

## **PJM Industrial Customer Coalition ("PJMICC") Whitepaper: What Large Commercial & Industrial Customers Need From the PJM Marketplace**

### **Introduction**

PJMICC supports the continued development of competitive markets in the electric power industry and believes that competitive markets can, and will, produce customer benefits. This Whitepaper expresses PJMICC's concerns and questions with the existing market structure and suggests crucial enhancements to facilitate that customer benefit. A fundamental expectation of restructuring the nation's electric utility industry was that robust wholesale competitive generation markets would produce greater efficiencies and ultimately lower costs to consumers than traditional command-and-control rate base/rate of return regulation. The existing PJM markets were predicated on these market fundamentals. Since their formation, PJM markets have been considered among the most successful in the country. Yet, based on current wholesale and retail pricing trends, as well as the ongoing expiration of retail price caps, PJMICC members have serious concerns that the promise of electric utility restructuring is not being fulfilled. In this Whitepaper, PJMICC highlights its concerns regarding the PJM market, its declining confidence that generators are bidding their marginal production costs, its frustration with generators' tenacious efforts to use the stakeholder and regulatory processes to bolster their revenue streams, and its dissatisfaction with the opportunities for load to offer their resources as a check to supply-side resources.

As discussed in more detail below, PJMICC continues to seek confirmation that the PJM market model produces the anticipated wholesale market efficiencies, and if those wholesale market efficiencies are being produced, that retail consumers actually see them in the form of lower prices than what may have been seen under a regulatory paradigm. Generators' self-serving and incessant efforts to enhance inappropriately their own revenue streams through utilization of the stakeholder and regulatory processes, at the ultimate expense of retail customers, could seriously compromise the success of PJM's markets. As a no less important concern, PJMICC also questions the symmetry of market opportunities for demand-side response. PJM policies and procedures must produce balanced and symmetrical opportunities for demand-side participation in PJM markets.

PJMICC's concerns about whether PJM's market model produces the anticipated benefits are intensified by the debate on PJM market expansion. PJM staff studies indicate that PJM wholesale market efficiencies result in production cost savings and that these benefits will be enhanced by expansion of PJM. However, to be confident that theoretically expected benefits will be realized by end-users, PJMICC needs further examination of whether actual wholesale market prices: (1) reflect true short run marginal production costs; (2) are free from market power influence; and (3) fully reflect the forecasted production cost savings associated with market expansion. For the successful restructuring of the nation's electric utility industry, competitive markets must produce "just and reasonable rates" as statutorily mandated, and retail customers must benefit from prices at or below those produced by traditional regulation. Without more concrete evidence that the PJM market is facilitating the delivery of benefits to ultimate customers, PJMICC is reluctant to support PJM's further expansion.

The transition to fully functional, competitive markets that are free from the influence of nearly a century of vertically integrated monopolies in the electric utility industry is undeniably a longer-term proposition than initially, and perhaps naively, anticipated. While PJMICC philosophically remains committed that competitive markets will produce more efficient results than traditional regulation, energy-intensive businesses simply do not have the luxury to take a principled, long-term view that markets will eventually produce "just and reasonable results." Relying on declarations that market conditions will improve in the next few years is not a viable answer for businesses subjected to the press of global competition. Business decisions are being made today, based on many factors including energy costs. In deciding where to locate new businesses, close unprofitable businesses, and expand existing businesses, businesses require that every part of the supply chain be efficient and produce the lowest possible cost.

PJMICC expects the PJM market model to produce results where the sum of the unbundled component elements of wholesale electric service is no greater than the bundled price under traditional regulation. From the formerly bundled wholesale energy product, a myriad of revenue streams have been unbundled for generators, including energy payments, capacity payments, spinning reserve payments, reactive revenue requirements, black start revenue requirements, and operating reserves. PJMICC believes that the unbundling may be producing greater revenue streams than the previously bundled service and creates more opportunity for gaming of the market rules to be used to create excessive revenues for generators. Yet, generators persistently and vocally continue to complain that current PJM markets produce insufficient revenues and incentives to maintain existing generation (particularly peaking units) and to build new generation.

