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The Electricity Sector of the Past, Present, and Future

South Carolina Public Service Commission

“Utility of the Future” Workshop

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Today's Agenda

1. History, Trends, and Challenges facing Regulation and Markets
2. Distributed Resource Capabilities and Value, and Implications for Compensation, Rate Design, and Planning
3. Best Practices in Resource Planning
4. Approaches to Dealing with Misalignments in Traditional Regulation and Markets
- 5. Process Options for Moving Change Forward**

Competition in the Electricity Sector

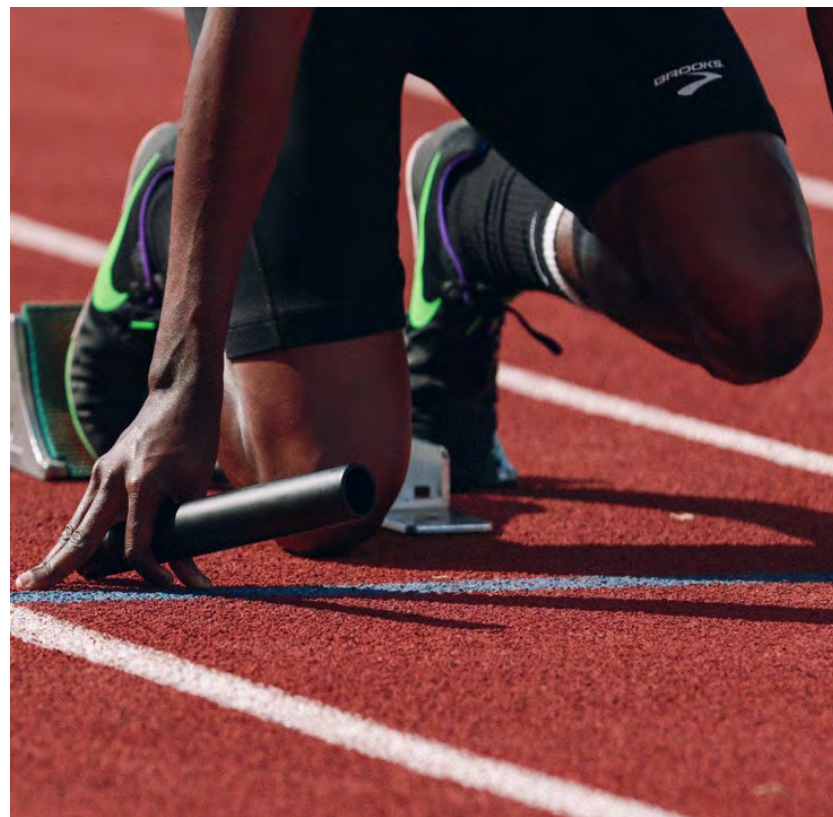


Competition is a Means to an End (Not an End Itself)

