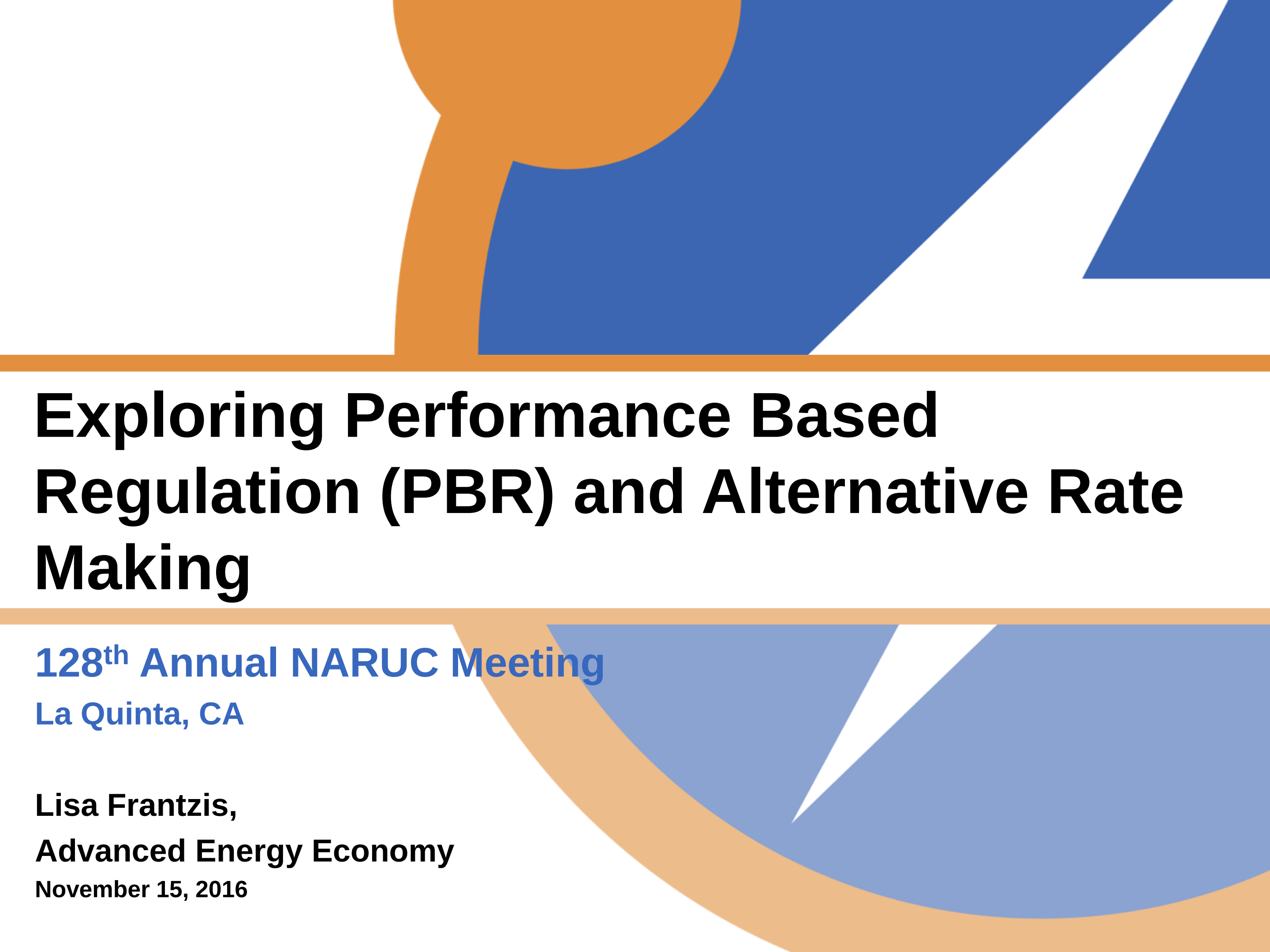




Exploring Performance-Based Regulation



Exploring Performance Based Regulation (PBR) and Alternative Rate Making

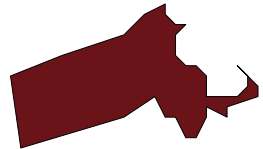
128th Annual NARUC Meeting

La Quinta, CA

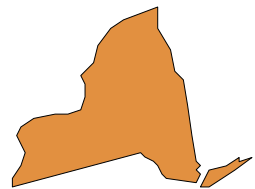
**Lisa Frantzis,
Advanced Energy Economy
November 15, 2016**

New York is the state that has gone the furthest on PBR, thus far

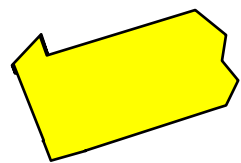
PBR & Alternative Rate Making State Activities



- Massachusetts: Energy Efficiency



- New York: REV Proceeding



- Pennsylvania: AEE PBR White Paper



- California: DER pilot in IDER Proceeding

Other states discussing PBR: MN, MO, IL, MI, NH



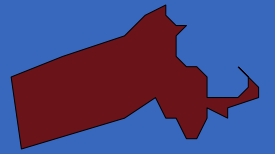
Performance incentives in MA have been very effective for Energy Efficiency (EE)