Efforts are now underway to transform PJM's capacity market. PJMICC is not convinced that additional revenues to the generators under this model will ensure that any greater amounts of capacity, let alone the needed fuel diversity, will be constructed in the future for customers to receive any more reliable electric service than received today. Meanwhile, generators beleaguer the PJM stakeholder process with calls for scarcity pricing in disregard of FERC's decision that local scarcity issues will be dealt with through Reliability Compensation Issue Analysis. By its very name, scarcity pricing appears to be nothing less than an attempt to administratively increase prices, with no demonstration that higher prices will actually enhance reliability. Proponents of scarcity pricing fail to recognize that scarcity is already built into the market-clearing price. With each attempt by generators to extract additional money, PJM must be looking at the ultimate cost to load and what, if any, measurable system benefits will accrue.

Every effort should be made to ensure that the transition to competitive markets does not defeat the goal of competition: market efficiencies resulting in lower energy costs than regulation otherwise would produce. Competition for the sake of competition, without close attention to producing benefits for ultimate end users, is not sound public policy. For electric utility restructuring to be considered a success and not merely an ill-conceived experiment with ratepayer dollars, there needs to be closer scrutiny that market participants play by the rules, that resulting prices are free from the influence of market power and, most importantly, that in the near-term and long-term, ultimate end-use customers receive truly "just and reasonable" prices for reliable electric service.

## **PJM Market Issues**

### ***Marginal Production Cost Bidding***

A fundamental expectation of fully competitive markets is that suppliers will bid to supply their products at a price equal to their short run marginal cost. This manifestation of supplier's profit maximizing behavior is integral to the efficient operation of the market and the creation of the maximum amount of social welfare by the market. Thus, it is a cause for concern when generators in PJM's energy market are observed to be bidding to supply energy at prices that are clearly greater than their short run marginal cost. Such observations lead to the suspicion that there is an underlying flaw in the market that allows or encourages such behavior. Such observed behavior requires examination and explanation – if flaws exist, they need to be exposed and corrected.

Although PJMICC has received assurances from the MMU that generators "generally" bid their marginal production costs, independent analysis of bidding behavior suggests otherwise. Random checks of bid data released six months after the fact (a shorter delay in the release would enhance data availability and improve pricing transparency) strongly suggest that individual generation units fail to submit bid curves that reflect their marginal production costs. To the extent that a disjuncture exists between unit bids and their marginal production costs, the theoretical framework for last-bid-in pricing breaks down. When the MMU reports that generators "generally" bid their marginal production costs, PJMICC can only query how often generators do not bid their marginal production cost, how much their bids exceed their marginal production cost, what the impact is on the revenues received by other generators, and what the cost is to ultimate end-use customers if those bid behaviors produce market prices greater than the marginal production cost of the last-bid-in unit.

Although the most recent State of the Market Report deems that PJM's markets were competitive in 2003, the Report contains disturbing data and trends. Of particular concern is the development of the price-cost markup index, which assumes that marginal production cost bids contain a 10% markup before even incorporating any "appropriate scarcity rent" or "opportunity cost." Combined with the last-bid-in pricing regime, inflated bidding by generators may result in many generators receiving windfall profits, jeopardizing the public's confidence in the market at the expense of the ultimate end-user. In his Report, the PJM Market Monitor also found high levels of concentration in ownership in the intermediate and peaking segments of the supply curve. This data is particularly troubling given the last-bid-in nature of the PJM energy market and, thus, underscores the importance of ensuring that generators actually bid only their marginal production costs.

In a robust market, the market itself would force generators to bid only at marginal production cost, but, at this point, we simply do not have a sufficiently robust market to discipline generators' bidding behavior. Without greater confidence that generators are actually bidding their true marginal production cost, retail end-use customers, whose energy costs are directly driven by wholesale market prices, have cause to question whether PJM's wholesale markets produce results consistent with competitive market outcomes.

