

GAST RFP - Appendix A - Background Document

PJM Interconnection, L.L.C. General Background Information GAST Consultant RFP

General Company Background - Current Status

PJM Interconnection, L.L.C. (“PJM”), the country’s first fully functioning Regional Transmission Organization (“RTO”), operates the world’s largest competitive wholesale electricity market and one of North America’s largest power grids. PJM coordinates the operation of over 1,200 generating units in its control area, providing over 164,000 megawatts of installed generating capacity over a grid of more than 56,000 miles of high voltage transmission circuits. PJM enables the delivery of electric power to over 51 million people in all or parts of Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, West Virginia, Ohio, Illinois, Indiana, Kentucky, Michigan, Tennessee and the District of Columbia twenty-four hours a day, seven days a week.

In addition to ensuring the reliable supply of energy, PJM administers the internet-based wholesale electricity market in which more than 390 market participants buy and sell electric energy, generating capacity and transmission rights. PJM has administered more than \$51 billion in energy and energy service trades since the regional markets opened in 1997. PJM provides accounting, billing and collection services for these transactions. PJM also directs the pooled operation of over 728 million megawatt hours of electric power yearly.

Founded in 1927 by three of its current members, PJM was the first power pool in the world. The PJM power pool has evolved over seven decades as the commercial and regulatory environment has changed. In 1997, PJM became a limited liability company with membership open to all wholesale electric market participants. PJM operates independently from transmission owners, power generators, power marketers, electric distributors and end-users. More than 70 nations have sent delegates to PJM to learn about the market model and the operation of the grid in the mid-Atlantic and mid-Western states.

Advent of Wholesale Competition/Background to Current Status 1993-Present

As part of the transition to wholesale customer choice at the federal level that began in the early 1990s, FERC encouraged transmission utilities to use independent system operators (ISOs) to operate the transmission grid independently. The transmission-owning electric utilities that owned PJM at that time opted to expand PJM to perform the ISO function. PJM began the transition

to an independent organization in 1993 when the PJM Interconnection Association was formed to administer the power pool. In 1997, PJM became a fully independent organization. At that time, membership was opened to non-utilities and an independent Board of Managers was elected. All steps of this process required FERC approval.

From the 1960's until 1997, PJM primarily consisted of 11 investor owned utilities (IOU's). PJM employees were 'on loan' from one of the IOU's until 1993. In November 1997, FERC approved PJM as the nation's first fully functioning ISO. Shortly thereafter, on April 1, 1998, PJM opened its first bid-based energy market. ISOs operate, but do not own, transmission systems in order to provide open access to the grid for utility and non-utility users alike.

Later, the FERC encouraged the formation of regional transmission organizations (RTOs) to operate the transmission system in multi-state areas and to advance the development of competitive wholesale power markets. PJM became the nation's first fully functioning RTO in 2001.

From 2002 through 2005, PJM integrated a number of utility transmission systems into its operations doubling the size of its control area. They included Allegheny Power in 2002, Commonwealth Edison, American Electric Power and Dayton Power & Light in 2004 and Duquesne Light and Dominion in 2005. These integrations expanded the number and diversity of resources available to meet consumer demand for electricity and were intended to increase the benefits of PJM's wholesale electricity market. As of 2009, PJM has over 500 members.

PJM's Vision:

To be the electric industry leader – today and tomorrow – in reliable operations and efficient wholesale markets.

PJM's Mission:

- 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.

PJM's Operations

PJM's staff monitors the high-voltage transmission grid 24 hours a day, seven days a week. PJM keeps the electricity supply and demand in balance by telling

power producers how much energy should be generated and by adjusting import and export transactions.

PJM's experts study hundreds of "what if" scenarios and prepare to deal with virtually any event. Each variable that might affect supply and demand for electricity is carefully considered – from extreme weather conditions, emergency situations and equipment failures to the more easily anticipated cycles of hours, days, weeks and seasons.

PJM exercises a broader reliability role than that of a local electric utility. PJM system operators conduct dispatch operations and monitor the status of the grid over a wide area, using an enormous amount of telemetered data from nearly 74,000 points on the grid. This gives PJM a big-picture view of regional conditions and reliability issues, including those in neighboring systems.

PJM's Markets

The company coordinates the continuous buying, selling and delivery of wholesale electricity through robust, open and competitive spot markets. In operating the markets, PJM balances the needs of suppliers, wholesale customers and other market participants and continuously monitors market behavior through an independent market monitor.

