



PJM GOVERNANCE



CAN REFORMS
IMPROVE
OUTCOMES?

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EXECUTIVE SUMMARY

PJM INTERCONNECTION (PJM) ENABLES DISPATCH AND TRANSMISSION OF ELECTRIC POWER TO APPROXIMATELY 61 MILLION PEOPLE OVER 13 STATES AND THE DISTRICT OF COLUMBIA. MUCH ATTENTION HAS BEEN PAID TO THE ISSUES, DECISIONS, AND OUTCOMES OF PJM POLICY CHANGES. LESS ATTENTION HAS BEEN PAID TO THE PROCESS BY WHICH PJM, A REGIONAL TRANSMISSION ORGANIZATION (RTO), MAKES DECISIONS ABOUT MARKET DESIGN, RULE CHANGES, AND STAKEHOLDER ENGAGEMENT, COLLECTIVELY REFERRED TO AS GOVERNANCE.

Effective governance is a facet of RTO administration critical to navigating contemporary policy controversies and meaningful to maintaining the ongoing legitimacy of the RTO. PJM's stakeholder system is remarkably effective when issues are less contentious. As can be expected, the system is less effective on the smaller volume of issues that are highly contentious. Contentious issues generally occur when financial stakes are high, when there are questions about allocation of costs and benefits among stakeholders, and when issues concerning the balance of power between stakeholder groups arise. In addition, state policy decisions have the potential to distort PJM markets, prompting the need for rule changes, and promoting stakeholder controversy from outside the governance process.

Since the last governance process revisions were completed in 2011, four significant factors have driven considerable changes to PJM's market environment and architecture, including:

1. Growth of low priced natural gas and gas capacity resources
2. Capacity market design controversies and frequent changes

3. Flat load growth and increasing renewable energy supply mandates
4. Growth of financial transmission rights (FTR) trade volumes

These drivers of change place stress on the most challenging and controversial questions related to PJM stakeholder governance: financial stakes, balance of power, and allocation of financial costs and benefits. These drivers are also prompting the need to make changes to market design, triggering the obligation to involve stakeholders in policy proposal development and decision-making. However, the controversies are proving difficult to manage within the stakeholder system. For these high controversy issues, it seems the stakeholder process is falling short at exactly the time when stakeholder collaboration and joint problem solving is critical to informing profound questions about market design and the future of competitive markets.

For the stakeholder process, at least two questions arise in light of market changes and controversies:

1. Has the stakeholder system evolved along with the markets?
2. Would an improved stakeholder process result in more efficient and effective outcomes on high controversy issues?

Respectively, the answers are no, and potentially. But, the issues are much more related to concepts of "fairness" within the governance system and much less related to the nuts and bolts of process. System fairness – meaning avoiding bias towards one or more entities or sectors compared to others – is critical to fostering a governance system that has the potential to deliver solutions conducive to competition, rather than discrimination.

The Federal Energy Regulatory Commission (FERC) has provided for flexibility in RTO and Independent System Operators (ISOs) governance decisions, choosing to identify guiding principles rather than designing prescriptive actions. One such principle, related to “ongoing responsiveness” (FERC’s Order 719), requires RTO/ISOs to continually consider customer and other stakeholder needs over time as the market environment and architecture changes, and requires RTO/ISOs to continually examine responsiveness to stakeholder needs and evaluate the need for improvements.

Given profound and rapid market changes and the reality that self-interested stakeholders may be incapable of impartial governance reform, this paper argues FERC should require PJM to evaluate its governance system to ensure it is meeting good governance goals. These goals should include, but not be limited to, ensuring a fair system free from biases that serve to: advantage entities or organizations, discourage competition, and/or inhibit operational evolution.

Furthermore, FERC should consider requiring other RTO/ISO’s to periodically evaluate their stakeholder governance systems in order to identify if improvements are beneficial. Governance reforms may not be able to solve all the controversies and challenges facing RTOs, however, they have the potential to improve decision making outcomes.

Future evaluation and potential reform efforts should consider important information about the RTO’s organizational construct. The RTO is, among other things, a “quasi-governmental” organization. The growth of quasi-governmental organizations was a significant movement in public administration in the late 1980’s and early 90’s.

There is a deep body of research on quasi-governmental organizations—which display characteristics of government and private organizations—that well document the benefits and drawbacks of this organizational construct. With respect to drawbacks, quasi-governmental organizations raise complicated questions about accountability (e.g. political, stakeholder), as well as uncertainties about the ability to ensure public interests are being protected over private interests. The independent nature of the quasi-governmental organization and the RTO construct can give rise to other potential issues. For example, FERC requires RTOs to be independent from market participants, but

in theory, the RTO is not immune from self-interested behaviors and organizational biases that may serve to benefit incumbent firms.

States have an incredible amount of influence over PJM markets and have the potential to play an important role in defining, representing, and protecting the public interest. Policy setting over a large geographic region presents challenges to regional markets, as states may have inconsistent or conflicting electricity sector priorities. Complicating this, injecting political values into decisions about market design has the potential to reduce efficient market outcomes.

Nonetheless, for better or for worse, FERC envisioned a role for stakeholders in policy design, and states have the right and ability to enact legally acceptable policy that impacts electricity markets. Failure to effectively incorporate and manage state-based political values with market design may lead to compromises that threaten the legitimacy of the RTO/ISO organization and its markets. For PJM, the question isn’t whether states should be more involved in the stakeholder process, but rather, what is the best method to enhance state involvement in PJM governance? For states, the question is, why aren’t you demanding greater involvement in the stakeholder system?

Four specific topics are presented to provide evidence that fairness and process issues do in fact exist within PJM’s stakeholder system. First, studies indicate that at high level stakeholder committees, market buyers frequently act to block proposals from being approved. Second, PJM Membership has grown by over 31 percent since the last stakeholder reforms were initiated. Most of this growth has occurred in two sectors where new market entrants often vote, raising concerns about inappropriate levels of intra-sector diversity, vote dilution and the ability for these new entrants to have a unique voice, all with the potential to reduce competition. Third, the process of member self-selection of voting sector has long presented opportunities for improvement. Fourth, lower-level committee voting is not transparent and simple majority voting results are not presented by sector, reducing the usefulness of information to higher level committees. It should be noted that some of these issues were identified during the 2009-2011 governance evaluation process, but stakeholder agreement on improvements were not reached.

Owing to fairness concerns raised while exploring the RTO’s organizational construct, the stakeholder process was examined for evidence of incumbent

bias. This can be harmful, for example, as incumbent bias can serve to undermine competition from new market entrants. While a clear incumbent bias was not observed, there is evidence suggesting incumbent firms have an advantage in the stakeholder process. Large companies with multiple Affiliates have the ability to collaborate among business segments, using affiliate voting to block (or advance) proposals from reaching higher level committees.

The incumbent advantage is complicated by the concentration of resource ownership. In 2015, six PJM stakeholders in the Transmission Owner sector had ownership interest in non-renewable generation capacity representing over 50 percent of the installed capacity needed to meet PJM's summer peak capacity. Lastly, participating in PJM's numerous stakeholder processes requires significant resources—in the form of time, money, and technical expertise—disadvantaging smaller firms.

It should be noted that engaging stakeholders in a review and evaluation of governance processes is a first step in FERC's potential governance action. The second step is identifying potential improvements. The final step should be negotiating details on improvements and voting to accept or reject such improvements, which may or may not be a requirement of the FERC order. Such periodic review (e.g. every five years, with triggers for more frequent review) could present FERC with a valuable body of evidence and information on the evolution of stakeholder-based governance issues and solutions, informing FERC's thinking on future governance guidance.

Evaluation of the governance system could include, but should not be limited to, an examination of the items raised in this report, including the following structural and process issues:

Addressing Accountability and Public Interest Concerns of the Quasi-Government RTO. Determine how, when, and how often to define the “public interest” and identify who in the stakeholder process represents the public interest. Such a public interest can be broadly defined to include both buy and sell side interests as well as state-based political priorities. Specifically address the role of the states in defining, representing, and being accountable for protection of the public interest within the stakeholder process. Document the accountability mechanisms available to different stakeholder groups and identify how imbalances can impact outcomes and identify corrective measures, if needed.

Provide Options for Greater State Participation in the Stakeholder Process. States have changing political objectives and the ability to enact policies that can force decisions away from market efficiency and towards political priorities. Managing efficient market design over a large geographic region where states have ever-changing political values may create an unsolvable legitimacy problem for PJM. One potential strategy to help address this problem would be to increase state policy maker involvement within PJM's stakeholder process when issues are contentious. More research is needed to determine the optimal method to more intimately involve states in the stakeholder process, as the traditional Member-based approach of sector-weighted voting may not be the best solution.

Evaluate Power Balance Dynamics in the Stakeholder Process. The balance of power between Member sectors in PJM has resulted in a portfolio of reasonably expected tensions—given the different goals of each respective group. It is unclear whether differences in the balance of power have resulted in inappropriate advantages or disadvantages in the stakeholder process. Currently available tools to analyze fairness and power dynamics in multi-stakeholder processes should be explored to determine appropriateness for use in the RTO context. Power dynamics should be assessed and documented, and corrective measures developed, if necessary.

Ensuring a Best-in-Class Administrator. While it is important to ensure the RTO is independent from any market participant, recognition should be given to the potential for RTO's to display self-interested behaviors and organizational biases that may benefit or harm certain stakeholder groups, inhibit competition, or lead to other unintended consequences. It should be determined if appropriate procedures are in place to acknowledge, evaluate, monitor, and correct for organizational biases or self-interested behaviors of the RTO that create preferences or prejudices.

Review Governance Issues Identified. Examine PJM's Membership and determine if the current five stakeholder sectors accurately and optimally reflect the diversity of PJM's Members. Any expansion of Member sectors would require discussion of how to adjust sector-weighted voting. Evaluate the sector-self selection process and determine if improvements can be made. Examine and document the benefits and drawbacks of the current non-transparent approach to lower-level voting.

Review Evidence of Potential Incumbent Advantage.

Issues identified include: proposal agenda setting (i.e. control) through affiliate voting from large incumbent firms, concentration of resource ownership in a small set of incumbent firms, and the resource burdens (e.g. time, money and technical expertise) to participate in the stakeholder process that may disadvantage smaller non-incumbents. Identify if any of these issues create inappropriate power balance dynamics, inhibit competition, or result in other negative outcomes. Alternatively, justification for such advantage could also be provided.

It is important to reiterate governance reforms cannot fix all the challenges facing PJM and other RTO/ISOs. However, improvements to the process have at least the potential to lead to improved outcomes and greater stakeholder negotiation and joint problem solving. Though governance reforms may prove to be complex and time consuming, reform efforts may prove beneficial to markets, market participants, consumers, and the states over which they operate. PJM is a leader among its peers – from stakeholder engagement to market operations – making it uniquely positioned to advance the evolving field of RTO/ISO governance.

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INTRODUCTION

REGIONAL TRANSMISSION ORGANIZATIONS (RTOs) AND INDEPENDENT SYSTEM OPERATORS (ISOs) CONTROL TWO-THIRDS OF U.S. ELECTRICITY, MAKING THEIR OPERATIONS AND FUNCTIONS CRITICALLY IMPORTANT TO OUR NATION'S ECONOMY AND WAY OF LIFE. PJM Interconnection, LLC (PJM) is the RTO that serves all or of parts of 13 Mid-Atlantic states and the District of Columbia, reaching over 61 million people. By many metrics, PJM markets are functioning well, yet the competitive markets and market rule changes PJM proposes and administers have increasingly become controversial.

Much attention has been paid to the issues, decisions, and outcomes of PJM policy changes. Less attention has been paid to the processes by which PJM makes decisions about market design, rule changes, and stakeholder engagement, collectively referred to as governance. Proper governance is a facet of RTO/ISO administration critical to navigating contemporary controversies and meaningful to maintaining the ongoing legitimacy of RTO/ISOs.

This report explores the topic of governance in PJM Interconnection —therefore the emphasis on RTOs throughout the report rather than ISOs. The research process included semi-structured interviews with a wide variety of PJM stakeholders (including, but not limited to representatives from all of the five PJM Member sectors),¹ analysis of data, examination of legal information and policy trends, and literature reviews of academic studies on RTO/ISO governance, public administration, and multi-stakeholder governance.

Section I provides an overview of PJM's stakeholder process and goals, examines historic revisions to

governance protocols, and summarizes key FERC guidance on RTO/ISO governance. Section II examines four key drivers of change in PJM's market environment and architecture, which due to the nature and controversy of the issues, stress the existing stakeholder process. Section III explores the RTO's organizational construct and identifies potential pitfalls that result from the RTO's unique organizational design. Section IV provides a discussion about the power of state politics over RTO markets, arguing why for PJM, enhanced involvement of state policymakers into the stakeholder process can be beneficial. Section V identifies four observed issues with PJM's governance process that present opportunities for improvement. Section VI identifies three issues that provide evidence of a potential incumbent advantage in the stakeholder process, an advantage is important to understand given the issues outlined in Section III. The paper closes by presenting conclusions and recommendation for next steps.

PJM'S STAKEHOLDER PROCESS WORKS; LESS EFFECTIVE ON CONTENTIOUS ISSUES

Multi-stakeholder processes are contentious by nature, as diverse, often opposing interests compete to advance their goals. Ideally, multi-stakeholder processes enable better decision making by allowing all key perspectives on an issue to be integrated and heard, providing education so views are understood, facilitating dialogue, cultivating trust among participants, building consensus, and efficiently and effectively creating win-win solutions. Practically, the reality of multi-stakeholder processes can often fall short of this ideal.

¹ PJM's five Members sectors include: Transmission Owner, Generation Owner, Other Supplier, End Use Customer, and Electric Distributor.

Currently in PJM, voting stakeholders generally fit into two broad categories—sellers of energy (e.g. generation suppliers, transmission owners) and buyers of energy (e.g. distributor of energy, end use customers)—a distinction that sets up a primary power balance dynamic. In general, sellers prefer higher energy prices and buyers want lower prices, creating a constant source of tension. In addition, within these broad categories there are smaller stakeholder interests—such as emerging technologies (e.g. renewables, demand response) and financial traders—that have more nuanced needs and goals.

Data suggests PJM's multi-stakeholder process is remarkably effective at engaging stakeholders in decision making on a wide range of issues and delivering stakeholder compromise and agreement. For example, looking at voting behavior in one of PJM's senior standing committees, the Markets and Reliability Committee (MRC), 82 percent of votes passed in 2015 and 88 percent of votes passed in 2016. The majority of these passed votes happened through acclamation voting, a voting procedure used on less contentious issues (in fact, only one acclamation vote failed in the two years examined). For more contentious issues, the sector-weighted voting method is used. As you can see in *Table 1*, sector-weighted voting is used far less frequently than acclamation voting at the MRC. Moreover, the majority of sector-weighted votes ended in failure, 53 percent in 2015 and 55 percent in 2016. Overall, in total, this represents a 90 percent pass rate in 2015 and a 93 percent pass rate in 2016.²

	Total Votes	Acclamation (Pass)	Acclamation (Fail)	Sector-Weighted Vote (Pass)	Sector-Weighted Vote (Fail)
2015	83	68	0	7	8
2016	102	90	1	5	6

Table 1: Summary of Markets and Reliability Committee Voting, 2015 - 2016³

A very simplistic conclusion can be made that PJM's stakeholder process is extremely effective in driving stakeholder agreement on less contentious issues, but far less effective on the smaller number of issues that are highly controversial.

PJM's bi-annual stakeholder satisfaction survey allows stakeholders to provide feedback on the stakeholder process (PJM Interconnection 2016). In the 2013 and 2015 surveys, the process scored well above 80 percent satisfaction on a variety of narrow metrics related to process (i.e. sharing information, facilitation, giving members the opportunity to be heard). The lowest scores on the satisfaction survey were related to “fairness to all members”. In addition, stakeholders commented that divergent interests limit consensus building, stakeholders are polarized, and there is too much education and not enough progress (PJM Interconnection 2016).

To manage expectations, it should be noted for some highly controversial issues, it is possible that no amount of stakeholder system improvement will yield a feasible pathway to agreement.

² This represents an improvement on the total pass rates observed in the GAST Phase I report for the MRC in 2007 (86%), 2008 (85%), and 2009 (87%). (Raab Associates, Ltd. and CBI 2009, 19)

³ Source Note - Data provided by PJM, from minutes of MRC meetings in 2015, 2016

SECTION I: BACKGROUND ON PJM PROCESS AND FERC GUIDANCE

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This section provides an overview of PJM's existing stakeholder process, identifies how the process has been changed over time, and details governance guidance provided by FERC. An overview of current power balance issues among PJM stakeholders is also provided.

OVERVIEW OF PJM'S EXISTING STAKEHOLDER PROCESS

This sub-section provides a very basic overview of PJM's stakeholder process. Those unfamiliar with PJM's stakeholder process are encouraged to review PJM's Manual 34, which provides explicit details on stakeholder process rules and procedures.⁴

PJM defines "stakeholders" as its Members,⁵ the Organization of PJM States (whose members are state public utility commissions), state consumer advocates who are not PJM Members,⁶ the Independent Market Monitor, PJM staff, and the PJM Board of Managers. PJM's stakeholder process manual states the goal of the stakeholder process is to "efficiently, effectively and fairly identify, review and make decisions regarding proposed revisions to PJM's governing documents, processes, market and reliability design and operations." (PJM Interconnection 2016).

PJM has three primary governance documents that establish rules PJM and its Members must follow.⁷ These documents define roles and responsibilities, and authorities and obligations of PJM, PJM's Board of Managers, and its Members.

- **The Open Access Transmission Tariff (The Tariff).** The Tariff is the main document that governs overall PJM Operations. The tariff details rates and terms for transmission asset service and many other PJM functions.
- **The Operating Agreement (The OA).** The OA must be signed by all entities that want to become PJM Members. It includes information on how PJM operates as a RTO, and defines the roles and responsibilities of PJM's three main governance groups (the Board of Managers, Office of the Interconnection comprised of PJM staff, and the Members Committee) that help manage PJM markets, planning, and operations.
- **The Reliability Assurance Agreement (The RAA).** The RAA applies to all PJM Members that sell electricity to end use customers. It establishes a variety of obligations related to ensuring and maintaining a reliable electricity grid.

PJM's stakeholder process is intended to enable changes—through stakeholder education, collaboration, and consensus building—to be made to PJM's governing documents. PJM has a two-tiered governance structure comprised of Members and an independent Board of Managers. This structure was developed to promote PJM's neutrality in governance decisions, and to help ensure governance decisions are made independently and without undue influence from specific Members or individuals.

⁴PJM's Manual 34 available on PJM's website at <http://www.pjm.com/~media/documents/manuals/m34.ashx>

⁵ PJM "Members" must meet the definition of a Transmission Owner, Generation Owner, Other Supplier, End Use Customer or Electric Distributor, and must meet the requirements of Section 11 of the PJM Operating Agreement, available at <http://pjm.com/media/documents/merged-tariffs/oa.pdf>

⁶ State Consumer Advocates can be non-Members or Ex Officio Members. As of April 27, 2017, only four State Consumer Advocates (TN, DE, PA, WV) were registered as Ex Officio PJM Members.

⁷ A forthcoming governing document, the Transmission Owners Agreement, applies to PJM members who own or lease transmission facilities. This agreement enables regional transmission service by transferring some transmission planning and operating activities to PJM.