To ensure that the PJM market produces efficient competitive market results free from gaming or market power exercise, PJMICC seeks greater clarity from PJM on what

bidding behavior is expected from generators. The MMU's efforts must be supported by the Board to place PJM generators on notice that the relationship between marginal production costs and bidding behavior will be closely scrutinized and that any observable disjuncture between bids and marginal production costs will trigger investigations into non-competitive results, including PJM support for an independent market power investigation, a determination why those behaviors observed in the marketplace are inconsistent with competitive results, and what market rules and structure have permitted those behaviors.

### ***Resource Adequacy***

Stakeholders in PJM and the other northeast ISOs have struggled with the issue of ensuring resource adequacy in a market structure. Underlying the debate on resource adequacy is the fundamental question whether wholesale markets alone can be trusted to provide the necessary incentives to keep the lights on and at a just and reasonable price. Will there be enough generation available today for PJM to operate its system reliably? Will there be enough generation available in the future to meet the individual and collective needs of society? For wholesale competition to be considered a viable replacement for command-and-control regulation, customers must be assured that competitive markets produce adequate resources for PJM to operate a reliable system both today and tomorrow. No less important in evaluating the capability of competitive markets to produce reliable results, however, is that the price tag must be no more than necessary to ensure reliability.

For years, the three Northeast ISOs have relied on some variation of Installed Capacity ("ICAP") obligations on load-serving entities ("LSEs") as one mechanism for ensuring sufficient energy in real-time to meet load. It is undeniable that ICAP mechanisms have been vulnerable in the past to exercises of market power and, in some localized areas, have failed to achieve the objective of ensuring resource adequacy. One of the major flaws of the current capacity markets are the structural barriers that prevent demand from acting as a check to market power exercise.

By way of example, PJM's daily capacity markets have cleared recently at or about \$110 per megawatt day for most of June 2004. The increasing daily capacity prices are of particular concern, not only because of the real price impact on end-use customers, but also because of customers' inability to provide any demand-side check to the escalating prices. PJMICC members have several hundred megawatts of load reduction that they wish to offer into the daily capacity market but have been denied that opportunity due to an annual capacity obligation that claims the end-use customer has no daily capacity to offer without being "short" on its annual obligation.

PJMICC's long-term vision of the electric industry is ultimately that of an energy-only market with only limited administrative intervention where the energy-only market does not produce adequate reliability or where local market power prevails. The notion of customers paying for a distinct and separately traded capacity component is unique to the electricity industry and, within the electricity industry, unique to only a few regions in the country. Consumers generally do not pay for the capacity to produce those goods separate and apart from the unit price of those goods. Rather, the producers of those goods must rely on infra-marginal revenues (driven by greater efficiency and lower production costs than one's competitors) as the primary source of firm-sustaining contributions to fixed costs. If and

when political or policy objectives drive government intervention in those or other markets, the intervention tends to be narrowly tailored to meet a limited, pre-determined objective.

Transitioning to an energy-only market would solve one of the major flaws of the current capacity construct – the structural barriers to demand-side participation. Elimination of the capacity market (or a comparable resource adequacy requirement) is also consistent with PJM's Whitepaper on Future PJM Capacity Adequacy Construct, which posits that elimination of the Resource Adequacy construct "may be a good end state solution that will develop over time as the market continues to mature and significant demand response develops." The PJM Whitepaper dismisses this as a viable option currently, however, due to the "need for a guarantee of reliable supply and the current lack of demand-side response." Instead, the Whitepaper recommends an "interim solution," committing to consider an energy-only market at a future date. The "interim solution" outlined in the PJM Whitepaper is the Reliability Pricing Construct, which is an algorithm-based approach to setting a price for a capacity product.