PJM began its security constrained single clearing, locational marginal pricing energy market in 1998. Since then, PJM and the PJM Market Participants have developed markets for capacity, financial transmission rights and created ancillary services such as regulation, spinning reserve, reactive power, and black start.

PJM has administered more than \$103 billion in energy and energy-service trades since the regional markets opened in 1997.

PJM's Planning

PJM manages a sophisticated regional planning process for generation and transmission expansion to ensure the continued reliability of the electric system. PJM is responsible for maintaining the integrity of the regional power grid and for managing changes and additions to the grid to accommodate new generating plants, substations and transmission lines.

In addition, PJM analyzes and forecasts the future electricity needs of the region. Its planning process ensures that the growth of the electric system takes place efficiently, in an orderly fashion, and that reliability is maintained.

PJM also develops innovative programs, such as demand-response initiatives and efforts to support renewable energy, to help expand supply options and keep prices competitive.

Charge to PJM Board in OA

In the PJM Operating Agreement Section 7.7, the PJM Board of Managers is charged with supervising and overseeing “all matters pertaining to the PJM Region and the LLC, and carry out such other duties as are herein specified, including but not limited to the following duties and responsibilities:

i) As its primary responsibility, ensure that the President, the other officers of the LLC, and Office of the Interconnection perform the duties and responsibilities set forth in this Agreement, including but not limited to those set forth in Sections 9.2 through 9.4 and Section 10.4 in a manner consistent with (A) the safe and reliable operation of the PJM Region, (B) the creation and operation of a robust, competitive, and non-discriminatory electric power market in the PJM Region, and (C) the principle that a Member or group of Members shall not have undue influence over the operation of the PJM Region;

ii) Select the Officers of the LLC;

iii) Adopt budgets for the LLC;

iv) Approve the Regional Transmission Expansion Plan in accordance with the provisions of the Regional Transmission Expansion Planning Protocol set forth in Schedule 6 of this Agreement;

v) On its own initiative or at the request of a User Group as specified herein, submit to the Members Committee such proposed amendments to this Agreement or any Schedule hereto, or a proposed new Schedule, as it may deem appropriate;

vi) Petition FERC to modify any provision of this Agreement or any Schedule or practice hereunder that the PJM Board believes to be unjust, unreasonable, or unduly discriminatory under section 206 of the Federal Power Act, subject to the right of any Member or the Members to intervene in any resulting proceedings;

vii) Review for consistency with the creation and operation of a robust, competitive and non-discriminatory electric power market in the PJM Region any change to rate design or to non-rate terms and conditions proposed by Transmission Owners for filing under section 205 of the Federal Power Act;

viii) If and to the extent it shall deem appropriate, intervene in any proceeding at FERC initiated by the Members in accordance with Section 11.5(b), and participate in other state and federal regulatory proceedings relating to the interests of the LLC;

ix) Review, in accordance with Section 15.1.3, determinations of the Office of the Interconnection with respect to events of default;

x) Assess against the other Members in proportion to their Default Allocation Assessment an amount equal to any payment to the Office of the Interconnection, including interest thereon, as to which a Member is in default;

xi) Establish reasonable sanctions for failure of a Member to comply with its obligations under this Agreement;

xii) Direct the Office of the Interconnection on behalf of the LLC to take appropriate legal or regulatory action against a Member (A) to recover any unpaid amounts due from the Member to the Office of the Interconnection under this Agreement and to make whole any Members subject to an assessment as a result of such unpaid amount, or (B) as may otherwise be necessary to enforce the obligations of this Agreement;

xiii) [Reserved.]

xiv) [Reserved.]

xv) Solicit the views of Members on, and commission from time to time as it shall deem appropriate independent reviews of, (a) the performance of the PJM Interchange Energy Market, (b) compliance by Market Participants with the rules and requirements of the PJM Interchange Energy Market, and (c) the performance of the Office of the Interconnection under performance criteria proposed by the Members Committee and approved by the PJM Board; and

xvi) Terminate a Member as may be appropriate under the terms of this Agreement.

