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26 June 2018

Risky Business: New Trends in North American Regulation

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Abstract

External forces have always prompted regulatory change in the US electric power sector. High inflation and fuel costs in the 1970s ushered in the era of marginal cost pricing and performance incentives for generation efficiency. The worldwide wave of privatization led the United States to import competitive wholesale markets and "price cap" regulation from the United Kingdom. Prompted by recent technological advances and concerns about climate change, a new wave of regulatory action seeks to update electricity markets and utility business practices, revealing unfinished business in North American utility regulation. In pursuit of new policy objectives, several states exhibit a renewed interest in performance-based regulation. Simultaneously, other states seek to limit competitive retail markets due to perceived harm to small customers from exposure to price risk. These trends present new risks and opportunities for utilities.

Introduction

Worldwide, new technologies and policy objectives impact electric utility regulation. A variety of emerging distributed technologies—including flexible demand, distributed generation, energy storage, and advanced power electronics and control devices—create new options for the provision and consumption of electricity services. At the same time, rapidly decreasing costs of information and communications technologies enable more flexible and efficient consumption of electricity, improved visibility of network use, and enhanced control of power systems. Amidst this technology deployment, ongoing policy efforts seek to decarbonize power systems and expand renewable energy sources.

Decarbonization, decentralization, and digitization—the "Three Ds"—do not represent the first external forces to drive regulatory change in the North American power sector. The oil crises of 1973–74 and 1979 drove sharp electricity rate increases, prompting widespread regulatory intervention in rate structures and a new emphasis on economic efficiency incentives. New York and Wisconsin responded as the first states to implement marginal cost pricing for their

respective public utilities—an initiative that spread to other states. Some regulators responded by targeting generation efficiency incentives; by 1986, 14 states implemented targeted and formal incentive regulatory programs—with programs under consideration in six more.[1]

Another external force, the UK's rapid privatization in the 1980s, led to the introduction of price cap (or RPI-X) regulation there. Adapted forms of RPI-X regulation quickly gained popularity in the US telecommunication sector. Though RPI-X did not resonate as well for electric and gas utilities, a handful of states and Canadian provinces continued to adopt rate plans that use calculations of utility productivity or "X-factors."[2]

In the late 1990s, several US states adopted another UK import: competitive wholesale electricity markets. Responding to some of the highest retail electricity prices in the country, California first signalled its desire to restructure in April 1994.[3] Several states with high electricity prices followed suit, but the California Energy Crisis of 2000–2001 halted many other states' further efforts to restructure.[4] Voters in Nevada—one of the states that halted its efforts after the California experience—recently proposed to restart the effort to pursue a wholesale electricity market, perhaps signalling a greater renewed interest in competitive power markets.[5]

Along with wholesale market restructuring, many states implemented retail competition but continued to allow utility-provided "default" service, wherein the utility passes wholesale electricity costs to consumers. Comparisons of utility default service prices and competitive retail service recently sparked renewed debate about the role of retailers in US electricity markets (in various states).[6]

The "Three D" trends reveal unfinished business in North American utility regulation. In many jurisdictions, new policy goals have driven newfound regulatory interest in multi-year rate plans and outcome-based performance incentives (together often referred to as "performance-based regulation" or PBR). Likewise, increased focus on customer and distributed energy participation in power systems has led to investigations into the role of retailers in competitive markets in some states. Both trends pose new risks—and opportunities—for electric utilities.

