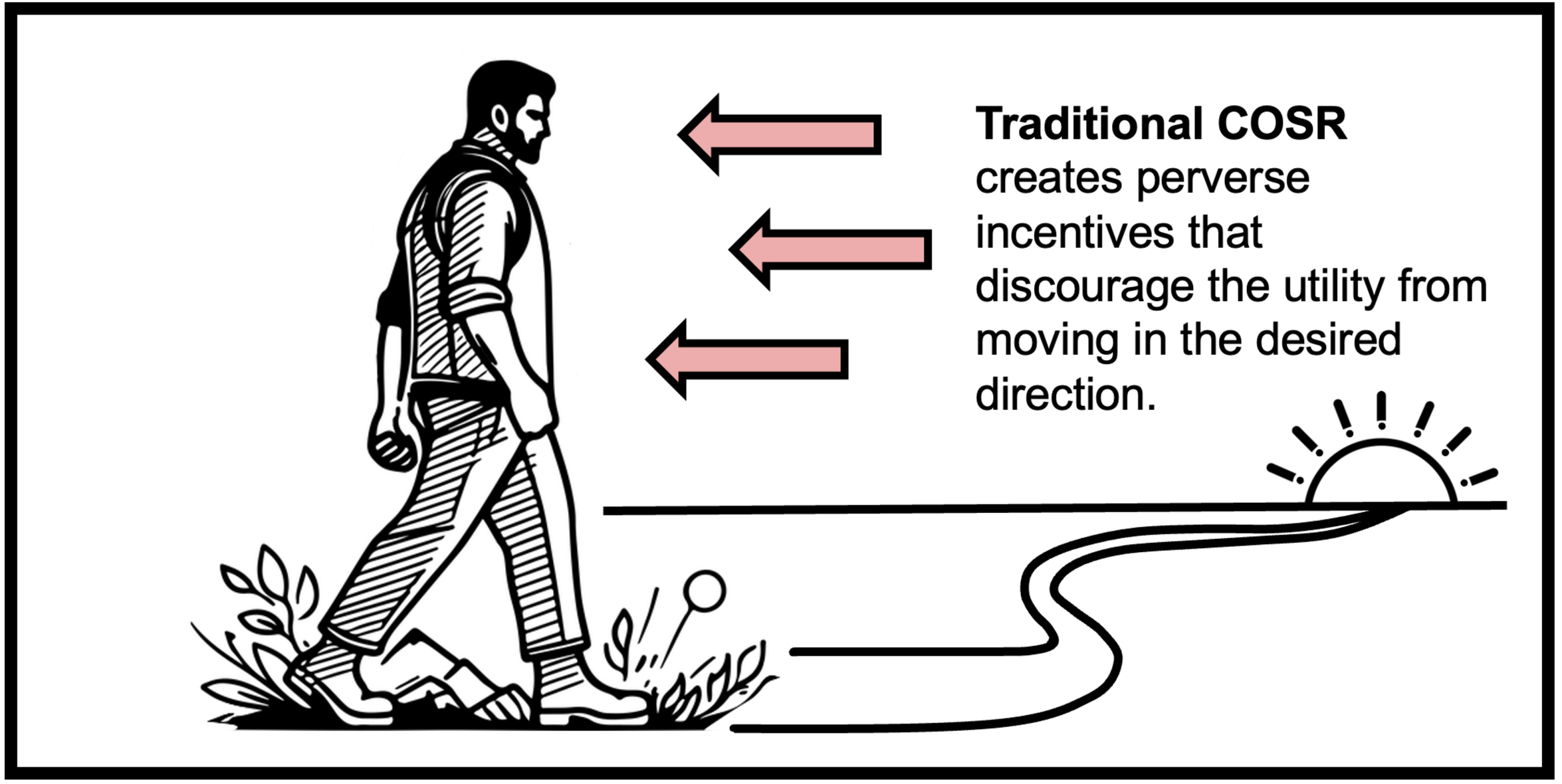
A useful distinction can be made between incremental and comprehensive PBR