Previous Discussions About Governance

Over the years there have been numerous discussions among members concerning the effectiveness of the overall PJM governance structure, the information provided to the PJM Board of Managers and the way voting power is allocated under the PJM Operating Agreement and manuals. There was a governance assessment in 2001 and 2002 that included significant changes in how Board members were elected. The PJM Governance Work Group (GWG) has recommended and the Membership approved certain process changes that are in various stages of implementation. Additionally, the GWG, in collaboration with the PJM Board of Managers formed a Liaison Committee to foster better communication between the membership and the Board.

PJM's Governing Documents

PJM is governed by the Operating Agreement (OA), the Open Access Transmission Tariff (OATT), the Reliability Assurance Agreement (RAA) and the Transmission Owners Agreement (TOA). PJM Manuals referenced in the governing documents provide additional detail on various PJM rules associated with reliability, planning or markets. The Members and PJM have developed a PJM Committee Handbook to explain the PJM Committee processes. In addition, the PJM Board of Managers has Bylaws as well as certain protocols.

Operating Agreement (OA)

The OA is the contract between the PJM Members and PJM. It includes key components of the PJM energy market and Regional Transmission Expansion Plan. At present, it can only be amended by a super-majority (two-thirds), sector-weighted vote of the members committee (Section 8.8). Members themselves (not PJM) maintain authority to make tariff filings under Section 205 of the Federal Power Act with regard to the OA. Individual Members or PJM may file a complaint under Section 206 of the Federal Power Act to change the OA, but they bear the burden of proof to show that the provisions they seek to change are unjust and unreasonable and their proposed changes are just and reasonable.

Open Access Transmission Tariff

The PJM Open Access Transmission Tariff (OATT) contains the rates and rules governing transmission service and the rules governing the PJM energy, capacity and ancillary service markets, interconnection of new loads, generation and transmission, and market monitoring. The PJM Board has Section 205 authority for the OATT except for provisions governing tariff rates and charges and is not bound by any vote of the members. The PJM Transmission Owners (PJM TOs) acting individually and, with respect to joint rates or rate design, acting collectively through the Transmission Owners Agreement, have Section 205 authority for the OATT provisions governing tariff rates and charges. Individual Members or PJM (with respect to the PJM TO OATT provisions) may protest such filings, but if they seek to change the OATT, they must file a complaint under Section 206 of the Federal Power Act and bear the burden of proof described below.

Reliability Assurance Agreement

The Reliability Assurance Agreement (RAA) governs the obligation of PJM load serving entities to provide adequate capacity to assure reliable electric power service to their loads and establishes the rules governing the determination and qualification of capacity resources. While managed and administered by the PJM Members Committee and the PJM Markets and Reliability Committee, only the PJM Board has Section 205 filing authority with respect to the RAA. Individual Members may protest such filings, but if they seek to change the RAA, they must file a complaint under Section 206 of the Federal Power Act and bear the burden of proof described below.

Transmission Owners Agreement

The Transmission Owners Agreement (TOA) is an agreement between and among the PJM Transmission Owners and PJM under which the TOs turn over to PJM the authority to direct the operation of their transmission systems and to conduct joint planning. As noted above, the TO's retain rights under the FPA to make Section 205 filings to change their individual and/or collective revenue requirements, rates for transmission service, joint rates and rate design under the PJM OATT. All TOs must be parties to the TOA; however, individual transmission owners have the right and ability to withdraw from PJM at any time and to remove their transmission facilities from PJM's administration. Changes to the TOA and joint transmission rates and rate design require approval by both a numerical and weighted vote of the TOs. Individual Members or PJM (with respect to the PJM TO OATT provisions) may protest such filings, but if they seek to change the OATT, they must file a complaint under Section 206 of the Federal Power Act and bear the burden of proof described below.

FPA Section 205 versus Section 206 Rights As It Pertains to These Agreements

Section 205 of the Federal Power Act (FPA) states in part that all public utilities must file with the Commission all rates and charges for any transmission or sale subject to the jurisdiction of the Commission. In approving the filings, the Commission must find that the rates are just and reasonable and not unduly discriminatory and preferential

Section 206 of the FPA allows the Commission to modify rates upon its own motion or upon motion or complaint. FPA Section 206 requires that in order to modify or replace the filed rate, the proponent of a change to the filed rate must meet a dual burden of, first, establishing that the current rate is unjust and unreasonable, and, second establishing that its alternative rate proposal is just and reasonable

PJM Stakeholder Process and Sector-Weighted Voting

The PJM stakeholder process is memorialized various places, including in the OA and the PJM Committee Handbook.