New Trends in North American Regulation

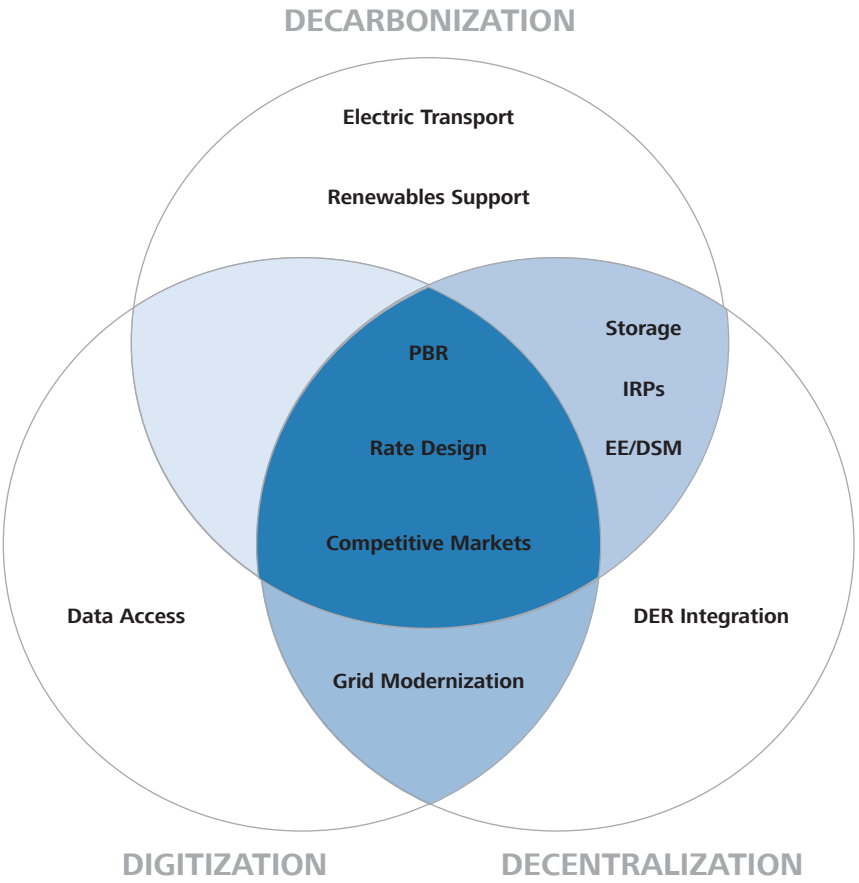
New regulation seeks to align better utility incentives with new objectives, such as grid modernization and the integration of renewable and distributed energy resources. More than 600 state and federal regulatory proceedings initiated in the past five years aim to advance objectives related to the decarbonization, decentralization, and/or digitization of electricity systems.[7] These regulatory proceedings fall into 11 categories, described in Table 1.

Table 1. **11 Categories of Recent Regulatory Activity**

Category	Description
Performance-Based Regulation (PBR)	Initiatives that encourage utility results without specific regulatory direction via multi-year rate plans, I-X regulation, and outcome-based incentives
Grid Modernization	New utility investments in voltage optimization, data management, reliability, and cybersecurity
Data Access	Issues pertaining to the sharing and protection of data between utilities, customers, and third parties
Transportation Electrification	Deployment of electric vehicle charging stations and time-variant pricing for electric vehicles
Storage	Deployment of electric storage assets
Rate Design	Introduction of time-variant pricing, demand charges, and changes to or replacement of net energy metering for distributed energy resources
Distributed Energy Resource Integration	Deployment of "non-wires alternatives" to avoid traditional investments, updates to distributed generation interconnection rules, and wholesale market changes that encourage DER participation
Competitive Markets	Changes to competitive retail markets that enable or hinder customer access
Renewables Support	Implementation of and updates to renewable portfolio standards (RPS), renewable energy tariffs, community solar, and carbon pricing
Energy Efficiency/Demand-Side Management	Updates to existing utility energy efficiency and demand-side management programs
Integrated Resources Planning (IRP)	Implementation of and updates to resource planning processes to include more renewables and DER

The Three Ds provide a useful classification structure for the numerous proceedings aimed at modernizing the electric grid, described above. Figure 1 classifies the 11 categories that aim to accomplish one or more of the Three Ds.

Figure 1: **11 Recent Regulatory Initiatives and the "Three Ds"**



While new trends in North American utility regulation reflect an evolving power sector, broad regulatory objectives remain the same as those of past regulatory interventions responding to different shocks. New regulation seeks to align utility incentives with behavior to minimize electricity costs and prices, and improve efficiency. Performance-based regulation and retail competition represent two avenues through which regulators, utilities, and retailers could accomplish these goals in an era of digitization, decarbonization, and decentralization.

Renewed Interest in Performance-Based Regulation

Half of the respondents in a recent survey of electric utility executives expect to face a mix of "traditional" regulation and "performance-based regulation" in the next ten years.[8] A very large majority (about seven-eighths of the respondents) believe that the most appropriate utility regulatory model for the 21st century will either be (1) cost-of-service regulation with a mix of performance-based regulation or (2) predominantly performance-based regulation.