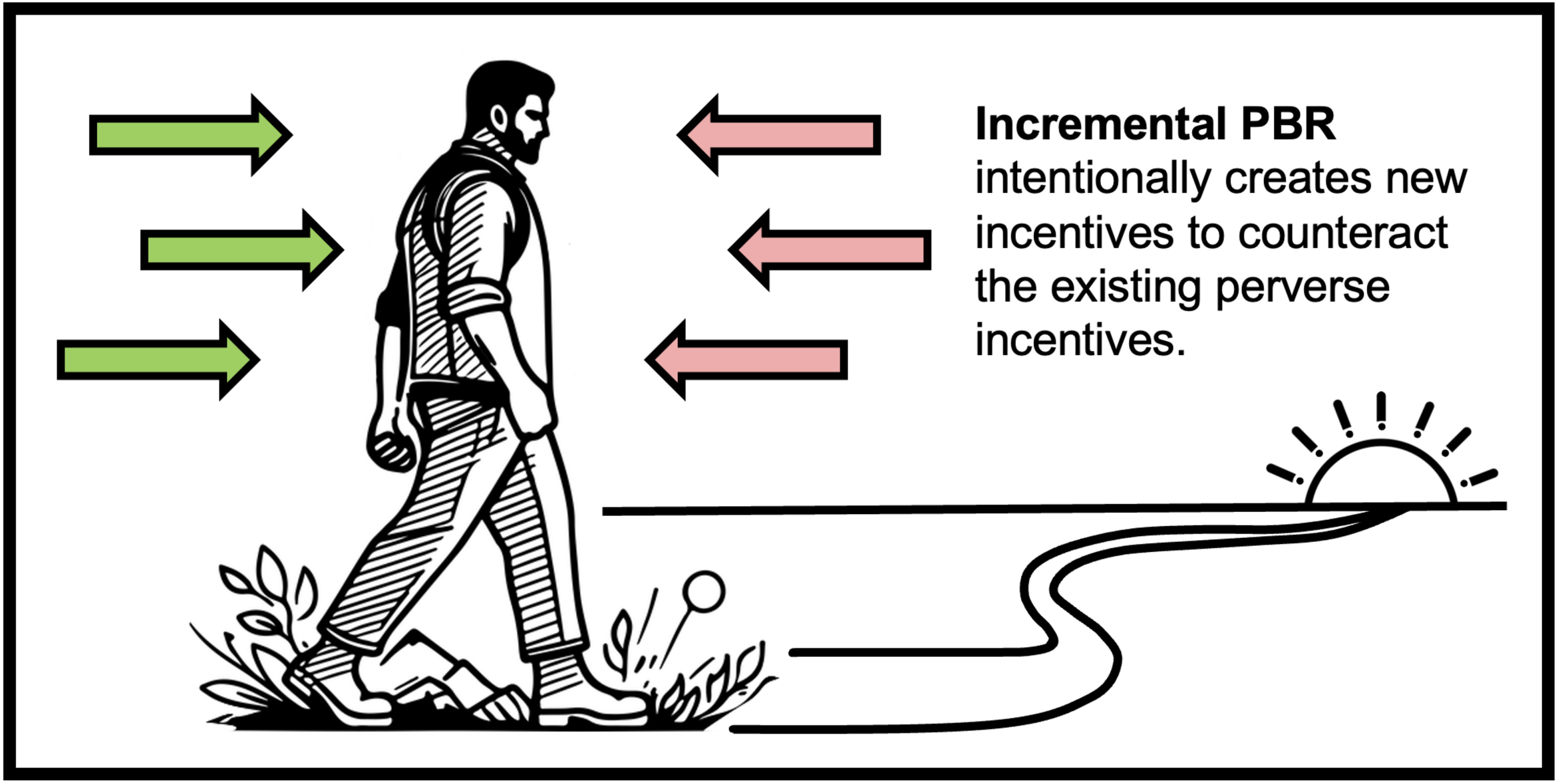
Incremental PBR

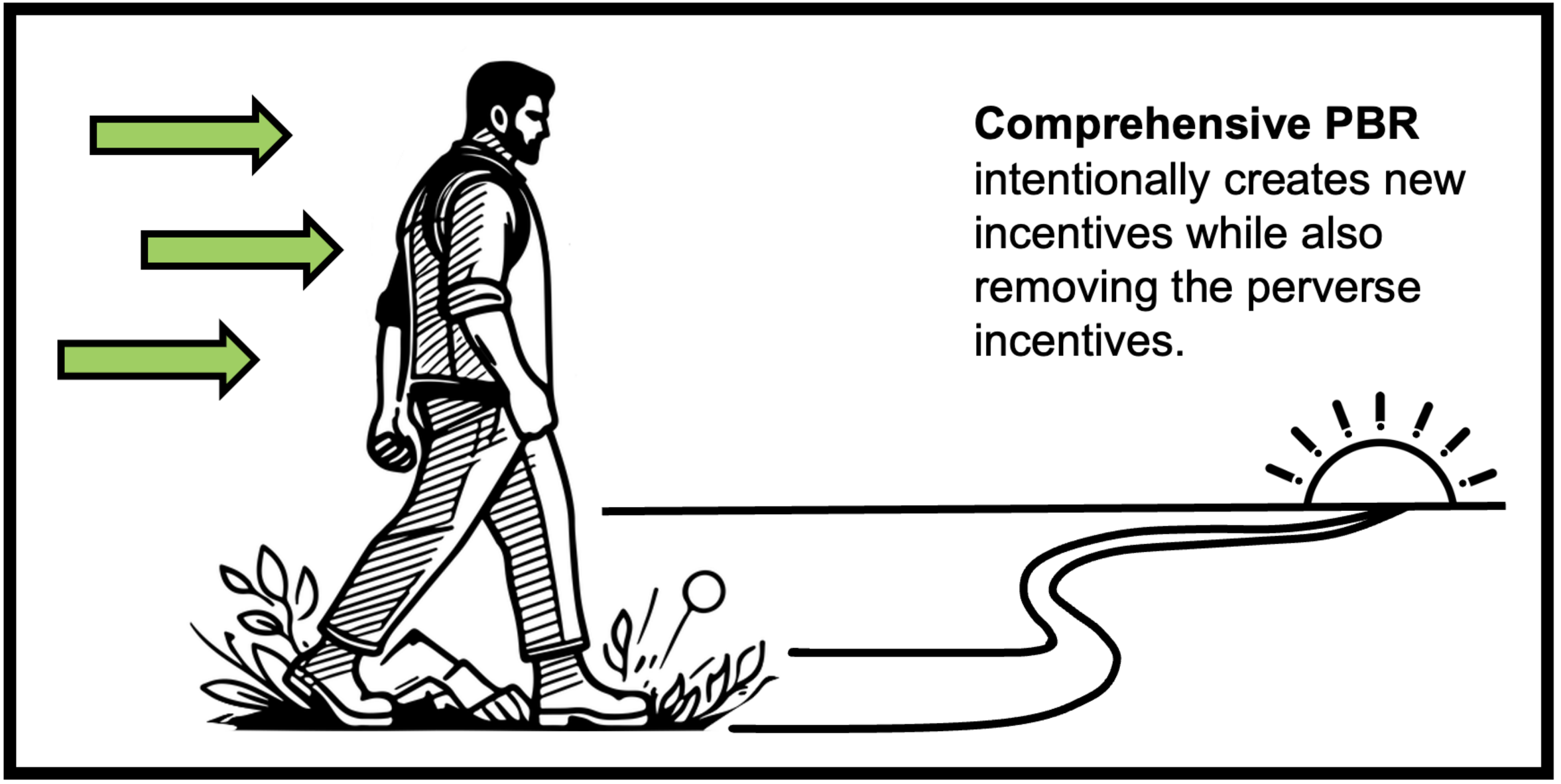
This approach involves layering select PBR tools onto a traditional COSR-based framework.

