

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**PPL Electric Utilities Corporation, et al. ) Docket No. ER17-179-000  
Monongahela Power Company, et al. ) Docket No. EL16-71-000  
NOT CONSOLIDATED**

**MOTION TO LODGE OF AMERICAN MUNICIPAL POWER, INC., DELAWARE  
MUNICIPAL ELECTRIC CORPORATION, DIVISION OF THE PUBLIC ADVOCATE  
FOR THE STATE OF DELAWARE, NEW JERSEY DIVISION OF RATE COUNSEL,  
OLD DOMINION ELECTRIC COOPERATIVE, PJM INDUSTRIAL CUSTOMER  
COALITION**

Pursuant to Rules 212 and 213 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (“Commission”), American Municipal Power, Inc. (“AMP”), Delaware Municipal Electric Corporation (“DEMEC”), Division of the Public Advocate for the State of Delaware, New Jersey Division of Rate Counsel, Old Dominion Electric Cooperative (“ODEC”), and PJM Industrial Customer Coalition (“PJMICC”) (collectively, “Movants”) submit this Motion to Lodge (“Motion to Lodge”) to supplement the factual record with information demonstrating that the PJM Interconnection, L.L.C. (“PJM”) transmission planning process for Supplemental Projects and Local Plans remains non-compliant with Order No. 890.<sup>1</sup> Because of the interrelated issues pending in Docket Nos. EL16-71-000 and ER17-179-000, Movants request that the Commission consider the information being provided herein in both dockets.<sup>2</sup>

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<sup>1</sup> *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241, *order on reh’g*, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh’g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh’g*, Order No. 890-C, 126 FERC ¶ 61,228, *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

<sup>2</sup> The information and arguments herein address the issues raised by the PJM TOs in Docket No. EL16-71-000 as well as in Docket No. ER17-179-000 and will assist the Commission in decision-making in both proceedings. To the extent necessary, the Movants respectfully request leave under Rule 213 of the

## **I. BACKGROUND**

### **A. TRPSTF and Show Cause Order**

In January of 2016, a group of PJM stakeholders, including AMP, ODEC, Dominion, PJM Industrial Customer Coalition, PJM Public Power Coalition, LS Power, and ITC Mid-Atlantic Development brought forth a problem statement and issue charge to the PJM Markets and Reliability Committee (“MRC”) expressing concern regarding the increasing costs of aging transmission infrastructure and the long-term planning processes being used to review and approve projects being proposed to address the concern. At the March 2016 MRC, stakeholders approved the creation of a senior task force to develop alternatives for providing more transparency and consistency in the communication and review of end of life transmission projects in the Regional Transmission Expansion Plan (“RTEP”), now referred to as the PJM Transmission Replacement Process Senior Task Force (“TRPSTF”). After several contentious meetings, in May 2016, the MRC approved the problem statement, issue charge and charter of the TRPSTF. The TRPSTF spent several months, through June 2016, educating the participants to ensure a base level of understanding of the PJM transmission planning process and PJM Transmission Owners’ (“TOs”) obligations thereunder as well as TOs’ existing asset management programs and cost recovery and cost allocation. In August 2016, the TRPSTF had concluded identifying stakeholders’ interests and had begun developing the design components for solutions. However, on August 26, 2016, the Commission issued an Order to Show Cause that directed the TOs in the PJM footprint to demonstrate compliance with Order No. 890, show why they are

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Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.213 (2016), to submit this Motion to Lodge in both dockets.

not required to comply, or propose revisions to the PJM Operating Agreement (“OA”) or their portions of the PJM Open Access Transmission Tariff (“Tariff” or “OATT”) to achieve compliance. *Monongahela Power Co., et al.*, 156 FERC ¶ 61,134, (2016) (“Show Cause Order”).<sup>3</sup>

Recognizing the significant amount of work involved in developing a response to the Show Cause Order, in September 2016, all of the participants in the TRPSTF unanimously voted to place the task force on hiatus until the sooner of i) a Commission issued order or, ii) March 2017.

The PJM TOs filed a limited request for rehearing of the Show Cause Order on September 26, 2016, which the Commission granted for the purpose of affording additional time for consideration of the matters raised.

On October 25, 2016, the PJM TOs filed a response to the Show Cause Order that claimed “the current planning process for Supplemental Projects, as set forth in the Operating Agreement, complies with Order No. 890 and no revisions are necessary in order to ensure such compliance.” Response to Show Cause Order at 16. Pursuant to the Commission’s rules and the Commission’s recognition in the Show Cause Order that parties other than the identified TOs who are compelled to respond to the Show Cause Order have an interest in being heard, AMP and ODEC submitted comments in response to the Commission’s Show Cause Order demonstrating that the current PJM transmission planning process as applied to Supplemental Projects and Local Plans fails to comply

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<sup>3</sup> The Commission’s Show Cause Order did not create any new requirements or shift burdens to the TOs that did not already exist. As the Commission noted, each PJM TO “is required to administer a transmission planning process that complies with the principles of Order No. 890” whether it does so independently or by participating in PJM’s transmission planning process as outlined in the OA. Show Cause Order at P 12.

with Order Nos. 890 and 1000, and recommending changes to the PJM OA to address the deficiencies.

Concurrently with the PJM TO response to the Show Cause Order representing that no changes to the transmission planning process for Supplemental Projects are necessary, the PJM TOs and PJM jointly submitted under Federal Power Act Section 205 in Docket No. ER17-179-000, a new Attachment M-3 to the PJM Tariff and proposed changes to Schedule 6 of the PJM OA to “provide additional detail regarding the Transmission Owners’ process for planning Supplemental Projects.”