- The Board of Managers (Board).** The Board is PJM's highest governing body. Board members are to be independent, meaning they have no personal affiliation or financial stake in any PJM market participant. There are ten total board members, including PJM's President and CEO who does not have voting rights. The Board is charged with ensuring that PJM operate a safe and reliable grid, support non-discriminatory and competitive markets, and prevent any one group of Members from having too much influence over PJM. The nine voting members of the Board are elected by the Members Committee. Four of the nine board seats must have experience in the areas of corporate leadership or the disciplines of financing or accounting, engineering, or utility laws and regulations. One must have expertise in the operation of transmission dependent utilities. One must have expertise in the operation or planning of transmission systems, and one must have expertise in the area of commercial markets and trading and associated risk management.
- The Members Committee (MC).** The MC is the most senior committee in the PJM stakeholder process. The MC reviews and votes on all major issues proposed by lower level committees. Each PJM Member gets one vote at the MC, but may have additional (i.e. Affiliate) votes in lower level committees. Upon becoming a PJM Member, an organization must designate itself in one of the five member sectors, as either a: transmission owner, generation owner, other supplier, electric distributor, or end-use customer. This is because some voting at the MC is "sector-weighted" and on most items requires two-thirds majority support for approval.

Changes to PJM's governing documents typically need to be approved by FERC. Rule changes can be proposed to FERC using Federal Power Act (FPA) Section 205 or Section 206 authority, with the latter requiring more stringent criteria to be met.⁸ The MC has Section 205 authority over the OA, making the MC's role in changing this document critical. The Board has Section 205 authority over the Tariff and RAA, making the Board's support critical and the MC's vote advisory. In general, this means changes proposed to the OA require the support of the MC and changes to the Tariff require the support of the Board. However, PJM or any other entity can propose changes to the OA or the Tariff

Acclamation and Sector-Weighted Voting

In order to expedite voting on less contentious issues, the acclamation process can be used. When a committee chair believes there is little opposition to a proposal, the chair can allow acclamation voting where only those who oppose or abstain from a vote self-identify. Those that do not self-identify are deemed to vote in favor of the proposal.

Recall, PJM Members are identified in five sectors: transmission owner, generation owner, other supplier, electric distributor, and end-use customer. Sector-weighted voting was developed to prevent one sector's interests from controlling outcomes, for example, as a result of accumulating the greatest number of participants. Each sector effectively gets one vote, for a total vote potential of five (1 vote x 5 sectors). To meet the two-thirds approval threshold, the sum of the sector-weighted votes must exceed 3.335 (.667 x 5 sectors). *Table 2* provides an example of sector weighted voting.

Proxy voting is also permissible at all levels of the stakeholder process, for example, by an authorized agent of the Member(s). Proxy voting allows one individual to cast a vote on behalf of another individual(s).

Sector	For	Against	Abstain	% in Favor (of those voting)
Electric Distributor	7	3	4	0.7
End-Use Consumer	16	0	0	1
Generation Owner	11	9	5	0.55
Other Supplier	4	6	15	0.4
Transmission Owner	11	3	0	0.785
<i>Total</i>				3.435 (PASS)

Table 2: Example of Sector Weighted Vote Calculation

(or other governing documents) using Section 206 authority, they just have a much higher standard to meet to support such change. If the Members cannot reach agreement on an issue pertaining to the OA, and there is a FERC-imposed deadline or compelling reliability need, the Board can file a proposal in absence of Member agreement.

⁸Section 205 of the Federal Power Act requires that the proposer of a change to an RTO/ISO governing document demonstrate why the change is "just and reasonable." Section 206 of the Federal Power Act requires that proposers of a change to an RTO/ISO governing document meet a more stringent standard of demonstrating why the current provision is "unjust and unreasonable" and how the proposed revision is "just and reasonable."

There are various pathways to initiate stakeholder dialogue and process on a proposed issue that may require a rule change. For example, issues can be identified from internal (e.g. PJM staff, Members) or external (e.g. FERC, legislators) entities, at high or low levels in the stakeholder hierarchy. However, for an issue to be investigated in detail, a senior standing committee must approve of the investigation. In general, there are three types of stakeholder committees:

- **Senior Standing Committees.** These include the MC and the Markets and Reliability Committee (MRC). Voting takes place on an acclamation or sector-weighted basis where a two-thirds supermajority threshold is required to pass. Each Member gets only one vote, meaning Member companies affiliated with a Member parent company (i.e. Affiliates) do not participate at this level.
- **Other Voting Committees.** These include lower level standing committees (e.g. Market Implementation Committee, Operating Committee) and senior task forces. Votes are not sector weighted, only a simple majority threshold is required to pass, and all Members and Member Affiliates can vote. Proposals that achieve majority support in these voting committees are forwarded to the appropriate Senior Standing Committees for further consideration and voting.
- **Non-Voting Committees.** These include sub-committees and non-senior task forces. Voting does not take place and Members and Member Affiliates can participate. Recommendations are passed along to higher level committees based on consensus, or by support from at least three voting Members from at least two sectors.

The issue investigation process uses a methodical consensus building and dispute resolution framework called CBIR (consensus-based issue resolution process) aimed at developing solutions to the specific issue identified. Proposed solutions are typically developed at lower level voting or non-voting committees, with proposals being forwarded to higher level committees

based on required thresholds (e.g. majority vote, consensus support or three supporting voting members from two sectors).

A stakeholder(s) supporting a proposal that fails to meet the threshold needed to advance to a higher level committee has the ability to exercise “minority rights.” For example, the stakeholder can: raise an issue or proposal before the MC and be given time on the agenda to speak, write a letter directly to the Board, establish a User Group,⁹ or file a petition directly with FERC. To enhance communications between the Board and the Members, there is also a Liaison Committee. The Liaison Committee does not vote, rather it is meant to allow Members and the Board to directly communicate with one another.

	Stakeholder Group	Who Can Vote*	Decision-making Methodology	Threshold for Endorsement (passing)	Sector Weighted Voting?	What moves up to Parent Committee?
Voting	Senior Standing Committee (MC only)	Voting Members in good standing ex officio Voting Members	Vote on Main Motion first. If that does not pass, then vote as detailed in Motion Voting Order.	Exceed 2/3**	Yes	
	Senior Standing Committee (MRC only)	Voting Members in good standing Ex officio Voting Members	Vote on Main Motion first. If that does not pass, then vote as detailed in Motion Voting Order.	Exceed 2/3**	Yes	First Motion voted on that receives MRC endorsements is forwarded to the MC as the Main Motion.
	Senior Task Force	Voting Members and Affiliates	Strive for consensus. If no consensus, then vote on multiple options	Simple Majority	No	All proposals that receive a simple majority are forwarded on to the MRC with the proposal with the highest majority presented as the Main Motion. Other proposals that receive a simple majority are considered Alternative Motions ranked in the order of votes received.
	Lower Level Standing Committee (MIC/PC/OC)	Ex officio Voting Members				
Non-Voting	Sub-Committee	N/A	Strive for consensus. (Tier 1). If no consensus, produce multiple proposals (Tier 2).	Tier 1: All members can live with proposal. Tier 2: At least 3 supporting Voting Members from 2 sectors.	No	If a consensus proposal cannot be forwarded on to Parent Committee, multiple proposals are narrowed down and proposals meeting the threshold are forwarded to Parent Committee.
	Task Force (except Senior Task Force)					

** For a limited number of issues such as Charter approvals the threshold is 1/2.
*Associate and emergency load program members may not vote at any level

Figure 1: PJM Stakeholder Process Decision Making Methodology Overview. Image reproduced from PJM’s Manual 34, p. 100 (PJM Interconnection 2016)

⁹A User Group is a stakeholder group comprised of any five Voting Members (excluding Affiliates) that share a common interest. Per OA section 8.7, any recommendation or proposal adopted by three-fourths or more of a User Group shall be submitted to the chair of the MC, and the MC chair shall refer the matter for consideration and recommendation by the applicable standing committee. If the MC fails to adopt the proposal submitted by the User Group, upon a nine-tenths vote of the User Group the proposal can be forwarded to the PJM Board for consideration.

PJM GOVERNANCE REVISIONS

PJM has revised its stakeholder process several times in the past. In 2002, PJM developed the Governance Action Team, which resulted in development of the Member's handbook. In 2006, the Governance Working Group focused on sector weighted voting, voting at the lower level committees, and also developed voting rights reports to inform Board actions.

In March 2009, the three-stage Governance Assessment Special Team (GAST) process was initiated via resolution by PJM's Members Committee, mostly in response to FERC's Order 719. In general, the GAST initiative examined the clarity and transparency, efficiency and effectiveness, and fairness of the stakeholder process.

The first phase focused on information gathering to understand stakeholder viewpoints on a variety of issues (e.g. goals and objectives, decision making process, transparency, meetings and structure) and culminated in the issuance of a report and recommendations for Phase II (Raab Associates, Ltd. and CBI 2009). In September 2009, the GAST recommended and Members subsequently approved moving forward with Phase IIA. Phase IIA included a year-long initiative to redesign the stakeholder decision making process that focused mainly on the lower level committees and working groups and culminated in a new "PJM Manual 34: PJM Stakeholder Process" that was approved by the MC in August 2010.

In November 2010, the MC approved moving forward with Phase IIB. In January 2011, the Phase IIB process began, which devoted six months to negotiating contentious issues related to decision making at the highest committees, balance of power issues, and the relationship between PJM Members and the Board. In August 2011, the GAST Phase IIB Report was submitted to the PJM Member's Committee, including a list of substantive recommendations, and a discussion of balance of power issues (PJM Interconnection August 2011). The recommendations included streamlining the MRC/MC, developing an Enhanced Liaison Committee process for expediting difficult issues, new procedures and approaches to voting/polling and other items.

Phase IIB explored the highly controversial issue of balance of power among Members, generally

characterized as a tension between asset owners (sell side) and customers (buy side). In the end, the Members could not reach agreement on changes to the current balance of power that led to both sides being better off. While recognizing the current system is flawed, Members agreed to continue with the status quo. Phase IIB also explored balance of power issues between Members and the Board and even included discussion of altering the current distribution of FPA 205 rights, but no agreement was reached. Appendices within the Phase IIB report also included a useful assessment of governance across large, multi-stakeholder organizations.¹⁰ This assessment identified how different organizations dealt with board structures, voting rules, sector-weighted voting, voting thresholds, veto power, etc.

The GAST Phase I report noted that PJM had undergone significant changes in the five years prior to the GAST, creating complexities and concerns about the stakeholder process, including: (Raab Associates, Ltd. and CBI 2009, 8-9)

- An expansion of the size of PJM's territory and the number of PJM Members,
- PJM experienced management changes including a change in leadership,
- The broader political, technological, and economic landscape is rapidly changing,
- A new presidential administration with different views on energy has taken office, and
- As wholesale markets mature, market design solutions become more complex, have greater allocative effects (who bears costs and risks), and must be implemented within a market structure that already exists.

The reader may notice that since the completion of the GAST process in 2011, PJM has undergone similar and significant changes to those identified in the 2009 GAST report, along with a set of new and unique alterations. In general, stakeholders interviewed believe the GAST process yielded significant improvements in the transparency, efficiency, and effectiveness of the stakeholder process.

Subsequent to the GAST process, PJM began conducting a "Stakeholder Process Forum" under the MC, approximately nine times a year. This forum provides an opportunity for stakeholders to discuss

¹⁰ Organizations examined included: Financial Industry Regulatory Authority (FINRA), The World Bank (and Asian Development Bank), The United Nations System (including the General Assembly and Security Council, Development Agencies, and Inter-Agency Decision-Making Bodies), The European Commission on Standardization, AFL-CIO, U.S. Farm Bureau, National Medical Associations, Franchise Restaurant Model, Canadian Constitution (Amendment Procedures)

Balance of Power

In the GAST process, with respect to fairness, stakeholders were unable to identify agreed upon improvements. “Fairness” generally concerns the balance of power dynamics at play between and among PJM’s stakeholders and how to balance their competing interests. There are a number of power balance tensions in the stakeholder process, with the examples below highlighting a limited list of observed tensions:

- **Buyers of Electricity Versus Sellers of Electricity.** Electricity sellers generally want prices to be high in order to maximize profits, whereas, buyers of electricity generally want prices to be low in order to reduce costs.
- **Asset Owners Versus Non-Asset Owners.** Owners of assets, such as power plants and transmission infrastructure, argue they have more invested and are exposed to greater risk, compared to non-asset owning stakeholders. They argue it is inequitable that a non-asset owner has the same voting strength as an asset owner in sector-weighted voting. Electricity buyers, such as end use customers and electric distributors, believe they ultimately “pay the bills” for energy supply and should be given greater voting power as a result.
- **Large Incumbent Members Versus Smaller Members.** Large companies with multiple Affiliates believe it is unfair they only have one sector-weighted vote, and argue they should have more votes than smaller companies. On the other hand, smaller companies believe large firms have greater resources to devote to participation in the stakeholder process, have greater control on proposal design through lower level voting, and have more accountability over PJM.
- **New Market Entrants Versus Incumbent Members.** New market entrants feel that large or established firms have more influence or control over the stakeholder process and exercise that control to the detriment of new competitors.

The power of state policymakers over PJM—and the comparatively weak or strong influence individual PJM stakeholder-members have over these policy makers—is an additional power balance issue recently emerging. Section IV describes this issue in further detail.

Some have described PJM’s stakeholder system to have been purposefully negotiated and designed to accommodate the buyer-seller power balance through a “bicameral” system of lower level and higher level voting. In this sense, the high-level senior standing committees vote to approve or reject exploration of identified issues. Lower level committees then have control over developing and identifying proposed solutions to these issues and advancing agreed upon proposals to higher level committees. The higher level committees then vote to approve or disapprove of any proposed solutions that are advanced from the lower levels.

In this system, the suppliers/sellers have more control over proposal development and what is advanced for voting, through exercise of Affiliate voting (to be explored further in Section VI). Demand/ buyers have more control over the initial agenda and final vote on proposals through vote blocking powers (to be explored in Section V). In essence, the sellers have more control over crafting proposed solutions, but the buyers have more control over what is finally approved or rejected.

and provide informal input on the stakeholder process. In addition, PJM conducts bi-annual stakeholder satisfaction surveys that request feedback on a variety of stakeholder process details. These are valuable tools in monitoring and tracking the PJM stakeholder process. However, they do not currently function as vehicles for broader evaluation of stakeholder system needs or potential reforms.

OVERVIEW OF FERC GUIDANCE ON GOVERNANCE

The Federal Energy Regulatory Commission (FERC) encouraged the voluntary formation of RTO/ISOs to facilitate electricity system restructuring. FERC's early efforts to establish RTO/ISO functions provided limited guidance on governance requirements. For example, FERC Order 888 simply states:

"...an ISO should be independent of any individual market participant or any one class of participants (e.g., transmission owners or end-users). A governance structure that includes fair representation of all types of users of the system would help ensure that the ISO formulates policies, operates the system, and resolves disputes in a fair and non-discriminatory manner. The ISO's rules of governance, however, should prevent control, and appearance of control, of decision-making by any class of participants."
(Federal Energy Regulatory Commission 1996, 280)

In FERC Order 2000, the Commission acknowledged that many entities encouraged the imposition of specific, detailed requirements on RTO governance. FERC decided not to impose more specific governance requirements (but strengthened and clarified the independence principle outlined above in FERC Order 888) and opted to continue to evaluate governance structures on a case-by-case basis. FERC did not want to impose a one-size-fits-all solution on the various RTO/ISOs, did not believe the same governance structure could work for non-profit and for-profit entities, and due to limited experiences, felt it was premature to conclude one type of governance structure was superior to another in every given situation (Federal Energy Regulatory Commission 1999, 227-230). However, FERC did provide some limited and general guidance, which included:

- No one class of market participants should be allowed to veto a decision reached by the rest of the board, and no two classes should be able to force

through a decision that is opposed by the rest of the board.

- For boards made up of non-stakeholders, it is important that this board not become isolated.
- Both formal and informal mechanisms must exist to ensure stakeholders can convey their concerns to the non-stakeholder board.
- Where there are stakeholder committees that advise or share authority with a non-stakeholder board, it is important the representation of the stakeholder committee is balanced so that no one class dominates recommendations. (Federal Energy Regulatory Commission 1999, 230)

Order 2000 also promoted an "open architecture" policy, requiring RTOs to be designed so they can evolve over time to meet changing market needs. The open architecture principle gives RTO's the ability to propose whatever changes it believes are appropriate to meet the needs of the organization and region, subject to review and approval by FERC. The order identifies examples justifying the needs for this flexibility to evolve, such as changes to: organizational design and corporate strategy, RTO geographic scope, market support needs, operational needs, and technologies.

FERC Order 719, inter alia, sought to reform the RTO/ISO governance process to increase RTO/ISO responsiveness to customers and stakeholders. FERC required RTOs/ISOs to consult with stakeholders in developing a formal filing for submission to FERC that detailed proposed reforms (or explained why existing processes are sufficient) and established four responsiveness criteria under which the filings would be assessed for compliance. The criteria included that business practices and procedures must ensure:

- 1. Inclusiveness.** Customers or other stakeholders must be able to communicate their views to the RTO/ISO board of directors.
- 2. Fairness in Balancing Diverse Interests.** The interests of customers or other stakeholders should be equitably considered and that deliberation and consideration of RTO/ISO issues are not dominated by any single stakeholder category.
- 3. Representation of Minority Positions.** When stakeholders are not in agreement, minority positions must be communicated to the RTO/ISO board at the same time as the majority positions.



4. Ongoing Responsiveness.¹¹ Stakeholder input is incorporated into RTO/ISO decision making and mechanisms to provide feedback to stakeholders are in place to ensure information continues to be exchanged and communicated over time (Federal Energy Regulatory Commission 2008, 251). Furthermore, FERC states that through the ongoing responsiveness principle "...the Commission will require that RTOs and ISOs continue over time to consider customer and other stakeholder needs as the architecture or market environment of the RTO or ISO changes" and that, "As with the overall operations of each RTO and ISO, responsiveness to customers and other stakeholders should continually be evaluated for improvement." (Federal Energy Regulatory Commission 2008, 263-264).

In February 2010, FERC hosted a technical conference on RTO/ISO responsiveness, with panels on the stakeholder process, the board process, and other governance issues (Federal Energy Regulatory Commission 2010). In October 2010, FERC approved PJM's compliance filing, finding that the RTO's governance practices and procedures fulfilled the four responsiveness criteria of Order 719 (Federal Energy Regulatory Commission 2010). PJM's compliance filing identified various reforms already implemented to increase responsiveness,¹² and also mentioned it was considering additional reforms through an ad hoc GAST process, which was previously discussed in this report. FERC found PJM's compliance filing to meet the responsiveness requirements of Order 791, expressed support for PJM's additional efforts through the GAST process, and encouraged stakeholders to participate in the GAST process (Federal Energy Regulatory Commission 2010, 11, 15, 18).

¹¹ FERC defines "responsiveness" as "...an RTO or ISO board's willingness, as evidenced in its practices and procedures, to directly receive concerns and recommendations from customers and other stakeholders, and to fully consider and take actions in response to the issues that are raised." (Federal Energy Regulatory Commission 1999, 247)

¹² Prior to GAST, PJM initiated a Governance Working Group (GWG) in March 2006 to evaluate the stakeholder process and make recommendations for improvements. In February 2007, several recommendations from the GWG were approved and integrated into PJM's Member's Manual.

