NRRI Colloquium
San Francisco, CA
18 November 2014

Recent Developments in the U.S. Electric Industry: Options for State Utility Regulators

Ken Costello
Principal Researcher, Energy & Environment
National Regulatory Research Institute
kcostello@nrri.org

Three Major Points

Electric Utilities Face Challenging Times Ahead

- Costly new environmental regulations
- Aging infrastructure
- Grid modernization
- Changing fuel and generation economics
- Transitioning to high penetration renewable-energy future
- Integration of new technologies (e.g., smart grid, DG, EVs)
- Cyber and physical security demands
- Public demands for improved "superstorm" response
- Customer engagement
- Competition beyond the meter
- Reduced or flat load growth

- ✓ **Is the threat of a "death spiral" real?**
- ✓ **What implications do these challenges have for regulators and utility operations?**

Unexpected Events Will Inevitably Occur

- The "pretense of knowledge" has unintended consequences
- The policy mantra should be "flexibility"
- We know from experience that the unexpected will happen
- When the future is *highly uncertain*, it pays to have a broad range of options
  - Form of insurance
  - Taking advantage of a favorable situation
  - Minimizing losses

Changes Will Vary Across Electric Utilities

- Some utilities will embrace new technologies more than others for economic, managerial and political reasons
- Cautious utilities and states have, therefore, good reason not to undertake radical changes
- This is similar to the 1990s when some utilities restructured while others did not
- Some utilities may tweak their business model while others will overhaul theirs
- Regulation should align with changes in the utility business model

How Should Regulation Change? Two Views

- **Reinvention of regulation**
  - New social compact
  - NY staff proposal ("Reforming the Energy Vision")
  - Hawaii (comprehensive energy policies and guidelines)
  - Massachusetts (modernization of the electric grid and time-varying rates)
  - California (development of distribution resources plans)

- *UK's RIIO model*
  - ✓ Focus on utility performance
  - ✓ Reliance on benchmarking among the jurisdictional utilities
  - ✓ The RIIO mantra, "value for money", underscores the ultimate question, "Are we paying for what we wanted?" In contrast, much of U.S. utility regulation attempts to answer the opposite question, "Have we paid the correct amount for what we've gotten?"
  - ✓ Emphasis on outcomes: utility burden to plan for and achieve articulated policy objectives
  - ✓ Annual reopeners, pass-through and true up mechanisms provide protection from uncontrollable costs, uncertainty, and investment shortfalls
  - ✓ How feasible for the U.S.?

How Should Regulation Change?

continued

- **Incremental**
  - Ratemaking reform
    - ✓ One view: "Set the right prices and desirable outcomes will come" (i.e., the appropriate business model should follow reformed ratemaking)
    - ✓ Examples include SFV-type pricing, real-time pricing, multi-year rate plans, cost-based standby rates, surcharges, performance-based rates
  - Affiliate rules to create a level playing field
  - Performance evaluation (rewards/penalties, further investigation of potentially problematic areas)
  - Elimination of artificial barriers created by the market and regulation
  - Tweaking of the utility business model

Additional Reflections

- Is regulation up to the task of updating its policies and practices for the 21st century?
- Will utilities succeed like Verizon has or fail like Kodak did in response to technological advancements and increased competitive pressures?
  - Lessons from other industries (e.g., telecommunications) that have confronted disruptive technologies
- Can we assume that things will change as dramatically as projected or hoped for by some non-objective analysts and special interest groups?
- The last decade has seen substantial changes and big surprises
  - Should policymakers exhibit more humility by avoiding being definitive on the future evolution of the electricity industry, therefore, on what utilities and regulators should do today?
  - Haven't we learned enough from the past to keep our options open because of surprises and other unexpected events?
    - ✓ What is the risk if events change that makes the current vision of the future electricity industry unlikely?

Additional Reflections □ *continued*

- Do customers, especially households, want to get engaged?
- Should we wave goodbye to central station generation, as many industry observers are projecting or advocating?
- Comment from a CEO of a major utility: "…at the end of the day you can't use a private company's balance sheet and its ability to bill to carry out social policy. You cannot use that capability to ultimately tax all customers for what you perceive is a benefit to certain customers."
  - ✓ **How should policymakers react to this statement?**
  - ✓ **Does it have any validity or does it reflect backward thinking?**

Additional Reflections *continued*

- **Do we expect our electric utilities to do too much?**
  - Can you think of any other private industry in which society expects firms to address so many social issues?
  - One objective of regulation is to keep utilities financially healthy while satisfying different social goals
  - Who should set goals and objectives for utilities? Would outcomes be socially superior to other approaches just because stakeholders reached a consensus? Have some stakeholders become too powerful in the regulatory arena?
  - Would a government-run utility better satisfy all of the public objectives than what a privately own utility could?
  - *Problem with IOUs*: Utilities face incentives to minimize risk given little potential for upside gain; utilities are extremely risk averse largely because of regulation that have makes them reluctant to take chances and innovate even when it would be beneficial to society

