American Antitrust Institute

Annual Energy Roundtable

The Changing U.S. Generation Fleet: What Does It Mean for Competition?

Tuesday, May 6, 2014

National Rural Electric Cooperative Association

4301 Wilson Blvd. Arlington, Virginia

I. Introduction

The American Antitrust Institute (AAI) held its 14th Annual Energy Roundtable on May 6, 2014 at the National Rural Electric Cooperative Association (NRECA) in Arlington, Virginia. The AAI greatly appreciates the generous assistance and sponsorship of both NRECA and the American Public Power Association (APPA) in making the Roundtable possible. The AAI's Annual Energy Roundtable seeks to bring together various stakeholders to discuss current competition policy issues in electricity markets, particularly the intersection between antitrust and regulation. This year's Roundtable focused on the shifting economic and regulatory landscape—for example, the shale gas revolution and federal initiatives to reduce greenhouse gas emissions—and how it could unleash significant changes in the generation sector. Such changes will shape investment decisions by investor-owned utilities, municipal and cooperative utilities, merchant generators, and others and ultimately affect how power is produced and at what cost. More than 40 individuals from academia, advocacy, consulting, government, industry, and trade associations participated in the Roundtable. AAI Vice President and Director, Diana Moss, developed the agenda and presided over the discussion. The proceedings themselves were off the record and not transcribed. This report briefly summarizes the proceedings (without attribution for the panel discussions) and accompanying dialogue.

The following individuals made presentations or participated on the panels:

1. Joe Nipper, Senior Vice President, Government Relations, American Public Power Association
2. John E. Kwoka, Neal F. Finnegan Distinguish Professor, Department of Economics, Northeastern University
3. Paul McCurley, Manager of Power Supply and Chief Engineer, National Rural Electric Cooperative Association
4. Jennifer J. Vosburg, President, Louisiana Generating, NRG Energy Inc.
5. John E. Shelk, President and CEO, Electric Power Supply Association
6. Peter S. Fox-Penner, Principal, The Brattle Group
7. Diana L. Moss, Vice President, American Antitrust Institute
8. J. Arnold Quinn, Director, Division of Economic and Technical Analysis, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

9. Mark J. Niefer, Trial Attorney, Antitrust Division, U.S. Department of Justice
10. Paul Sotkiewicz, Chief Economist, Markets Division, PJM Interconnection

II. Year In Review

Joe Nipper opened the Roundtable with a recap of the past year's major developments in energy and environmental regulation. President Obama and new leadership at the major federal energy and environmental agencies appear committed to reducing carbon emissions and promoting renewable energy through regulation and international coordination. Regulatory initiatives such as reducing greenhouse gas emissions under the Clean Air Act highlight the role of executive branch agencies (as opposed to Congress).

Federal regulators have been active on non-environmental issues as well. FERC finalized an order permitting greater information sharing between gas pipelines and transmission owners. The President issued executive orders on the development of a cyber-security framework and dissemination of information on vulnerabilities. The Federal Energy Regulatory Commission (FERC) approved the North American Electric Reliability Corporation's track and report system on reliability.

In wholesale power markets, progress and conflict continued to occur simultaneously. The California ISO signed a Memorandum of Understanding with a major utility to develop an energy imbalance market (EIM), which will generate significant benefits according to the National Renewable Energy Laboratory. FERC has approved the implementation agreement, with regional approvals yet to come. The value of EIM has generated disagreement in the Northwest, particularly as capacity markets continue to generate significant controversy. Few stakeholders appear happy with capacity markets in Eastern regional transmission organizations (RTOs). State attempts to bypass capacity markets have not fared well. For example, federal district courts held that Maryland and New Jersey's procurement policies—intended to promote more long-term generation commitments—were preempted by federal law.

III. Highlights of the Morning Panel

A. Morning Panel: Key Developments Affecting Generation Capacity and Market Participants in the United States

John Kwoka moderated the morning panel.