Recent activity seems to support utility executives' expectations. In the past five years, 14 states initiated 19 regulatory actions related to performance-based regulation (PBR), including multi-year rate plans, RPI-X price cap plans, and the establishment of new outcome-based incentives. The US imported price cap regulation from the UK's efforts to speed that country's privatization. It grew to prominence in the US telecommunications sector in the 1980s and 1990s as a bridge to deregulation in the rapidly advancing telecom sector.[9] The electricity utility industry, effectively regulated on a cost basis, did not experience the same influx of price cap regulation, with the exception of a handful of US states and Canadian provinces.[10]

Motivated by the "demands of moving to a low carbon economy and meeting… renewable [energy] targets,"[11] the United Kingdom's RIIO regulatory framework (Revenue = Incentives + Innovation + Outputs) sparked renewed interest in multi-year rate plans and outcome-based incentives in some North American jurisdictions. New York's Reforming the Energy Vision (REV) initiative looked to RIIO for inspiration in setting its own regulatory agenda.[12]

In addition, the 2005 repeal of the Public Utility Company Holding Act of 1935 (PUCHA) enabled greater consolidation of the utility industry.[13] Management of consolidated utilities may be more interested in increasing cost efficiencies and lengthening regulatory lag than utilities of the past.[14] For instance, Eversource Energy recently proposed—and the regulator approved—a five-year I-X rate plan for two subsidiaries in Massachusetts.[15]

Electric utilities and regulators look to performance-based regulation, including multi-year rate plans, to lengthen the time between rate cases using mechanisms that automatically adjust rates.[16] Such plans often take the form of RPI-X regulation, adapted for the US context, where the X-factor adjusts economy-wide inflation to the industry-specific environment. Prices change over the term of the plan with this industry-customized index.[17]

PBR can also involve incentives tied to specific utility outcomes and reward (or penalize) utilities for overperforming (or underperforming) based on specific targets such as reliability, customer satisfaction, and energy efficiency. Outcome-based incentives have long functioned as a means of achieving policy objectives. A 1986 NERA electric utility conference listed 22 such incentives in 14 states, most related to generation efficiency improvements.[18] Recent regulatory initiatives in several states explore new performance incentives. These include:

- The Hawaii Public Utilities Commission (PUC) proceeding to investigate the economics and policy implications associated with aligning utility incentives with performance on increased renewable energy, lower cost, and improved customer service;[19]

- The Minnesota PUC investigation to identify and develop performance metrics and financial incentives for Xcel Energy to complement the utility's existing multi-year rate plan;[20]

- The New Mexico Public Regulation Commission (PRC) investigation into existing ratemaking policies and future financial incentives linked to customer satisfaction, grid reliability, peak demand reduction, energy efficiency, and renewable portfolio standards;[21] and

- The Rhode Island PUC's Power Sector Transformation Initiative to design a new regulatory framework for the state's electric system, including multi-year rate plans and performance incentive mechanisms for efficiency, DER, and customer engagement.[22]

Such regulator-initiated proceedings generally reflect wider political desires to encourage modernization of the electric grid and increased use of renewable energy sources.

Steps Backward in Retail Market Competition

Competitive electricity markets—imported to the US in the 1990s after the UK's privatization of its Central Energy Generating Board (CEGB)—remain somewhat unsettled in the states that ultimately adopted the framework.[23] Political pressure, in the form of lobbying industrial customers, independent power producers, and natural gas marketers looking to market electricity, pushed for wholesale restructuring and retail competition in several US states.[24] Currently, less than half of the states participate in the country's seven competitive wholesale generation markets, and only one state (Texas) has adopted "full" retail competition without default service from the incumbent electric distribution companies.[25] Recent inquiries in some states regarding the role of independent retailers presents uncertainty for retailers; threatens the wholesale market; and may hinder pursuit of policy objectives aimed at digitization, decarbonization, and decentralization.

For several years, the New York Public Service Commission (NYPSC) has conducted inquiries into New York's larger competitive electricity supply market.[26] The most recent case in New York relies on the comparison of default service to prices charged by retailers.[27] A similar inquiry began in March 2018, with the Massachusetts Attorney General's call for a shutdown of the state's competitive electricity supply market for residential customers.[28]

Default service, where the utility simply passes the wholesale market electricity cost to consumers, emerged as a transitionary mechanism to aid the move toward deregulated electricity markets.[29] Default service ensured consumer access to electricity during the transition while maintaining the utility's obligation to serve all customers yet remain indifferent to electric commodity sales.[30] The comparison between default service prices and competitive retail prices ignores the differences between the two products: default service simply provides electricity while competitive retailers also provide additional value-added products, such as fixed pricing, green energy, and rewards programs.[31] Such a cost pass-through biases the competitive experiment by creating a lower-priced, regulated service simply to provide electricity and comparing it to the retail product, which often extends well beyond electric service.[32]