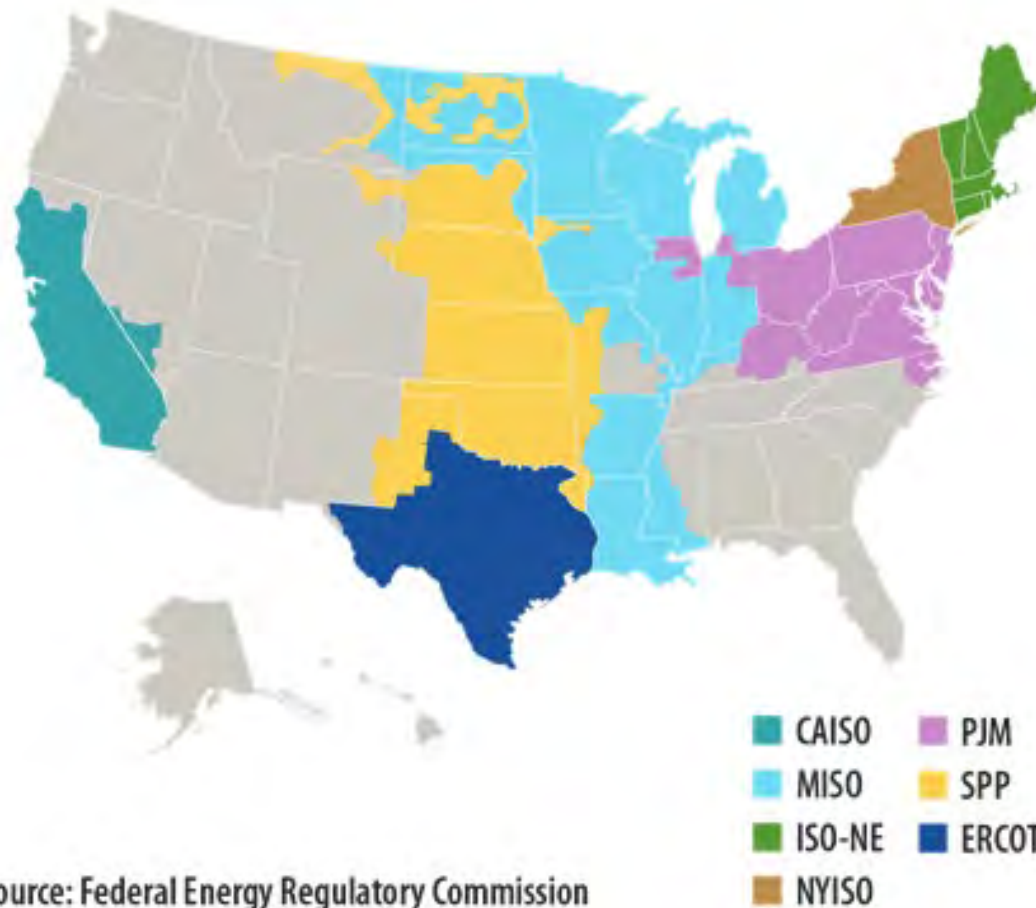
- Accomplish public interest goals
- Reduce costs for customers
- Increase efficiency in power and service delivery
- Expand choices and options

Some Options for Increasing Competition in the Electricity Sector

- Wholesale markets
- Retail competition
- Competitive procurement
- Performance-based regulation to create competitive pressures



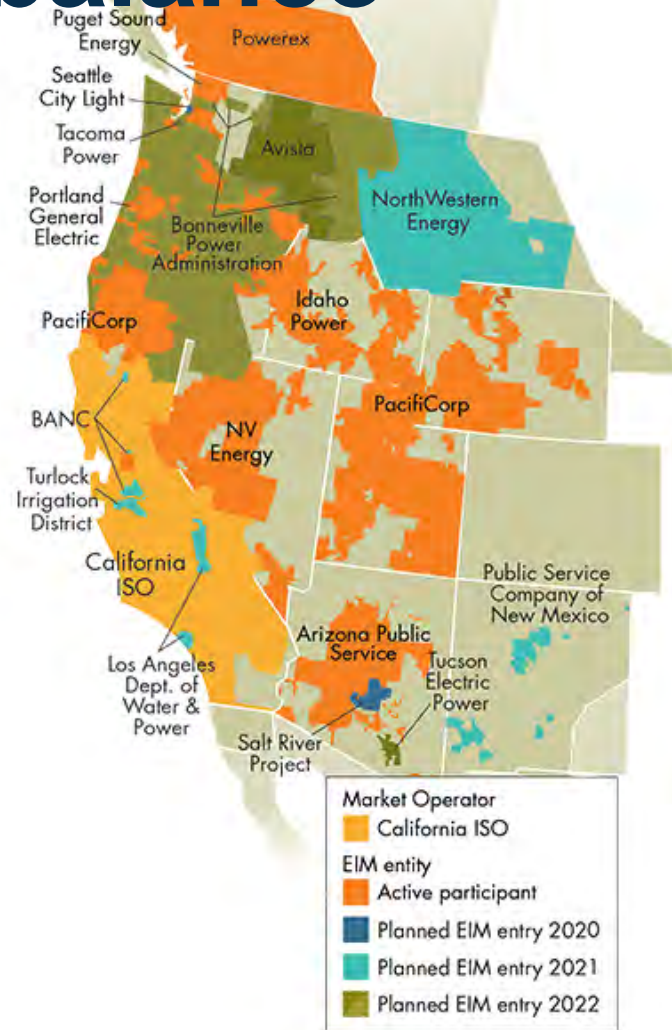
Wholesale Electric Power Markets



Source: FERC, taken from <https://www.epa.gov/greenpower/us-electricity-grid-markets>

Western Energy Imbalance Market (EIM)

- Real-time bulk power trading market
- Finds lowest-cost energy to serve real-time customer demand
 - ~\$800 million in benefits since 2014
- Day-ahead market under development



Retail Electric Power Markets



Taken from <https://www.epa.gov/greenpower/us-electricity-grid-markets>

Community Choice Aggregation



Power Generators

The CCA purchases electricity on behalf of the entire community from traditional or green power sources.