SECTION II: IS THE STAKEHOLDER SYSTEM EVOLVING WITH THE MARKETS?

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Four phenomenon have driven substantial change to PJM's market environment and architecture since the last time PJM revised its stakeholder governance process in 2011, and these changes have created highly contentious issues that are difficult to manage in the existing stakeholder process.¹³ These phenomenon include:

1. Growth of low priced natural gas and gas-fired capacity resources
2. Constant changes to capacity markets and attendant controversies
3. Flat load growth and increased renewable energy supply requirements
4. Increased volume of financial transmission rights market activity.

By changing the portfolio of market participants and underlying market economics, these drivers are applying extreme pressure on the stakeholder system. This is because these market changes strike at the three most controversial topics for stakeholders to deal with: high financial stakes, allocation of costs and benefits, and balance of power between and among stakeholders.

Some argue PJM's stakeholder system should naturally evolve with the markets, as competition prompts existing market players to exit and new market players to enter, changing the mix of PJM Members. However, in practice, the stakeholder system may not be as responsive as the markets are given stakeholder system rules and process. Per FERC Order 719's "ongoing responsiveness" principle, these fundamental drivers of changes likely require an assessment of PJM's stakeholder process to ensure it reflects the evolving needs of the markets and stakeholders.

LOW PRICED NATURAL GAS AND GROWTH OF GAS RESOURCES

In 2010, PJM's electricity supply mix was dominated by coal-fired resources (48.2%), followed by nuclear energy (35%) and natural gas (11.4%). By 2015, coal resources had lost considerable market share with nuclear being the dominate resource (35.7%), followed by coal (35.2%) and natural gas (23%) (PJM EIS 2015). This represented a lightning-fast transition atypical of the industry, and one that couldn't have occurred without three key factors: cheap and plentiful shale gas, existing and underutilized natural gas generating capacity, and use of competition (instead of regulation) that more quickly incorporates lower gas commodity and resource prices into energy and capacity markets.

Between 1990 and 2007, over 168 gigawatts of high efficiency natural gas combined cycle (NGCC) and 89 GW of less efficient natural gas peaking turbine capacity was built, with much of this capacity subsequently being underutilized because of rising gas prices (Kaplan 2010). The dramatic and sustained decrease in natural gas prices from unconventional shale development, saw Henry Hub spot prices drop from an annual average of \$8.86/MMBTU in 2008 to an average annual price of \$2.62/MMBTU in 2015 (U.S. Energy Information Administration 2016). This price decrease enabled underutilized natural gas capacity to quickly ramp up output, pushing less competitive resources out of the market. In 2009, average annual capacity factors at NGCC plants were under 40 percent, while average coal steam generator capacity factors were about 65 percent. In 2015, average NGCC capacity factors rose to 56.3 percent, while coal steam generator capacity factors dropped to 54.6% (U.S. Energy Information Administration 2016).

¹³ FERC does not provide explicit definitions of the terms "market environment" or "architecture".

	Coal	Diesel	Heavy Oil	Kerosene	Landfill Gas	Light Oil	Natural Gas	Nuclear	Wind	Wood Waste	Total
Retirements 2011	543.0	0.0	0.0	0.0	0.0	63.7	522.5	0.0	0.0	0.0	1,129.2
Retirements 2012	5,907.9	0.0	0.0	0.0	0.0	788.0	250.0	0.0	0.0	16.0	6,961.9
Retirements 2013	2,589.9	2.9	166.0	0.0	3.8	85.0	0.0	0.0	0.0	8.0	2,855.6
Retirements 2014	2,427.0	50.0	0.0	184.0	15.3	0.0	294.0	0.0	0.0	0.0	2,970.3
Retirements 2015	7,661.8	10.3	0.0	644.2	2.0	212.0	1,319.0	0.0	10.4	0.0	9,859.7
Retirements 2016	243.0	59.0	74.0	0.0	11.0	14.0	0.0	0.0	0.0	0.0	401.0
Planned Retirements 2016	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Planned Retirements Post-2016	1,885.0	0.0	34.0	0.0	0.0	0.0	661.8	2,433.5	0.0	0.0	5,014.3
Total	21,257.6	122.2	274.0	828.2	32.1	1,162.7	3,047.3	2,433.5	10.4	24.0	29,192.0

Figure 2: Summary of PJM Unit Retirements by Fuel Type in MW, 2011 – 2020. Reproduced from (Monitoring Analytics, LLC 2016, 510)

According to PJM's independent market monitor and shown in *Figure 2*, between 2011 and 2016 over 24 GWs of (mostly coal) capacity retired in PJM, with another 5 GW slated for retirement by 2020 (Monitoring Analytics, LLC 2016). Retired coal capacity is generally being replaced with natural gas and some other non-coal capacity. As of September 2016, the PJM capacity queue included 82.7 GW of potential new capacity, with over 55 GW coming from natural gas resources, 14.5 GW from wind, 7.7 GW from solar, and only 1.78 GW from coal-fired steam resources (Monitoring Analytics, LLC 2016, 509).

This rapid transition to greater gas reliance created some operational and reliability challenges for PJM, highlighted by the 2014 Polar Vortex. PJM initiated gas-electricity market coordination efforts, capacity market reforms, and other actions aimed at addressing such concerns. However, low priced natural gas and the domination of new natural gas capacity builds have raised additional concerns about the economic viability of nuclear resources, diversity of resources, reliability of gas supply, and state policy intervention into the PJM's capacity markets. On the other hand, consumers are getting cleaner, cheaper electricity produced by gas-fired resources, compared to coal-fired resources.

With respect to the stakeholder system, low priced natural gas and the growth of gas capacity resources are fundamentally changing market economics by drastically reducing the pool of energy and capacity market revenues. While some stakeholders benefit, other stakeholders experience profoundly negative impacts, including: causing exit from the market, prompting divestment of generation resources, increasing appeals for out-of-market solutions, experiencing enhanced competition for decreasing revenues, and more.

CAPACITY MARKET DESIGN CONTROVERSIES

PJM's capacity market construct aims to send price signals to capacity resources to incent market entry, availability, or exit. The capacity market has successfully signaled capacity availability and resource entry and exit.¹³ In spite of this success, the capacity market has become increasingly controversial in light of low priced natural gas. Low priced natural gas, robust natural gas capacity, and flat load (i.e. demand) growth has driven down wholesale energy market clearing prices, reducing revenues to generation capacity and resulting in greater attention on the role of capacity market revenues for the financial health of generators. Meanwhile, consumers benefit from these low prices.

Stakeholder perspectives on the performance of the capacity market runs the gamut. Some stakeholders assert the market is working appropriately—lowering costs to consumers and causing the least competitive resources to retire. On the other hand, some stakeholders feel that the system is becoming too gas-dependent, and is prematurely losing valuable capacity resources because the market doesn't adequately value zero carbon resources (i.e. nuclear) or the benefit of resources that can store fuel on-site (i.e. coal). Still other stakeholders argue the market's most recent capacity performance design doesn't appropriately value capacity resources that are seasonally available, leading to higher costs for consumers.

In addition to assertions about capacity market outcomes, stakeholders are also concerned about certain limitations of the market. Stakeholders proposing a draft problem statement to assess the efficacy of the capacity market assert the market design is constantly changing in response to exogenous events—citing 24 filings to modify capacity

¹⁴ From 1995 through 2015, there was a 17 percent net increase in installed capacity within PJM. Over this time period, 54.1 gigawatts (GWs) of capacity has entered the market and 24.7 GWs of capacity exited the market. Some of these resources entered the market as new delivery zones were integrated into PJM's system. In addition to installed capacity within the PJM footprint, PJM has other capacity tools available, including for example, imports/export, demand response, and energy efficiency. (Simeone and Hanger 2016)

market rules since 2010 – creating significant market and price uncertainty (PJM Interconnection 2016). Other stakeholders argue the capacity market does not provide an adequate platform for generation and transmission to compete. For example, the capacity market clears capacity resources based on price, then overlays market results on the transmission system to assess impacts. They argue there is no mechanism to optimize for the most cost effective solution, for example, expanding transmission versus retiring existing or building new capacity.

Controversy about the capacity market is only expected to increase, as owners of economically distressed generation assets are appealing to state policy makers for financial subsidies to remain in operation. For example, Illinois recently passed legislation that would subsidize Exelon's economically distressed Quad Cities nuclear plant that operates in PJM.¹⁵ Other states may or may not decide to follow Illinois' lead.¹⁶ Public policy intervention into the capacity market, through subsidies for new or existing generation, has the potential to distort market outcomes for other participants by suppressing prices. As a result of Illinois' actions, PJM and its stakeholders will be forced to deal with these issues. PJM (and other RTOs) has given thought to how to maintain market efficiency in the face of public policy interventions, but recognizes many questions remain unanswered (Bresler 2016). PJM also has a stakeholder process underway to engage its members in exploring solutions.¹⁷

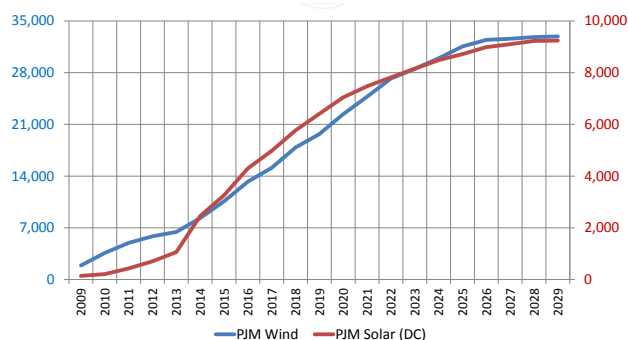
The capacity market is intimately related to the most controversial topics in the stakeholder system: issues of balance of power between buyers and sellers (and between sellers), where financial stakes are high, and there are economic winners and losers. As a result, changes to capacity market rules and design are highly controversial, and likely to prove difficult to successfully navigate in the stakeholder process.

FLAT LOAD AND GROWING RENEWABLE SUPPLY REQUIREMENTS

PJM and its stakeholders are facing a future where state level mandates will push over 10 percent of PJM's supply towards wind and solar. And if load trends continue, this shift will happen while there is

little to no load growth in the market. Absent growth, this sets up a situation where new market entrants (i.e. seasonal resources like wind, solar, efficiency and demand response) will push some incumbent supply resources out of the market. A great deal of thought and analysis has been performed by PJM (and many others) examining the technical and operational challenges presented by integrating increasing volumes of renewables and demand side resources onto the grid. Comparatively less thought has been dedicated to examining the governance and policy development challenges presented by such integration and displacement of incumbent supply.

In the future, a larger and larger portion of grid electricity supply will come from renewable energy, mostly driven by state renewable portfolio standard laws (General Electric International, Inc 2014). In 2015, wind and solar energy supplied only about 2.2 percent (17,134 GWh) of PJM's electricity supply (PJM EIS 2015). As shown in *Figure 3*, by 2029, wind and solar are expected to supply 13.4 percent (122,000 GWh) of PJM's net annual energy, marking a significantly increased contribution to overall system mix (PJM Interconnection 2014).



By 2029: 122,000 GWh of renewable energy, 13.4% of PJM annual net energy (33 GW of wind and 9.2 GW of solar)

Figure 3: Projected Renewable Energy Requirements in PJM. Image reproduced from a PJM presentation to the National Conference of State Legislatures (PJM Interconnection 2014)

¹⁵ In December 2016, the Illinois State Legislature passed the "Future Energy Jobs Bill" establishing a zero emissions standard program, creating a new revenue stream for the Clinton and Quad Cities nuclear plants.

¹⁶ The New York Public Service Commission has approved of a zero emissions credit program to provide new revenue streams for certain economically distressed nuclear plants. Connecticut, Ohio and New Jersey are also contemplated subsidies for nuclear power plants.

¹⁷ More information on the "Capacity Construct/Public Policy Senior Task Force can be found on PJM's website at <http://www.pjm.com/committees-and-groups/task-forces/ccppstf.aspx>

	Actual Summer Peak (Normalized)	Forecast			
			Current Year Forecast	RPM (3 Years Forward)	RTEP (5 Years Forward)
2017		2017 Forecast	152,999	153,684	153,425
2016	150,085	2016 Forecast	152,131	156,958	157,358
2015	150,360	2015 Forecast	155,544	161,128	164,443
2014	150,240	2014 Forecast	157,279	164,195	166,900
2013	149,420	2013 Forecast	153,716	163,176	166,810
2012	154,030	2012 Forecast	153,782	163,168	167,433

Table 3: RTO-Wide Summer Peak Historical and Forecast Load Data in MWs (2012-2017)¹⁸

In addition, *Table 3* shows compiled data from PJM's annual load forecast reports (PJM Interconnection 2016). PJM's load forecasts for the 3-year-forward capacity markets (i.e. RPM) and 5-year-forward regional transmission expansion plan (RTEP) have all show significantly reduced projections over time. Specifically, between the 2012 and 2017 forecasts there was a 5.8 percent decrease in expected RPM peak capacity, and an 8.3 percent decrease in expected RTEP peak capacity. Shorter-term forecasting has also generally overestimated actual peak capacity needs for the upcoming year, as peak load has stagnated.

Some of these downward trends can be attributed policy driven and organic energy efficiency activities. Currently, eight PJM states have energy efficiency resource mandates or goals in place.¹⁹ In addition, several states, utilities, and cooperatives have demand response requirements or programs in place that may operate in conjunction with or separately from PJM markets. In delivery year 2015-2016, PJM reported 12,866 MW of resources participating in demand response programs (McAnany 2016). In 2015, certain utilities and cooperatives operating in the 14 PJM jurisdictions realized significant peak demand savings from demand response programs, as evidenced by *Table 4* (U.S. Energy Information Administration 2016).

	Residential	Commercial	Industrial	Total
Total Customers Enrolled	2,428,350	14,656	4,023	2,447,029
MWh Saved	49,744	13,723	20,646	84,113
Potential Peak Demand Savings (MW)	2,551	1,142	5,066	8,759
Actual Peak Demand Savings (MW)	1,233	459	1,858	3,550

Table 4: Select Utility and Cooperative Demand Response Program Information from PJM States, for 2015

¹⁸ Source Note: Forecast data is taken from PJM Load Forecast reports for the respective forecast year, as referenced in the above paragraph. As a result of changes to PJM's load forecasting model and weather normalizing process, data for actual weather normalized summer peaks was taken from PJM's 2017 Load Forecast report.

¹⁹ PJM states with energy efficiency resources standards or goals include: DE, IL, IN, MD, MI, OH, PA, and VA.

²⁰ For example, some state renewable portfolio standards (e.g. Pennsylvania) allow public utility commissions to temporarily relax compliance obligations under certain conditions (i.e. good faith efforts have been made), if credits are not available in sufficient quantities (i.e. the price is too high). See General Assembly of Pennsylvania House Bill 1203 of 2007, Amendment to Section 1, <http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2007&sessInd=0&billBody=H&billTyp=B&billNbr=1203&pn=1995>

Pertaining to governance issues, questions naturally arise that have yet to be fully explored. For example, does an incumbent resource advantage exist in the stakeholder process that can be exercised to inhibit or slow seasonal integration? Could such inefficiencies result in damages to consumers (via higher costs for RPS compliance) or inhibiting achievement of public policy goals (i.e. triggering economic force majeure)?²⁰ Are there influences from PJM on the stakeholder process, such as a cultural bias towards dispatchable or base load incumbents that disadvantage these new entrants? And of course, how will these high-controversy issues impact the ability for stakeholders to achieve consensus, and/or trigger solutions imposed outside of PJM?

FINANCIAL TRANSMISSION RIGHTS

Activity in PJM's financial derivatives markets has grown considerably in recent years, specifically in the financial transmission rights (FTR) market. *Figure 4* shows the significant increasing trend in FTR bid volume activity over time, with major increases observed beginning in 2011. In addition to increased activity, controversy over FTRs has also increased.

In 1999, FTR's were introduced in PJM along with the locational marginal pricing (LMP) system. PJM uses thousands of LMP nodes distributed throughout its system to price energy based on the least cost resources available to serve load at a given time. In theory, all LMP nodes would use the least cost generation resource available to meet demand. In practice, physical transmission constraints sometimes prevent the least cost resource in the system from being delivered to the area of demand. As a result, for example, a node closer to the area of demand may have

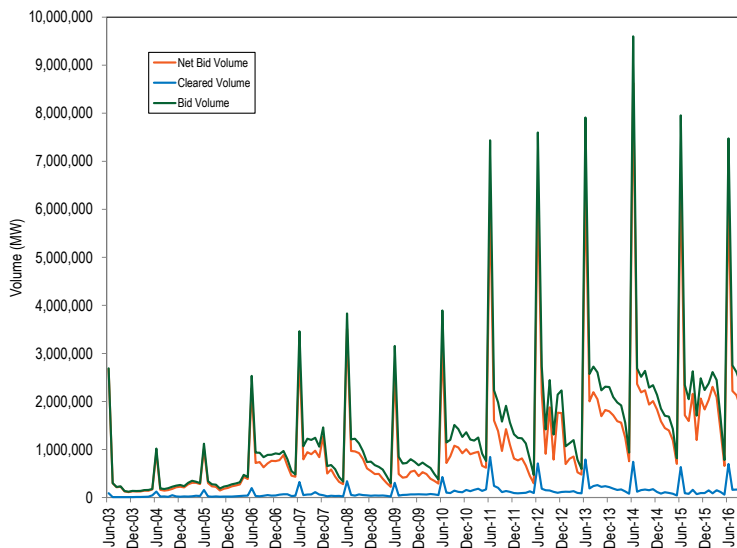


Figure 4: Long Term, Annual and Monthly FTR Auction bid and cleared volume, June 2003 through September 2016, reproduced from (Monitoring Analytics, LLC 2016, 556)

to use a higher cost resource that is not constrained by transmission to provide supply. Due to the way power pool prices clear, load will pay this higher cost for all power used even if some of the power used came from a lower cost, unconstrained resource. This results in load paying more for power than generators receive, which is functionally referred to as congestion cost. The FTR system enables PJM to collect these congestion costs and distribute them back to holders of FTRs, in theory reducing costs to electricity users. FTRs holders are typically customers and load serving entities (like utilities), but can also be financial entities (such as banks, hedge funds). Unlike physical transmission rights to access transmission systems, FTRs are virtual rights to use specific transmission paths at specific times and are primarily used to offset losses (i.e. hedging to reduce risk) that might be incurred because of congestion costs. FTRs can also be traded speculatively (i.e. risk taking in hopes of generating profit) by anticipating market price changes. FTRs can represent cost liabilities to the holder if energy flows in the opposite direction of expected congestion. More information about FTRs is included in **Appendix A**.