Relying on utility default service to link consumers and the wholesale electric spot market limits generator ability to sign long-term contracts with retailers, which allows generators to hedge against the risk of operating plants of high capital intensity in the electricity market.[33] Regulated utilities do not operate with the inherent business competition incentive to minimize cost as retailers do.[34] Providing customers with "virtual direct access" to the wholesale market increases price volatility—and therefore consumer price risk. Retailers behave as intermediaries who can enter into bilateral contracts to hedge delivery and smooth consumer prices.

Furthermore, retailers provide the best entry point for states to pursue new objectives of digitization, decarbonization, and decentralization.[35] Retailers may foster distributed platform goals through their existing engagement with consumers in the market.[36] Barring or limiting competitive retail suppliers from serving customers hinders the competitive potential of the market by removing the very third parties that can (and already do) provide innovation in the market.

Conclusion

Recent regulatory activity in the US electric utility sector reflects the industry response to new external forces on the electric grid. Distributed and digital technologies enable more flexible electricity consumption, improved visibility of network use, and enhanced control, while ongoing policy efforts seek to decarbonize power systems. These trends drive newfound regulatory interest in performance-based regulation and the role of retailers in competitive markets. Renewed interest in PBR and retail competition reflects unfinished business in the industry. The oil crises of the 1970s and the UK's rapid privatization in the 1980s led directly to the first North American performance-based regulation and competitive retail markets. Then and now, new regulation seeks to better align utility incentives with behavior that minimizes electricity costs and prices, and improves efficiency in a quickly evolving power sector.

Notes

[1] J.H. Landon, "Practical Problems with Incentive Regulation," *Surviving in an Era of Changing Regulation*, NERA Electric Utility Conference, *The Registry*, Scottsdale, AZ, 12–15 February 1986.

[2] J.D. Makholm, "Incentive Regulation 3.0 for Electric Utilities," *Natural Gas and Electricity*, June 2018, p. 27.

[3] C. Blumstein, L.S. Friedman, and R. Green, "The History of Electricity Restructuring in California," *Journal of Industry, Competition, and Trade*, 2:1–2, June 2002, pp. 9–38.

[4] P. Joskow, "The Difficult Transition to Competitive Electricity Markets in the U.S.," May 2003, p. 8.

[5] R. Snyder, "What Nevada can learn from its attempt (and failure) to deregulate the energy market in the 1990s," *The Nevada Independent*, 19 November 2017, available at https://thenevadaindependent.com/article/what-nevada-can-learn-from-its-attempt-and-failure-to-deregulate-its-energy-market-in-the-1990s.

[6] For example, see New York Public Service Commission Case 15-M-0127, Case 12-M-0476, and Case 98-M-1343 and Massachusetts Attorney General Press Release, available at https://www.mass.gov/news/ag-healey-calls-for-shut-down-of-individual-residential-competitive-supply-industry-to-protect.

[7] NERA survey of US regulatory proceedings from 2013–2018.

[8] Utility Dive, 2018 State of the Electric Utility Survey, p. 21.

[9] C. Ai and D. Sappington, "The Impact of State Incentive Regulation on the U.S. Telecommunications Industry," *Journal of Regulatory Economics*, 22:2, September 2002, pp. 133–160.

[10] J.D. Makholm, "Incentive Regulation 3.0 for Electric Utilities," *Natural Gas and Electricity*, June 2018, p. 27.

[11] Ofgem, "Open letter consultation on the development of gas and electricity innovation stimuli," 12 October 2010 – RIIO, pg. 2, available at https://www.ofgem.gov.uk/ofgem-publications/56969/innovation-stimuli-12102010-open-letterpdfpdf.

[12] New York Public Service Commission, Case 14-M-0101, Proceeding on the Motion of the Commission in Regard to Reforming the Energy Vision, Order Instituting Proceeding, 25 April 2014

[13] M. Chediak, C. Collins, and J. Polson, "Utility M&A is So Hot Not Even Berkshire's Billions Won a Bid," Bloomberg Markets, 3 January 2018, available at https://www.bloomberg.com/news/articles/2018-01-03/utility-m-a-is-so-hot-not-even-berkshire-s-billions-won-a-bid.