On November 15, 2016, AMP moved to dismiss the 205 OATT changes as procedurally deficient and prejudicial in that it is contrary to the Commission’s directive in the Show Cause Order. Accordingly, the Commission has the TO request for limited rehearing, the responses to the Show Cause Order, the 205 OATT Changes and the motion to dismiss the same pending before it.

In February 2017, Chairman Bay resigned, leaving the Commission without the three Commissioners required for a quorum pursuant to the Department of Energy Organization Act, 42 U.S.C. § 7171. With the impending end of the TRPSTF hiatus, at the February 2017 MRC meeting, the MRC voted to extend the hiatus for an additional three months. At the June 2017 MRC, the TOs moved to continue the hiatus. Customers, however, had a uniform desire to conclude the suspension and reinstate the TRPSTF. The MRC voted to reinstate the TRPSTF.

At the July 2017 TRPSTF meeting, the TOs posted a statement identifying their position that, until FERC rules on the Show Cause Order, it will be very difficult, if not impossible, to make significant progress on end of life transmission planning issues that

overlap with issues raised in the Show Cause Order.<sup>4</sup> Additionally, the TOs argued that because discussions in the TRPSTF are not subject to the Commission's settlement discussion confidentiality rules, statements made could undermine their arguments in the FERC proceedings. The TOs agreed to participate in TRPSTF meetings but noted that they "do not believe that meaningful discussion or progress is possible where the subject matter overlaps the issues currently pending before the FERC and will not compromise our litigation position in task force discussions." *Id.* The TOs requested that this statement be read at the beginning of each TRPSTF meeting. Consistent with this statement, the TOs have stated that they cannot propose solutions in the TRPSTF as such action could undermine their positions at FERC. Accordingly, little progress has been made since reconvening the TRPSTF. Nonetheless, over the last several months, AMP and ODEC have presented one set of design components and PJM has presented another.

## **B. Regional and Local Planning Meetings**

In the meantime, discussions in the regional and subregional planning meetings have deteriorated largely as a result of disagreements over the depth and timing of information being requested and provided on Supplemental Projects. After PJM and the TOs unilaterally tried several variations of information presentation, AMP and ODEC developed an example template of the type of information stakeholders believe is necessary and that would enable knowledgeable third parties to come to the same conclusion regarding Supplemental Project and Local Plan transmission solutions as

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<sup>4</sup> The TO statement is available at: <http://www.pjm.com/-/media/committees-groups/task-forces/trpstf/20170728/20170728-trpstf-to-statement.ashx>.

proposed by the incumbent TOs. In developing these templates, AMP and ODEC sought to only have a consistent format for the TOs to provide information that should have already been evaluated by the TOs and/or PJM and that was readily available. The type of information included on the template is essential to enable the TO and/or PJM to make a rational decision on project feasibility and was based on presentations made in early 2017 Assumption Meetings where PJM and some of the TOs presented, at a high level, their decision-making processes for end of life asset replacement. Nonetheless, the TOs have declined to use the example template or provide the information requested to be included therein and, perplexingly, PJM has determined some of the information is “not relevant” for PJM’s decision-making and, therefore, also not relevant for customers. A copy of the template as presented is attached hereto as Appendix A and is available at: <http://pjm.com/-/media/committees-groups/committees/pc/20171214/20171214-amp-examples-of-information-for-baseline-and-supplemental-projects.ashx>.

## **II. MOTION TO LODGE**

### **A. The number of Supplemental and TO-driven Projects continues to increase at an alarming rate.**

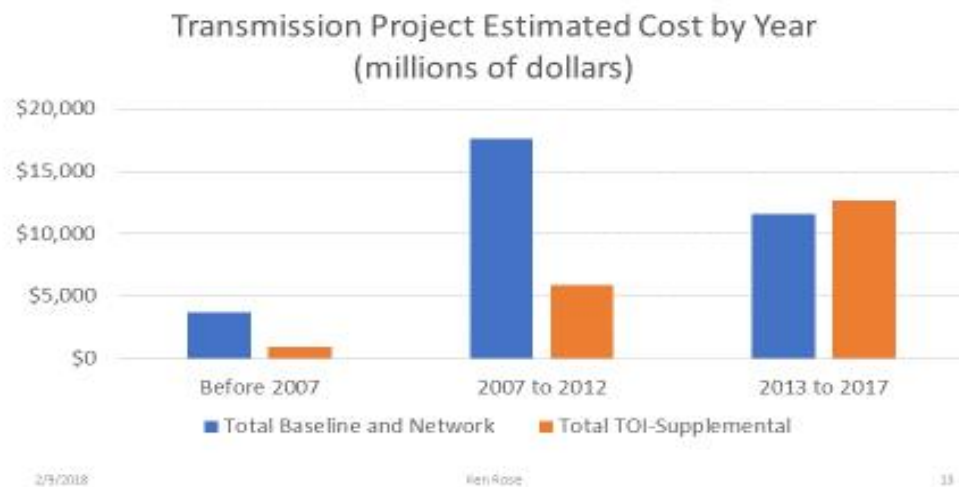
As the evidence presented in initial comments demonstrates, customers are seeing significant increases in transmission rates as a result of the exponential growth of the volume and cost of Supplemental Projects. Since initial comments were filed in 2016, additional evidence demonstrates that this alarming trend continues.