As a threshold issue, PJMICC supports the PJM Whitepaper's recognition that not all capacity is created equal. Any construct designed to achieve resource adequacy must recognize that the combination of an LMP-based market and last-bid-in regime provides a healthy contribution to fixed cost recovery for many generation assets. In addition, any modified construct must precisely define its objectives and expectations with quantifiable measurement of whether forecasted results are realized. Nevertheless, PJMICC continues to be concerned by an administrative determination of capacity pricing as suggested in the PJM Whitepaper. Administrative price setting prevents the market from maturing while introducing quasi-regulatory pricing with only limited government oversight to ensure resulting prices are "just and reasonable." Injecting a demand curve and complex algorithm into PJM is a step backward from encouraging the PJM market evolution and a step toward entrenching a complicated and mysterious compensation structure into the PJM framework. Although it makes logical sense to differentiate among different supply (and demand) resources, the Reliability Pricing Model set forth in the PJM Whitepaper appears, at least upon initial review, to go too far and will stall progress toward an energy-only market by making demand response even more complex and difficult to accomplish than under the existing construct. Ironically, PJM's proposed interim solution to precede an energy-only market may act to further delay that objective than today's capacity market.

Guided by the ultimate "end game" of an energy-only market, PJMICC believes that PJM should continue with its current capacity market structure, while aggressively working to remediate existing structural defects that preclude demand participation in capacity markets. Removing the structural barriers to demand participation in the current capacity market structure will provide the necessary opportunity for demand response to mature and bring the market closer to being ready for an energy-only state. While not perfect, the existing PJM capacity market structure has evolved to the point where it is producing satisfactory levels of reliability. The evolution of this market produced relatively stable capacity prices for almost three years (longer if the market power exertion in early 2001 is eliminated), and generation resources continue to be added to the PJM market. Given its experience with the long-term and costly debate on the current capacity construct, PJMICC fears that replacing the current construct with a complicated, algorithm-based compensation structure will further entrench a capacity construct into the PJM framework and dim the opportunity to transition to an energy-only market.

## ***Market Power***

Generation market power and vertical market power remain ongoing concerns in the nation's wholesale markets, including PJM. Serious concern regarding the potential for market power exercise is evident throughout each State of the Market Report without any marked sign of improvement over time.

To be clear, PJMICC looks to both the FERC and PJM to ensure that PJM's markets produce competitive results, free from market power influence. FERC has a clear statutory mandate and obligation to ensure that PJM's markets produce prices that are "just and reasonable." To fulfill its obligation, FERC must have the wherewithal to remove a generator's market-based rate authority. Removal of market-based rate authority must not just be an idle threat but a real consequence to market misconduct. Market-based rate authority is a privilege, not an inherent right, and must serve as the first line of defense against market power exercise.

PJM also has responsibility to ensure that its markets produce competitive results. It falls on the MMU to notify FERC if it identifies market misconduct. By applying the clearing price to all generators regardless of bid, the last-bid-in clearing mechanism amplifies any exercise of market power. Thus, if the MMU perceives consistent bidding above marginal production cost, even if not blatant and not impacting clearing prices, it must alert the FERC and recommend prompt action to rectify and remediate the misconduct.

## ***Market Expansion***

As PJM is aware, PJMICC has been supportive of market expansion, but PJMICC is becoming increasingly frustrated by the lack of quantifiable benefit to ultimate end-users flowing from market expansion. Although PJM studies indicate clear production cost savings from market expansion, more robust analyses are critical because those production cost savings have not necessarily translated into wholesale market efficiencies or retail customer price savings.

Continued PJMICC support for market expansion will require that production cost savings be reflected in lower wholesale market clearing prices. PJM must closely scrutinize whether it is only under conditions of perfect competition that production cost savings are actually realized. Moreover, confirmation of production cost savings must occur through follow-up studies. For example, PJM estimated that production cost savings would result from the expansion of PJM's market to include Allegheny Power and ComEd. PJM's presentation to PJMICC on June 1, 2004, indicated that Allegheny Power customers would realize \$20 million in annual savings due to Allegheny's integration, and existing PJM customers would realize \$60 million in annual savings. Over two years after Allegheny Power's integration, PJMICC questions whether these claimed production cost savings were actually realized and, if so, how the savings impacted market-clearing prices. PJM's June 1 presentation similarly claims savings will accrue to existing PJM customers with the AEP, Dominion Virginia Power, and Northern Illinois Control Area integrations. PJMICC must see the actual production cost savings that materialized from these integrations and how the savings are reflected in wholesale market clearing prices. Ultimately, end-use customers will need to see these wholesale market efficiencies and prices translate into

lower total costs for electricity than what those customers would have seen under regulation.

