Designing Local Market Power Mitigation Mechanisms

Comments for Technical Conference on Compensation for Generation Units Subject to Local Market Power Mitigation in Bid-Based Markets, FERC Docket Nos. PL04-2-000, et. al.

by
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My comments will first emphasize the necessity of prospective local market power mitigation (LMPM) mechanism to a successful wholesale market design. I will then discuss several issues that I believe are important to consider in the design of a market efficiency-enhancing LMPM mechanism. I have previously submitted detailed written testimony to the Federal Energy Regulatory Commission on the design of LMPM mechanisms. Citations to this testimony are given at the end of this document.

Necessity of Prospective LMPM Mechanism

All wholesale electricity markets require a prospective LMPM mechanism. Regardless of the method used to manage transmission congestion, depending on system conditions, experience with wholesale electricity market around the world has demonstrated that virtually any generation unit in the control area can possess substantial local market power because that generation unit must supply energy in order to maintain grid reliability. For this reason, an effective LMPM mechanism must prospectively apply to all generation units in the control area, in the sense that if these system conditions arise, mitigation will occur for the generation units that possess local market power.

The basic goal of local market power mitigation is to limit the amount of market power exercised by the unit deemed to possess local market power, and more important, to prevent the owner of that unit from leveraging this local market power to raise the price that other units in its portfolio earn.

The experience of the past ten years with wholesale electricity markets around the world has provided a number of valuable lessons concerning what works and what does not work. I believe that the existing PJM LMPM mechanism is the most effective LMPM mechanism that currently exists in the United States and is certainly a major factor in explaining the success of the PJM market.

It is important to emphasize that the perfect LMPM mechanism does not exist. This logic suggests that designing a LMPM mechanism is a process of continuing improvement, not the case implementing a single right answer. Moreover, some local market power must be tolerated, because all local market power mitigation mechanisms also introduce market inefficiencies. This implies that the LMPM mechanism design process must balance the conflicting goals of limiting the local market power exercised by generation unit owners against the increased market inefficiencies that result from the

existence of the LMPM mechanism. The remainder of my comments will focus on issues that should be considered in process of designing a LMPM mechanism and improving a pre-existing one.

Designing a Market Efficiency-Enhancing LMPM Mechanism

At a minimum, the LMPM mechanism should improve overall market efficiency relative to the case in which the LMPM mechanism did not exist. This same test should apply to incremental changes in the LMPM mechanism. The consideration of the following factors should help to achieve both of these goals.

Distinguish between Overall Market Conditions and Impact of LMPM Mechanism on Generation Unit Profitability. It is important make a clear distinction between market-wide conditions of substantially more generation capacity in the system relative to demand leading to wholesale electricity prices that are too low for some units to recover all of their costs and the impact of the LMPM mechanism on specific unit owner's profitability. The former outcome is one of the large potential benefits to consumers of a wholesale electricity market relative to the former vertically integrated regime. The cost of over-investment in generation capacity is borne by investors and not simply passed through in retail rates to consumers. Particularly for units constructed before July 8, 1996, their owners were aware of the LMPM mechanism applying to the units. These unit owners could factor the impact of this LMPM mechanism into the valuation of these units in the wholesale market regime.

Consumers Should Pay for Stranded Assets Only Once. In the transition to a wholesale market regime, a number of generation units were deemed to be "stranded" by the competitive market, which means that the expected discounted present value of the revenue stream the unit was expected to earn under a wholesale market regime was less than what it was promised under the former vertically-integrated regime. For this reason, stranded asset payment mechanisms were implemented. A number of these units were subsequently sold to new entrants at prices significantly above their regulated book value. For this reason, it is very important that in determining the necessary capital recovery for these units, any acquisition premium is excluded, or consumers will end up having to pay for these stranded assets a second time through the LMPM mechanism.

Distinguish Between Services Market Mechanisms Can Price and Those that Must Be Priced Through Regulatory Mechanisms. Because of the nature of the transmission network and the configuration of generation capacity within the control area, it can often be the case that a single supplier is the only one available to meet a local energy demand. Because this unit is a monopolist facing a perfectly inelastic demand, it is impossible to rely on market mechanisms to set the price it is paid for power. A regulated price must be set for this service. Only in those instances when there is effective competition to provide energy or reserve at a given location in the network should market mechanisms be relied upon to set prices. Market mechanisms and explicit regulatory mechanisms are the two basic options available to FERC, and each should be

applied under to the appropriate circumstances to ensure that consumers receive the maximum benefits from the just and reasonable rate standard of the Federal Power Act. Moreover, the process of setting regulated prices should not influence any market-determined prices paid to suppliers.

