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THE MARKET ADVANTAGE: A Q&A WITH JOE BOWRING

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INTRODUCTION

The PJM Interconnection is a regional transmission organization that administers competitive wholesale electricity markets. Monitoring Analytics, PJM's independent market monitor, evaluates PJM's markets and monitors the behavior of market participants.¹ Since PJM spans both restructured and traditionally regulated states, its participants include both merchant and monopoly utilities. Merchant generators profit by selling their power and other services, minus their costs. Monopoly utilities earn regulated returns and pass their wholesale-market revenues and costs through to their captive ratepayers.

Joe Bowring, president of Monitoring Analytics, is the most qualified, independent voice for how PJM markets affect electric reliability and the broader economy. This question and answer profile is intended to offer critical insight for policymakers who are concerned with electricity costs, reliability, emissions and innovation.

1. For a full description, see <http://www.monitoringanalytics.com/company/role.shtml>

R STREET: *What electric industry structure and policies are best for economic development?*

BOWRING: The best electric industry structure is the one that results in the lowest possible costs to customers. The best wholesale power market structure is a competitive structure that includes a competitive energy, ancillary services and capacity market. A competitive energy market by itself is not enough. A competitive capacity market helps ensure competition for new entry and signals for exit when units are not profitable.

R STREET: *How do merchants behave compared to monopoly utilities?*

BOWRING: Merchant generators put private capital at risk, enter the market when it appears profitable and exit the market when it is not profitable. The decisions are made entirely by private investors and the consequences are borne entirely by private investors. Customer funds are not used to fund the construction of merchant generation units and customer funds are not used to guarantee rates of return to investors when units underperform.

R STREET: *How does the improved economic discipline of competitive markets affect innovation and consumers?*

BOWRING: Markets provide a price signal and private investors and consumers decide how to react to those prices. Consumers may invest in technologies that reduce energy usage if prices are high, or shift energy usage to lower-price time periods. The private developers of power plants compete with one another to build the lowest cost, most efficient power plants. The developers put pressure on original equipment manufacturers to sell cheaper and more efficient power plants. One result has been the significant increase in the efficiency of the dominant new power plant technology: the gas-fired combined cycle. This technology would not have been invented but for competition and this technology would not have been improved but for competition among equipment manufacturers, responding to the demand for new plants by private power plant investors/developers.

R STREET: *How does PJM remain a reliable electricity system despite the retirement of power plants?*

BOWRING: PJM is required to maintain a required margin of reserves in excess of forecast peak load. That required reserve margin is a key determinant of the demand for capacity in the PJM capacity market. Power plants earn revenues from a combination of energy markets and capacity markets. When total net revenues are not adequate to cover the going-forward costs of a generator, it is more economic to retire the unit than to continue to operate it. Based on these market signals, more than 20,000 MW of coal-fired power plants have

retired in PJM since 2011. But PJM continues to maintain a reserve margin in excess of its required reserve margin as a result of new entry by investors in new units that believe they can earn a profit. Developers continue to build new generation in PJM based on the results of PJM's energy, ancillary services and capacity market and based on the expectation that the investments will be profitable.

R STREET: *Are PJM's markets actually competitive, considering the extent of administrative rules?*

BOWRING: As the independent market monitor for PJM, we continue to find that the PJM markets are competitive. All markets include complex rules and the PJM markets are no exception. The fact that there are rules does not mean that PJM markets are less than markets or are somehow administrative constructs. Cost-of-service regulation is an administrative construct. The PJM markets are competitive markets governed by rules. The PJM markets continue to be subject to regulation by the Federal Energy Regulatory Commission (FERC) because FERC relies on competitive outcomes as a substitute for direct regulation. Market participants continue to put their capital at risk and do not have recourse to customers when they lose money. Load-serving entities continue to compete for customers in states where retail competition exists. Customers continue to respond to price signals. Units and companies have gone bankrupt in PJM markets. Both the energy market and the capacity market are markets that produce competitive results for customers.

R STREET: *You regularly note many areas for improvement in the way PJM markets are designed and administered. Are electricity customers better served by PJM's imperfect markets or without a regional transmission organization?*

BOWRING: The energy market works well. The energy market relies on competitive offers from generation owners equal to short-run marginal cost that result in locational marginal prices that reflect both generator offers and constraints on the transmission system that is necessary to deliver power to load. The energy market has local market-power-mitigation rules that work effectively. There are some areas where the energy market could be made more effective, including better and more locational scarcity pricing, less discretion for PJM in affecting prices and better rules for purely financial participants. PJM does not need to find artificial ways to increase energy market prices.

The capacity market works reasonably well. The capacity market has had lower prices than indicated by market fundamentals over the past few years, but PJM's recent changes to the capacity market design (Capacity Performance) has created better and stronger incentives for units to perform. The capacity market does not need rules to support specific technologies or power plants.

In general, PJM has continued to improve the design of its energy, ancillary services and capacity markets, although there is continued need for improvement.

R STREET: *What is the best approach to handle shortcomings in PJM markets?*

BOWRING: Continued improvements in market design are the best approach to handling any perceived shortcomings in market outcomes. It is also important to distinguish between actual shortcomings in market outcomes and corresponding market-design issues, and perceived issues; for example, when a specific technology faces market challenges.