At this point, our requests for additional updated analysis of the benefits to load due to PJM South market expansion have gone unanswered. Without comprehensive studies of the impact of market expansion on load in the expanded PJM footprint, PJMICC finds itself seriously compromised in its ability to support PJM market expansion.

### ***Symmetrical Opportunities for Load***

PJMICC's vision of the future PJM market requires fully symmetrical opportunities for generation and load. Simply put, load must have symmetrical opportunities to participate in all PJM markets, including energy, capacity and ancillary services. Notwithstanding the proven reliability and economic benefits of demand-response, demand-side development continues to encounter resistance from certain self-interested market participants. Having a vibrant demand side is fundamental to rational markets, and, thus, PJM must take an active role in balancing generation and load interests.

The most obvious recent example of PJM's market structure not accommodating demand response occurred in PJM's daily capacity market. As noted above, daily capacity markets had been clearing at or about \$110 per megawatt day for most of June 2004. Concerned that the market behaviors that led to the run-up in daily capacity prices in early 2001 may be repeating themselves, PJMICC sought to provide a demand-side check by participating in the daily capacity markets. However, PJMICC, despite its willingness to drop considerable load for \$110 per megawatt day, has been told it has no capacity to sell without being "short" in the market on its LSE's capacity obligation.

Although PJMICC strongly supports PJM's current load response programs and PJM's efforts to enhance these programs, it is simply not good enough to have limited energy market programs in which end-use customers may participate. Load must have opportunities to participate in all PJM markets on a symmetrical basis to supply resources. As PJM creates new markets and revenue streams for supply resources, such as ancillary service markets, load must have an opportunity, to the extent feasible, to provide a demand-side check to supply resources. Although PJM should not preclude load participation in any ancillary services market, PJM should focus its immediate efforts on the Operating Reserves market where load can offer 10-minute and 30-minute response.

Consistent with generators' opportunity to receive multiple revenue streams for the different products they supply to the market, payments for load response must be symmetrical. For example, upon integration of demand resources into Operating Reserves, any Operating Reserve payment stream must be supplemental to capacity and energy payments, akin to generators.

### ***Congestion***

As noted in the 2003 State of the Market Report, congestion costs range from 6% to 9% of total PJM billings. The fundamental economic theory of an LMP-based market is that increased congestion costs in a localized area will signal where investment is necessary. For an efficient LMP market, PJM must therefore manage congestion effectively through

economic dispatch. Proper market signals must also be sent to enable market participants to identify areas of congestion. In a well-functioning LMP market, market rules must be in place to encourage market participants to take action to reduce congestion and promote efficiency through market-based solutions.

Contrary to how the economic theory is supposed to work, market data appears to indicate that congestion revenue is not being utilized to relieve congestion as contemplated by the LMP market structure. Review of recent PJM State of the Market Reports indicates that market participants may not be responding to the market signals to make the necessary investment to reduce congestion. In each year of PJM's operation of the LMP market, congestion costs have increased. In 2003, there were nearly \$500 million in congestion costs, representing a 16% increase from 2002. In 1999, 2000, and 2001, congestion charges escalated from \$53 million to \$132 million to \$271 million. Investments in upgraded, new transmission lines to relieve this level of congestion do not seem to be occurring in the areas most adversely impacted by congestion.