Utility

The existing utility continues to deliver the electricity using the same power lines and billing mechanisms.



End Users

Customers benefit by receiving lower cost power, often with higher green power contents and minimal effort.

Customer Choices Already Exist



Competitive Procurement

- Starts with a resource need
- Solicit proposals for alternatives to fulfill the resource need
- Review prices and attributes of alternatives
- Compare alternatives using criteria (e.g. cost and policy preferences)

Competition from Distributed Resources

- Distributed resources increasingly able to meet grid needs; provide market value
- Traditional utility regulation disincentivizes investment in distributed solutions
- Regulators can invite or require evaluation of alternatives



Discussion Questions

- What other state processes or experiences with performance-oriented mechanisms does the South Carolina PSC want to learn more about?
- Should the PSC consider regulatory changes that harness competitive forces for public benefit, and under what conditions?

PUC Process Toolbox

- Adjudicatory proceedings – rate cases, adversarial
- Rulemaking
 - More interactive
 - May provide guidance for how Commission will view future utility actions
- Generic proceedings and stakeholder collaboratives
 - Examine emerging issues
 - Can result in recommendations, or a Commission policy statement



Photo credit: Rocky Mountain Institute

Snapshot of utility regulation

- **Routine work** gathering evidence, scrutinizing in discovery and examination, testing legal foundations, making decisions
- **Routine goals:** reliable and safe service, fair rates terms and conditions, fair return on needed capital, of needed expenses
- **Emergent goals** adding complexity
 - More of this lately

Snapshot of utility regulation

- Innovation difficult, sometimes discouraged
- **Community building?** *Is that my job?*
- **Problem solving:** We resolve disputes among routine stakeholders (promote market stability)



***Influence of grid tech,
end use tech and DERs
invites (**demands?**) new
thinking on PUC
process***

Challenges of the regulatory process

- **Fragmentation** of issues into multiple, specific proceedings
- Stakeholder **information asymmetry**
 - (Who has the experts? Who runs the models?)
- Litigation **requirements**:
 - Scoping the case
 - Establishing a position
 - Time, time, time
 - Using old concepts (prudency and used/useful) to address new questions
- Difficulty in **entering** the regulatory process:
 - Who/What/When/How

Process is a strategic decision

PUC can identify important decisions/choices

- When **innovation, new thinking** is called for
- No need to have pre-determined ideas about outcomes to consider questions inescapable
- For these important moments, special consideration for process is appropriate