The FTR market design has proved to be extremely controversial in PJM. Much of the controversy has focused on revenue inadequacy (i.e. insufficient funds generated to pay holders of FTRs) and ability for load to offset congestion costs through FTRs. For example, the current allocation of congestion revenue over the past

six planning periods has resulted in a \$1,780.6 million total shortfall from meeting load's congestion costs (Monitoring Analytics 2017, 5). In an October 2015 filing with FERC, PJM asserted it had held three separate stakeholder processes since March 2011 to address FTR revenue adequacy, but that stakeholders had not been able to reach agreement around reforms (Glazer and Tribulski 2015).²¹

According to the filing, the inability to achieve a stakeholder based solution prompted PJM and its Board to file OA and Tariff revisions to change an "unjust and unreasonable" situation, via Federal Power Act section 206. In February 2016, FERC hosted a technical conference on PJM's FTR filing to expand information on their record.²² In September 2016, FERC issued an order addressing PJM's filing and issues raised at the technical conference, which generally agreed with PJM that certain aspects of the FTR market design were unjust and unreasonable

(the higher burden for a 206 filing), but did not agree with PJM's proposed solutions (Federal Energy Regulatory Commission 2016). In its September order, FERC prescribed specific changes to PJM governing documents, encouraged stakeholders to work on proposals to address additional issues, and directed PJM to submit a compliance filing within 60 days (though this date was extended to accommodate rehearing requests). In January 2017, FERC approved PJM's compliance filing on FTR's but required further compliance filings to address outstanding issues. However, PJM's Market Monitor maintains FERC's imposed solution will not fix the problem of ensuring congestion revenues are returned to load (Monitoring Analytics 2017, 5).

Pertaining to the stakeholder system, the rise of FTR trading injects a new class of market participant, the virtual FTR trader, into the system. And this new market participant has the ability to be very profitable at a time when some incumbent asset-owning market participants are financially struggling. In addition, some argue the initial purpose of the FTR was to enable buyers to manage congestion costs; not create profit-making opportunities for virtual traders. FTR's raise financial and balance of power issues between load and new market participants, the virtual traders, as well as tensions about financial impacts and allocation of costs and benefits between these entities.

²¹ These stakeholder process took place in March 2011–November 2011; October 2012–June 2013; and May 2014–June 2015.

²² Information on FERC's February 4, 2016 technical conference is available at <https://ferc.gov/EventCalendar/EventDetails.aspx?ID=8218&CaType=%20&CalendarID=116&Date=02>

Effective Outcomes are Reduced on High-Controversy Issues

As the aforementioned market evolutions occur, the contentious balance of power and high-stakes financial issues are manifesting in less effective stakeholder process outcomes.

Natural Gas Growth and the ELC. Increased system reliance on gas resources and poor winter preparedness led to an unprecedented amount of generation resources being unable to provide power during the 2014 Polar Vortex, threatening a reliability event (e.g. black out). In response to lessons learned during the Polar Vortex, PJM proposed changes to its capacity market. Given the need for fast action and the contentious nature of the issue, use of the “Enhanced Liaison Committee” (ELC) process was triggered.²³ The ELC process is an expedited stakeholder process where Members self-organize into coalitions (i.e. can group themselves into coalitions different from the typical five Member sectors) and present information directly to the Board, prior to the Board voting.

The process enabled the Board to file a proposal with FERC, make adjustments, and host a delayed capacity auction with new rules in place. However, the ELC process and outcomes were extremely controversial. For example, some stakeholders raised concerns that there was no opportunity for stakeholder voting, there was insufficient time for analysis, and costs weren’t adequately considered. Consequently, PJM’s capacity performance product is still being fought through legal channels.²⁴ In this instance, the traditional stakeholder process was abandoned and the ELC process was triggered (for the first time) because the Board believed there was not a reasonable path to success with the traditional system.

Capacity Market Controversy and State Actions. The capacity market has always been extremely controversial. In light of recent market evolution, some stakeholders believe the construct is effective, some maintain the market doesn’t accurately value important attributes (like fuel diversity, environmental emissions, and reliability), some argue the market is too restrictive, and others think a return to cost-based regulation is the best path forward. If a stakeholder is dissatisfied with the outcome of PJM’s stakeholder process, that stakeholder has the opportunity to appeal to FERC and the courts.

However, more recently, dissatisfied stakeholders with enough influence (i.e. power) are also successfully appealing to state policy makers to reach desired goals pertaining to capacity resources, via out-of-market subsidies. These actions have been raised within PJM’s stakeholder process, at FERC, and through the courts (including the U.S. Supreme Court).²⁵ PJM stakeholders have and continue to take legal action against state policies to subsidize new or existing generation.²⁶ Still, these behaviors beg important power dynamics questions related to certain stakeholder’s “power within” the stakeholder

process and “power over and beyond” the stakeholder process. In an extreme sense, “power over and beyond” the stakeholder process via implementation of state policy threatens the legitimacy of certain PJM markets.

Efficiency, Renewable Supply Requirements and Capacity Performance. PJM’s capacity market redesign in response to the 2014 Polar Vortex resulted in a capacity performance requirement that threatened to disqualify seasonal resources (e.g. wind, solar, efficiency and demand response) from earning capacity revenues unless these resources aggregate to offer a year-round product. PJM’s stakeholder process yielded a problem statement and Seasonal Capacity Resources Senior Task Force (SCRSTF) to study the issue. Although the SCRSTF was able to identify several potential solutions, none of the proposals achieved the majority support needed to advance in the stakeholder process.

The highest ranked proposal from the SCRSTF included a recommendation to maintain partial implementation of the capacity performance product (i.e. delaying full implementation) to allow for more time to develop a workable solution. Facing a timeline to file a proposal with FERC in order to address the issue before the next capacity auction, PJM expedited normal stakeholder procedure and sought Board approval of its preferred solution. PJM’s preference was to continue to full capacity performance implementation and enhance aggregation rules to facilitate year-round seasonal resource integration.

This experience highlights the advisory nature of the stakeholder process for Tariff matters and shows that in the end, PJM and the Board have ultimate authority on what is filed with FERC. This example also raises issues of incumbent bias, as PJM’s concerns about maintaining market certainty for capacity performance resources was deemed more important than maintaining market certainty for seasonal resources, at time when reliability concerns had been ameliorated. More details on the SCRSTF process is included in **Appendix B**. PJM stakeholders representing seasonal resources have challenged PJM’s decision in court.²⁷

FTR Growth and FERC’s Solution. The growth and evolution of the FTR market, and related controversies, provides an example of what can happen when both the stakeholder process and PJM are unable to deliverable a feasible path forward. Precisely, a FERC-imposed solution. In this instance, numerous stakeholder processes failed to deliver a workable solution. Eventually, PJM and the Board proposed a solution, which was rejected in part by FERC and replaced with FERC’s preferred plan. However, debate continues as to the merits of FERC’s solution. For example, PJM’s Market Monitor asserts FERC’s changes will move market design further away from the goal of returning congestion revenues to load, and will exacerbate the existing problem (Monitoring Analytics 2017, 5).

²³ The ELC process is used on particularly contentious issues that can’t or would be very hard to resolve within the standard stakeholder process. Per Manual 34, the ELC process is triggered if 1) a sector-weighted vote fails at the MC and PJM concludes the issue must be addressed, or 2) Members decide through a sector-weighted vote at the MC that the ELC process should be used, or 3) the Board calls for using the ELC process

²⁴ For example, see [American Public Power Association](#) and other organizations petition to DC Circuit challenging FERC’s approval of PJM’s capacity performance proposal.

²⁵ See *Hughes v. Talen*

²⁶ For example, see the [Electric Power Supply Association’s](#) recent [complaint](#) in the federal district court in Illinois challenging newly enacted state legislation to subsidize two in-state nuclear plants.

²⁷ For example, see *Advanced Energy Management Alliance, et al. v. FERC* Nos. 16-1234, et al. which consolidates several challenges against FERC approval of PJM’s capacity performance proposal.

SECTION III

DOES THE RTO ORGANIZATIONAL CONSTRUCT CREATE FUNDAMENTAL CHALLENGES?

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As organizations, RTO's are unique in structure, authority, and function. As such, there are no comparable organizations (besides other RTO/ISOs) to use as benchmarks for assessing governance adequacy or best practice. The unique "quasi-governmental" organization construct has given rise to interesting concerns about accountability, protection of public interests, and other potential pitfalls that warrant exploration. In theory, RTOs are supposed to be independent dispatchers and administrators of markets, but in practice RTOs develop market rules (i.e. policy) that create winners and losers, and RTO's are not immune from self-interested behaviors when making these choices.

THE RTO QUASI-GOVERNMENT

While some refer to RTOs as utilities regulated by FERC, the Government Accountability Office found this definition to be too narrow (Government Accountability Office 2008). The GAO asserted that like utilities, RTO's operate transmission grids, but like regulators, RTO's oversee markets, impose penalties, and are tasked with balancing stakeholder concerns. In their seminal piece on RTO governance, Dworkin and Goldwasser offer at least six potential ways to characterize the RTO, and assert that only by viewing the RTO as the sum of these six actions can one understand the true nature of the organization, and the corresponding governance and accountability implications (Dworkin and Goldwasser 2007):

1. **Agent of the FERC.** The RTO can be seen as an agent or regional representation of the FERC, as it sets rules that are approved by FERC, implements

FERC directives, is governed by FERC, suggests solutions to FERC, etc. Unlike FERC, which is held accountable to legislative representatives, RTOs are not subject to traditional electoral politics.

2. **Monopolist.** On the one hand, RTOs have monopoly control over electricity transmission in their geographic footprint, arguing the need for such an entity to be highly regulated (rather than treated as an extension of the FERC). On the other hand, unlike traditional monopolists, contemporary RTO's do not own transmission assets and function as non-profits (i.e. do not have profit motivation).
3. **Quasi-Governmental or "Hybrid" Organization.** Such an organization resembles both a public agency and a private company, delivering a public good in place of a government agency.
4. **Agent of the Transmission Owner.** In this sense, the RTO is an organization tasked with promoting the legitimacy of the open access transmission system among the various market participants, politicians, and other interested parties.
5. **Commodities Trading Market.** The RTO functions as a market administrator that provides a platform for buyers and sellers to interact and develop beneficial arrangements.
6. **Regional Planner.** The RTO's transmission planning, capacity markets (if applicable), and other functions serve to coordinate long-term resource adequacy planning over large geographic areas.

In examining the six characteristics above, the quasi-governmental organization term warrants further explanation, due in part to the illusive nature of its definition, but also because of the controversy

surrounding these organizations and implications for governance. Kosar, writing for the Congressional Research Service, notes that Congress and the Executive branch have increasingly been assigning administrative responsibilities to hybrid organizations – organizations that have the legal characteristics of both the government and private sectors – raising concerns about who is accountable and how the public interest is being protected against the interest of private parties (Kosar 2011).

Kosar notes five major factors that contributed to the popularity of quasi-governmental organizations:

1. Desire to avoid expanding federal bureaucracy
2. Need to develop new revenue sources to fund operations
3. Desire to be exempt from central management laws (e.g. limits on personnel and compensation)
4. Increasing appeal of economic-focused values
5. Belief that management flexibility requires entity-specific laws and regulations

Kosar also identifies the international “New Public Management” movement and domestic “National Performance Review” initiative of the late 1980’s and early 1990’s, respectively, as espousing the entrepreneurial virtues and performance benefits of hybrid organizations.²⁸ Kosar’s linear spectrum model provides a detailed (but not exhaustive) classification system for defining certain quasi-governmental organizations. Under this model, RTO’s fit best within the “agency-related nonprofit organization” classification where a non-government organization has a legal relationship with a department or agency of the federal government.²⁹ Under the categoric organization model, the RTO likely fits into the “quasi nongovernmental organization” (also referred to as a “quango”) category, where a private organization is assigned some, or many, of the attributes normally associated with the governmental sector.

There is a wide body of government and academic literature raising questions about the benefits and drawbacks of quasi-governmental organizations, much lies beyond the scope of this report. In general, it is important to understand that advocates of quasi-governmental organizations espouse entrepreneurial

values and increased customer satisfaction while emphasizing performance metrics, management flexibility, and the role of markets to improve well-being. It is also important to understand that skeptics of quasi-government organizations believe the role of government management is to implement laws passed by Congress. Skeptics highly value political accountability and due process and focus on impacts to the citizenry (as opposed to a smaller set of customers or constituencies). Skeptics also note it is unclear to whom hybrid organizations are held accountable and how the public interest is being protected over private interests. For example, Koppell argues that compared to traditional government organizations, hybrid organizations are more difficult to control and are less responsive to the preferences of their political superiors (Koppell 2003).

The unclear organizational definition of the RTO is further complicated by the operational power dynamics at play (Dworkin and Goldwasser 2007). For example, the RTO derives its power from authorities delegated to it by the FERC, however, the voluntary nature of transmission owner participation also gives significant power to these entities. This creates a delicate balancing act between regulators and a specific class of market participants, the transmission owners, many of which are restructured energy companies and some of which also own generation assets. This can create incumbent bias concerns.

On top of this tension, an RTO operates under an independent board, impacts a wide range of market participants and stakeholders, operates across numerous geographic footprints with all attendant politics, and must be nimble enough to accommodate new technologies, policies and market economics. Given the complicated nature of these organizations, one may wonder how they are effective at all. Yet, for PJM at least, performance has been positive on a variety of metrics. For example, PJM markets have delivered low energy prices for consumers, signaled significant entry and exit of capacity resources, improved operational performance for some generators, and have resulted in reduced environmental emissions (Simeone and Hanger 2016).

²⁸ The term “New Public Management” was coined by academics in the UK and Australia to describe a growing movement in the 1980’s where public service organizations began to be administered using private sector management models in an effort to improve efficiency. The “National Performance Review” (also known as the National Partnership for Reinventing Government) reform initiative was created by President Bill Clinton in 1993 to create a government that works better and costs less. It included, for example, an assessment report and recommendations, many of which aimed at improving customer service, enhancing performance, and streamlining government agencies.

²⁹ PJM is a limited liability, non-stock company incorporated in the state of Delaware, however, the organization essentially functions as a profit-neutral organization (i.e. provides refunds with over collection). More about this topic can be found on PJM’s website at <https://learn.pjm.com/who-is-pjm/how-does-pjm-make-money.aspx>

RTO SELF-INTEREST AND THE PRINCIPAL-AGENT PROBLEM

Perhaps owing to its unique organizational structure, the RTO has a complicated set of institutional motivations. In the limited guidance offered on RTO governance, FERC has stressed the importance of the RTO's independence (see previous discussion of FERC Order 888 and 2000). Specifically, FERC has prioritized ensuring that RTO decision making cannot be controlled by any single market participant or class of market participants.

However, efforts to ensure independence from market participants do nothing to address the potential for institutional bias. Dworkin and Goldwasser assert that although the RTO does not have a profit motive, the organization will still maintain an institutional self-interest, most notably, the RTO will be interested in self-preservation and maintaining management control. This leads to three priorities that can sometime conflict with one another (Dworkin and Goldwasser 2007):

1. Keeping the lights on,
2. Avoiding extremely high prices and price volatility, and
3. Maintaining relationships with stakeholders and politicians that can disrupt decision making and complain to the FERC.

Felder argues that once survival is assured, growth becomes the next goal for the RTO/ISO, for example, in order to increase compensation and the prestige of the organization (Felder 2012). Felder believes that the importance of maintaining relationships with stakeholders would lead the RTO to (Felder 2012, 30):

1. Shy away from major governance reform initiatives,
2. Favor incumbents, and
3. Favor existing technologies over new technologies.

Most recently, the staff of the Federal Trade Commission (FTC) filed comments on a FERC-proposed rule pertaining to reforms of generator interconnection procedures and agreements, where the FTC raised concerns about regulatory capture from incumbent transmission owners (Federal Trade Commission Staff 2017). FTC staff notes RTO/ISOs were, *inter alia*, established to eliminate discrimination in the provision of transmission service in order to facilitate competition. In instances where a generator files a dispute against an interconnection decision, FERC has received complaints that the dispute

resolution process conducted by RTO/ISO's is biased in favor of the transmission owners. FERC's proposed rule lays out strategies to address these concerns by promoting objectivity in the dispute resolution process. FTC staff supported FERC's strategies, but noted FERC should monitor the situation carefully to ensure the RTO/ISO's are not subject to regulatory capture by transmission owners.

Along with organizational bias, there may also be biases that result from organizational culture. Howard-Grenville et al. define organizational culture to "... comprise(s) a set of beliefs held by an organization's members, as well as associated actions that are guided by and sustain these beliefs" (Howard-Grenville, et al. 2015). The authors note organizational culture is a highly valued yet poorly understood characteristic of organizational life, and that regulators must adopt a nuanced understanding of this culture and use a variety of assessments to monitor the "cultural pulse" of the organization.

In the RTO setting, highly skilled and qualified employees may tend to be professionals that have worked at electric utilities or energy companies. In addition, RTOs often employ a large number of engineers. Rightly so, these professionals have the skills and experience needed to assist PJM in meeting its mission. On the other hand, it is conceivable that a workforce dominated by former utility employees and engineers can create an organizational culture with latent biases, and hard to identify, but potentially meaningful impacts. For example, such bias may lead to preference for resources with certain operational characteristics that are easily dispatchable or fit pre-existing market software models. Thankfully, there are strategies to correct for such biases. But the strengths and weaknesses of the current culture must first be understood before a new cultural direction can be formed (Howard-Grenville, et al. 2015).

Closely associated with the notion of RTO self-interest is the principal-agent problem. The principal-agent problem exists when an individual or entity (the agent) has the ability to make decisions that impact another person or entity (the principal), and the agent's self-interests run contrary to the interests of the principal. Felder identifies the RTO principal-agent problem as follows (Felder 2012). First, the RTO will be motivated to survive and grow (e.g. to increase compensation, enhance prestige, and attract talent) and as such would be discouraged from initiating major governance reforms, would favor incumbents, and would

prefer existing technologies over new entrants and innovations. Second, Felder argues the RTO (i.e. agent) has an information advantage over the principal (i.e. society) that enables the agent to advance its interests at the expense of the principal. As an example, Felder notes that a major reliability event is a threat to RTO management and that the cost of maintaining reliability is not borne by the RTO, but instead by the consumer (Felder 2012). While reliability lies at the foundation of the RTO's purpose and mission, there are concerns that the reliability-bias can lead to pursuit of reliability at any cost (i.e. to electricity consumers). As one alternative, a range of reliability and cost scenarios or functions could be presented to determine the marginal costs and benefits between each alternative proposal. The complex nature of the RTO's activities and markets creates significant barriers to broad, public oversight that would serve as a meaningful check on such bias.

The principal-agent problem leads to moral hazard (i.e. where the party bearing the risk is not the party managing the risk). For example, PJM makes decisions (e.g. via 205 rights under its Tariff with board approval and stakeholder advice) with respect to market rules, but has no financial accountability.³⁰ Therefore, the bearers of financial risks are the market buyers (i.e. end users of electricity), where the financial risk manager is the RTO. In this sense, PJM's failure to manage price increase leads buyers to pay more. One could also claim there is a moral hazard on the supply side, where PJM's failure to keep prices high enough to sustain generator participation in the market leads to generation exit and financial loss. However, the principal-agent problem that leads to moral hazard is largely aligned to benefit, not harm, the incumbent supply side.

RTO ACCOUNTABILITY AND PROTECTING THE PUBLIC INTEREST

Questions about reduced accountability and protecting the public interest permeate research on quasi-governmental organizations. Dworkin and Goldwasser identify the RTO "accountability problem" to include moral hazard (e.g. PJM is not financially liable for excessive costs), as well as the fact that too many entities claim the RTO is accountable to their interests (Dworkin and Goldwasser 2007). For example, the

RTO is accountable to the public for delivering just and reasonable rates, legally accountable to the FERC, accountable to market participants (especially those who have the ability to exit the RTO), and accountable to the states over which it operates. Although many entities believe the RTO is accountable to their interests, in practice, there are different levels of accountability mechanisms available to each stakeholder. Said another way, stakeholders have different levels of control over PJM. Examining these different control mechanisms provides greater insights into RTO governance, for example, delivering a better sense of stakeholder power imbalances.