There are two senior committees where issues are considered and then voted on by what is referred to as sector-weighted voting. All other committees, working groups, task forces, etc., vote one member one vote with no limitation on affiliate or related party votes.

Sector-weighted voting calculates the “for” and “against” votes within each of the five PJM member sectors for a total of one vote per sector. For example if there are ten voting members in a sector and 6 vote yes, and 4 no, the sector-weighted vote would be .6 for and .4 against. (While abstentions are permissible, they are not considered as either for or against). These votes would be summed with the other remaining sectors to determine the outcome of a particular issue. The most votes a proposal could obtain would be 5, with 2.67 required for the necessary supermajority.

PJM Sectors

There must be at least five members in a sector. While there are five sectors in PJM, initially only three were populated; the Generation Owners, Transmission Owners and End Use Customers. Other Suppliers came next and finally the Electric Distributors. Recently the members voted to amend the sector definitions as follows:

Electric Distributor

“Electric Distributor” shall mean a Member that: 1) owns or leases with rights equivalent to ownership electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Region; or 2) is a generation and transmission cooperative or a joint municipal agency that has a member that owns electric distribution facilities used to provide electric distribution service to electric load within the PJM Region. There are 42 PJM Members registered in this sector.

End-Use Customer

“End-Use Customer” shall mean a Member that is a retail end-user of electricity within the PJM Region. A Member that is a retail end-user that owns generation may qualify as an End-Use customer if:(1) the average physical unforced capacity owned by the Member and its affiliates in the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average PJM capacity obligation for the Member and its affiliates over the same time period; or (2) the average energy produced by the Member and its affiliates within the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average energy consumed by that Member and its affiliates within the PJM region over the same time period. The foregoing notwithstanding, taking retail service may not be sufficient to qualify a Member as an End-Use Customer. There are 26 PJM Members registered in this sector.

Generation Owner

“Generation Owner” shall mean a Member that owns or leases, with right equivalent to ownership, a Capacity Resource or an Energy Resource

within the PJM footprint. The foregoing notwithstanding, for a planned generation resource to qualify a Member as a Generation Owner, such resource shall have cleared an RPM auction, and for Energy Resources, the resource shall have a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM.

A Member that is primarily a retail end-user of electricity that owns generation may qualify as a Generation Owner if: (1) the generation resource is the subject of a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM; (2) the average physical unforced capacity owned by the Member and its affiliates over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average PJM capacity obligation of the Member and its affiliates over the same time period; and (3) the average energy produced by the Member and its affiliates within PJM over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average energy consumed by the Member and its affiliates within PJM over the same time period. There are 122 PJM Members registered in this sector.

Other Supplier

“Other Supplier” shall mean a Member that: (i) 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; (ii) does not qualify for the Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer sectors. There are 290 PJM Members registered in this sector.

Transmission Owner

“Transmission Owner” shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner. There are 58 PJM Members registered in this sector.

Current Stakeholder Processes

The PJM Member Handbook memorializes how issues may be taken up by the membership. The two senior committees (MC and MRC) have an annual plan that attempts to schedule workload and track issues.

Meetings are held on an as-needed basis with the MC meeting six times a year and the MRC meeting eleven. Lower level committees (Planning, Operating and Market Implementation) generally meet on a monthly basis. Other work groups, task forces or user groups will meet on an as-needed basis as the work and schedule requires, anywhere between once to three or four times per month.

Although the PJM Membership is comprised of over 500 companies, actual participation in the Stakeholder process is much less. Members can participate in PJM meetings either in person or (for most meetings) via telephone with webex capability, via agency or proxy.

Typical attendance for various meetings is:

MC:	40 to 60 in person; 20 to 40 on the phone
MRC:	40 to 60 in person; 20 to 40 on the phone
MIC, Planning, & OC:	20 to 60 in person; 15 to 40 on the phone
Work Groups & Task Forces	5 to 40 in person; 0 to 75 on the phone

The Governance Assessment Special Team (GAST) was formed at the direction of the MC and is open to all PJM members. The initial meeting of GAST included 21 members in person and 29 members on the phone. The most recent GAST meeting was 16 in person and 20 on the phone. The successful bidder should expect to interact with at least 15 to 30 participants when working with the GAST as a whole in addition to however many one-on-one interactions are expected in the data collection phase of this work.