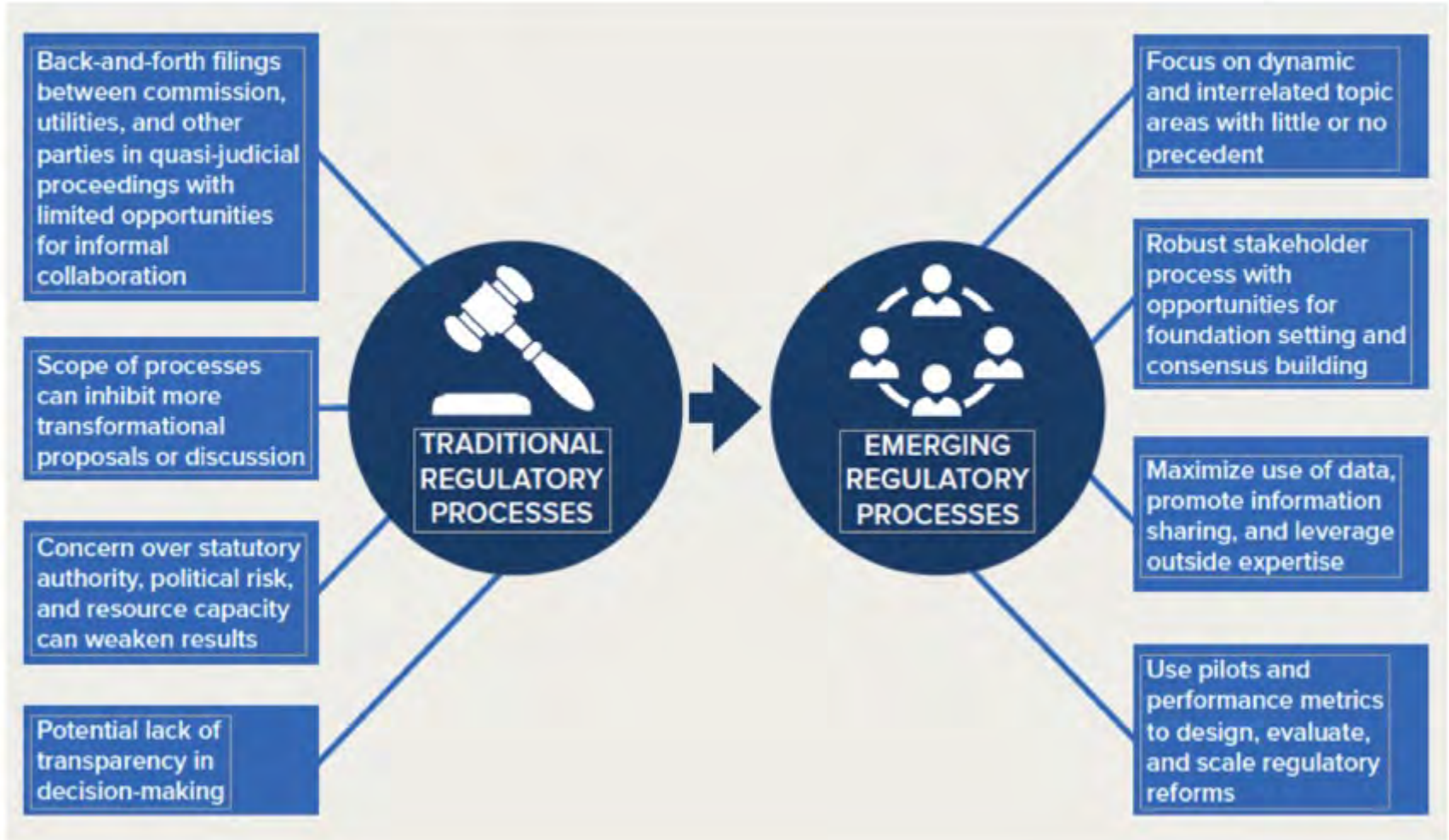
Strategy of process

- Each state is unique
 - History
 - Priorities and statutes
- Situations characterized by innovation are unique
 - Timing very important
 - Subject matter *matters* to process selection