To open, the panelists were asked to describe what they believed to be the most significant force for change in power generation. Panelists offered a variety of responses to this question. Clean technologies and greater customer control are thought by some to be the greatest sources of disruptive change. Solar panels on 50 million roofs would have a huge impact on the existing utility model. Regulation will be hard pressed to keep up with these technological advances. It was also noted that the combination of environmental regulations, technological change, and fuel price uncertainty would make it difficult to make long-term investment decisions. Namely, how can

investors commit to projects with a thirty- or forty-year life cycle with so much flux in the industry? Another question surrounds "unknown unknowns." For example, what will be the next shale revolution? The difficulty will be to transition to a very different model while keeping the lights on in the meantime.

The panelists next addressed the future of coal-fired generation. Some coal plants will need to be retired on account of age and cost, irrespective of changes to environmental regulation. But it is unclear which plants are retiring due to high cost versus a lack of revenue. A panelist commented that government should not be in the business of picking winners and losers. At the same time, not all coal plants are alike and that their economics varies from market to market. The polar vortex this past winter was an important reminder that reliability should not be taken as a given. We need to know to what will replace coal, otherwise the lights will go out under similar circumstances in the future. It was also observed that oil-fired generation played a critical role during the polar vortex.

The panelists then turned to the implications of increased output from renewable resources. One panelist questioned the purpose of production tax credits when wind is driving out nuclear, another largely clean fuel, in the Texas wholesale market. Another remarked that wind and solar are not dispatchable and so they are not a complete replacement for traditional technologies. Germany offers a cautionary tale, where renewables have been promoted indiscriminately, creating distortions that lead to higher costs and emissions.

John Kwoka concluded by asking the panelists whether markets can handle the industry-wide changes in the coming years. FERC was credited for showing leadership and cooperating with environmental regulators. Rules should be flexible because the future is highly uncertain. One panelist challenged the prevailing optimism about distributed generation. Utility-scale generation will remain important because wind or sunshine will not be present at all times and centralized generation will therefore be needed for backup. The question is how to integrate both forms of generation. It was also predicted that "big data" will have a huge effect on market developments. Customers will be able to adjust power use from handheld device. Who will control this data, and how will it be shared?

B. Morning Discussion

The morning discussion looked at the downsides of renewable energy development, the value of capacity markets, and the feasibility of real-time pricing.

One participant argued that the recent increase in German carbon emissions is due to the closing of nuclear power plants, not the growth of renewable output. And Germany has consciously sought to develop its capacity to manufacture renewable technologies. Other participants agreed with these points but said that renewable development should not be pursued at the expense of system balance.

A participant commented that FERC suppressed prices signals in some markets this past winter, which made capacity markets more attractive. This suggests capacity markets have a valuable role to

play. Another participant said that relying on energy markets alone to fund upgrades to the generation fleet would be unwise.

A participant said that in the absence of capacity markets real-time pricing is essential. Electricity is a volatile commodity but the prices to most end-users do not reflect that. Another participant objected to the desirability of real-time pricing. Maryland gave customers the option of variable price contracts but because of teaser rates and other inducements, customers paid less initially but then were soon hit with huge bills. And they could not return to their old pricing plan immediately. It was noted that it is unrealistic to expect knowledgeable demand response with current technology. Another participant observed that retail demand response is a good way to attack the peak demand problem—building generation for the possibility of a future polar vortex does not make sense. Commercial and industrial users, in particular, are well positioned to use demand response technologies.

IV. Luncheon Address

Peter Fox-Penner's luncheon address examined the radical changes that are likely to unfold in the coming years. Four factors are driving industry change: slowing demand, smart grid technologies, climate change, and growth of distributed generation. These drivers cannot be stopped.

Fox-Penner said that the challenge is to invest hundreds of billions of dollars in smart grid technologies to allow everyone to unhook from the grid. At the same time, the common narrative that utilities are in a death spiral is neither accurate nor helpful. Utilities will be around for many decades, if not longer. Their demise will be very slow, which is harder to manage than a high-speed train wreck. The industry needs to be thought of in terms of four sectors: large-scale generation, small-scale generation, transmission, and distribution. Small-scale generation is growing fast enough to capture all the increase in load growth.

He turned to specific challenges facing the industry. The structure of large-scale generation has evolved in a seemingly contradictory way. Over the last ten years, generation markets have experienced significant new entry but also significant consolidation. Generation is clearly not a natural monopoly but the growth of large generation ownership does suggest substantial economies of scale. Consolidation and concentration are not conducive to competitive markets. But with stagnating demand, generators will continue to acquire rivals to maintain top-line growth.