[14] A. Feibelman, "Today's Utility Mergers: The Search for Financial Strength," Oliver Wyman, 2011, available at http://www.oliverwyman.com/content/dam/oliver-wyman/global/en/files/archive/2011/20110923_EGY_Todays_Utility_Mergers.pdf.

[15] In addition to a five-year rate plan, the Massachusetts Department of Public Utilities also approved performance incentives for customer satisfaction and engagement, system peak demand, and climate change. See Massachusetts DPU Order 17-05, 30 November 2017, available at https://www.mass.gov/files/documents/2018/01/26/17-05_Final_Order_Revenue_Requirement_11-30-17.pdf.

[16] Utility Dive, 2018 State of the Electric Utility Survey, p. 25.

[17] For the most recent example of this type of plan in the United States, see Massachusetts DPU Order 17-05, 30 November 2017.

[18] J.H. Landon, "Practical Problems with Incentive Regulation," *Surviving in an Era of Changing Regulation*, NERA Electric Utility Conference, *The Registry*, Scottsdale, AZ, 12–15 February 1986.

[19] Hawaii PUC 2018-0088, 18 April 2018.

[20] Minnesota PUC 17-401, 22 September 2017.

[21] New Mexico PRC 17-00046-UT, 22 March 2017.

[22] Rhode Island PUC Introductory Session Slides, 6 April 2017.

[23] S. Hunt and G. Shuttleworth, *Competition and Choice in Electricity*, Wiley, 1996, p. 5.

[24] P. Joskow, "The Difficult Transition to Competitive Electricity Markets in the U.S.," May 2003, p. 8.

[25] See https://www.ferc.gov/industries/electric/indus-act/rto.asp and S. Littlechild, "The regulation of retail competition in US residential electricity markets," 28 February 2018; 13 states have retail competition and default service: Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and Washington, DC. Several other states allow limited retail competition: California, Michigan, Arizona, Oregon, Nevada, and Montana.

[26] For a comprehensive review of the New York experience, see S. Littlechild, "The regulation of retail competition in US residential electricity markets," 28 February 2018, pp. 56–81.

[27] See New York Public Service Commission Case 15-M-0127, Case 12-M-0476, and Case 98-M-1343.

[28] See "AG Healey Calls for Shut Down of Individual Residential Competitive Supply Industry to Protect Electric Customers," Office of Attorney General Maura Healey, Press Release, 29 March 2018, available at https://www.mass.gov/news/ag-healey-calls-for-shut-down-of-individual-residential-competitive-supply-industry-to-protect.

[29] P. Joskow, "The Difficult Transition to Competitive Electricity Markets in the U.S.," May 2003, p. 3.

[30] S. Littlechild, "The regulation of retail competition in US residential electricity markets," 28 February 2018, p. 11. Another transitionary mechanism involves billing and responsibility for retailer accounts receivable. In most states, utilities bill customers for all services and remit payment to retailers. Utilities and those states are required to purchase retailers' accounts receivable and, therefore, collection responsibility. In Texas, the opposite is true, and with the proliferation of smart meters, the retailer can authorize the utility to turn off customers for non-payment under certain circumstances. pp. 17–18.

[31] P. Joskow," Why do we need electricity retailers? Or can you get it cheaper wholsale?" MIT Center for Energy and Environmental Policy Research, January 2000.

[32] J.D. Makholm, "Electricity Deregulation Under Siege," *Natural Gas and Electricity*, August 2017, p. 28. Texas is the only state without utility-provided default service.

[33] S. Hunt, *Making Competition Work in Electricity*, John Wiley & Sons, New York, 2002, pp. 232–233.

[34] S. Hunt and G. Shuttleworth, *Competition and Choice in Electricity*, Wiley, 1996, p. 70.

[35] J.D. Makholm, "The REVolution yields to a more familiar path: New York's Reforming the Energy Vision (REV)," *The Electricity Journal*, 29:9, November 2016, p. 54; Similarly, New York's Clean Energy Standard (CES) creates requirements intended to facilitate New York's stated goal of 50 percent renewable energy by 2030. See Case 15-E-0302 et al., *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Order Adopting a Clean Energy Standard, 1 August 2016.

[36] Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order Adopting Regulatory Policy Framework and Implementation Plan, 26 February 2015, p.67. Retailers are one of the only players in the market allowed to own distributed energy resources (DER) under REV.

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