#### **1. Rose Survey**

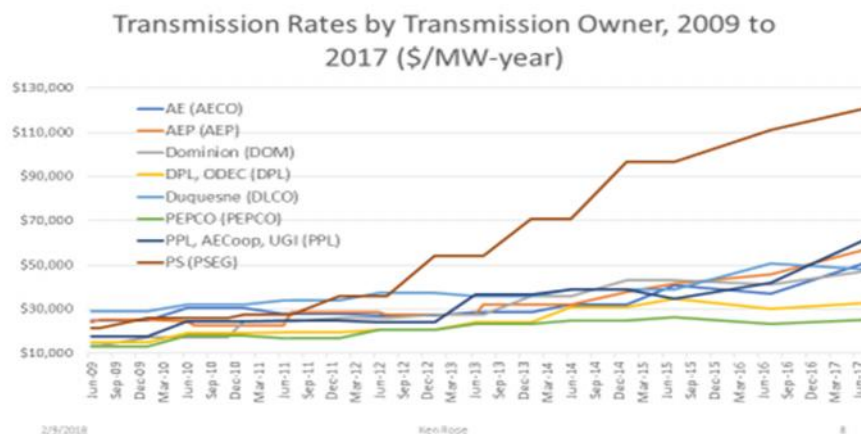
Attached hereto as Appendix B is a survey of PJM transmission rates and charges completed by Dr. Ken Rose, an economist, independent consultant and Senior Fellow at

the Institute of Public Utilities in Chicago, Illinois, that corroborates the findings contained herein and reaches the following conclusions:

- Through 2012, there were approximately \$21.3 billion of PJM in-service or planned baseline and network upgrades, as opposed to \$6.8 billion of TOI/Supplemental Projects.
- After 2012, there were approximately \$11.6 billion of PJM in-service or planned baseline and network upgrades as opposed to approximately \$12.7 billion of Supplemental Projects.
- With the exception of 2016, the amount of Supplemental Projects has steadily increased each year.



The increasing transmission rates reflect the increased spending on Supplemental Projects:

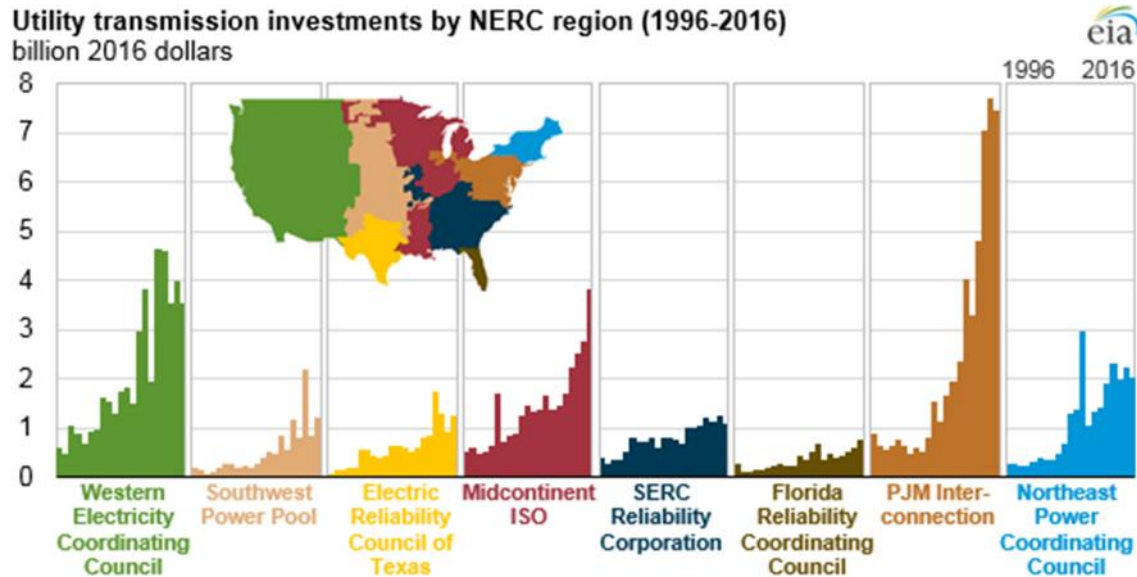


## 2. EIA Data

While Movants acknowledge that spending on infrastructure has increased steadily and will continue to do so as a result of a number of drivers, transmission infrastructure investments make up the largest portion of such expenditures. As the US Energy Information Administration (“EIA”) reported, “In 2016, total transmission expenditures by utilities included in the FERC data reached \$35 billion, with investment in transmission infrastructure making up 61% of that total.” See *“Utilities continue to increase spending on transmission infrastructure,”* (February 9, 2018), available at: <https://www.eia.gov/todayinenergy/detail.php?id=34892&src=email> (hereinafter, “EIA Report”). The PJM TOs seem to be the leaders in spending and largely on Supplemental Projects.<sup>5</sup>

<sup>5</sup> “Spending to build, operate, and maintain regional transmission organization and markets made up 1% of that utility transmission spending.” EIA Report.





**Source:** U.S. Energy Information Administration, Federal Energy Regulatory Commission (FERC) Financial Reports, as accessed by Ventyx Velocity Suite