With respect to FERC's accountability mechanisms, the Commission has the ability to approve or reject proposals from PJM, its Members or other petitioners. FERC can issue compliance orders requiring PJM to take action, and can take several other actions within its authority. However, FERC does not have the authority to require RTO's to replace board members if problems arise,³¹ nor can it fire RTO leadership. In this sense, FERC has legal authority over the RTO, but does not have the kind of political accountability over the RTO that Congress has over FERC. Therefore, the conclusion that the quasi-government RTO organizations has less political accountability than its government counterpart (i.e. FERC) rings true.

PJM Members (e.g. market participants) have a great degree of accountability over the OA, as they maintain FPA 205 rights, making their input instrumental to revising this document. Members play an advisory role over the Tariff, as the Board maintains FPA 205 rights over this document. However, if Members are unhappy with the Board, they have accountability mechanisms to exercise. Specifically, PJM Members have the ability to nominate and vote on Board members. In addition, PJM has a liaison committee that facilitates regular communication between the Board and Members, providing another avenue for communication, but not accountability. Members and other stakeholders can petition FERC directly as well. Among PJM Members, Transmission Owners are a class of market participants with the greatest degree of accountability over the RTO, because their participation in the RTO is legally voluntary yet operationally required to make the larger system function. This means the transmission owners can leave the RTO altogether, though in practice this

³⁰ This is not to say that PJM is not accountable, only that it does not have direct financial accountability (i.e. they do not pay) for costs associated with market outcomes from their rule changes.

³¹ See *California Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395, 401-03 (2004)

may be unlikely. This creates a delicate balancing act between the RTO and transmission owners, many of which are restructured energy companies that also own generation and other assets (see *Table 6 on Page 38* for an example).

The states provide an important voice for public interest and pathway for political accountability, but in PJM, the states do not vote in the stakeholder process. Rather, state interests are represented by the Organization of PJM States (OPSI), a non-profit organization that serves to coordinate and inform state public utility commissions on PJM issues. OPSI does not vote in PJM's stakeholder process, but individual states retain the right to contact PJM's Board on issues, and/or can petition the FERC directly. Although there are legitimate reasons for the current non-voting state construct,³² this is an important potential public interest voice absent from the vote tally.

The non-voting Consumer Advocates of the PJM States (CAPS)—a non-profit organization of state-based consumer advocate officials—also represents the consumer interests of particular states by facilitating participation of state consumer advocate offices into the PJM stakeholder process. With respect to political accountability, the RTO operates over many states, each with its own set of policy preference that may not always align with each other or the markets. Outside of PJM's stakeholder process, states always have the ability to pass laws and regulations that impact PJM markets, creating complications and potential market distortions that PJM must absorb and ameliorate.

Though an untested hypothesis, one wonders if broader and deeper involvement in PJM's stakeholder process—by a variety of un-conflicted representatives of the state—would improve state policymaker understanding of PJM's operations and market, creating pathways for more effective resolution of issues within the stakeholder process, reducing the probability of out of market state policy interventions.

With respect to RTO's and the public interest, Rose notes that RTOs have expanded overtime, operate markets that are too complex for most to understand, and are administered with only peripheral public input (Rose 2016). Rose states:

“These RTOs did not evolve by design or from government fiat. Rather, they have developed and grown over time, taking on an increasing responsibility and importance. The result has been institutions that were not prescribed by legislation or regulation, but now exert a powerful influence with little public input. These RTOs are overseen by the Federal Energy Regulatory Commission (FERC), and they are governed by “independent” boards and committees of “stakeholders” that include market participants with strong economic interest in RTO rules and procedures. However, public input is peripheral, at best.” (Rose 2016)

Subsidies, States, and Transmission Owners

From the previous discussion, it should be clear that FERC, the states and Transmission Owners have the greatest degree of accountability over PJM. For example, FERC maintains regulatory authority over legal and policy matters and the states have the ability to implement policies that impact PJM's markets. Transmission Owners have the greatest degree of accountability over PJM as compared to other PJM Members.

The contemporary energy policy issue of state policy intervention into PJM markets has arisen, primarily as a result of state policy proposals to subsidize

economically distressed nuclear power plants. Many nuclear power plants in PJM are owned by parent companies that are PJM Members voting in the Transmission Owner sector.³³ In this sense, two entities (states and Transmission Owners) with the greatest degree of influence over PJM have aligned interests with the intent of establishing mutually beneficial state policy (i.e. consistent with voter interests and the nuclear power firm's interests) that has the potential to threaten the legitimacy of PJM's capacity markets.

³² State public utility officials often are required to vote on transmission issues (e.g. rate recovery) at the state level. Voting on PJM issues created the potential for conflict of interest situations to arise. This gave rise to state public utility officials declining voting rights in the PJM stakeholder process and the use of OPSI.

³³ For example, Exelon, First Energy, PSE&G

SECTION IV

STATE POLITICS, PUBLIC INTEREST, AND MARKET LEGITIMACY

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States do not vote in PJM's stakeholder process. However, states have an incredible amount of power and influence over PJM markets and have the potential to play an important role in defining, representing, and protecting the public interest. States also have the functional ability to legitimize or delegitimize certain PJM markets. In reality, the states are one of PJM's most important strategic partners. **The question isn't whether increased state involvement in PJM's stakeholder process is needed, rather, what is the best method by which to enhance state participation?**

BUT HOW TO DEFINE THE "PUBLIC INTEREST"?

Skeptics of quasi-governmental organizations argue these entities may prioritize private interests (e.g. owners of generation or transmission assets) over the public interest. In addition, the RTO's own self-interest along with the principal-agent problem may create outcomes counter to the public's interest. **However, the "public interest" may be hard to consistently identify, as different customers and customer classes in different areas may have unique needs and preferences.** For example, some members of the public may prefer the lowest possible electricity price in the short term, while others may prefer rate stability over time, while others desire improved air quality or protection of local industry. Some may place a high value on reliability, while others have greater ability to endure such inconvenience or may be more prone to reliability events given the condition of the local distribution system.

In addition to difficulties identifying the public interest, it is unclear who represents the interests of the public. In total, this creates a complicated and sometime conflicting set of priorities, where the interests of the general public may be misunderstood or under represented due to lack of a cohesive message, inability to organize, and the collective action problem.

In typical government organization, politicians function as proxies to balance prevailing public interest at any given time. For FERC, presidential administrations nominate commissioners who are then confirmed by the Senate. Each administration appoints commissioners whose values are consistent with its own, and presumably, in the interest of the public who elected them to power.³⁴ In this sense, and for better or for worse, political appointments and attendant accountability function as one measure to define, represent, and protect the public interest. As previously explored, neither PJM leadership nor its Board include political appointments, and FERC cannot control these positions. A research question continues to arise—does the limited role states play in PJM's stakeholder process exacerbate the political accountability and public interest protection problems by failing to involve publicly elected representation?

In general, keeping costs low is the primary focus of contemporary RTO efforts to protect the general public interest. FERC's standards under the Federal Power Act require rates to be "just and reasonable." However, some stakeholders interviewed for this paper note the just and reasonable burden has limits because it is not an absolute standard. For example, a proposal deemed just and reasonable by FERC may not be the

³⁴ FERC and many state commissions have rules about split political representation (e.g. appointed commissioners cannot all be from the same political party) to ensure political diversity.

Status	Priority High	Priority Medium	Priority Low	Total	Percent of Total
Adopted	20	13	16	49	24.4%
Partially Adopted	6	10	8	24	11.9%
Not Adopted	20	39	44	103	51.2%
Not Adopted (Pending before FERC)	3	1	0	4	2.0%
Not Adopted (Stakeholder Process)	6	7	1	14	7.0%
Not Adopted (Total)	29	47	45	121	60.2%
Replaced by Newer Recommendation	1	5	1	7	3.5%
Total	56	75	70	201	100%

Figure 5: Status of PJM Market Monitor Recommendations, 1999 – 2015. Reproduced from a press briefing from Monitoring Analytics (Monitoring Analytics 2016)

most just and reasonable option available, yet at the same time may not meet the “unjust or unreasonable” criteria needed to be overturned. For PJM, although the RTO must meet FERC’s just and reasonable standard, nothing in the organization’s mission promotes an emphasis on lowest cost, rather the emphasis is on competitive markets and cost efficiency.³⁵ In theory, competitive markets should lead to the lowest possible costs, but market design and rules can serve to set boundaries on cost containment. PJM Members do financially support the non-voting Consumer Advocates of the PJM States (CAPS) and PJM does maintain a non-voting Public Interest and Environmental Organization User Group (PIEOUG). In addition, state consumer advocate organizations vote in the End Use Customer sector.

As mentioned prior, competition is supposed to lead to more efficient use of resources and lower costs, compared to cost of service regulation. To ensure markets are competitive, one of the most critical resources in creating accountability and keeping costs low to benefit the public interest is the Independent Market Monitor. Monitoring Analytics serves as the Independent Market Monitoring unit for PJM and does not vote in the stakeholder process. The Independent Market Monitor plays a critical role in evaluating the markets and making recommendations for market improvements. PJM provides responses to conclusions and recommendations made in the Market Monitor’s annual State of the Market Report, but PJM is not required to adopt the Market Monitor’s recommendations.³⁶ As can be seen from *Figure 5*

above, over 50 percent of the Market Monitor’s recommendations made between 1999 and 2015 have not been adopted or are not in the process of being considered by PJM. More research is needed to understand if this represents an ideal, average, or sub-optimal acceptance rate, compared to other RTO/ISOs.

Another opportunity to ensure representation of the public interest is through the RTO board. FERC has generally focused on requiring board independence from market participants and PJM has developed a code of conduct for Board members seeking to ensure independence, prevent conflict of interest, and other important criteria.³⁷ Any member of the public, including Members and non-market participant stakeholders, can write a letter to PJM’s Board and the initial letter, as well as the Board’s response, will be posted to on PJM’s website. The board is generally accountable to the Members that elect them, of which include consumer interests.³⁸

Some have suggested RTO boards should have members appointed that represent the public interest (Felder 2012). However, if the definition of the public interest is limited to the end-use customer interest, then this would mean a single sector of PJM Membership would be represented on the Board, raising the ire of other member-sectors and potentially questioning the Board’s independence. An alternative suggestion to explore would be to define the term “public interest” in a static manner consistent with both buyers and sellers in the market, as well as a dynamic definition consistent with changing political preferences. Further discussion on this topic is included on *page 34*.

³⁵ PJM’s mission, available on its website at <http://www.pjm.com/about-pjm/who-we-are/mission-vision.aspx> includes the following: As the primary task, to ensure the safety, reliability and security of the bulk electric power system; Create and operate robust, competitive and non-discriminatory electric power markets; Understand customer needs and deliver valued service to meet those needs in a cost-efficient manner; Achieve productivity through the efficient union of superior knowledge workers and technology advances.

³⁶ PJM’s responses to the market monitor’s State of the Market report are available on the PJM website at <http://pjm.com/library/reports-notice.aspx>

³⁷ A copy of the PJM Board of Managers Code of Conduct is available on PJM’s website at <http://www.pjm.com/~media/about-pjm/who-we-are/bom-code.ashx>

³⁸ A list of PJM’s board members is available on PJM’s website at <http://www.pjm.com/about-pjm/who-we-are/pjm-board.aspx>

STATE POLITICS AND REGION-WIDE VALUE-SETTING

According to Vallejo and Hauselmann, legitimacy and effectiveness are key elements of viable and lasting multi-stakeholder governance (Vallejo and Hauselmann 2004). These elements are applicable to both the process of stakeholder engagement and to process outcomes, in other words, does the process lead to effective results? A process that leads to effective results is likely to be seen as legitimate by stakeholders, and vice versa. Another defining element of lasting, feasible multi-stakeholder governance is establishing objectives and ensuring the stakeholders required to achieve those objectives are involved. The RTO may be able to develop a shared set of objectives, as defined by its mission, legal responsibilities, and evolving stakeholder-based directives. However, the electricity market policy objectives of the states over which the RTO operates will constantly change based on evolving public interests and political value-setting. Moreover, it is possible that the thirteen states (plus D.C.) within the PJM region will have conflicting sets of objectives, let alone a single set of consistent objectives. For example, some states may want to preserve coal-based power and industries, while other states may prioritize zero carbon power and renewable resources.

Although states have the ability to set policy objectives that impact PJM and are critical stakeholders in determining PJM's legitimacy (e.g. they can choose to re-regulate) states are not PJM Members and they do not have voting rights in PJM's stakeholder process. State public utility commission representatives participate in the stakeholder process with OPSI, but do not vote because of conflict of interest considerations related to their core regulatory duties.

To complement OPSI, members of state gubernatorial offices could also participate, as they have control over executive agencies and veto power over legislative bodies, providing a strong, elected proxy for the state interest. Some argue that states may not want to vote in the PJM stakeholder process as it might be perceived to dilute their power to act outside of the stakeholder process. However, states always have the ability to act outside of the stakeholder process as long as those actions do not violate federal law. Moreover, given the importance of electricity to all aspects of a state's economy and citizenry, it seems irrational that a state would neglect participation in such an important forum. Failure to factor in constantly changing state-based objectives and state priorities into

the stakeholder process may serve to reduce process and outcome effectiveness that lead to a reduced perception of legitimacy.

The question may not be “should states be more involved in the PJM stakeholder process,” but rather, “what is the best method to more effectively involve states into the PJM stakeholder process?” In fact, a unique system may need to be developed to better involve and communicate state priorities into the PJM governance system. Developing this unique system should include exploration of ideas beyond integration into the traditional sector-weighted voting regime. Greater state involvement in the stakeholder process can increase education about PJM markets and operations, and has the potential to improve, reduce, or avoid state actions that negatively impact PJM markets.

THE LEGITIMACY COMPROMISE: MANAGING EFFICIENT DESIGN UNDER POLITICAL-VALUE SETTING

A stakeholder process that leads to effective results is likely to be seen as legitimate by stakeholders, and vice versa. Understand the RTO operates under a decision continuum where on the one extreme decisions on market design and other policies are based solely on theoretical market efficiency, on the other extreme, decisions are made based purely on political considerations from stakeholders.³⁹ Cramton asserts that good (i.e. efficient, effective, and avoids market power) market design in electricity markets stems from an understanding of market participants, their incentives, and the economic problem for which the market attempts to solve. Conversely, bad market design can stem from either 1) the problems being very complex and hard to solve in absence of hindsight, and/or 2) the market design process being flawed. Indeed, many of the issues PJM faces are technically and economically complicated. Regarding the market design process, Cramton asserts the RTO process of designing markets through stakeholder compromise results in the split of gains between special interests often at the expense of effective market design. This process results in debates focusing more on issues about allocation of costs and benefits and less about efficient outcomes (Cramton 2003).

The reality in PJM and other RTO/ISOs, for better or for worse, is decisions were designed to be made somewhere in between these two extremes, with

³⁹ This continuum is consistent with Blumsack et al's assertions that the RTO operates much like Guston's "Boundary Organization" (Guston 2001).



Figure 6: Extremes of PJM's Standard Decision-Making Continuum

FERC and/or the courts ensuring decisions fall within the boundaries of the law. At a minimum, FERC clearly envisioned at least an advisory role of RTO stakeholders, layering special interest concerns of the stakeholders into decision making. Beyond the stakeholder process, states within PJM can make politically motivated decisions that impact PJM markets. The bottom line is the policy-setting process at PJM aims to deliver efficient market design, but by nature (i.e. state's rights) and by directive (i.e. stakeholder process) this process is subject to political influences that sometimes require sub-optimal compromise.

For issues that are not contentious—where objectives are relatively clear and consistent among stakeholders—PJM's stakeholder process works remarkably well. For issues that are highly contentious—where objectives are relatively unclear or inconsistent among stakeholders—the stakeholder process and outcomes may not yield effective outcomes, reducing the perceived legitimacy of the governance process, and perhaps even the RTO organization itself. While it is clear that controversial issues plague any multi-stakeholder process, it is unclear if PJM's process is optimally or sub-optimally designed to best navigate such controversies.

As shown in Section II, when the stakeholder process fails, PJM and the Board may still need to make policy decisions. If the issue is sufficiently contentious, managing the balance between effective design and political values sets up the “legitimacy compromise” where the RTO is put in a near untenable situation when making choices on its decision-making continuum. **PJM may choose market designs that yield effective outcomes but are politically untenable, threatening the legitimacy of the organization, or support designs that are consistent with political values but will lead to inefficient market outcomes, threatening the legitimacy of the organization.** This is a highly volatile situation that puts PJM in an awkward “defense” position, where it must prioritize preserving itself (with potential for the self-interested behaviors explored in this section). PJM must simultaneously defend the

viability of its markets, maintain stakeholder and political confidence in the PJM system, deal with conflicting stakeholder opinions, be prepared to deal with any state policy actions that may occur, and of course, justify its actions to FERC.

Motivated stakeholders are likely to go on the “offense”, embarking on political influence campaigns throughout the PJM region, lobbying their case to politicians in an attempt to secure favorable outcomes. These politicians, who may or may not be well versed in the intricacies of PJM's markets and underlying energy economics, often hear competing perspectives, are presented with incongruent facts, and are left to determine what is the best course of action.

Politicians may hold hearings to engage a wide range of PJM stakeholders in an attempt to increase their understanding of the issues and to clear up inconsistencies. PJM's role in providing unbiased information to state policy makers may be undermined by perception (e.g. stakeholder messaging to reduce legitimacy) or organizational self-interest. Many outcomes may occur, but there is at least a reasonable likelihood that the RTO's legitimacy (e.g. with respect to efficient market outcomes and/or responsiveness to political values across its territory) is reduced in this scenario.

Related to the intersection of the RTO, market efficiency, and political value-setting are several unanswered research questions.

- At what point is it impossible to accommodate state preferences through market design change, while also maintaining functioning markets?
- How and by whom is this point defined?
- When this point is reached, what are the remedies? For example, is the decision left only to the states (e.g. exit the market), or does the RTO have authorities or options it can or must exercise?

SECTION V

IS THERE EVIDENCE OF STAKEHOLDER SYSTEM ISSUES?

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Through the process of semi-structured interviews with at least two members of each voting Member sector—generation owner, transmission owner, other supplier, electric distributor, end-use customer—as well as non-voting stakeholders, it was ascertained that almost all stakeholders thought PJM's stakeholder process generally works well. On the other hand, all stakeholders interviewed expressed frustration with the process, and were able to identify specific issues and suggest areas of improvement. As typical in multi-stakeholder processes, issues and recommended areas of improvement often were self-serving and at odds with recommendations of other stakeholders. As a result, issues identified in this section focus on data-driven observations and attempts to convey diverse and balanced input from stakeholders.

POWER TO BLOCK APPROVAL OF PROPOSALS

Kyungjin Yoo and Seth Blumsack performed quantitative analysis of PJM stakeholder voting behavior before the MC between 2011 and 2015 (Yoo 2016).⁴⁰ The study provides empirical evidence of strong stakeholder coalitions that result in frequent decision-making deadlocks in the stakeholder process. The analysis found the electric distributor and end-use customer sectors vote together frequently and form a very strong coalition, whereas the generation owners and transmission owners do not frequently vote together and do not have a strong coalition.