MA Programmatic Performance Incentive

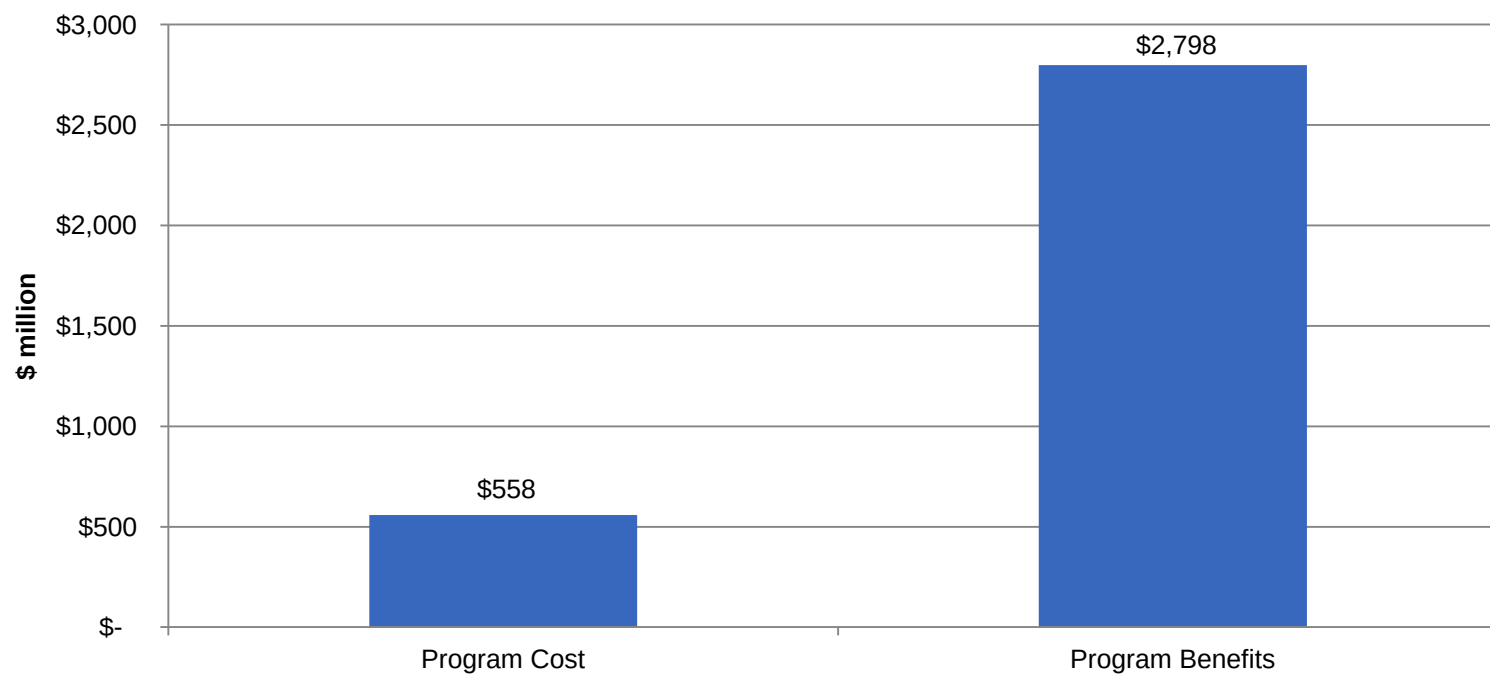
- Every 3 years Energy Efficiency Advisory Council (EEAC) establishes targets for each utility
- PI based on Savings (kWhs and kW) and Cost-Effectiveness/Value
- 2013 – 2015: \$80MM PI for MA; 2016 – 2018: \$100MM
- Incentive payouts based on performance:
 - Threshold (75% of target), Design (100%), and Exemplary (125%)



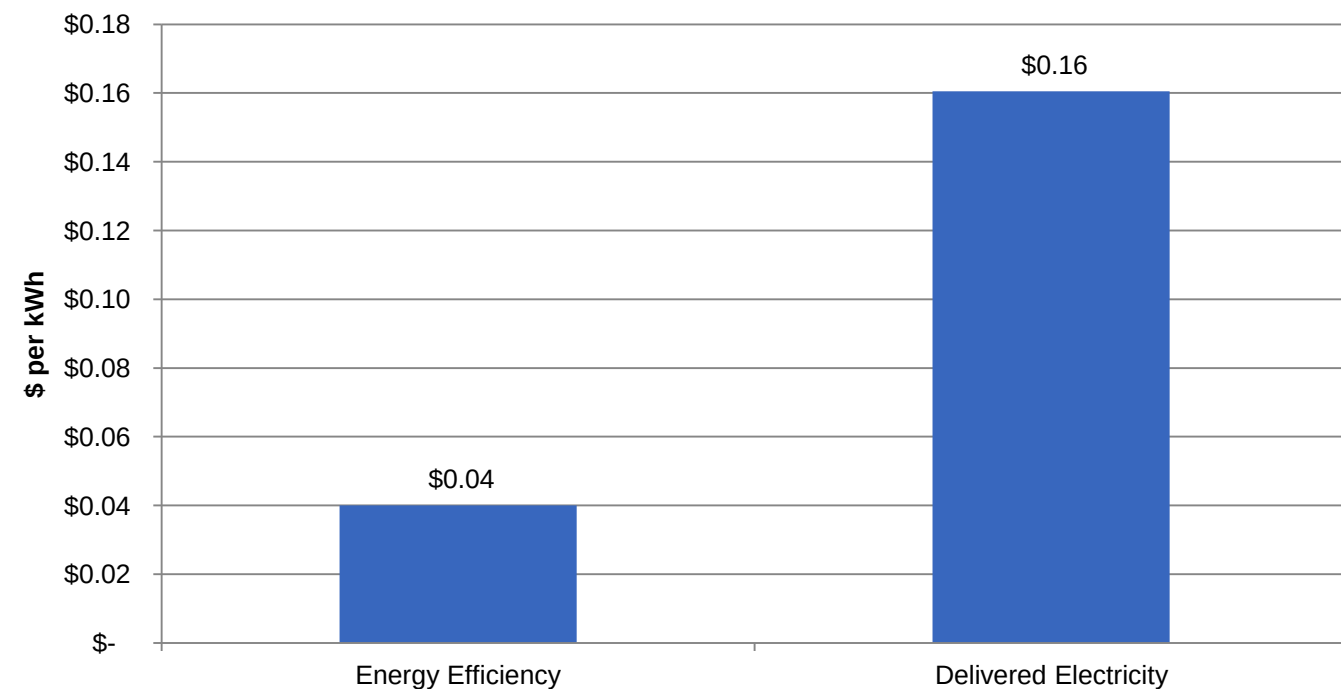
The EE program in 2015 resulted in \$5 back for every \$1 invested