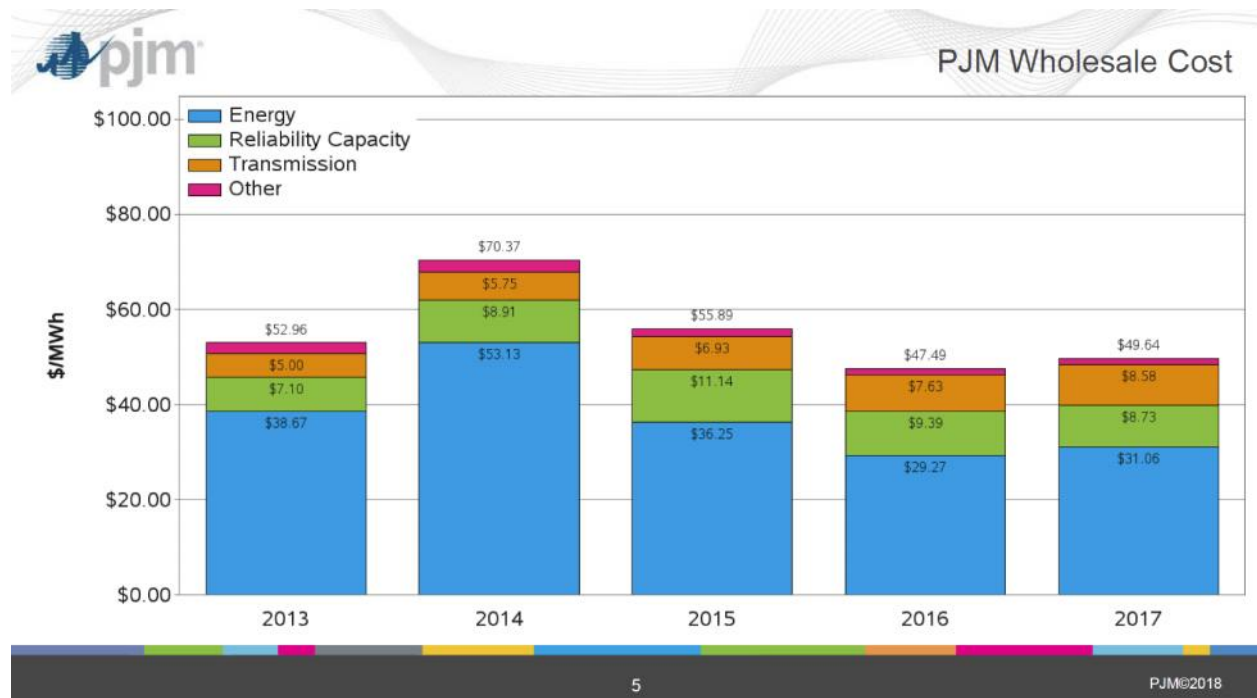
### 3. PJM Data

Data compiled by PJM is consistent with that described above and demonstrates that the number of Supplemental Projects compared to Baseline Projects is increasing at an alarming rate. At stakeholders' requests, PJM compiled statistics on baseline and Supplemental Projects for 2017 as well as historical years.<sup>6</sup> PJM did not present this data but replied to questions regarding the slides during the January 11, 2018 TEAC meeting. To date, PJM has declined to provide the dollar amounts for the data displayed in each of these slides. Nonetheless, the general trends revealed and the dollar impact are consistent with the EIA and Rose data.

As the slide below shows, the transmission component of the PJM wholesale cost has steadily increased, escalating from \$5/MWh in 2013 to \$8.58/MWh in 2017 while total

<sup>6</sup> Project Statistics, (January 11, 2018), available at: <http://pjm.com/-/media/committees-groups/committees/teac/20180111/20180111-teac-information-only-project-statistics.ashx>

wholesale costs have decreased from a high of \$70.37 in 2014 to \$49.64 in 2017.<sup>7</sup> Transmission costs which were 9.4% of the total bill in 2013 increased to 17.3% in 2017.



**B. The PJM Supplemental Project and Local Plan transmission planning processes lack transparency and opportunity for meaningful input.**

In the Show Cause Order, the Commission stated, given that “the PJM RTEP process necessarily relies, in part, on information from the PJM Transmission Owners’ local planning activities, we are also concerned that a lack of transparency in the PJM Transmission Owners’ local planning processes for developing Supplemental Projects could undermine PJM’s implementation of the Order No. 1000 reforms.” Show Cause Order at P 13. Given the significant and increasing cost of Supplemental Projects, the lack of review and transparency is even more troubling.

<sup>7</sup> Markets Report, Jennifer Warner-Freeman, Senior Economist, Market Analysis (January 22, 2018) (available at: <http://pjm.com/-/media/committees-groups/committees/mc/20180122-webinar/20180122-item-07a-markets-report.ashx>).

PJM has reported to the Commission that the transmission planning process for Supplemental Projects is fully integrated into PJM's RTEP process.<sup>8</sup> PJM stated that, "through its established regional transmission planning process that fully merges local and regional planning, PJM *evaluates both local and regional planning criteria.*"<sup>9</sup> As the Commission has noted, PJM explained that the PJM TOs "bring their current local planning information, including all criteria, assumptions, and models used, to the SRRTEP Committees, where it is reviewed by the Subregional RTEP Committees to develop and finalize Local Plans that are coordinated with the PJM regional transmission planning process."<sup>10</sup> What happens in practice is far from a fully integrated process and there is little to no evaluation of the TOs' proposed Supplemental Projects and Local Plan.

PJM's evaluation of Supplemental Projects is limited to performing a network simulation for those Supplemental Projects that have corresponding power flow modeling to ensure that the proposed project would not create any adverse reliability impacts on the balance of the transmission system (the "do no harm" evaluation).<sup>11</sup> The PJM SRRTEP process has no provision to validate a TO's need for Supplemental Projects nor the prudence of the project. As such, PJM has stated that it does not believe there is any

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<sup>8</sup> PJM's manual describes the process as follows: Supplemental Projects "will be introduced to the PJM Regional planning process through PJM's TEAC and Subregional RTEP Committees. In this way these TO initiated projects will be subject to the same open, transparent and participatory PJM committee activities as PJM initiated projects (see discussion of TEAC and Subregional RTEP Committee.)" See, PJM Manual 14B at 18 (available at: <http://www.pjm.com/-/media/documents/manuals/m14b.ashx>).