The study asserts the strong coalition of end-use interests has the potential to be pivotal in blocking the approval of any proposed reform, providing them with effective veto power. Yoo notes that with respect

to capacity market reforms, modeling suggests it is unlikely that proposals will pass through the stakeholder process. The study also identifies that in some cases a small number of financial market players can hold the pivotal or swing vote power. Taking these factors into consideration, the study concludes there may be limits to capability of RTOs to create mechanisms for diverse stakeholders with opposing interests to develop passable market reforms, and asserts the likelihood that stakeholder voting process reforms or alternative mechanisms for institutional decision making may be needed when the existing process results in deadlock.

Largely building on Yoo's previously mentioned study, a subsequent paper by Blumsack, Yoo, and Nicholas Johnson further focused on capacity market reforms and the stakeholder process, and refined recommendations (Blumsack, Yoo and Johnson 2017). Blumsack et al conclude by noting "...market-driven constructs to ensure resource adequacy may not be amenable to design by the type of stakeholder-driven processes currently in place in PJM" (Blumsack, Yoo and Johnson 2017, 9).

The study noted and supported increased use of the Enhanced Liaison Committee (ELC) process on issues likely to result in deadlock. PJM's ELC is an alternative stakeholder process to facilitate decision making on contentious issues that could not be resolved or would be extremely hard to resolve through the traditional stakeholder process. The ELC requires specific triggers to be implemented.⁴¹ For the first time, PJM used the ELC process to facilitate the "capacity performance proposal" revisions to the capacity market in response to operation and market issues

⁴⁰ For the following discussion, a "coalition" means a group of voters that band together to support or oppose a measure, and a "pivotal voter" is the last voter to vote that results in the cumulative vote exceeding the threshold (in this case, as supermajority) to pass.

⁴¹ The ELC process can be triggered if a sector-weighted vote fails at the MC and PJM concludes the issue must be addressed by the Board, or, Members decide through a sector-weighted vote at the MC to use the ELC, or, the Board calls for use of the ELC.

experienced during the 2014 Polar Vortex.⁴² The ELC process allows stakeholders to self-organize, rather than be grouped into the standard five stakeholder groups. This yielded almost a dozen coalitions in the capacity performance proposal deliberations, where stakeholders developed position papers, and the PJM Board voted on which proposal to file with FERC.

Blumsack et al identify the RTO as a type of “boundary organization”—an organization that facilitates collaboration and information between diverse science and non-science (i.e. public policy) stakeholders and aims to resolve conflict—due to the RTO’s directive to be responsive to stakeholders in the decision-making process.⁴³ Blumsack et al found the ELC alternative to have some advantages to the standard stakeholder process. Namely, it disrupts the perceived and observed power balance that exists in the traditional stakeholder process, which can be yielded to prevent market rule changes. While Blumsack found the ELC process to yield some advantages, others stakeholders note this process presents disadvantages as well.

The Future of Transmission-Owner Sector Voting?

Stakeholders note there is considerable transition happening in the Transmission Owner (T.O.) voting sector, specifically through divesting of generation assets and intra-sector consolidation. Table 4 shows that from 2009 to 2016, the T.O. sector lost two voting members and four Affiliates, while every other sector grew. In general, a voting T.O. that has significant generation assets and electric distribution companies is likely to vote on proposals that benefit the generation asset (e.g. increase capacity prices). Many voting T.O.’s within PJM have sold or are contemplating the sale of a considerable amount of generation capacity (e.g. PPL, Duquesne Light, FirstEnergy). Without generation assets, and assuming the T.O. still maintains electric distribution company assets, an individual T.O. firm’s profit motivations may better align with the buyer side of the market. If the T.O. sector continues to divest from generation (but not distribution) this could potentially exacerbate the buy-side coalition powers observed above.

For example, the process excludes stakeholder voting, and although the expedited nature of the ELC process helps to deliver faster decision making outcomes it reduces time for stakeholder vetting and development of analysis to inform PJM’s Board.

MEMBERSHIP GROWTH AND SECTOR MISALIGNMENT

As seen in *Figure 7* on the following page, PJM Membership has grown considerably over time. As of December 2, 2016, PJM Member’s List included a total of 986 Members (PJM Interconnection 2016). According to data from PJM (D. Anders 2016):

- Compared to December 2016, Membership has increased by 97 percent since 2007, and by 31.5 percent since the last stakeholder process reforms ended in 2011.
- By approximate comparison, capacity has increased only 5 percent between 2007 and 2015, and has actually decreased by over 7.5 percent between 2011 and 2015.
- Meanwhile, billings continue to increase. Billings increased almost 40 percent between 2007 and 2015, and over 18.5 percent between 2011 and 2015.

Since the last time the stakeholder process was revised in 2011 there has been a dramatic increase in the number of Members and a significant increase in the value of system billings, all while capacity has decreased.

Sector-weighted voting helps to reduce concerns about the relative number of Members in each sector controlling the vote. However, Affiliate voting at lower level committees has the ability to set the agenda of proposals for higher level committee sector-weighted voting. **The growth of total PJM Membership and growth within certain Member sectors raises questions regarding whether or not the legacy five member sectors accurately reflect the current stakeholder mix.** *Table 5* shows that between 2009 and 2016:

- Total PJM Membership grew by 417 (78%), with a 177 (49%) increase in Voting Members, and a 240 (138%) increase in Affiliates.

⁴² As the 2014 Polar Vortex caused Mid-Atlantic temperatures to plummet, PJM experienced a 22 percent forced outage rate and had to implement emergency procedures to maintain reliability. PJM’s found that some gas-fired generators were not able to secure fuel supplies, as interruptible fuel contracts allowed fuel to be diverted, for example, to gas distribution companies for home and business heating. In addition, some gas and coal-fired generators experienced mechanical problems related to the coal temperatures and insufficiency of winter preparedness measures. PJM developed its capacity performance proposal in an effort to prevent a reoccurrence of the 2014 Polar Vortex experience, for example, by developing a performance based system of penalties and bonuses and increasing qualification criteria for capacity resources.

⁴³ Readers interested in more information on Boundary Organizations are encouraged to refer to (Guston 2001)

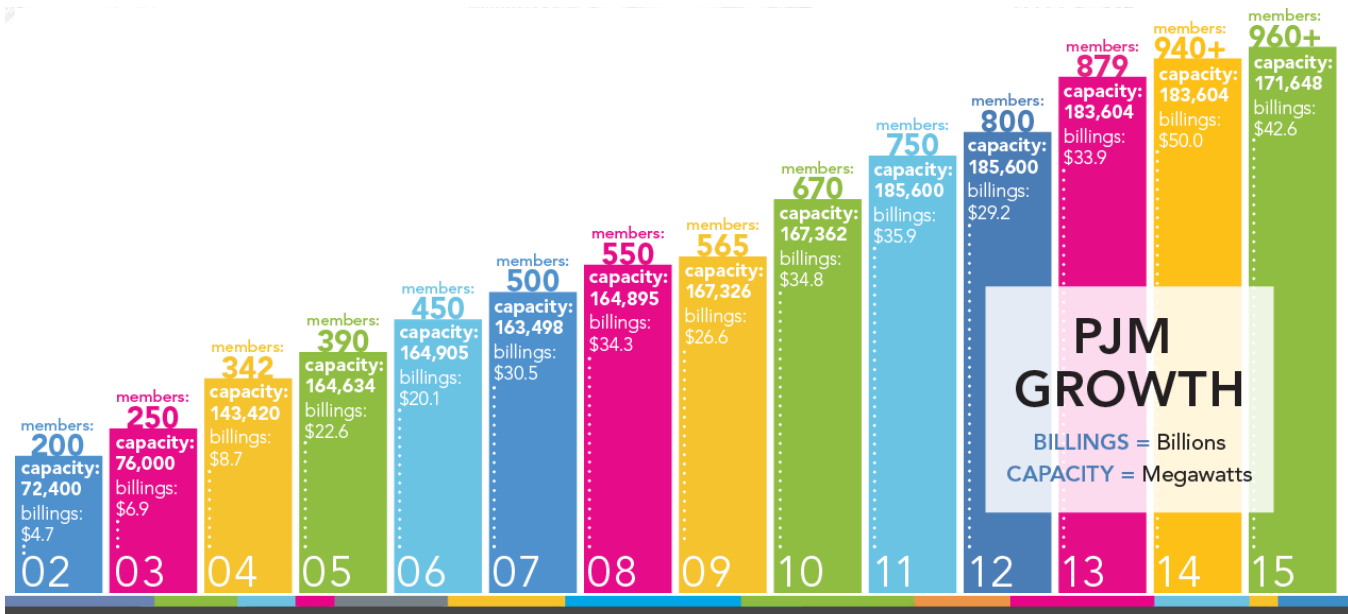


Figure 7: Growth of PJM Membership, Capacity and Billings (2002 - 2015). Reproduced from (D. Anders 2016)

- The greatest growth in total new Members was in the Generation Owner (131 percent growth with 153 new Members) and Other Supplier (85 percent growth with 251 new Members) sectors. This means vote dilution is greatest within these sectors. Overall, the Transmission Owner sector decreased by 11 percent, representing a reduction in 6 total Members.
- Within the sectors, Voting Member growth happened primarily in the Other Suppliers sector with an increase of 132 Members (58%), follows by the Generation Owner sector with an increase of 27 members (44%). For Affiliates, the greatest growth occurred in the Generation Owner sector with 126 new Affiliates representing a 229 percent growth, followed by the Other Suppliers sector with 119 new Affiliates representing 178 percent growth. Both the Transmission Owner (-4) and Electric Distributor (-1) sectors saw a reduction in Affiliates, representing a decrease of 10 percent and 14 percent, respectively.

September 1, 2009						
	Generation Owner	Transmission Owner	Electric Distributor	End Use Customer	Other Supplier	Totals
Affiliate	55	42	7	3	67	174
Voting Member	62	15	35	24	228	364
Total	117	57	42	27	295	538
April 25, 2016						
Affiliate	181	38	6	3	186	414
Voting Member	89	13	43	36	360	541
Total	270	51	49	39	546	955
Total Growth (2009 - 2016)						
Affiliate	126	-4	-1	0	119	240
Voting Member	27	-2	8	12	132	177
Total	153	-6	7	12	251	417
Percent Growth (2009 - 2016)						
Affiliate	229%	-10%	-14%	0%	178%	138%
Voting Member	44%	-13%	23%	50%	58%	49%
Total	131%	-11%	17%	44%	85%	78%
Lower Level Voting Power Balance Changes						
2009	22%	11%	8%	5%	55%	
2016	28%	5%	5%	4%	57%	
Change	7%	-5%	-3%	-1%	2%	

Table 5: PJM Voting Members and Affiliates by Sector, 2009, 2016 and Percent Growth⁴⁴

⁴⁴ Source Note: 2016 data taken from (D. Anders 2016) and 2009 data taken from (Raab Associates, Ltd. and CBI 2009)

Exploring Alternative Engagement Strategies for Controversial Issues

For certain extremely controversial issues, alternative stakeholder engagement strategies could be explored to facilitate compromise. *Figure 8* provides a second alternative for discussion, which could be triggered in a manner similar to the Enhanced Liason Committee (ELC).

This system includes a realigned “core” set of PJM Member stakeholders, with the addition of an alternative energy technologies sector on the seller side, and the addition of an auction revenue rights (ARR) holder sector on the buyer side, and elimination of the other suppliers sector. The alternative energy technologies sector would incorporate certain Members currently participating in the generation owner, other supplier, and electric distributor sectors, for example, solar, wind, energy efficiency and demand response providers. The ARR sector is created on the buy-side because financial transmission rights (FTR) were originally developed to enable load to manage congestion costs. The ARR sector would caucus with virtual traders, though more discussion is needed to determine intra-sector weighting of votes.

Enhanced representation of the “public interest” is characterized by three new non-Member stakeholder sectors, one aligned with the buy-side, one with the sell-side, and one with the states.

- **States’ Public Interest.** A non-conflicted member of state leadership (e.g. from the governor’s office) from each PJM state (and the Mayor of D.C.) to represent a vote on behalf of the general “public interest.” Provides an opportunity to reflect state objectives and enhanced public accountability. The governor’s office is identified here due to veto power over state-based legislative proposals and power over executive agencies. This state vote would be in addition to participation of and caucus with the non-voting OPSI representatives.
- **Buy-Side Public Interest.** The Consumer Advocates of the PJM States (CAPS), would represent the public interest, in that they represent the broadest category of electricity consumer in the PJM footprint. In this process, CAPS could coordinate with state based organizations that represent low or fixed income interests, such as state Public Utility Law Project branches or the American Association of Retired Persons (AARP).

- **Sell-Side Public Interest.** Institutional investors who manage investments from pension funds, life insurance companies and mutual funds, are entrusted with a significant portion of household savings, with investment outcomes impacting a substantial portion of the public. Institutional investors may be concerned with, for example, stability of utility investments (i.e. regulated distribution and transmission companies), energy prices, and energy company performance. The perspectives of institutional investors may be an important public interest voice from the investor community, especially if the move towards private equity-owned generation continues.

More thought and research is needed regarding the methods by which these public interest groups could participate in the stakeholder process. Integration into Member-based sector-weighted voting will likely be a very contentious concept that could be explored, but should not serve as a limit on create ideas for exploration.

Theoretically, this new structure would have a host of benefits. It would break observed coalition-based vote blocking powers (see *page 31*) and the “core” sectors may better represent PJM’s current Membership. The enhanced public interest representation could help to address the public interest and political accountability concerns inherent in quasi-governmental organizations and could create definition of public interest based on a balance perspective of state, buy, and sell perspectives. By providing a forum for stakeholders to present arguments and refute claims of opponents before state policy makers, PJM could foster a more level playing field of political influence and reduce the burden on PJM to defend its own value. Though nothing can prevent states from enacting preferred policies that impact PJM markets, this forum could serve to better educate politicians about the veracity of individual stakeholder claims, as well as the impacts state policy pursuits may have on markets.

In practice, even if limited to high-controversy issues, this new structure may be too complicated, controversial, time consuming, and/or burdensome to implement. In addition, representatives from the new public interest sectors envisioned may not be interested in participation. Some stakeholders may argue that all of these controversial issues are going to end up in the courts, no matter what. In order to save time and reduce prolonging market uncertainty, these stakeholders may prefer a pathway forward that eliminates the stakeholder process

at PJM for high controversy issues, advocating instead for an enhanced stakeholder process before the FERC. While the time saving benefits of fast-tracking issues directly to FERC may be warranted in certain situations (e.g. clear and imminent reliability threat), expediting or eliminating the stakeholder process will reduce valuable education, discovery, and creativity from the process.

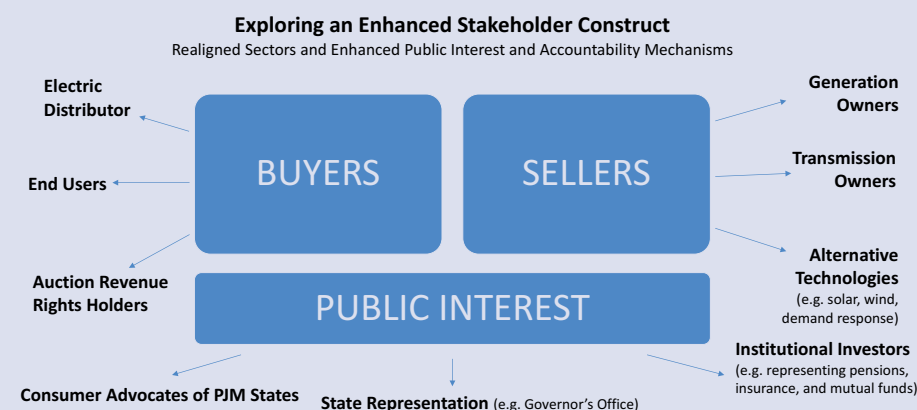


Figure 8 - Exploring an Enhanced Stakeholder Construct for Controversial Issues

Much of the growth in these sectors over the time period examined is likely to be from non-traditional market entrants, such as seasonal resources (renewables, efficiency, demand response) and financial market participants. Given the growth in membership volume and diversity, the current Member sector designations may no longer accurately reflect the nature of PJM's stakeholders mix.

For example: (Synapse Energy Economics 2016)

- Renewable energy owners are typically members of the "Generation Owners" sector along with traditional generation interests.
- Energy efficiency providers can choose from the "Electric Distributor", "Transmission Owner", or "Other Supplier" sectors.
- Demand response providers can only choose the "Other Suppliers" sector.
- The "Other Suppliers" sector is very broad and captures an extremely wide range of existing or potential market players including generation interests, marketers, and energy traders.⁴⁵

It is worth reiterating that most growth has been in the Generation Owner and Other Supplier sectors, where seasonal resources, marketers and energy traders are likely to designate.

When it comes to sector voting, renewable interests are likely to be dominated by traditional generation interests, transmission interests are likely to dominate Transmission Owner and Electric Distributor interests, and a multitude of generation interests and energy traders are likely to dominate in the other suppliers sector (Synapse Energy Economics 2016). Stakeholders that don't neatly fit into the traditional five sectors cast intra-sector votes alongside Members with dissimilar interests. In a sector-weighted voting regime, this can lead to: 1) the inability for misplaced stakeholders to meaningfully advance opinions in intra-sector voting, and/or 2) the opinions of traditional stakeholders getting diluted in intra-sector voting. The larger a single stakeholder sector grows, the less impact an individual firm within that sector has on the overall voting outcome of the sector. In addition, lack of diversity in PJM's portfolio of Member sectors can contribute to the vote blocking phenomenon identified in the previous subsection. The GAST report noted that

even back in 2011, Other Suppliers felt their sector was too large and diverse to have a clear and coherent voice (Raab Associates, Ltd. and CBI 2009, 19).

Many Members in the Other Supplier and Generation Owner sectors choose not to participate in PJM's stakeholder process. More research is needed to better understand why these entities do not participate. The results of this research could meaningfully inform potential governance reform initiatives. For example, reforms could potentially increase participation if entities sit out because of vote dilution concerns or resource burdens. However, reforms cannot improve participation if entities are simply disinterested in engaging.

In general, stakeholders interviewed generally felt that it might be both appropriate and beneficial to expand and realign Member sectors, and/or make other changes. However, it was universally observed that stakeholders believe the current stakeholder balance of power would not support changes to the sectors, because this may result in unknown outcomes and reduced influence. 'Better the devil you know than the devil you don't' was a sentiment conveyed more than a few times.

SECTOR SELF-SELECTION

PJM's member sector self-selection policy may also yield opportunities for improvement. Currently, Members are allowed to self-select their designated sector for senior standing committee voting, as well as affiliate designations (that do not have senior standing voting rights). There are qualification criteria for each sector and PJM must approve of the designation. Members with multiple Affiliates can choose voting designation from among all affiliate-qualified sectors and there is a process for stakeholder to challenge a Member's designation. Although the process seemingly has appropriate checks and balances, Member behavior and stakeholder input suggests there is an opportunity for improvement.⁴⁶

More research is needed to categorically document specific instances of misplaced Members. However, the following examples are provided for illustrative purposes, based on real-world situations.