PJM must closely track the growth in congestion costs since Day 1 of PJM market start-up and determine the causes for such increases. Continued and systemic increases in congestion costs may be evidence of market manipulation or misconduct. For PJM's markets to produce the efficiencies contemplated by the LMP model, congestion revenues should be used to fund solutions to the underlying physical causes of generation and directly benefit end-use customers by reducing congestion charges. Similarly, FTR benefits must inure to end-use customers' direct benefit, consistent with end-use customers' ultimate cost responsibility for the transmission system. Yet, PJMICC is concerned that market participants are failing to respond appropriately to these market signals, based on the continued escalation in congestion costs.

For these reasons, PJMICC is encouraged by the implementation of PJM's economic planning process and is willing to allow this regulatory backstop some time to work. If the market fails to resolve congestion after a finite time, PJM must scrutinize the root cause for the failure of the market to respond to solve the congestion, publicly identify the areas of perpetual congestion and direct the most cost-effective generation, transmission or demand-side solution to an identified congestion bottleneck. That being said, PJM's economic planning process must produce legitimate success stories in order for end-users to have confidence that the regulatory backstop works to solve any identified market flaw. As part of this effort, PJMICC stresses that transparency of critical information is key to better decisions by generators and end users. Working with imperfect information will always result in sub-optimal and less efficient solutions in the long run. For these reasons, PJMICC supports a shorter delay than six months for bid data release.

### ***Marginal Losses***

With PJM's expansion, PJM stakeholders are debating whether to transition to marginal losses to replace the current construct in which losses are reflected on an average basis. PJMICC questions the value of moving to a marginal loss construct, particularly given the complexities that will be involved to ensure that no double counting of losses occurs at the wholesale or retail level.

Marginal losses should only be implemented upon a determination that it promotes overall market efficiency, and the benefits must substantially outweigh the implementation costs. The cost and time for completing the necessary studies on marginal loss implementation must be part of the cost-benefit analysis of moving toward marginal losses. If it is too expensive and time-consuming to precisely implement marginal losses, then it may not be beneficial to implement marginal losses at all. The Market Monitor should also closely examine whether marginal loss implementation will enhance any market participant's ability to exercise market power.

To be clear, stakeholders and regulators need to fully understand the pricing impact of marginal loss implementation. Experience with other markets that have converted from average losses to marginal losses demonstrates that the switch may have unintended or unanticipated rate consequences for certain locations. Given PJM's frustration with claimed wholesale market efficiencies translating into retail benefit, PJM is simply unable to support market rule changes without fully understanding the retail rate ramifications.

## **Conclusion**

End-use customers are becoming increasingly frustrated by their increasing electric costs. Customers receiving service under rate caps are girding themselves for a steep increase in electric costs upon the rate caps' looming expiration. The debate on PJM's expansion into Virginia is illustrative of end-use customers' mounting frustration over their increasing electric bills and concern that rates in Virginia will follow the upward trend in other states in the PJM footprint when rate caps were lifted.

To ease these frustrations, PJM must restore PJM members' confidence that the PJM market is functioning properly, based on actual marginal production cost and free from the influence of market power. Unless the wholesale markets are functioning properly, end-use customers cannot realize the expected benefits of those markets in their retail prices. With the existing mismatch between price expectations and realities and generators continuing to press for additional revenue streams, PJM must question whether PJM markets are working properly. Reliance on pure economic theory must give way to recognition of the reality that PJM's markets are still in transition and constantly changing, presenting new opportunities for gaming and market power exercise.

For electric competition to be perceived as a universal success, wholesale market efficiency gains must translate to actual system benefits, including price and reliability benefits. The promise of wholesale competition will not be achieved unless retail customers have confidence in wholesale markets. PJM must ensure that its markets produce efficient outcomes and "just and reasonable" pricing as mandated by the Federal Power Act, particularly when, in many states, wholesale generation supply costs (measured by reference to PJM spot markets) are being directly passed through to retail customers, plus adders to escalate wholesale costs to retail prices. The whole point of comprehensive electric industry restructuring was to generate market efficiencies and resulting prices that traditional regulation could not produce. Those market efficiencies begin at the wholesale level, and this paper has underscored several PJM concerns that may be preventing those efficiencies translating into competitive wholesale prices.