<sup>9</sup> PJM July 22, 2013 Second Round Order No. 1000 Regional Compliance Filing Docket No. ER13-198-002, at 17 (emphasis in original).

<sup>10</sup> See, PJM Interconnection, L.L.C. *et al.*, Docket Nos. ER15-1344-001, ER15-1344-002, and ER15-1387-001, Supplemental Notice of Technical Conference at 2 (October 29, 2015) (citing PJM July 14, 2014 Third Round Regional Compliance Filing, Docket No. ER13-198-004 at 4 and PJM Third Round Regional Compliance Order, 150 FERC ¶ 61,038 at P 20).

<sup>11</sup> See, *RTEP Overview* at 61, available at: <http://www.pjm.com/-/media/committees-groups/task-forces/trpstf/20160509/20160509-item-03-rtep-overview.ashx>.

basis for additional SRRTEP committee review of a Supplemental Project absent an identified “harm” to the bulk electric system (“BES”).

PJM’s practice has been for TOs to present a Supplemental Project as a first read at a SRRTEP committee meeting facilitated by PJM and take stakeholder questions. The proposed Supplemental Project is presented again at a second read where the TO responds to questions on the proposed project to the extent there is time in the meeting and to the extent the TO is willing and able to provide responses. There is no further review process associated with the Supplemental Project unless and until the TO requests that the Supplemental Project cost be recovered through rate base, at which point a stakeholder could raise a prudence argument through the rate case process.

There is also no formal or informal dispute resolution process if a stakeholder’s questions or issues remain unaddressed. Rather, PJM has encouraged stakeholders to address their concerns with the respective TO.<sup>12</sup> In Order 890, the Commission adopted the NOPR’s proposal to require transmission providers to develop a dispute resolution process to manage disputes that arise from the Final Rule’s planning process. The Commission stated, “An existing dispute resolution process may be utilized, but those seeking to rely on an existing dispute resolution process must specifically address how its procedures will be used to address planning disputes. The dispute resolution process should be available to address both procedural and substantive planning issues, as the purpose for including a dispute resolution process is to provide a means for parties to resolve all disputes related to the Final Rule’s planning process before turning to the

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<sup>12</sup> See, email correspondence from PJM transmission planning staff to AMP dated January 26, 2018, attached hereto as Appendix C.

Commission.” The PJM Supplemental Project and Local Plan transmission planning process lacks an Order 890-compliant dispute resolution process.

The Supplemental Projects reviewed through the TEAC and SRRTEP meetings are presented with varying levels of information and at various stages of development, some even already in service despite being shared with other stakeholders for the first time. The tables below have been assembled from reports posted at the TEAC and SRRTEP meetings for 2017 and cross referenced against the information posted by PJM on Supplemental Projects on its website (available at: <http://www.pjm.com/planning/rtep-upgrades-status/construct-status.aspx>). Focusing on calendar year 2017 as an interim period between the Show Cause Order and now, the tables demonstrate that 270 Supplemental Projects with estimated costs of \$3.4 billion were reviewed at various TEAC and SRRTEP committee meetings, compared to the 183 baseline projects with estimated costs of \$3.85 billion approved by the PJM Board for the same period.

Of the 270 Supplemental Projects in 2017, when presented at their respective first reads, 181 of the projects were already in a stage of development ranging from engineering to 100% complete with 5 projects already **in service** at their first reads (27 of the proposed projects did not have any designated status).<sup>13</sup> At the second read, 205 out of 270 proposed Supplemental Projects were beyond the conceptual/scoping development phase, with 9 already in service. Said another way, 76% of Supplemental Projects were presented to stakeholders in the SRRTEP meetings at a stage of development where meaningful input is unfeasible at best.

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<sup>13</sup> PJM categorizes the projects by percent complete correlated to the following milestones: (1) Engineering and Planning (EP) status: 0% - 25% - includes engineering, detailed design, material procurement, resource planning; (2) Under Construction (UC): 26% - 100%, with 26-90% - construction activities and 91-100% - testing and inspection. See, <http://www.pjm.com/planning/rtep-upgrades-status/construct-status.aspx>.

PJM RTEP Projects (2017)	Project Status At First Read					Total
	Pre-Engineering	Engineering	Under Construction	In-Service	None Provided	
<i>Supplemental</i>	61	146	30	5	27	269
<i>Baseline</i>	62	12	0	0	108	182

PJM RTEP Projects (2017-2018 YTD)	Project Status At First Read					Total
	Pre-Engineering	Engineering	Under Construction	In-Service	None Provided	
<i>Supplemental</i>	\$ 1,477	\$ 1,500	\$ 261	\$ 14	\$ 144	\$ 3,397
<i>Baseline</i>	\$ 1,180	\$ 300	\$ -	\$ -	\$ 2,370	\$ 3,851

PJM RTEP Projects (2017)	Project Status At Second Read					Total
	Pre-Engineering	Engineering	Under Construction	In-Service	None Provided	
<i>Supplemental</i>	41	165	31	9	24	270
<i>Baseline</i>	62	16	0	0	105	183

PJM RTEP Projects (2017-2018 YTD)	Project Status At Second Read					Total
	Pre-Engineering	Engineering	Under Construction	In-Service	None Provided	
<i>Supplemental</i>	704.45	2334.87	287.75	18.92	57.16	\$ 3,403.15
<i>Baseline</i>	1001.46	705	0	0	2145.7	\$ 3,852.16

When there has been time to review and ask questions during the PJM-facilitated meetings, both the TOs and PJM have been unwilling to share information necessary for stakeholders to fully evaluate the proposed Supplemental Projects. For example, at the December 18, 2017 SRRTEP meeting for the Western Region, in response to a number of questions raised by AMP regarding a number of Supplemental Projects that were asked but not previously answered, PJM stated that the questions were not relevant to PJM's decision-making and, thus, would not be further discussed. Given PJM's self-described limited role in decision-making, coupled with the Commission's recognition that

the “Local Plan is a product of the Subregional RTEP Committees rather than of the transmission owners alone,”<sup>14</sup> whether PJM deems the information relevant for its decision-making should not dictate whether transmission customers paying for the project have valid needs for the information (e.g., to assess whether the proposed projects are necessary, prudent and cost-effective). The Commission should not accept a transmission planning process that prohibits stakeholders from requesting and receiving information about proposed transmission projects during the meetings of committees designed for such purpose.