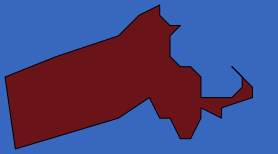
2015 Energy Efficiency PI Impact



2015 MA Cost of Electricity



MA Take-Aways



**Clear sources for EE funding, decoupling
and PI's were critical to success**

**Engaged
stakeholders
early to establish
PI in transparent
process**

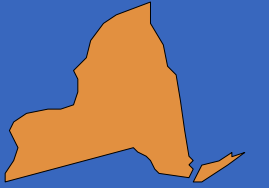
***MA EE Program:
ACEEE #1 Ranking
Several Years in a
Row***

**Could expand PI
beyond traditional
EE metrics**

**2015: Utilities invested
\$560MM and produced \$2.8B
in benefits**



NY's Earnings Adjustment Mechanisms (EAMs) are a business model reform



New York Main EAM Categories

System
Efficiency*

Energy
Efficiency

Inter-
connection

*Peak load reduction and load management

Affordability

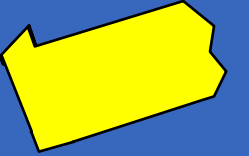
Customer
Engagement

GHG
Reductions

Targets/rewards TBD. Max reward initially indexed on 100 basis points, but paid out at fixed \$ amounts, not basis point adders



AEEI is working in Pennsylvania to identify opportunities for PBR



Convened utility CEOs, regulators, and advanced energy execs



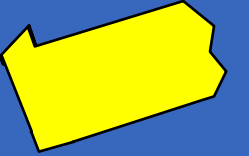
Facilitating Working Group to develop Position Paper for Commission on PBR



Presentation of findings in early 2017 to Commission and Legislative staff



AEEI and key stakeholders have identified performance categories for PA



AEEI Pennsylvania Initial PBR Categories

Customer
Empowerment

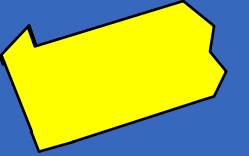
Operational
Efficiency &
Reliability

Environmental
Sustainability

Market
Innovation



Example of PA Metrics and Screening



Customer
Empowerment

Possible Metric Framework

Reach, Usage, Effectiveness, and
Feedback (RUEF)

PA Initial Metric Screening Criteria

1

Does it meet
policy
objectives?

2

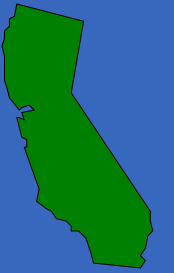
Can the
metric be
implemented
in short
term?

3

Does the
metric inform
many
categories?



CA: Alternative rate-making program incentive vs. PBR



California IDER Proceeding – DER Pilots (2016)

- Align incentives with state goals:
 - Increase DER deployment to meet distribution grid needs
- Utility collects 4% annually on expenses procuring cost-effective DER from third parties for distribution
 - DER (with incentive costs) must be less expensive than traditional infrastructure costs
- 1 – 4 projects per utility and 2 year pilot
- Proposal in comment period for Sept. 1 ruling