EXHIBIT 2

Evolution of Regulatory Process Design



Source: Process for Purpose, RMI, 2019

Likely subjects for process innovation

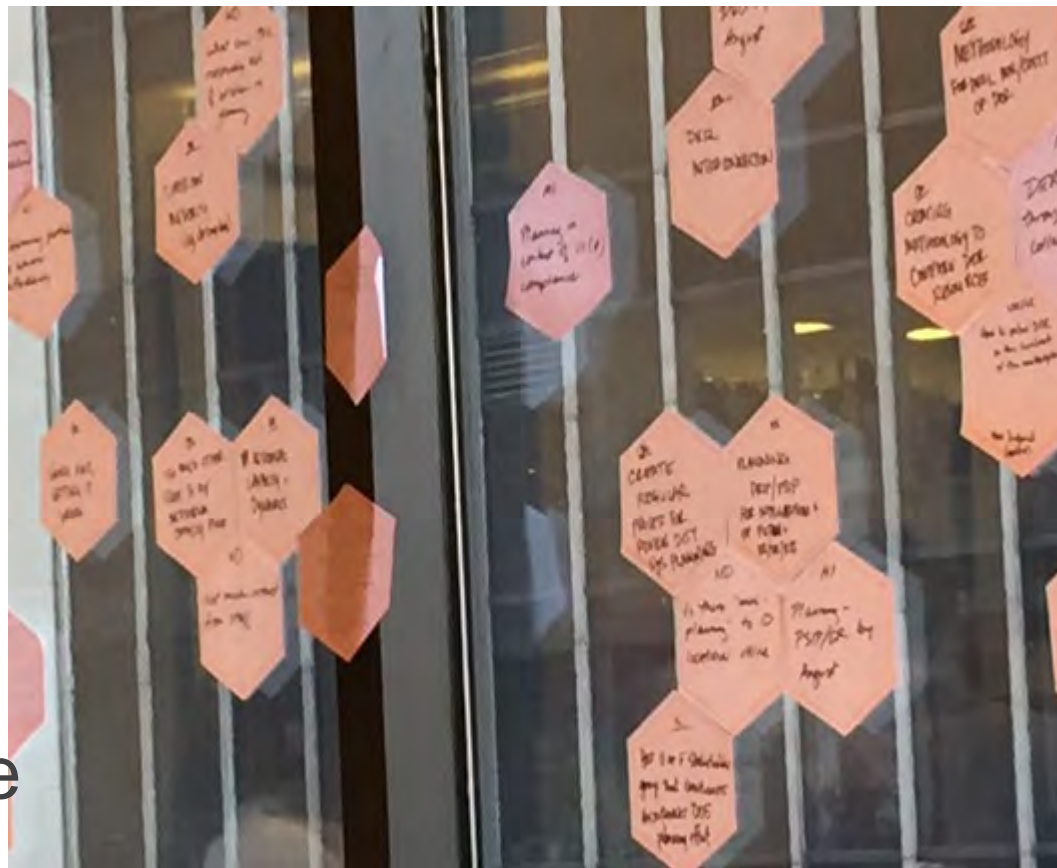
- **Energy efficiency** – markets and customers
- **Electrification** – new markets, customers, utility role, innovation
- **Performance regulation** – innovation, changing role of utility
- **Resilience** – value, compensation, microgrid rules
- Influences of **technology** – innovation, topology of grid, changing expectations
- **Safety net**, inclusion – account for under-represented perspectives, connect to innovation-driven opportunity
- Use of **data** for good – innovation, new programs, markets
- Initiating **demonstration** projects
- **Big policy** shifts

Common characteristics of process innovation

- **Innovation** in the public interest
- **New Businesses**, engaged
- **Customers** activating, relying on
- **Leadership** from convener