The Commission found that PJM’s planning process complied with Order No. 890 only after PJM amended Schedule 6 of its OA to require the PJM TOs to give stakeholders an opportunity to review and comment on the criteria, assumptions, and models used in local transmission planning activities prior to finalization of the Local Plan<sup>15</sup> and on the Local Plan itself prior to it being submitted to the SRRTEP committees,<sup>16</sup> as well as a requirement that TOs provide their criteria and assumptions, including the models used in their Local Plan.<sup>17</sup> The reality of the transmission planning process as applied to Supplemental Projects and Local Plans in PJM, however, is not one that is open and transparent or the product of the SRRTEP committees. Rather, the Supplemental Project and Local Plan transmission planning relies primarily on TO determinations and individual TO processes, without the RTO or any other stakeholder having any ability or role with

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<sup>14</sup> Show Cause Order at P 8.

<sup>15</sup> The Local Plan shall include Supplemental Projects as identified by the Transmission Owners within their zone and Subregional RTEP projects developed to comply with all applicable reliability criteria, including Transmission Owners’ planning criteria or based on market efficiency analysis and in consideration of Public Policy Requirements. PJM Operating Agreement (Definitions) (3.1.0).

<sup>16</sup> *PJM Interconnection, L.L.C.*, 127 FERC ¶ 61,166, at P 28 (2009).

<sup>17</sup> *PJM Interconnection, L.L.C.*, 130 FERC ¶ 61,167, at P 11 (2010).

regard to “determination and evaluation of the prudence of a project before, during or after construction and energization of facilities” or even validating the need for the project.

### **C. Process Improvements.**

In the PJM TOs’ Show Cause Order Response, the PJM TOs represented to the Commission that “no revisions are necessary to ensure compliance because, as discussed below, the Operating Agreement already complies with the requirements of Order No. 890 addressed in the Show Cause Order.” PJM TO Show Cause Order Response at 1. In spite of the claims made in response to the Commission’s Show Cause Order, the PJM TOs, jointly with PJM, proposed amendments to the PJM OATT claimed to provide “refinements and improvements to the Commission-approved transmission planning process.” PJM 205 OATT Changes at 2. The TOs’ proposed Attachment M-3 purports to be an addition to the PJM transmission planning process in spite of it being a new section in the PJM OATT that is specific to TOs. While AMP and others at least initially indicated that the proposed Attachment M-3 appeared to be a good start, given the information described herein, Attachment M-3 is far more nefarious and falls far short of improving a transmission planning process that complies with Order Nos. 890 or 1000.

As the Commission made clear, “Each PJM Transmission Owner is required to administer a transmission planning process that complies with the principles of Order No. 890.”<sup>18</sup> This can be accomplished in one of two ways: (i) the PJM TOs may satisfy this requirement by establishing their own Order No. 890-compliant procedures; or, (ii) the PJM TOs may participate in an RTO-administered transmission planning process that itself complies with Order No. 890. *Id.* The PJM TOs chose the latter option, opting to

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<sup>18</sup> Show Cause Order at P 12.



comply with Order No. 890 by participating in the transmission planning process that is outlined in the PJM OA. However, the actions and filings by the PJM TOs and PJM may be a signal that independent TO planning processes that are separate and distinct from PJM's RTEP process are their preference. After all, the PJM TOs proposed a tariff change to the TO section of the OATT. Likewise, PJM has indicated that it does not currently have the resources or capability to validate the need for Supplemental Projects nor the prudence of proposed Supplement Projects. Movants do not believe that the TOs have availed themselves of the option of TO-specific transmission planning for Supplemental Projects or the Local Plan. However, if PJM cannot or will not fully incorporate the Supplemental Projects and Local Plan into the RTO-administered transmission planning process, the Commission could direct the TOs to develop their own plans. Movants do not believe TO-specific planning is the most efficient or superior option and note that Attachment M-3 falls far short of describing a planning process that complies with the Commission's requirements as set forth in Orders 890, 1000 and beyond. Rather, the Commission should direct PJM and the TOs to improve the current RTO-administered process.

AMP and ODEC submitted comments in these proceedings as well as in the stakeholder process intended to improve the Supplemental Project and Local Planning processes. In addition to those recommendations, over the last year, a number of other planning process improvements that could be made to the PJM planning process have come to light. Movants recommend that the Commission direct PJM to make the following additional changes to its current processes:

1. Record and post all questions and answers from proposal reviews (the first and second reads).

2. Provide the powerflow study details, including a description of the violations or issue identified, the basis for the ratings used in the powerflow study, and other power system analysis details, and, if different from the RTEP, the powerflow cases used for the study, the generation dispatches, load forecast, transfers and changes to interchanges applied, as well as any and all modifications made and contingences identified.
3. Include more detailed descriptions of the proposed facilities, including but not limited to: descriptions and costs of the assets being retired, installed or replaced; before and after MVA ratings, the project status, alternatives considered, and detailed maps with the location of impacted facilities, contingencies and other area transmission facilities that may be impacted.
4. Allow adequate time for review and analysis taking into account the time that may be required to address CEII-related questions, documentation, data request procedures and timing.