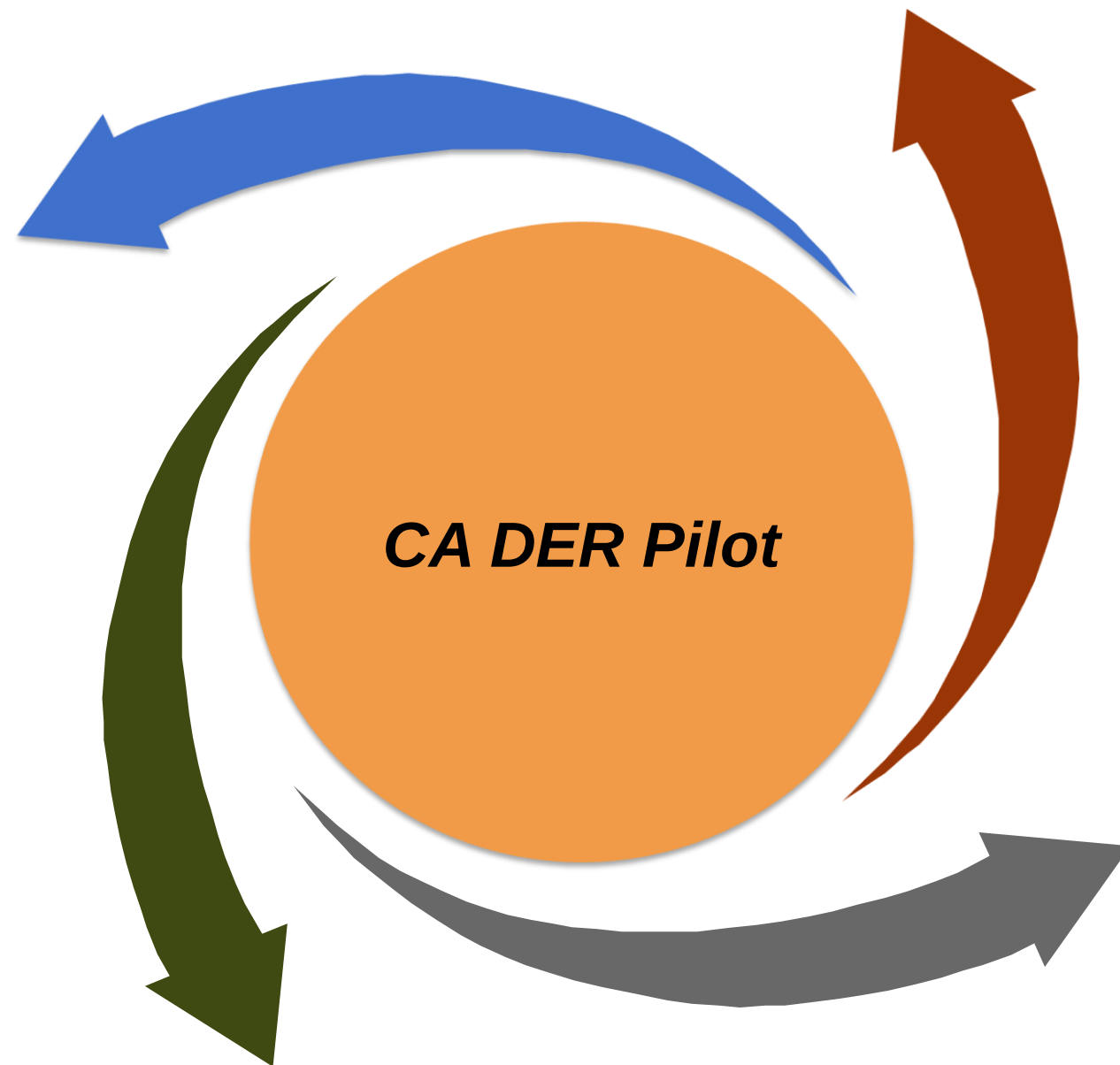


CA Take-Aways



Utilities have embraced pilot generally

Utility concern
though about
ability of DER to
provide
safe/reliable
power



Too soon for lessons
learned on success

Trying to get utilities motivated with program
incentive vs. full regulatory reform



PBR enables utilities to choose to spend less and earn more

Conclusions

- The MA EE experience shows rewarding performance can work well if designed right
- NY is the only state considering utility wide “PBR reform”
 - Not a simple process, a lot of the onus is on the utilities, and much is still TBD
- PBR offers the potential to achieve policy objectives/improve public welfare while **also** improving the viability of the utility business model
- When considering the challenges to the current utility business model, AEE expects PBR/alternative rate making will be taken up by more states



AEE: The Power of Many to Transform Policy

Leadership Council



Business Council



Thank you!

Lisa Frantzis
Senior Vice President
21st Century Energy System
lfrantzis@aee.net



PERFORMANCE BASED REGULATION

WHY & HOW

Sonia Aggarwal
November 15, 2016



SEARCH THE
RECOMMENDATIONS

REGIONAL PLANNING

MARKET DESIGN

RATEMAKING AND UTILITY
BUSINESS MODELS

SYSTEM OPTIMIZATION

America's Power Plan is a platform for innovative thinking about how to manage the transformation happening in the electric power sector today.

We collect expert information for decision-makers and their staffs, highlighting specific solutions to today's most pressing policy, regulatory, planning, and market design challenges.

1. WHY

2. HOW

3. EXAMPLES

4. NEXT STEPS



THE POWER SECTOR HAS EVOLVED

Old Goals:

- Meet growing demand
- *Build* new infrastructure
- *Build* to deliver universal service
- Affordability, Reliability, Safety

Old Options:

- Centralized power plants
- Transmission lines
- Distribution system



FROM PINK FLOYD ALBUM, "ANIMALS"

THE POWER SECTOR HAS EVOLVED

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- Transmission lines
- Distribution system



New Goals:

- *Customer* satisfaction
- Build → *Maintain*
- Reliability → *Resilience*
- *Clean* power
- Affordability, Safety

New Options:

- All the old stuff, plus:
- Affordable distributed energy resources (EE, DR, PV, EVs, etc.)
- Advanced IT

COST OF SERVICE REGULATION

- Utilities spend prudently to maintain and operate the power system
- Utilities recover capital expenses plus a rate of return
- Operational expenses are recovered at no risk to the utility
- This incents capital investments and sales volume
- A good structure for 20th century goals (meet growing demand, build new infrastructure, build universal service)

MODERN GOALS FOR THE POWER SYSTEM

Affordable

Resilient

Clean

Safe

PERFORMANCE-BASED REGULATION

changes the central question...

