

Regulatory Paradigms in a Time of New Technology: Reflections upon Future Challenges and Opportunities

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Thinking About the Future Multiple Perspectives

The Problem for this talk: Outdated strategies and processes to deal responsively (time) and appropriately with new problems in light of growth and technological change

- Goals and Needs of the “Energy System” from individual, customer and the Grid
- Public Policy Mandates impact the “System”
- Interaction of Technology and Disruption challenge the “System” in new ways
- Reconciliation of values in the “System” such as a “Clean Environment” and Market Mandates of competition and efficiency, reliability, cross subsidization

Recognition about how to approach the future based on a paradigm that gives greater value to the past/*what is the endgame in reconciling risk, vulnerabilities, new technologies*

Notion of the Future as Interactive and Interdependent

Multiple decision making processes within states, region and fed

- Rate Cases, smart grid proceedings, IMAPP on market design, federal directives during period of political transition
- *Accommodation of existing processes while in a period of change and transition-* building of a 40 year energy entity based on a 5 year fuel price and unknown technologies
- Technologies- carbon reduction, storage, der, information and customer communication, improvements on existing technologies, EVs and two way flows, behind the meter, microgrids, etc.
- Simulating and stimulating markets and mechanisms – RPS, RGGI, PPAs, strategic investments in transmission (how can you build an offshore wind farm without accounting for transmission in your costs and build out)

Clear Recognition of Challenges

- NY REV, California initiatives
- Massachusetts Energy Storage Initiative seeking 600 MW of advanced energy storage which is operationalized as Advancing Commonwealth Energy Storage Program (ACES)- combining business models, cases, technology- due June 2017
- Market place demonstration in Calif Tesla battery storage – absorb energy from the grid during day and feed it back at night- price equivalent to gas peaker, environmental benefits, flexibility- location and time elements are critical in any deployment of new technologies

Example: Comprehensive RI PUC Power Sector Transformation Stakeholder Process



Some Ideas about the Future of Regulation, Technology, Markets and Environment

- Appropriate decentralization of decision making in terms of response, technologies, function at both utility and governmental level
- Internal transformation of many utilities already underway- focus on decision making, culture, accountability, cost reductions, risk management
- Many state governments value new technologies and seek to implement new decision making process, understand risk allocation- but heavily constrained by precedent and process, reconciling competing goals and interests of stakeholders
- Overlying issue (beyond this presentation) is the innovation process itself

Deeper Dive on Facilitating the Future: Possible Operating Principles

- Accept that we will have to undergo disruption of existing models and paradigms while maintaining reliability and constraining costs (huge challenge that did not apply in other sector transformations)
- Reconcile enormous capital costs and Investments over long time frames but pressing need to begin operationalizing new technologies; perfect cannot be enemy of the good
- Create true competition- regulators constrain opportunities under appearance of competitive structures- are RFPs truly competitive?
- Develop expertise of all players – engineers need to understand economics and finance, and economist and financiers need to understand engineering; regulators need to understand both
- Recognize future is not linear- provide decision making off ramps and a toleration for risk and rewards