Comprehensive PBR

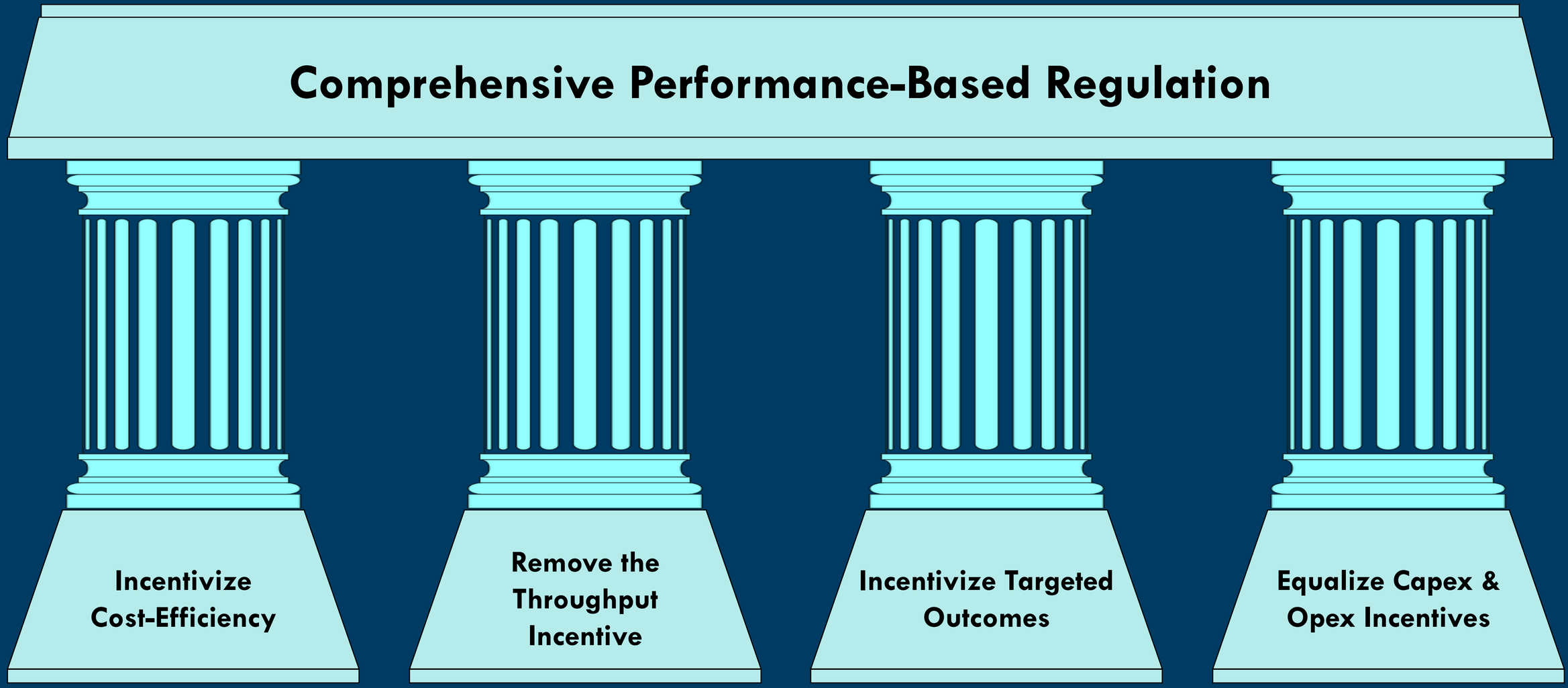
This involves fundamentally restructuring the framework to improve the incentives it creates.


Traditional COSR creates perverse incentives that discourage the utility from moving in the desired direction.


Incremental PBR
intentionally creates new
incentives to counteract
the existing perverse
incentives.


Comprehensive PBR intentionally creates new incentives while also removing the perverse incentives.

Comprehensive PBR aims to do four main things



Thank you!

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