From: “Did we pay the right amount for what we got?”

To: “**Are we paying the right amount for what we want?**”



*Utility and
Regulatory
Models for the
Modern Era*

by Ron Lehr

PERFORMANCE-BASED REGULATION CAN **ALIGN FINANCIAL INCENTIVES**

ALIGN FINANCIAL INCENTIVES
OF:

Utilities
Independent Power Producers
3 rd party service providers
Customers



WITH THESE GOALS:

Affordable
Resilient
Clean
Safe

PERFORMANCE-BASED REGULATION CAN **DRIVE INNOVATION**



123RF



TESLA

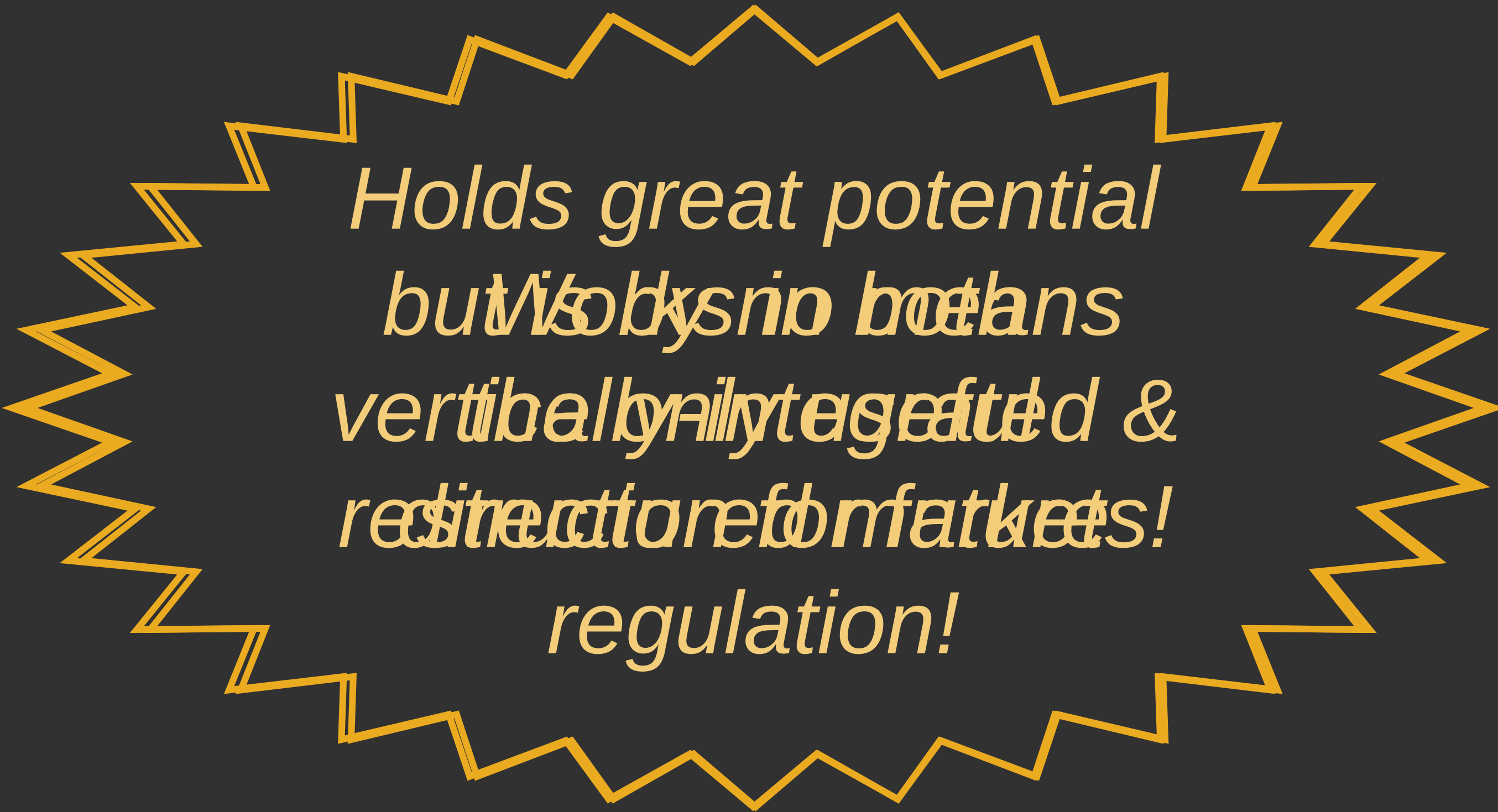
PERFORMANCE-BASED REGULATION CAN ADDRESS INFORMATION ASYMMETRY



AFP/GETTY IMAGES

PERFORMANCE-BASED REGULATION

WORKS FOR THE INVESTOR-OWNED RESIDUAL
MONOPOLY



*Holds great potential
but is only means
vertically integrated &
resistance to market
regulation!*