### III. CONCLUSION

For the reasons addressed herein, Movants respectfully request that the Commission take the following actions without delay: (1) grant this Motion to Lodge, (2) dismiss or reject the PJM TOs' § 205 OATT changes and terminate Docket No. ER17-179-000, and (3) find that modifications to the PJM OA are necessary and required and direct PJM to adopt modifications to achieve compliance with Order 890 as applied to Supplemental Projects.

Respectfully submitted,

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*In the capacity of Counsel to the  
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*Attorneys for PJMICC*

Dated: February 12, 2018

## CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 12th day of February, 2018.

/s/ Lisa G. McAlister

Lisa G. McAlister

SVP & General Counsel for Regulatory Affairs

American Municipal Power, Inc.

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Columbus, Ohio 43229

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**Appendix A**  
**Template for Information on Baseline & Supplemental Projects**



POWER SUPPLY | GENERATION | FINANCIAL | MEMBER SERVICES | RISK MANAGEMENT | SUSTAINABILITY

## Example of Information for Baseline & Supplemental Projects

# Transmission Owner, PJM region, Zone, Area,

## Baseline Project: Description of Project

### Problem Statement: PJM/NERC/TO Criteria violation and description

### Criteria Violated: NERC or PJM or TO

- List of all criteria violations, contingencies
- Description of facilities
- Dates of previous reviews
- Detailed list of all questions and To responses to question initiated at the TEAC or SRTEP meetings.

### Proposed Solution:

- Describe proposed solution presented for the first review of the violation.
- Provide the following details for line projects:
  - Current & Proposed line ratings: [Normal MVA, Emergency MVA] New line rating: [Normal MVA, Emergency MVA]
  - Current & Proposed line conductor rating: [Normal MVA, Emergency MVA] ,New line conductor: [Normal MVA, Emergency MVA]
  - Impacted line loadings (%) before and after projects ISD using worst flowgate loading on transmission system.
  - Provide normal MVA, emergency MVA loading for new and/or impacted lines associated with the project
    - In-service loading: XX% [best guess on date if no firm date for first review]
    - 10 year loading: XX% [same here, best guess if firm date is not known]
  - Loading % "Deltas" changes on ALL facilities impacted by project.
    - Delta Loading Increase = MVA after projects – MVA before project
    - Delta Loading Decrease = MVA before project – MVA after project
  - Asset Class: Identify if overloaded facility is distribution or transmission based upon current owners accounting records, Identify upgraded facility is distribution or transmission, Identify if solution is a transmission or distribution solution.

**Estimated Project Cost:** \$XX.X M [only show transmission costs and descriptions that will be paid for under FERC rate]

### Alternative Solutions:

- Description of Alternatives. Include a description of all options that can solve this type of problem such as a new line, line upgrade, capacitor bank, then let us know why these solutions were eliminated and the details on the feasibility & cost
- Provide line ratings, conductor and both loadings as above.

**Estimated Project Cost:** \$XX M (Estimate Class, Class 1-5)

**Projected IS Date Submitted by Designated Entity or Transmission Owner:** XX/XX/XXXX

**Required IS Date Identified by PJM:** XX/XX/XXXX

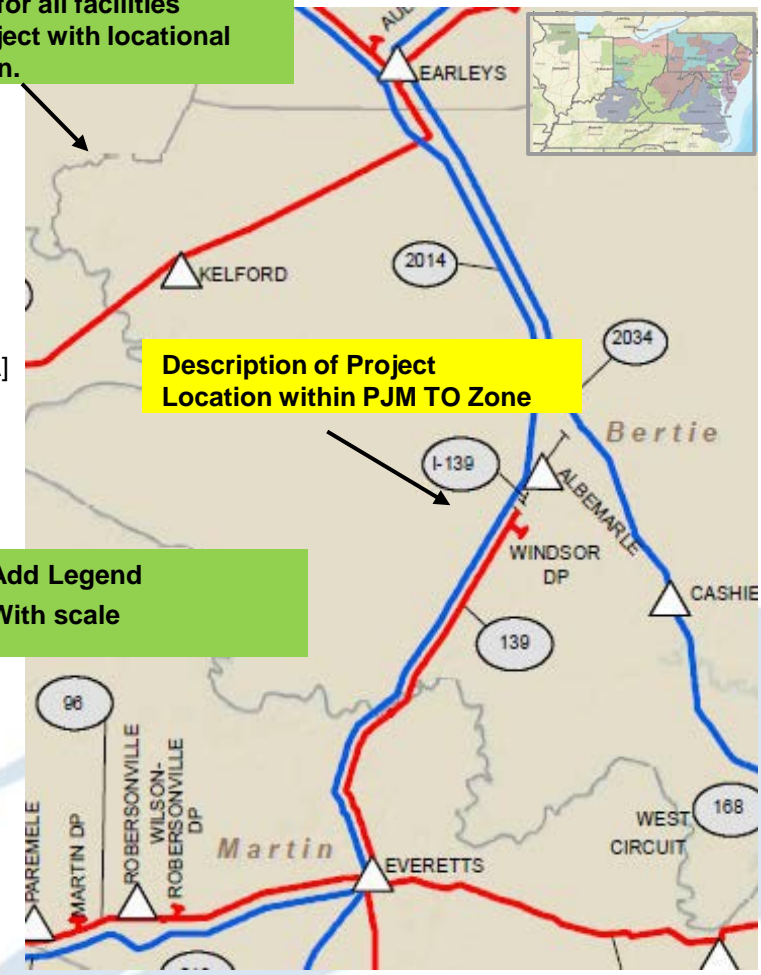
**PJM Determined Project Status:** Conceptual, Engineering, Under Construction, Completed or whatever the categories are.