⁴⁵ PJM's OA defines "other suppliers" as a Member that 1) is engaged in buying, selling or transmitting electric energy, capacity, ancillary services, financial transmission rights or other services available under PJM's governing documents in or through the Interconnection or has a good faith intent to do so, and 2) does not qualify for the Generation Owner, Electric Distributor, Transmission Owner, or End-Use Customer sectors.

⁴⁶ The Phase I GAST process report also included a recommendation to more carefully monitor and enforce member placement in appropriate sectors (Raab Associates, Ltd. and CBI 2009, 25).

- Company XYZ has 13 Affiliates operating over a variety of sectors. However, Company XYZ designated all of its Affiliates as transmission owners. Company XYZ owns 10,000 megawatts of generation capacity in PJM. Curiously, Company XYZ designated a generation supply affiliate to the transmission owner sector even though the definition of transmission owner in PJM's OA specifically states that "Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner" (PJM Interconnection 2011). This could be problematic, for example, if lower level committee voter and voting behavior were made public (a concept to be discussed later in this report), Affiliates designated to a sector for which they do not qualify will reduce the ability for the stakeholders and the public to interpret the results.
- Industrial energy user ABC Corp. owns on-site generation capacity mostly for its own use. ABC Corp self-selects the "generation owner" sector, rather than the "end use customer" sector. It is possible, this type of behavior could be used to influence intra-sector voting results in a competing sector.

Having Members participating in the wrong sector also has the ability to make intra-sector caucusing more difficult and reduces trust (Raab Associates, Ltd. and CBI 2009, 20). It is reasonable that a parent company be able to advocate for voting sector designation based on the company's primary interests given the totality of its business portfolio, and for Affiliate designations based on qualifications. However, the opportunity for gaming, reduced transparency and other negative outcomes may warrant an examination for how to better implement, monitor, and enforce the designation process. The recommendation to improve the sector self-selection process was also made in the 2011 GAST report (Raab Associates, Ltd. and CBI 2009, 25).

LACK OF INFORMATION TRANSPARENCY AND CONSISTENCY ON LOWER LEVEL VOTES

Currently, proposed solutions to identified issues are developed in lower level committees with proposals that receive majority support being forwarded to higher level committees for review and sector-weighted vote. However, when higher level committees receive

information about votes on a proposal, they are only given information about number and percentage of yes, no, and abstention votes. Voting is done through online surveys and the information is not publicly disclosed. Of particular remark is that information is not provided on how different sectors voted the proposals. Since the higher level committees vote on a sector-weighted basis, this creates a disconnection in the process. This inefficiency has the potential to waste stakeholder time and resources on proposals that have little chance of advancing through sector-weighted voting (e.g. are only acceptable when affiliate votes are considered).⁴⁷ In addition, making individual voting behavior more transparent could make it easier for stakeholders to determine who to talk to in coalition building efforts.

Some stakeholders argue lack of transparency on lower level votes is appropriate because lower level voting is not always meant to indicate stakeholder support, but can also indicate proposals that some stakeholders "can live with." In addition, some stakeholders believe that increased lower level vote transparency can result in political and accountability problems. For example, a Voting Member (parent company) in the transmission owner sector may own several Affiliates operating in other PJM Member sectors (e.g. electric distributor, end use, generation owner). The Voting Member can direct all its affiliates to vote in the interests of the parent company in lower level votes, even if that vote may run counter to the Affiliate's sectoral interest. **Restructured energy companies are legally supposed to have functional firewalls between business segments (e.g. generation, transmission, and distribution) that prevent collusion among these Affiliates, in order to promote competition and reduce monopoly power.** In absence of transparency, there is no accountability (e.g. from a state-based regulator) for such behavior. Some stakeholders believe this lack of transparency exacerbates the incumbent advantage.

Complete voting transparency at the lower level may be controversial, yet worthy of debate. A compromise may be to simply break down lower level votes by sector, in order to provide better information to higher level committees, and potentially improve efficiency.

⁴⁷ The Phase I GAST process report identified this as an issue, noting the senior committees don't always know who supported proposals elevated from lower level committees and how those votes would translate into a sector-weighted vote. (Raab Associates, Ltd. and CBI 2009, 17).

SECTION VI

IS THERE EVIDENCE OF INCUMBENT BIAS IN THE STAKEHOLDER SYSTEM?

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As discussed in Section III, a wide range of interests note the theoretical potential for incumbent interests to dominate RTO/ISO stakeholder processes, to the detriment of competition and efficient outcomes. In PJM's stakeholder process, observations yield evidence of potential incumbent advantage related to proposal agenda setting through affiliate voting, concentration of resource ownership, resource burden to participate. Though clearly not domination, an incumbent advantage is still meaningful especially given the concerns with quasi-government organizations, the RTO bias, and the principal-agent problem.

SETTING THE PROPOSAL AGENDA THROUGH AFFILIATE VOTING

Lower level committee votes "set the agenda" of proposals for voting at senior standing committees by developing proposals that are only advanced to higher level committees by majority vote. The current process not only lacks transparency that leads to process inefficiency (as discussed earlier in this report), but also provides an advantage for larger, incumbent interests.

It is rational for incumbent generation interests to support rules that increase capacity prices in an effort to maximize profits. Policies that reduce supply or increase demand can lead to higher capacity prices. For example, resources like non-annual demand response and energy efficiency, wind and solar, are seasonally available and will not meet PJM's year-round capacity performance requirement for future capacity market auctions, unless they aggregate. PJM stakeholders developed a problem statement recognizing this fact, and embarked on a seasonal capacity resources senior task force (SCRSTF) process to develop a solution. Maximizing the ability

for seasonal resources to reliably participate in the capacity market would lower capacity prices, reducing revenues for more traditional generation resources. This set up a tension between newer market entrants (i.e. seasonal resources) and incumbent generation interest. The SCRSTF will be used to describe the incumbent power concern with affiliate voting.

There were 190 votes cast on the proposals considered by the SCRSTF and these votes were cast by 34 unique respondents, indicating proxy voting and/or voting by companies with multiple Affiliates. In theory, the eleven large companies with generation interests identified in *Table 6* had the potential to cast 108 of the 190 votes, which is more than enough to prevent any proposal from reaching the 50 percent threshold for approval. Recall that the example in *Table 6* is theoretical, not a summary of actual voting results. Because voting results are not made public, analysis of the actual SCRSTF votes was prohibited. As a result, this example was presented to illustrate the potential for affiliate related power. In the end, none of the proposals from the SCRSTF were able to gain majority support.

Asset owners (e.g. transmission and generation owners) that are typically large companies with multiple Affiliates argue that affiliate voting is appropriate because they bear asset-related investment risk. Load interests (e.g. end use customers) that tend to have far fewer Affiliates (see *Table 5*) argue affiliate voting disadvantages the consumer who ultimately pays for all services. New market entrants, such as seasonal resources, assert that affiliate voting provides an advantage to the incumbent that can prevent rule changes that promote competition from other resources. Any incumbent bias could be exacerbated by the potential reliability bias of the RTO, which also serves to benefit incumbents.

Parent Company	Parent Voting Sector	Total Affiliates	Generation Owner	Transmission Owner	Electric Distributor	End User	Other Supplier	Total MW (non-renewable) w/Access to PJM as of 2015
Appalachian Power Company	Transmission Owner	17	1	12			4	6,167
Dayton Power and Light	Transmission Owner	6	5			1		2,690
Exelon Business Services	Transmission Owner	14	5	3	3		3	20,580
FirstEnergy Solutions Corp.	Transmission Owner	15		15				14,975
Public Service Gas and Electric	Transmission Owner	6	4				2	9,790
Virginia Electric Power Company	Transmission Owner	4	4					18,644
<hr/>								
Calpine Energy Service, L.P.	Generation Owner	6	2				4	5,036
Dynegy Marketing and Trade LLC	Generation Owner	9	8				1	10,546
NRG Power Marketing, LLC	Generation Owner	12	6				6	15,250
Talen Energy Marketing, LLC	Generation Owner	19	18				1	7,187
								110,864
PJM Regional Summer Peak Capacity (2015)								143,698

Table 6: Sample of PJM Members, Affiliates and MWs, by Sector⁴⁸

CONCENTRATION OF RESOURCE OWNERSHIP

Table 6 shows that in 2015, over 77 percent of the generation resources needed to meet PJM's peak were controlled, in full or in part, by only 10 companies. Recall, this 77 percent only accounts for oil, gas, coal, nuclear and other non-renewable resources and excludes renewable resources, so this percentage could be even larger. This leaves a little over 23 percent of the remaining capacity, plus the reserve margin, to resources owned by other entities. This represents a powerful concentration of resources, though perhaps not unexpected given the regulated nature of some PJM states, vestiges of pre-restructuring investments, and energy company reorganizations. More research is needed to determine if this degree of resource ownership concentration is typical, appropriate, and/or

beneficial for the sector.

Many incumbent Transmission Owners, the Members with the greatest theoretical accountability over PJM because of their voluntary participation, also own generation. In fact, as shown in Table 6, just six Transmission Owners have ownership interest in over 50 percent of installed generation capacity needed to meet PJM's peak, and this only counts oil, gas, coal, nuclear, and other non-renewable assets. Just four Generation Owners have ownership interest in about 26 percent of the installed capacity needed to meet PJM's peak.

The reader should be aware that the information from 2015 in Table 6 is likely to change, as some of the entities listed (e.g. First Energy, Talen) have since sold or are exploring sale of generation assets to reduce exposure to volatile generation markets.

⁴⁸ Source Note: Member and Affiliate information was taken from PJM's Member list in December 2016. MW data was taken from SNL Energy's Power Plant Briefing Book database with data from EIA for 2015. PJM Summer Peak Capacity data for 2015 was taken from SNL Energy's regional power market summary. MWs of capacity only account for oil, gas, coal, nuclear and other non-renewable capacity. All assets were the parent company or a subsidiary have full or partial ownership interest are included. Some MW resources have the ability to dispatch into PJM or other RTO/ISO.

RESOURCE BURDEN TO PARTICIPATE

The cost of participating in PJM's numerous stakeholder proceedings are considerable, both in terms of time and financial resources. Incumbent industries are more capable of shouldering this financial burden. Some stakeholders, like consumer advocates and smaller non-incumbent energy resources, may be at a disadvantage compared to incumbent industries (Shaffer 2015).

- In 2016, the cost to fund the non-profit Consumer Advocates of the PJM States (CAPS) organization—which was formed to coordinate the participation of state consumer advocates offices in the PJM stakeholder process—was set at approximately \$450,000 per year. These funds include staffing and travel costs for state consumer advocates to participate in PJM stakeholder proceedings, as well as to pay for professional staff and to operate the CAPS organization (Federal Energy Regulatory Commission 2016). As of a 2016 FERC-approved tariff revision that applies beginning in 2017, the CAPS organization is funded by PJM, through transmission rates (Federal Energy Regulatory Commission 2016).⁴⁹
- Per a FERC order approving OPSI funding, beginning in 2006, the non-profit OPSI received funding from PJM through rates, at an initial amount of \$425,000 per year, with subsequent funding being provided through a budget proposal and review process (Federal Energy Regulatory Commission 2005). OPSI uses these funds to support a small staff dedicated to facilitating and coordinating involvement of state commissions in PJM proceedings.

There seems to be at least three main resource burdens to participating in PJM's stakeholder process:

1. Time
2. Money
3. Technical Expertise

Large, incumbent organizations are more likely to have the ability to access and allocate resources to meet these burdens. Of course, allocating these resources doesn't mean the incumbent bears no cost. There is always an opportunity cost with resource decisions. The point is a large incumbent has the ability to "access and allocate" such resources, if it makes sense to do

so. Smaller, non-incumbent organizations may not be able to access or allocate such resources. PJM does allow Members to vote via proxy or agent representation, providing the flexibility for multiple like-minded entities to pool resources and hire an individual (or firm) to represent their interests in the stakeholder process. This may help level the playing field with respect to the resource of time and money. However, agent representation in the stakeholder process does little to address the burden of technical expertise. Of course, additional resources can be pooled to hire required expertise, provided financial resources are accessible and expertise can be identified and procured in a timely manner. Timeliness is relevant as the opportunity to put forth new ideas can be constrained in the stakeholder process, as deliberations quickly move from the initial window of creativity towards consolidation, proposal development, and consensus building.

PJM issues are often highly technical and specialized and the stakeholder process typically debates numerous ideas and proposal to address identified issues. A large, incumbent organization is likely to be better positioned to quickly analyze data and proposals, compared to a smaller organization or agents. Data processing and analysis is a good example to illustrate this point. PJM is very open with respect to publicly available data and maintains many online data access tools (e.g. Data Miner, Data Directory, Data Snapshot) that enable members of the public to access incredibly detailed information about PJM markets.⁵⁰ PJM endeavors to assist stakeholders with requests to analyze data, but reasonably PJM can't accommodate every request. Some stakeholders believe they are disadvantaged (compared to large incumbent companies) when PJM is not able or inclined to perform requested analysis. Smaller stakeholder may be less likely to have access to the software, systems, or expertise needed to replicate PJM's data processing and analysis capabilities, placing them at a disadvantage to larger firms.

⁴⁹ Prior to the 2016 tariff revision, beginning in 2012, CAPS was provided a one-time funding award of \$1.2 million resulting from a consent agreement between FERC and Constellation Energy Commodities Group (Docket No. IN12-7-000 issued October 10, 2012).

⁵⁰ There were some stakeholder discrepancies about data transparency noted when comparing data about FTRs to data about generators, with generators claiming to be more protected and less transparent.

SECTION VII

CONCLUSIONS AND RECOMMENDATIONS

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PJM's stakeholder process has proved remarkably effective in dealing with less controversial issues. Unsurprisingly, highly controversial issues are more difficult to navigate successfully through the stakeholder process. PJM's governance system and stakeholder processes tackle the daunting task of bringing together parties with divergent interests around high dollar value issues that have significant political implications. It is no mystery that successful outcomes on these controversial issues are difficult, some stakeholder groups will walk away unhappy, and political interest groups will be pressured to intervene.

This report identifies four significant factors driving considerable changes to PJM's market environment and architecture since the last governance process evaluation and revisions were completed in 2011.

Specifically, these factors include:

1. Growth of low priced natural gas and gas capacity resources
2. Capacity market design controversies
3. Flat load and an increase in renewable energy supply requirements
4. Growth of financial transmission rights trade volumes

These drivers of change are resulting in changing market economics, altering the market balance of power (e.g. creating market entry and exit, prompting new market entrants) and increasing the financial stakes. These drivers are also prompting the need to make changes to market design, triggering the need to involve stakeholders in policy proposal development. However, the contentious nature of these high financial

stake issues—where historically controversial issues of balance of power and allocation of costs and benefits arise—are proving too controversial for the existing stakeholder process to navigate.

Given changes to the markets, this begs the questions:

- Has the stakeholder system evolved along with the markets?
- Would an improved process result in more efficient outcomes on high controversy issues?

As a result of these fundamental shifts and controversies, and consistent with FERC Order 719—that requires RTO's to continually consider and evaluate stakeholder needs and potential process improvements in the face of market environment and architecture changes—it would be prudent for PJM to evaluate its governance system and stakeholder processes to determine if improvements could be made. Given the information provided, this report presents the following recommendations moving forward.

PJM Evaluation of Governance Process. PJM should embark on an evaluation of its governance process and determine if there are opportunities for beneficial reforms. Per PJM's Manual 34, this could be achieved by PJM stakeholders voting to create a "Special Team" to review the stakeholder process. For example, a recommendation to establish a Special Team on Governance can be made by a new or existing PJM User Group. However, interviews with PJM stakeholders consistently stated it is unlikely to impossible that current stakeholders would take this action for fear they would lose power and influence in any new or revised system.

FERC Directive for Governance Evaluation. The current stakeholder power balance may not be amenable to voluntarily embarking on process evaluation, let alone changes. Therefore, action by FERC may be necessary. FERC could require PJM to engage its stakeholders in a review and evaluation of the governance process and identify potential opportunities for reforms. Moreover, it may be beneficial for FERC to require all RTO/ISOs to review their governance processes and identify potential reforms at regular intervals.

- It should be noted that engaging stakeholders in a review and evaluation of governance processes is a first step.
- The second step is identifying potential improvements.
- The final step is negotiating details on improvements and voting to accept or reject such improvements, which may or may not be a requirement of the FERC order to evaluate.

Such periodic review could present FERC with a valuable body of evidence and information on the evolution of stakeholder-based governance issues and solutions, informing FERC's thinking on future governance guidance. After all, many of the issues identified in this report were also identified in the 2009-2011 GAST process, but these issues have yet to be resolved at the discretion of the stakeholders. FERC should be aware of such issues and how they evolve over time, recognizing it may be unrealistic to expect stakeholders to self-correct issues within their own governance process.

Evaluation of the governance process could include, but should not be limited to, an examination of the following items raised in this report that are broadly categorized as structural issues and process issues. Information gathered from the evaluation should be made public in order to increase transparency to stakeholders, regulators and the public.

Addressing Accountability and Public Interest Concerns of the Quasi-Government RTO. Given the well-documented concerns about lack of accountability and protection of the public interest inherent with quasi-government organizations, RTOs could take additional steps to ameliorate these concerns. More research is needed to better understand how to leverage the advantages of the quasi-government organization (e.g. reliance on markets, management flexibility)

while correcting for drawbacks. While in-depth, methodological research is required to answer such questions in the RTO context, some initial thoughts include:

- **Determine how, when, and how often to define the “public interest” and identify who in the stakeholder process represents the public interest.** Identify to whom PJM is accountable to for ensuring the public interest is protected, and identify the method by which PJM measures how private versus public interests are being balanced. Such a public interest can be broadly defined to include both buy and sell side interests as well as state-based political priorities. And these interests are subject to change over time.
- **Specifically address the role of the states** in defining, representing, and being accountable for protection of the public interest within the stakeholder process.
- **Document the accountability mechanisms** available to different stakeholder groups and determine if there are accountability disparities between sectors, determine if these disparities yield inappropriate power imbalance over the process, and identify corrective measures, if needed.

Provide Options for Greater State Participation in the Stakeholder Process. Decision making at PJM theoretically runs the gamut from absolute market efficiency to pure politics, but in practice seeks to find a workable balance between these extremes. States have changing political objectives and the ability to enact policies that can force decisions away from market efficiency and towards political priorities. Injection of state policy that threatens market efficiency also threatens the legitimacy of the RTO. Managing efficient market design over a large geographic region where states have ever-changing political values may create an unsolvable legitimacy problem for the PJM. One potential strategy to address this problem would be greater integration of appropriate (i.e. non-conflicted) state policy makers into PJM's stakeholder process. Given concerns about accountability, protection of the public interest, and the need to manage state policy and PJM markets, the question isn't whether enhanced state participation in PJM's process is needed, but rather what is the best method by which to more intimately involved the states in the stakeholder process?

Evaluate Power Balance Dynamics in the Stakeholder Process. The balance of power between member sectors in PJM has resulted in a portfolio of reasonably expected tensions given the different goals of each respective group. It is unclear whether balance of power differences have manifested in advantages or disadvantages in the stakeholder process, for example, as self-governed stakeholders develop compromise strategies for managing power balance. There are tools available to analyze power dynamics in multi-stakeholder process (Brouwer 2013). Though developed for application in different sectors and contexts these tools may serve as a starting point for better understanding existing power balance concerns and how to address these concerns through process reform.

