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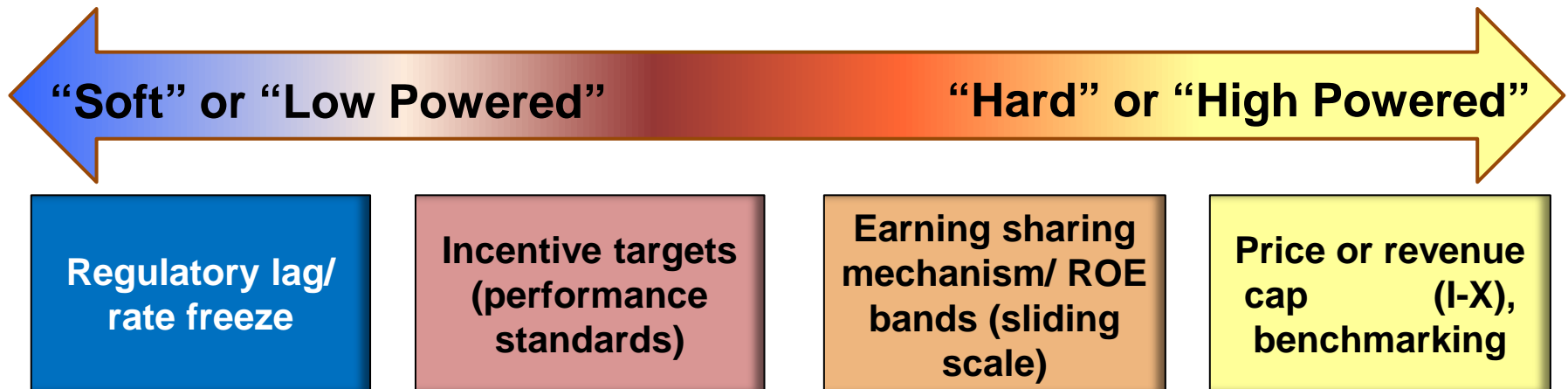
Experience from the front lines: Implementing alternate regulatory approaches:

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What do we mean by “alternate regulatory approach”?

- ▶ Worldwide and across Canada, Cost of Service (“COS”) is the conventional regulatory model
- ▶ Variations on COS such as rate freezes, earnings sharing mechanisms, price caps and revenue caps have also grown in number



Incentive regulation regimes in the energy sector exist in multiple jurisdictions throughout the world

Even in the world of established “incentive regulation”, we are seeing evolutions and advancements

- ▶ In the UK, incentive regulation has evolved over the last 20 years

RPI-X first applied to electricity (1995)

Sliding Scale mechanism (2005)

RIIO (2013)

- ▶ Ontario has been using incentive regulation with electricity distributors since 2001 and has recently added hydroelectric generation to the list of industries regulated using I-X Incentive ratemaking (IRM)

I-X price caps for electric distributors (2001)

Price/revenue caps also applied to gas distributors

RRFE and custom IR (2012)

OPG hydro under I-X (2017)

There is no “one size fits all” – tailored solutions help maximize productive use of infrastructure and improve asset longevity



Risk/reward can be tailored through choice of mechanism



Reinforcing pattern: cost reductions beyond targeted productivity reinvested to fund additional productivity



Performance metrics with balanced penalty & bonus scheme can promote efficient delivery of services



Management control over timing of capex and deployment of resources organically supports optimal operations

Many practical challenges to implementing alternative ratemaking regimes like IRM/PBR -- but who said “pioneering” is easy?

- ▶ **For innovative options, there may be no regulatory precedent for setting a rate trajectory – I-X depends on inflation (I) factor and productivity (X) factor**

I-factor needs to reflect components of cost and revenue requirement

X-factor needs to reflect the industry and its services

- ▶ **Lack of good data was a challenge to performing productivity studies and benchmarking**
 - LEI could not include Canadian hydroelectric generators were due to lack of consistent data for the study timeframe
 - Not a “new” problem, but we need “new” solutions
 - Canadian utilities are leaders on so many fronts – there should be “no fear”
 - Regulators and boards to start encouraging their local utilities to voluntarily report basic data -- such cooperative efforts would be value added for future regulatory initiatives across all of Canada

Capital funding mechanisms must overcome many hurdles

- ▶ Need to provide incentives for investments but discourage unnecessary and inefficient capital spending
- ▶ Regulator needs to get comfortable with capital budgets, despite underlying asymmetry of information issue
- ▶ Capital cost recovery mechanisms can be ex-ante (beforehand) or ex-poste (after the fact)



Ex-ante review

Assessment of investments at the start of the regulatory period based on *forecasted capex*

Capex embedded in the formula or reflected in an explicit factor (eg. K factor)

Utilities bear little risk, however have the incentive to inflate capital costs

Eg: UK, Australia

Ex-post review

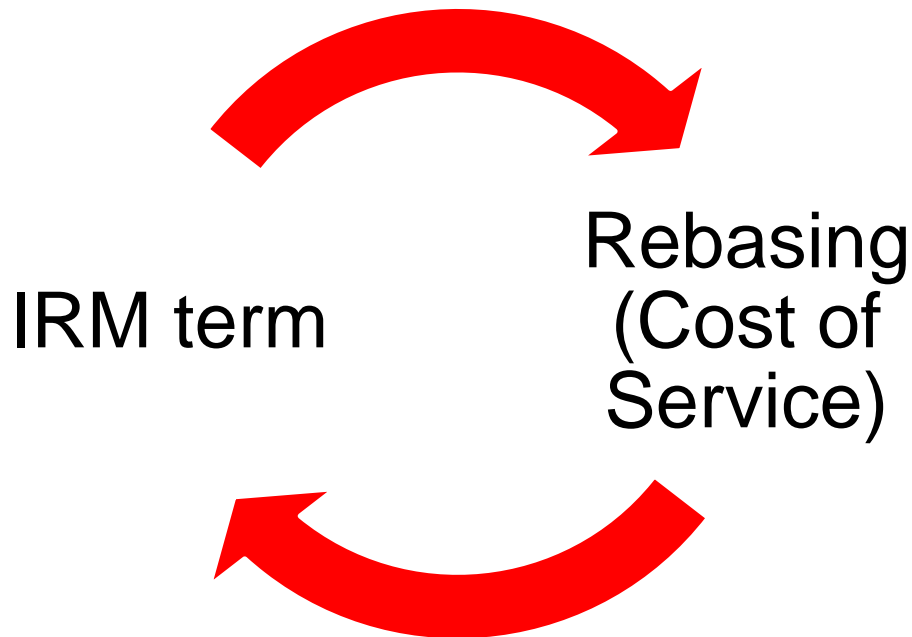
Additions to rates for capex are determined after the fact based on the *actual investment made*

A need is identified, approved, and incorporated in the rates *after the facility is place in service*

If benchmarking is used, does not identify absolute efficiency, only relative

Eg: BC, ICM in Ontario, some US states

Alternate regulatory mechanisms will never be divorced from costs... we always come back to the value proposition



- ▶ **IRM still depends on a COS to determine a reasonable starting point**
 - Rebasing is very complex and contentious
- ▶ **Long term, regulators will need to decide how to regulate assets that are very depreciated (but still commercially viable and very valuable for the services they deliver)**



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- working with generation owners to forecast market conditions and evaluate future revenues
- Assessing the impact of new generation resources on capacity and energy prices

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- Working with developers to value potential revenue streams from Renewable Energy Credits (“RECs”) and/or emissions offsets
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NATURAL GAS:

- Assessing the synergies between the natural gas and electric power industries
- Examining performance-based ratemaking and total factor productivity for natural gas distribution companies

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