1.WHY

2.HOW

3.EXAMPLES

4.NEXT STEPS



POLICY SOLUTION

PERFORMANCE-BASED REGULATION

Policymakers



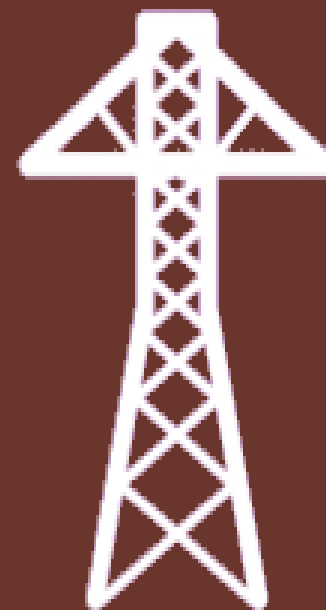
Clarify policy priorities
Work with regulators

Regulators



Set quantitative performance goals
Establish reward & penalty structure

Utilities



Meet goals
Receive rewards and/or penalties

Already a standards driven industry

Outcomes

Retail Level, e.g.:

- Equity
- Customer satisfaction
- Affordable bills
- Reliable service

Wholesale Level, e.g.:

- System-wide least cost
- Effective facilitation of open access
- Reliability
- Clean energy
- Innovation

PRIORITIZE GOALS, ESTABLISH METRICS

Some examples...

Affordable → bills (\$/mo); peak reduction (MW)

Resilient → SAIDI/SAIFI for critical feeders

Clean → lbs CO₂/MWh; kWh/customer

Safe → minutes to respond to emergency; days to repair

1.WHY

2.HOW

3.EXAMPLES

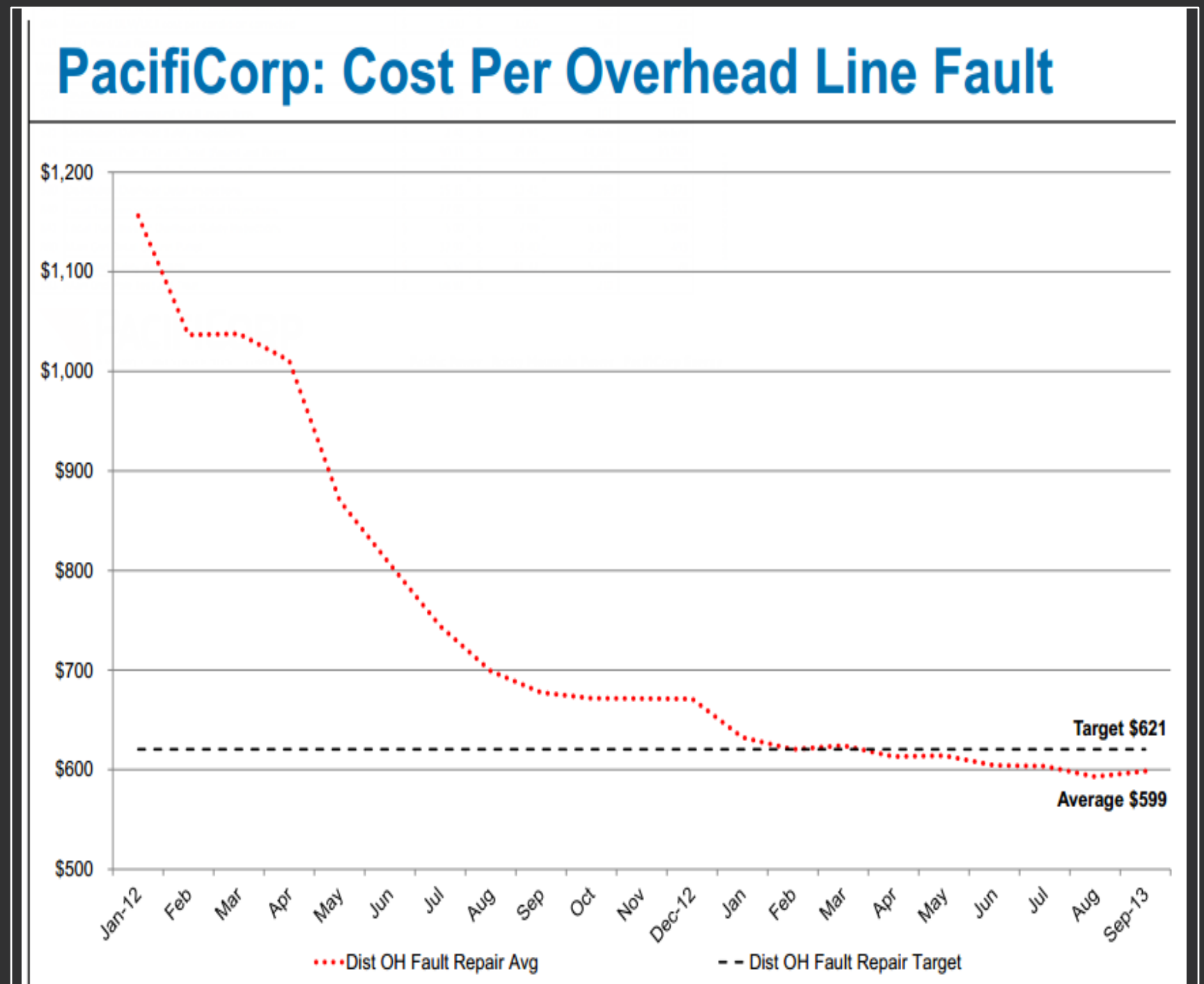
4.NEXT STEPS

EXAMPLE 1

ESTABLISH METRICS, TRACK THEM

PacifiCorp

PacifiCorp **cut costs in half in 15 months**, simply by developing repeatable metrics, and beginning to measure and track them consistently.