Ensuring a Best-in-Class Administrator. While it is important to ensure the RTO is independent from any market participant(s), there should also be recognition of the potential for self-interested behavior and organizational bias that may benefit or harm certain stakeholder groups, competition, or lead to other unintended consequences. It should be determined if appropriate procedures are in place to acknowledge, evaluate, monitor and correct for organizational biases or self-interested behaviors of the RTO that create preferences or prejudices.

Explore Realignment of Stakeholder Sectors. Examine PJM's membership and determine if the current stakeholder sectors accurately and best reflect the diversity of PJM's Members. There may be the opportunity to expand the number of Member sectors, which could have the beneficial effect of ending the existing buy-side coalition vote blocking powers and reduce intra-sector vote dilution in the G.O. and O.S. sectors.

Sector Self-Selection Process. Determine if improvements can be made to the sector-self selection process.

Lower-Level Voting Transparency. Examine and document the benefits and drawbacks of the current non-transparent approach to lower-level voting. Would changes to the process improve or reduce outcomes, such as relaying results to higher-level committees with more information on how different sectors voted?

Review Evidence of Potential Incumbent Advantage.

Identify if any of these issues create inappropriate power balance dynamics, inhibit competition, or result in other negative outcomes. Alternatively, provide justification for such an advantage. It is important to understand if such an advantage exists and how that advantage can be used to impact PJM decisions, as this may meaningfully effect, inhibit, or advance certain issues and outcomes. Issues identified include: proposal agenda setting (i.e. control) through affiliate voting from large incumbent firms, concentration of resource ownership in a small set of incumbent firm, and the resource burdens to participate in the stakeholder process that may disadvantage smaller non-incumbents.

APPENDIX A

FINANCIAL TRANSMISSION RIGHTS BASICS

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PJM uses thousands of locational marginal pricing (LMP) nodes distributed throughout its system to price energy based on the least cost resources available to serve load at a given time. In theory, all LMP nodes would use the least cost generation resource available to meet demand. *Figure 9* illustrates how the load customer in Area 2 will purchase all 275 MWhs of its power needs from the least cost generation resource in Area 1 at a cost of \$25/MWh for a total cost of \$6,875, providing the generator in Area 1 with total revenues of \$6,875. In practice, physical transmission constraints sometimes prevent the least cost resource in the system from being delivered to the area of demand. As a result, for example, a node closer to the area of demand may have to use a higher cost resource that is not constrained by transmission to provide supply.

Figure 10 illustrates the same system, this time with a 100 MW transmission constraint between Area 1 and Area 2. In this example, physical transmission constraints related to the 100 MW transmission line limit prevents the customer in Area 2 (with 275 MWhs

of demand) from accessing all of the available least cost resource in Area 1. Since this is a power pool transaction (rather than a bilateral market) the Area 2 customer will purchase all 275 MWhs at the Area 2 LMP price of \$35/MWh for a total cost of \$9,625. However, the generator from Area 1 will only be paid \$2,500 (100 MWhs from Area 1 at \$25/MWh LMP), and the generator from Area 2 will be paid \$6,125 (175 MWhs from the Area 2 generator at \$35/MWh LMP) for a total cost of \$8,625.⁵¹ As a result of congestion, the consumer pays \$1,000 more than the generators receive. PJM collects this “congestion cost” of \$1,000 and distributes it to holders of FTRs.

As a result of competitive markets and nodal pricing, utilities were no longer able to predict the exact cost of delivered power supply by simply adding the cost of generation and the cost of physical transmission rights. FTR’s developed as a way to hedge against congestion cost liabilities. FTR’s are not physical transmission rights, they are financial instruments. They act as virtual reservations to use a transmission path at a certain time and are used to offset the charges utilities may

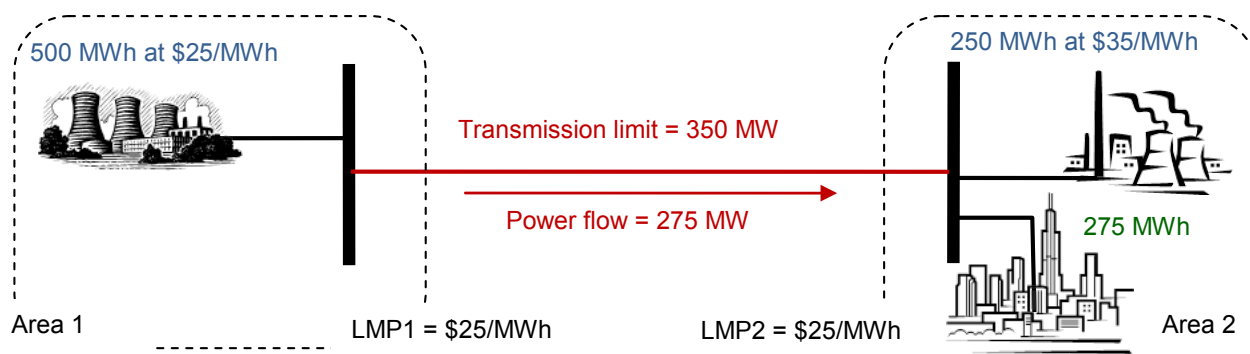


Figure 9: Simple Electric Energy System without Congestion (National Energy Technology Laboratory 2013)

⁵¹ These examples assume line loss of zero

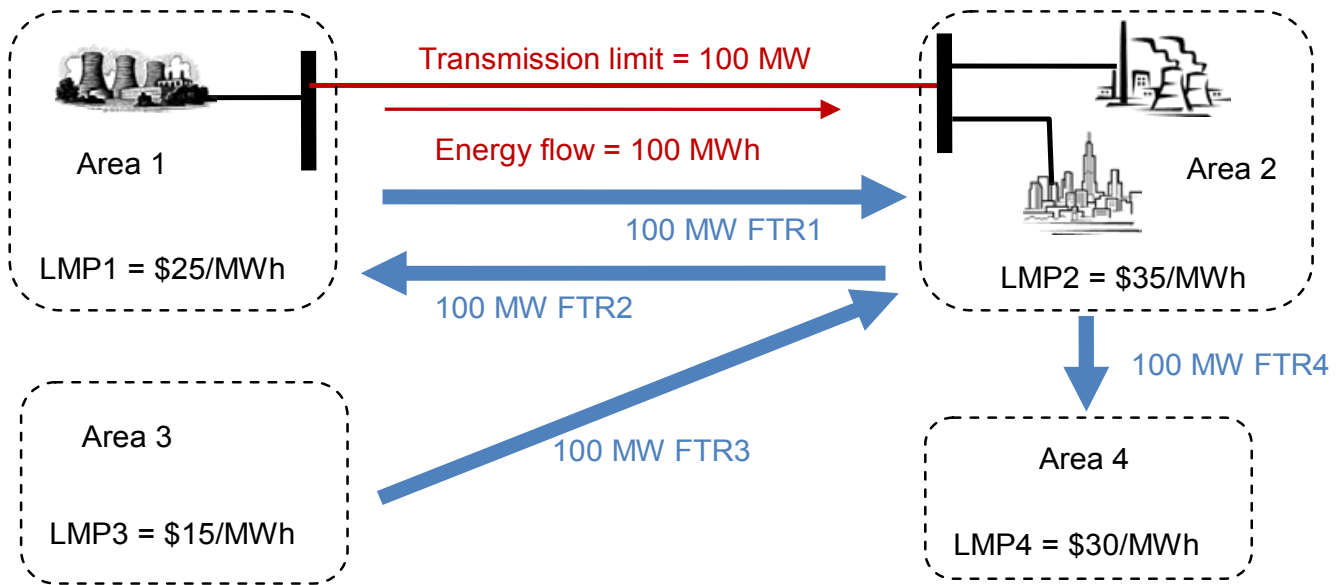


Figure 10 - Simple Electricity System with Congestion (National Energy Technology Laboratory 2013)

incur when using a congested line. For example, in *Figure 10*, a utility (the consumer in Area 2) can buy FTR1 for 100 MW for a credit of \$1,000 (FTR Credit = $(LMP2 - LMP1) * 100$) that would perfectly offset its \$1,000 congestion charge. However, if the same utility purchased FTR2, which places a reservation for transmission moving in the opposite direction (from Area 2 to Area 1) of what was actually observed, the utility would create a cost liability of \$1,000 (FTR Liability = $(LMP1 - LMP2) * 100$).

PJM's Auction Revenue Rights (ARRs) entitle holders - firm transmission service customers - to an allocation of revenues (or charges) from the annual FTR auctions. PJM holds auctions throughout the year for FTRs, and entities can buy and resell these rights. The number of FTR's made available by PJM is limited by the physical capabilities of the transmission system. Financial institutions can purchase excess FTRs in the system that are not used by utilities.

More information on FTRs/ARR's is available on PJM's website at: <http://www.pjm.com/~media/etools/fttr-center/fttr-module-of-lmp-and-fttr-course.ashx>

APPENDIX B

SENIOR CAPACITY RESOURCES TASK FORCE CASE STUDY

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The Enhance Liaison Committee (ELC) process facilitated decision making on PJM's capacity performance proposal, enabling an extremely controversial issue critical to maintaining reliability to be resolved in a short time frame. The subsequent Seasonal Resources Problem Statement perhaps highlighted one of the shortcomings of the ELC process and reveals some deeper issues with PJM's traditional stakeholder process.

The capacity performance rule requires capacity resources to be available anytime PJM needs them, and if the resources do not deliver when needed they are assessed a large financial penalty. This year-round requirement was developed to address reliability concerns by improving performance; however, it resulted in seasonally available resources being excluded from qualifying for capacity payments. Examples of such seasonal resources include summer demand response (e.g. reducing air conditioning based load), solar energy that is strongest in the summer, wind energy that is strongest in the winter, and seasonal energy efficiency measures (e.g. installation of more efficient heating equipment).

PJM phased in the rule changes so capacity auctions for delivery years 2018-2019 and 2019-2020 only required 80 percent of the market to meet the higher performance standards. Envisioning the seasonal resource issue, PJM developed an aggregation mechanism where summer-only and winter-only resources could pair to offer a year-round product, however PJM received little to no aggregated offers.

The 2020-2021 capacity auction, to be held in May 2017, will require 100 percent of the market to meet the higher performance standards, which threatens to functionally disqualify all seasonal resources from capacity payments.

In January 2016, the MRC approved the Seasonal Resources Problem Statement and issue charge by a sector-weighted 3.4 vote (PJM Interconnection 2016). The Seasonal Capacity Resources Senior Task Force (SCRSTF) was created and met 13 times over a 6 month period (April – September 2016), proceeding through PJM's consensus based issue resolution process (e.g. educational presentations, sharing of stakeholder perspectives, developing options and solutions packages, and finally engaging in stakeholder votes on the proposed solutions).⁵² The initial SCRSTF work plan targeted a first read of proposals with the MRC in September 2016, with MRC and MC votes taking place in October, and a November date for filing a proposed solution with FERC (PJM Interconnection 2016). In the end, five packages of proposals were put up for votes by Members of the SCRSTF, with votes closing September 20, 2016. However, voting results indicated the SCRSTF process could not identify a solution meeting the majority threshold required for advancement of proposals to Senior Standing Committees (PJM Interconnection 2016). A total of 190 companies were represented in the vote through 34 unique responders, indicating that many companies used proxies for voting. The following options, with proposals and voting results are summarized, are included below:

⁵² More information on the Seasonal Capacity Resources Senior Task Force can be found on PJM's website at <http://www.pjm.com/committees-and-groups/task-forces/scrstf.aspx>

- **Proposal A - Aggregation and Seasonal Offers.**
Voting Results: **32% YES, 68% NO, 0% ABSTAIN**
This proposal would maintain the 100 percent capacity performance product and existing aggregation rules, but would establish rule for cross local deliverability area aggregation, enable aggregation of summer-only and winter-only sell offers through the capacity market clearing process, create a winter firm service level (FSL) for measuring demand response performance, and create a one-time transitional winter CIR process.
- **Proposal C - Winter Performance Equivalent.**
Voting Results: **21% YES, 74% NO, 5% ABSTAIN**
This proposal would establish a Winter Performance Equivalent (WIPE) auction in which possession of a WIPE ticket excuses all winter performance for resources with an annual capacity obligation, where PJM calculates the amount of WIPEs in MW using existing extended summer calculations.
- **Proposal D - Base Capacity Extension.**
Voting Results: **43% YES, 57% NO, 0% ABSTAIN**
This proposal would extend the 20 percent base capacity product into the 2020/2021 delivery year only, would adjust the base capacity penalty rate to be comparable to the capacity performance penalty rate, and would continue work on a longer term solution for seasonal resources to participate in the capacity market.
- **Proposal E - Capacity Performance Demand Response using FSL.**
Voting Results: **17% YES, 77% NO, 6% ABSTAIN**
This proposal would use a firm service level (FSL) to measure demand response year-round, would expand the aggregation measures in Proposal A to all resources types, and would extend the Base Capacity product until winter/seasonal capacity interconnection rights (CIRs) can be established for all resources.
- **Proposal F - Proposal A + Balancing Ratio Changes.**
Voting Results: **33% YES, 65% NO, 2% ABSTAIN**
This proposal includes Proposal A, plus applying the balancing ratio to all committed capacity resources, including DR, for the purpose of determining expected performance, and would amend the balancing ratio equation to the $BR = (\text{All Resource Performance} + \text{Net Energy Imports}) / \text{All committed capacity in UCAP}$.
- A **non-binding vote** was also taken asking whether or not were also asked if they would prefer to make a change (48%) or retain the status quo (52%).

The MC was informed of the voting results via webinar meeting on September 26, 2016 (PJM Interconnection 2016). It is noteworthy to point out that the MC immediately received an update on the SCRSTF voting results, whereas the voting results were not presented to the SCRSTF's parent committee, the MRC, until the MRC's meeting on October 27 (PJM Interconnection 2016). At the October 27 MRC meeting, the SCRSTF report provided by PJM stated the following, and requested to sunset the SCRSTF:

- "Stakeholders were unable to achieve consensus or simply majority on any proposal
- Stakeholders had fundamental disagreements about sub-annual products in the RPM [i.e. capacity market]
- Stakeholders generally recognized that pursuing a seasonal capacity construct is a much larger effort requiring more analysis and perhaps broader stakeholder engagement than senior task force level (i.e. not able to be implemented by 2017 BRA)" (PJM Interconnection 2016)

At the October 27 MRC meeting, a Member pointed out that PJM's Board announced its decision to file the aggregation enhancement proposal (similar to Proposal A) with FERC at the October 18-21 annual OPSI meeting, and that this decision was based solely on the SCRSTF vote and did not have the benefit of Senior Standing Committee presentation, discussion and voting results (Whitehead 2016). At the October 27th MRC meeting, stakeholders rejected the idea of sunsetting the SCRSTF, preferring to suspend the senior task force in the event that additional engagement on the seasonal capacity issue be desired.

In addition, a Member and participant in the SCRSTF proposed a motion to extend the base capacity product for one year (Proposal D) (PJM Interconnection 2016). Per Manual 34, Section 8.5, reports to Senior Standing Committees shall include proposals that receive a simple majority vote at the standing committee (in the SCRSTF zero proposals met this threshold) as well as any additional proposals that are requested to be included by at least three Members from at least two sectors. An agenda item was added to the MRC's November 17, 2016 meeting to include a vote to extend the base capacity product, consistent with the highest performing proposal (Proposal D) in the SCRSTF (PJM Interconnection 2016). However, on November 17, 2016, prior to the MRC meeting, PJM announced it had filed proposed changes with FERC to enhance aggregation rules for seasonal resources (PJM Interconnection 2016).

Essentially, PJM and the Board filed their preferred solution with FERC, prior to the Member exercising its minority rights. After the proposal was filed with FERC on November 17, the MRC did vote on Proposal D, but the measure did not pass (2.93) (PJM Interconnection 2016). Some stakeholders maintain this failure to pass is not unexpected, given the fact that PJM had already filed.

Several letters were sent to PJM's Board expressing concerns about the seasonal resources issue and urging PJM to find a solution to enable demand response and other seasonal resources to meaningfully participate in the capacity market, including:

- An OPSI-approved resolution from July 2016 urging PJM's Board to "develop market rules which optimize the participation and value of demand response in providing cost control, reliability, and competitiveness in PJM's wholesale market" (Organization of PJM States 2016).
- An October 10, 2016 letter from Maryland Governor Hogan supporting the July OPSI resolution and urging PJM's Board to preserve the role of demand response in the capacity market so it can fully participate in the 2017 capacity auction (Hogan 2016).
- An October 17, 2016 letter from Delaware Senator Coons urging PJM's Board to file a request with FERC for an extension of time to delay implementation of the full capacity performance requirement to allow more time for resolution of the seasonal resources issue (Coons 2016).
- An October 21, 2016 letter from Delaware Governor Markell urging PJM's Board to give stakeholders more time to develop solutions to address the seasonal resources issue (Markell 2016).
- A November 3, 2016 letter from Direct Energy expressing disappointment that the stakeholder process was cut short before minority positions could be reviewed by senior standing committees, but expressed commitment to continue the process. The letter asserted many seasonal resource operators are skeptical about the effectiveness of the aggregation proposal filed with FERC, and identified how many summer-only resources will be stranded as a result of the proposal. Finally, the letter again recommended extension of the base capacity product to allow more time to find a workable solution to integrate seasonal resources into the capacity market (Schultz 2016).

PJM's Board addressed these concerns in response letters. To the state governors and senator, PJM'S Board, via Board Chair and PJM President Andy Ott, issued similar letters stating that PJM's forthcoming filing with FERC plans to revise aggregation rules to facilitate seasonal resource participation in the capacity market, and that delaying implementation of the capacity performance requirement would result in negative investment signals to investors at a time when "we need to ensure development of a more efficient and cleaner generation fleet" (see (Ott, Response Letter to Senator Coons from Andy Ott 2016) (Ott, Response Letter to Governor Hogan from Andy Ott 2016) (Ott, Response Letter to Governor Markell from Andy Ott 2016)). In response to Direct Energy letter the Board stated that

1. PJM kept them informed "during the duration of stakeholder discussions regarding seasonal resources",
2. Asserted that delaying full implementation of the capacity performance requirement (i.e. extending the base capacity product for one year) would inject significant uncertainty in the market,
3. Clarified that bilateral contracts between summer and winter resources were not necessary, and
4. Maintained that any reduction in summer-only resources would be small (Ott, Response Letter to John Schultz from Andy Ott 2016).

In February 2017, the U.S. Court of Appeals for the District of Columbia heard oral arguments from multiple parties, all challenging FERC's approval of PJM's capacity performance proposal (Anderson 2017). Some of these parties represented seasonal resources stakeholders. Among other things, seasonal resource advocates believe PJM's enhanced aggregation policy will not be effective in enabling seasonal resources to participate in the capacity market. They argue even if PJM's enhanced aggregation plan is successful, almost 20 GW of summer capacity will be stranded in the process. This is because in the 2020/2021 delivery year there are about 156 GW of summer capacity (e.g. solar, summer demand response) that only have 136 GW of winter capacity (e.g. wind and winter demand response) with which to pair (Wilson 2016). Stranding this capacity is harmful to seasonal resource providers, but is also bad for customers because of increased capacity costs (tough, recall traditional generators benefit from higher capacity prices).

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