Fox-Penner went on to note that the battle of capacity markets will remain contentious. These markets are volatile and heavily managed. Arguably, there are too many policy constraints to make them work well—for example, preserving reliability, keeping prices politically reasonable, restricting exit, introducing carbon rules, subsidizing select technologies, and coping with falling demand. With all these objectives, market management is inevitable. Another challenge is the threat to the utility business model and its stability. Business models in the near future could include smart integrators – entities that sell unbundled network services – and energy services sellers. New York, for example, is creating a distribution ISO that would be a regulated natural monopoly and serve as a platform for edge providers.

Fox-Penner concluded that those in attendance—economists, lawyers, and policy experts—will have to do the heavy lifting in the coming years. The challenge is not technological: engineers can create a clean, carbon-free grid. The real test is in the governance of the market and ownership of assets.

V. Highlights of the Afternoon Panel: Implications for the Competitive Landscape of Electricity Markets

A. Afternoon Panel: Implications for the Competitive Landscape of Electricity Markets

Diana Moss moderated the afternoon panel.

The panelists were asked whether organized markets are up to the task of addressing the next generation of competitive problems. One panelist noted that 25,000 MW of coal-fired generation have been, or will be, retired between 2009 and 2016. So far, this major retrenchment of capacity has been a non-event from a reliability perspective. Work remains to be done but the existing governance processes are flexible enough. Price formation is an area that needs improvement. A major issue is make-whole payments whereby every RTO has five-to-ten generators that get substantial payments year in and year out. The competitive concern is the RTO awards these payments using a process that is not transparent to other market participants. Another panelist discussed how the DOJ applies the Horizontal Merger Guidelines to mergers in wholesale power. While product market definition is easy, geographic market definition and competitive effects are difficult. Examining efficiencies—specifically economies of scale from larger generation fleets—is also challenging.

Moss next queried the panelists on how generation retirements—specifically large-scale shut down of coal units—will affect the supply curve. One panelist observed that gas generation and demand response are replacing coal. RTO markets have a well-defined market power mitigation process. In many areas, these rules are fairly loose and do not kick in until a fairly large price-cost margin is reached. This permissive approach may not make sense as excess supply disappears. One panelist stated that retirement of coal could be positive from a competitive perspective. If gas turbines are replacing coal on the margin and are principally owned by small entities, markets could become more competitive. On the other hand, the growth of renewables is not without competitive risk. For example, the combination of state renewable mandates and limited geographic areas suitable for wind or solar development could raise antitrust issues.

The panelists turned to the question of whether demand response belongs on the same side of the market as generation. One panelist said that demand response adds elasticity to the demand curve. Consumers, in other words, become more sensitive to price changes. Others concurred, noting that demand response is fundamentally different from a supply resource but in some RTOs is still treated as a supply side resource.

Afternoon Discussion

The afternoon discussion centered on the value of demand response, the governance of market monitors and RTOs, and market transparency.

One participant claimed that effective demand response would remove the need for a capacity market. Demand would respond to price signals and very high prices would reflect scarcity pricing. Demand response has the potential to address many competitive problems in power markets.

A participant pointed out that market monitoring functions as public law enforcement and asked why market monitoring is not performed by a public body. Moreover, the consumer voice at RTOs is generally underrepresented. For example, PJM's Office of Consumer Advocate has a single full-time staff member, and consumer representatives have only 3% of votes at PJM. Another participant said that FERC wanted to federalize market monitoring but backed down in the face of substantial legal hurdles. And at the same time, market monitors are "on the ground" and see what is happening in the market directly, rather than operating at a distance from an office in Washington, D.C. Importantly, FERC's Office of Enforcement has greater access to market data and can coordinate oversight with market monitors.

A participant wondered whether too much market transparency—which can make markets conducive to collusion—exists today. Other participants said it is critical to distinguish between different categories of information. Cost information increases the threat of anticompetitive coordination. Load information, in contrast, can help inform the proper siting of generation. Bid data are released on a six-month lag. Given the constant changes in fuel prices, bid data released on this timeframe are outdated and unlikely to foster collusion among market participants.