EXAMPLE 2

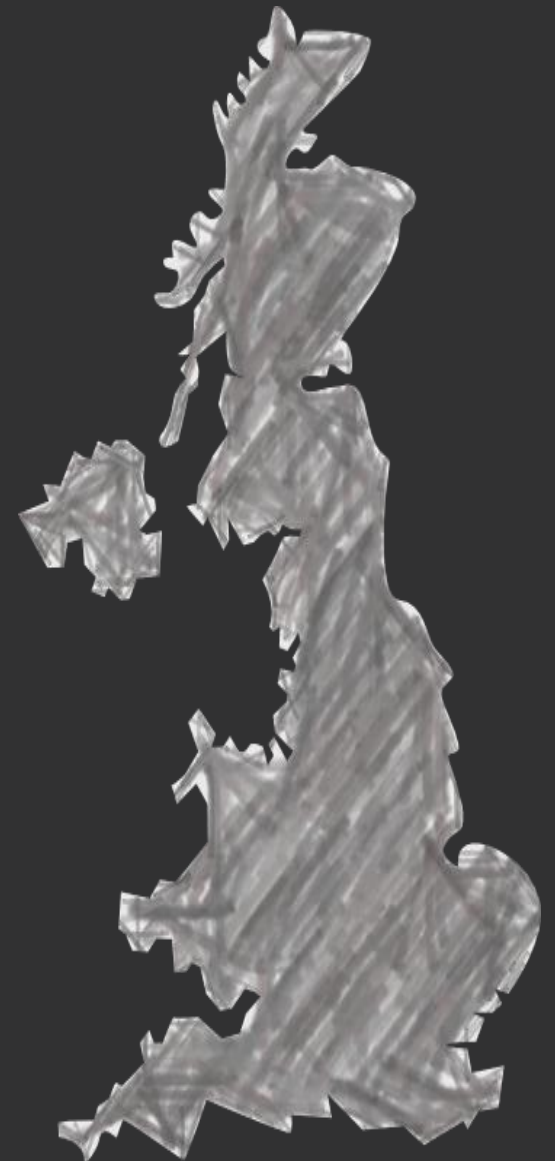
GOING (A LOT) FURTHER

United Kingdom

- 3% of total utility revenue at stake
- Penalties and rewards offered
- 6 primary output categories tied to revenue
 - customer satisfaction, reliability and availability, safe network services, connection terms, environmental impact, social obligations
- 8 years to adapt and perform, opp to review at year 4
- Incentive delivery: ROE adjustments applied to *all cap and op* expenditures

“Utility investors agree RIIO is a paradigm of success.”

Julien Dumoulin-Smith,
UBS



1.WHY

2.HOW

3.EXAMPLES

4.NEXT STEPS



NEXT STEPS TO CONSIDER

1. Agree on top goals for your state's power sector. What value can utilities deliver to citizens and customers?
2. Identify appropriate quantitative performance metrics under each goal. Work with the Commission to establish a transparent methodology for calculating performance on each metric.
3. Begin to measure and track performance. Support pilots.
4. Grow the share of utility revenue tied to performance once the metrics and methodologies are well-understood.

ALSO....

- Come play our **GAME** to explore utility decision-making under different regulatory models. You will get to hang out with Miles Keogh if you do.
- Apply to explore these questions and more via the **National Governors' Association's** policy academy on power sector modernization.

@USPOWERPLAN
@ENERGYINNOVLLC

WWW.AMERICASPOWERPLAN.COM
WWW.ENERGYINNOVATION.ORG

@CLEANTECHSONIA

SONIA@ENERGYINNOVATION.ORG

THANK YOU



PRINCIPLES FOR DESIGNING PERFORMANCE-BASED REGULATION

1. Work with stakeholders to clearly define goals and outcomes in quantitative terms.
2. Include incentives for exceptional performance and penalties for missing the standard.
3. Use a transparent and consistent methodology for measuring performance. Define it clearly at the outset of the program.
4. Shift an appropriate amount of performance risk to the utility, in exchange for longer-term regulatory certainty and the opportunity to earn incentive compensation. Reward entrepreneurialism.

PRINCIPLES FOR DESIGNING PERFORMANCE-BASED REGULATION

5. Establish a long enough time horizon for the utility and third-parties to make investment decisions with certainty, and to innovate to meet performance targets.
6. Consider revenue sharing to align utility performance with customer benefits. Customer savings should be compatible with utility earnings.
7. Build on the existing framework, but look for holistic solutions that go far enough to truly align incentives and simplify the regulatory process.
8. Consider provisions for mid-course correction—any changes should be announced well in advance of implementation, to minimize uncertainty.