R STREET: *Are competitive wholesale electricity markets compatible with market-based environmental policies (i.e., emissions trading or fees)?*

BOWRING: The best way to manage the levels of pollutants down to target levels is using markets. Markets have been successfully used to control emission of nitrous oxides (NOx) and sulfur oxides (SOx). Markets would be the most efficient way to manage carbon-dioxide emissions, if that were the goal. There are a number of market-based approaches to managing carbon-dioxide emissions, including a carbon price and cap-and-trade systems.

Using markets to control emissions results in improved efficiency, because those with low-cost ways to reduce emissions can sell emissions reductions to those for whom the cost would be higher, making both better off. In addition, use of a market-based price signal provides incentives for new and creative ways to address emissions.

In contrast, the direct regulatory/planning approach would choose technologies or units or participants to reduce. This is less efficient, because it does not permit the market to discover the cheapest methods for reducing emissions and does not put the risk on private investors to make emission-reduction decisions.

R STREET: *How do competitive markets affect renewables and demand-side resource investments (versus regulated monopoly)?*

BOWRING: Clear and transparent price signals in the energy market and the capacity market indicate to potential investors in traditional generation, renewables and in demand-side resources whether investment is likely to be profitable and where the most profitable locations are. There is no transparent price signal in a cost-of-service system. In that case, the regulated utilities decide whether to invest in renewables or demand-side base on their overall impact on the profits of the regulated utility. If renewables or demand side investments reduce the overall revenues of the regulated

utility, the utility will not invest. Despite the flaws in the PJM capacity market, a large amount of demand-side resources have been built by private investors in response to market signals, and renewables have sited where [they are] expected to be profitable.

R STREET: *How do subsidies (e.g., bailouts) and resource mandates (e.g., renewable portfolio standards) affect market performance? How does this affect consumers and economic development?*

BOWRING: The market paradigm is an alternative to the quasi-market design, which relies on cost-of-service regulation and guaranteed rates of return. The market paradigm, and its associated customer benefits, cannot survive if there is intervention in the markets to save specific units or technologies despite clear market signals. Subsidies are contagious. If one owner receives special subsidies, it is the fiduciary duty of other unit owners to seek comparable subsidies. Subsidies are fundamentally incompatible with competitive markets that rely entirely on market signals for decisions about entering and exiting markets. Despite their good intentions, central planners do not succeed and have a poor track record of beating the market.

Subsidies, particularly for mature technologies, result in customers paying more than they would pay without subsidies.

R STREET: *What is the best role for regulated utilities within a restructured state?*

BOWRING: The role of regulated utilities is best suited, to date, to investment in transmission and distribution assets, although there is an increasing role for competition in those areas.

One of the risks of vertically integrated utilities is that they can, under some circumstances, shift risk from their generation side to their distribution side. That was the goal of First Energy and AEP in seeking to require Ohio customers to pay a non-bypassable charge to fund a subsidy for uneconomic generating assets. Despite the fact that FERC rejected the more egregious form of these subsidies, it is not possible to separate the financial impacts of generation from distribution in a vertically integrated company.

At the outset of wholesale power-market restructuring, many states required the divestiture, by the transmission and distribution utilities, of their generating assets. That divestiture prevented the types of cross-subsidies that were the subject of the FE and AEP filings.

The overall goal of power-market design should be to maximize the role of market forces, to eliminate incentives for subsidies and cross subsidies, to ensure that risks are borne

by those making the investment decisions, to prevent market power of all types and to maximize the degree of customer choice about the types of service that customers wish to purchase.

R STREET: *What would be the consequences of re-regulating merchant assets?*

BOWRING: The re-regulation of private merchant assets would likely be a drawn-out, expensive litigation driven process that, at best, would significantly increase costs to customers. Merchant generators would expect to be compensated for their investments as if they were regulated assets, meaning a guaranteed return on and of capital. Given the observed history in PJM markets, merchants have earned less than regulated utilities. As a result, the conversion of merchant assets to regulated assets would increase costs to customers.

Longer term, re-regulation would mean the loss of market-based incentives for market entry and exit. Re-regulation would mean abandoning the market paradigm and restoring the quasi-market paradigm in which investment decisions are made by regulated utilities with guaranteed rates of return. Re-regulation would mean that customers would be required to bear all the risks of planning decisions about the type and location of new assets. Customers would be required to pay for all investments, whether successful or not.

ABOUT THE AUTHORS

Devin Hartman is electricity policy manager and senior fellow with the R Street Institute, where he researches and promotes competitive electricity markets, efficient energy innovation and environmental policies, and sensible electric rate designs.

Devin joined R Street in January 2016, having previously conducted economic analysis of wholesale electricity markets at the Federal Energy Regulatory Commission (FERC). His areas of focus included renewables integration, environmental regulation, coordination of natural gas and electric industries, and using markets to procure resources to meet reliability needs.

Joseph Bowring is the president of Monitoring Analytics. Since 1999, Bowring has been the independent market monitor for PJM, responsible for all market monitoring activities of PJM Interconnection. He has a Ph.D. in economics from the University of Massachusetts and has taught economics as a member of the faculty at Bucknell University and Villanova University. In addition, he has served as senior staff economist for the New Jersey Board of Public Utilities and as chief economist for the New Jersey Department of the Public Advocate's Division of Rate Counsel.