Local Scarcity is An Extremely Rare Event. Many observers argue that suppliers should receive a premium under conditions of local generation scarcity. While this theoretical point is valid, the correct definition of local scarcity must be used. Conditions of local scarcity occur if there is insufficient local generation to meet local demand. In this regard it is important to make the distinction between local scarcity and insufficient competition among local suppliers leading them to make less capacity available. The latter outcome implies suppliers are exercising local market power. All instances when the amount of local generation available is equal to or exceeds local demand are not conditions of local scarcity. The easy way to see this is to perform the thought experiment of divesting the existing quantity of generation capacity into more and more independent suppliers. The more independent suppliers owning in aggregate the same magnitude of generation capacity, the more competitive is the local energy market. For example, one supplier that owns 100 MW serving an 80 MWh local energy demand will yield much higher unmitigated local energy prices than 10 suppliers each owning 10 MW of this 100 MW of local generation capacity. These 10 suppliers will have little incentive to withhold generation capacity from the market relative to the single supplier that owns all 100 MW of the capacity. Consequently, I believe it is safe to say conditions of local scarcity are likely to be an extremely rare event and most instances of prices in excess of the marginal cost of the highest cost unit operating at that location are the result of local market power. Wolak (2003) discusses this issue in more detail.

The existence of local scarcity with anything but an extremely low frequency would indicate a serious defect in the PJM Installed Capacity (ICAP) market. This market requires that all generation units selling ICAP to be able to deliver their energy to the entire PJM system. All load serving entities must purchase approximately 115% of their annual peak demand in ICAP capacity to meet their ICAP obligations, which implies the deliverability of substantially more energy than their peak energy demand plus ancillary service demand.

Both the Carrot and Stick Should Be Used in the LMPM Process. Although it is always possible pay suppliers more money to cause them to operate when needed for grid reliability, this logic has the obvious flaw that it unnecessarily raises the prices consumers will have to pay and reduces the likelihood that the ultimate goal of benefiting consumers from electricity re-structuring will be achieved. The LMPM mechanism design process should focus on paying generation owners only what is necessary to keep the unit operating if it is needed for local reliability.

Offering Generators LMPM Options Means They Choose the Most Profitable. A number of proposed LMPM measures will allow generators to choose among a number of options. This simply means generators will choose most profitable option. Offering

options suggest that loads may end up paying more than is necessary for this local market power mitigation. Wolak (2002) discusses this issue in more detail.

Return Units that Cannot Make It in Market with Existing LMPM Mechanism to a Regulated Rate. If a unit is needed for local reliability but it does not expect to earn sufficient revenues from the market then it should be offered a multi-year cost-of-service contract the guarantees cost recovery over this time period. The ISO should have the ability to use this unit as it sees fit to manage the transmission network. There should be no limitations on terms of when it can be called or how it can be used by the ISO. If the unit owner would prefer to shut down the unit then it must first offer this unit at auction. If there are no buyers of the unit, then it can shut down.

Mitigated Bids Above Unit-Level Short-Run Marginal Cost Can Enhance the Ability of Suppliers to Exercise Local Market Power. A number of proposals for local market power mitigation will set mitigated bids substantially in excess of the variable costs of the generation unit. This increases the incentive of nearby suppliers whose bids are not mitigated to increase their bids to this mitigated level because they know that some amount of energy will be taken from the mitigated unit.

Concluding Comments

To the extent that an ISO's transmission network has enough capacity so that suppliers at all locations in the network face significant competition the vast majority of hours of the year, the opportunities for supplier to exercise local market power will be greatly diminished. To the extent that final demand actively participates in the wholesale market, the opportunities for suppliers to exercise local market power will be further reduced. Consequently, both of these factors should be considered as part of a comprehensive strategy for mitigating local market power. Solutions only involving a LMPM mechanism with no consideration for the increased benefits of transmission upgrades and demand-side involvement in the wholesale market regime will impose unnecessary costs on electricity consumers.

Related Testimony

Wolak, F. A. (2002) "Affidavit of Frank A. Wolak on Behalf of The Electricity Consumers Resource Council, The Transmission Dependent Utility Systems, Buckeye Power, Inc., Great River Energy, Wolverine Power Supply Cooperative, Inc., and East Texas Electric Cooperative, Inc., November 15, 2002, Docket No. RM01-12-000.

Wolak, F. A. (2003a) "Testimony of Frank Wolak on Behalf of Old Dominion Electric Cooperative, July 22, 2003, Docket No. PA03-12-000.

Wolak, F.A. (2003b) "Local Market Power Mitigation Work Group, Local Market Power and Mitigated Units, submitted with "Motion to Intervene and Protest of Old Dominion Electric Cooperative," October 30, 2003, Docket No. El03-236-000.