DELIVERING THE INCENTIVE

ROE adjustments:

- Basis point adjustments applying to the whole ratebase
 - e.g. IL, UK
- Incentive ROE for projects that meet performance criteria
 - e.g. CA: nuclear performance

“Direct incentives”

- Shared savings / shared profits*
 - e.g. CO: Xcel off-system sales
- Shareholder incentive mechanisms
 - e.g. CA: efficiency performance



* Shares may change over time

DELIVERING THE INCENTIVE

ROE adjustments:

- Basis point adjustments applying to the whole ratebase
 - e.g. IL, UK
- Incentive ROE for projects that meet performance criteria
 - e.g. NY – Brooklyn Queens Demand Management Project

“Direct incentives”

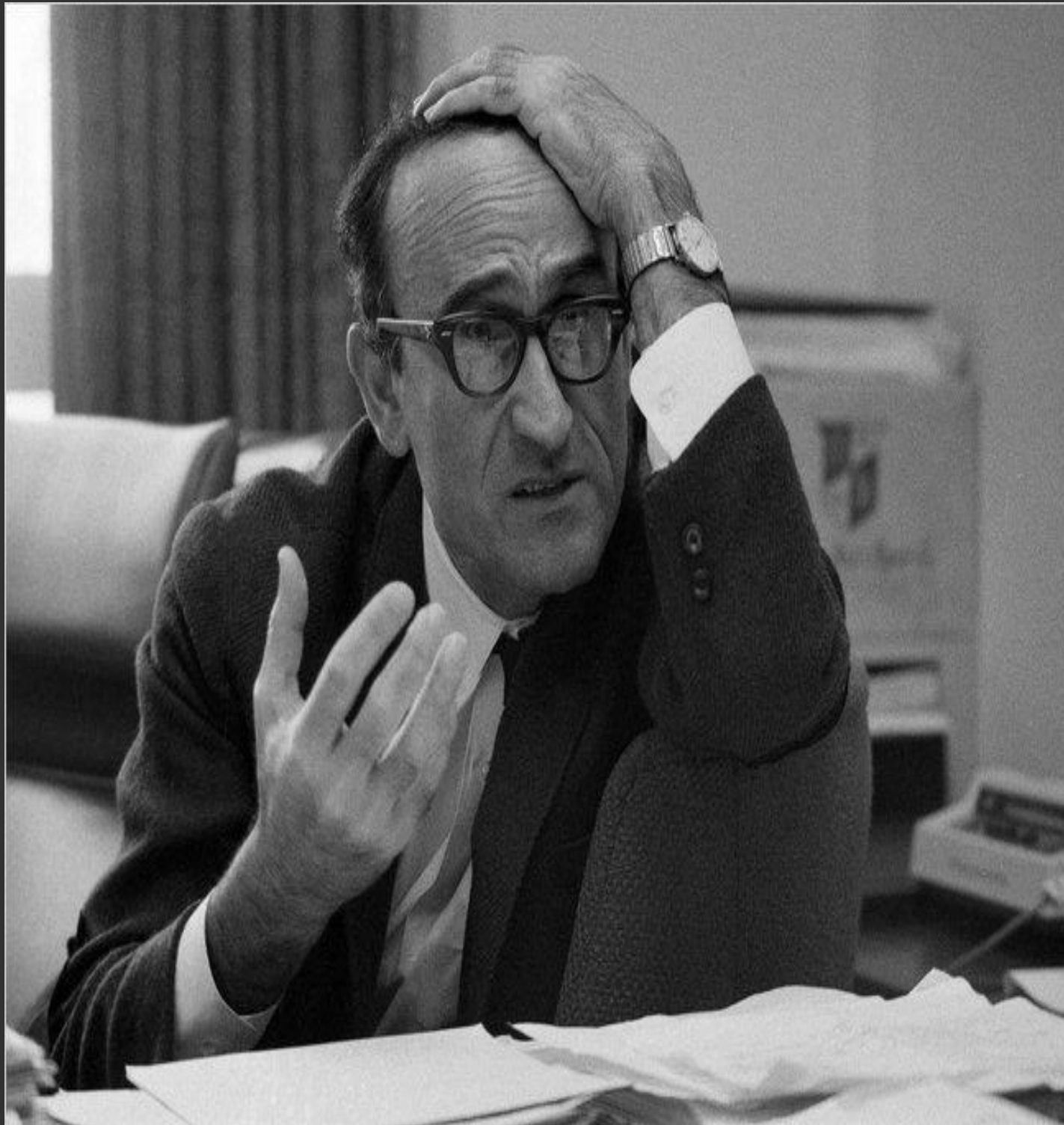
- **Shared savings / shared profits***
 - e.g. HI: shared fuel savings
- Shareholder incentive mechanisms
 - e.g. CA: efficiency performance

PREFERRED



* Shares may change over time

HERE COMES SOME FINANCE....



Alfred Kahn

THE SHAREHOLDER VALUE ENGINE (1)

$$\text{Stock Price} = BV + \frac{(r - k)BV}{k - g}$$

Neither the absolute level of a company's revenue, nor its rate of return, directly drive shareholder value.

It's all about the **difference between the ROR and the underlying cost of capital.**

This **difference** creates the value opportunity that drives stock price.

THE SHAREHOLDER VALUE ENGINE (2)

$$\text{Stock Price} = BV + \frac{(r - k)BV}{k - g}$$

Setting the ROR at the cost of capital would be a recipe for stagnation:

If $(r - k) = 0$, there is no incentive to make any investments.

The provision of incentives and the wherewithal for dynamic improvement in efficiency and innovations in service may require allowing returns to exceed [the cost of equity]...**The rate of return must fulfill an institutional function: it somehow must provide the incentives to private management that competition and profit-maximization are supposed to provide in the nonregulated private economy.**"

Alfred Kahn, 1970