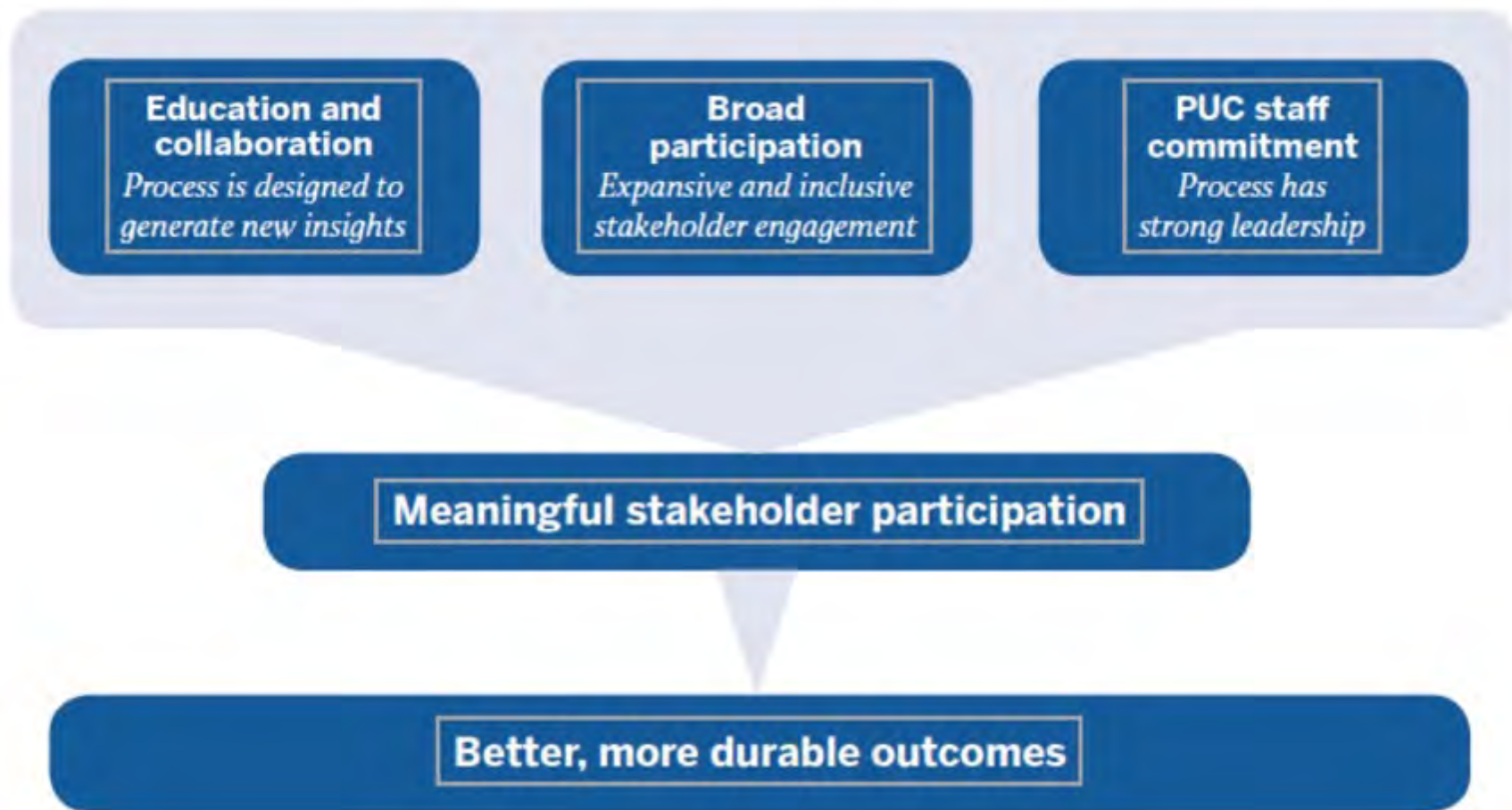
Advantages to process innovation

- Stakeholders are heard and hear each other
- New ideas are invited
- Synthesis of ideas
- Problems can come with solutions



Outcomes from process innovation

- Smarter **stakeholders**
 - Better evidence, arguments
- Smarter **staff** (and commissioners if they participate)
 - New ideas and perspectives, empathy
- **Solutions** that decision-makers can ratify
 - Responding to real **trends**
- Built on the **foundations** of regulation



Source: [Leading Utility Regulatory Reform, RAP, RMI, 2019](#)

Conditions for better outcomes

- **Engagement** (as distinct from lectures)
 - Move toward empathetic problem solving
- Reveal **priorities**, invite convergence
- **Experience** from away
- Neutral convener (higher ed?)
- Essential for value: Get participants **off their talking points**
 - Maximizing value: Participants trying to solve others' problems



Connect to decision-making dockets

- Keep everyone motivated that this work matters
 - Clarity, consistency, discipline
- Reinforce interest of decision-makers in progress
 - Outcomes
- Remind that constructive participation gives the group power
 - Who knows what the commission will do????!

Reasons not to deploy process innovation

- Authority – not a limit in most states
- Time
- Trust deficit
- Discomfort
- Lack of budget
- Lack of commitment from decision-maker

A few state examples – Current & recent

- Oregon Power Sector Transformation
- New York Reforming the Energy Vision
- Rhode Island Power Sector Transformation
- Ohio Power Forward
- Illinois Next Grid, AMI, Energy Efficiency
- Minnesota e21 (NGO-driven)
- North Carolina (executive branch)

A few state examples - Past

- Texas Deliberative Poll on Renewable '96-'98
- Retail competition initiatives late '90s
- Arkansas PSC energy efficiency docket '06

Special case: NY REV



Reforming the Energy Vision

- Unprecedented ambition
- Almost no evidentiary hearings in multiple policy orders
- Strong role of initiating through Staff Reports
- PUC controls course of conversation by establishing starting place
- Various forms of process and comment lead to policy orders to be implemented in typical cases

Regional examples

- Pacific Northwest
 - Northwest Power and Conservation Council
 - Regional Technical Forum on energy efficiency
- REEOs (regional energy efficiency organizations)
- MADRI (Mid-Atlantic Distributed Resources Initiative)
 - And its predecessor, NEDRI in New England

Jumping off the continuum

- Regulation is often about finding right resolution **between two competing positions**
- Innovation is often about **new perspectives** not on continuum
 - And comes from people engaging, creating
- New technology and new customer capabilities to support grid presents **new opportunity**
 - **Process innovation** more likely secures it

Discussion Questions

- Does the commission have a role in convening a process of engagement that accounts for the trends we have discussed today?