Additional Reflections □ *continued*

- Are utility customers getting the worse end of the deal; are they paying for the advancement of social objectives without compensatory benefits? ["turkey stuffing"]
- *Have policymakers given the free-market short shrift?*
  - Markets function best when returns are received and risks borne by private owners
  - Taxpayer/ratepayer subsidies should require rigorous cost-benefit tests and maintain a level playing field among competing energy resources
  - Subsidies for specific technologies should continue only under extreme circumstances; subsidies generally have negative side effects that are often non-transparent
  - Clean energy technologies should be competing with each other and the technologies they seek to replace – not for government handout or regulatory/legislative favors
  - Well-functioning markets require consumer empowerment and economically rational pricing

Additional Reflections □ *continued*

- *Sobriety test*
  - What the heck are we doing?
  - Does it make sense or have we gotten off the rails?
  - Who is in charge?
  - There is inevitable tension between a for-profit entity trying to satisfy several and conflicting social goals
  - Are the tensions between profit motives and social mandates for electric utilities so severe that efforts to reconcile them are futile?
  - Do we need to re-evaluate the role of electric utilities in society?

Additional Reflections □ *continued*

- The global questions for utility regulators
  - How to compensate utilities fairly while providing incentives to pursue society's broader policy goals?
  - Compare this to the past when regulation focused largely on overseeing utilities' profits, servicing growing customer demands and maintaining rate stability and service reliability
  - Can regulators address industry changes by rate reform and other incremental actions, or do they have to redefine utility social obligations and structure?
  - What can individual regulators learn from other jurisdictions and industries undergoing major changes?
  - Should regulators lead the dialogue over the utility of the future and its regulation?

Supplemental Information

Three Broad Features of the U.S. Electric Industry and Its Regulation

Utility Regulation	Market	Economy-wide
State-by-state balkanization	Wholesale power prices highly vulnerable to demand and supply shocks	Substantial environmental footprint
Many stakeholders involved	Essential input for many energy services	High social costs from outages or supply shortages
Highly visible and politicized	Large capital requirements with long lead times	Vulnerable to cyber and physical terrorist attacks
Tight price control over natural-monopoly services	Competitive conditions in restructured wholesale markets	Large user of energy
Federal/state jurisdictional disputes	Some retail competition that includes residential customers	Important driver of economic growth
State jurisdiction over transmission siting	High regret from unexpected events or poor public policies	

A Vision of the Future Electric Industry

- Lower sales growth
- Increasing average cost
- Fast DG adoption
- Bidirectional and more volatile power flows
- Real-time information to market participants
- Penetration of the smart grid and the changes it will engender
- Increased emphasis on grid resilience
- Increased use of storage
- Greater customer demands for reliability and value added services
- Transformation of electric generation to non-fossil fuels
- Growing dependency on electricity by the digital economy
- New technologies to better integrate power systems and customer demands with electric services

Logical Questions

- What role should utilities play?
- How should state utility commissions regulate them?

Utility Business Models

- Rationale for a new business model: Outdated assumptions underlying the current business model
- The business model for utilities should:
  - Respond to new technological and market developments
  - Support traditional regulatory objectives (e.g., cost-based rates, fairness across different customer groups) underlying "just and reasonable rates"
  - Satisfy predetermined broad social objectives (e.g., affordable electricity to low-income households, clean energy)
- Three basic questions related to the business model
  - What value added can utilities create?
  - How can utilities deliver the added value to customers?
  - How can utility shareholders benefit?
- Role of the utility
  - Wires company
  - Facilitator ("orchestra leader")
  - Energy service utility

Utility Business Models

continued

- Basic questions for regulators, including
  - What is a business model?
  - Why is it important?
  - What are the major components of a business model?
  - What is the typical business model for electric utilities?
  - Why has a public dialogue initiated over its relevance and usefulness?
  - What are some of the problems with the current business model?
  - What are the changes being discussed?

New Regulatory Duties and Challenges

- What posture will regulators take?
  - Lead or follow
  - Either can be rational depending on economic and political cirscumstances
- Regulators have to make tradeoffs among an increasing number of objectives, some of which are conflicting
- What is the definition of "just and reasonable" rates and the public interest in a transformed electric sector?
- How can regulators encourage utilities to achieve prespecified objectives at the lowest cost to society?

New Regulatory Duties and Challenges □ *continued*

- A logical approach to reforming regulation should ask the following questions:
  - What should society expect from utilities?
  - What role should utilities play in the future to meet these expectations?
  - What incentives should regulation provide?
    - ✓ What can regulators do to best meet these expectations?
    - ✓ How can regulators best steer utilities toward satisfying the prespecified goals?
  - How should regulators reform or change their current policies and practices?
    - ✓ Does regulation need to reinvent itself or just make incremental changes?
    - ✓ For example, performance-based regulation, new rate designs, or the requirement of a drastically changed utility role?