**Associated Projects:** list any other approved or proposed connected with these facilities or nearby (same line)

Add detailed map for all facilities mentioned for project with locational PJM map as shown.

Description of Project Location within PJM TO Zone

Add Legend With scale



# Transmission Owner, PJM region, Zone, Area,

## Supplemental Project:

**Problem Statement:** Operational Performance/Reliability/Risk etc. Value used to determine

Criteria Violated: Local Utility Planning Guide reference, detailed description of primary driver's for project, detailed description of all other project drivers

**Date Project Presented Previously at:** XX/XX/XXXX Southern/Mid-Atlantic/Western RTEP

- Description of Project, ratings current and new, conductors, equipment, any contingency loadings or in-service loadings for lines and transformers.
- Any comments, data requests, or action items resulting from first review of project at stakeholder meetings

## Recommended Solution:

Description of solution and justification and decisions made by TO to determine this solution. Whether we use Potential Solution or Recommended Solution is up for discussion. Guess it would be Potential for first review, Recommended for second or other review.

**Alternatives:** Description or None. Include a description of all options that can solve this type of problem such as a new line, line upgrade, capacitor bank, then let us know why some of these were eliminated and the details of the feasible solutions, include cost break down, and one-line diagrams of alternative proposal.

**Estimated Project Cost:** \$XX M

**Projected IS Date:** XX/XX/XXXX

**Project Status:** Current status options.

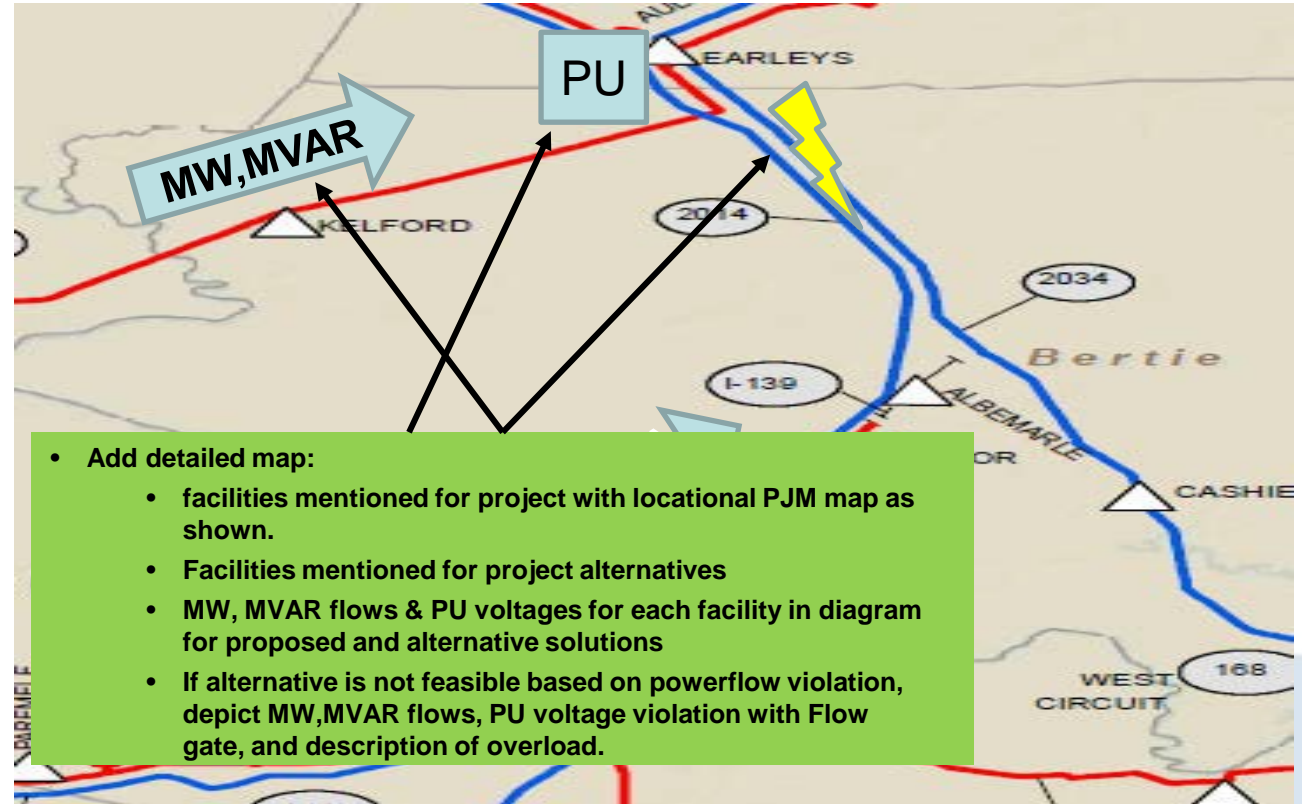
**Associated Projects:** list any other approved or proposed connected with these facilities or nearby (same line), list of any other assets or facilities in the sounding? and their rehab/condition/performance/risk issues

**Show current and proposed substation one lines so stakeholders can understand the reasoning behind the need for the re-design. Show substation location on TO map and PJM location map as typical. Show legend as needed to understand one-lines.**



# Transmission Owner, PJM region, Zone, Area,

Project Title					
Problem Statement					
Transmission Owner or Designated entity					
Supplemental/TO Baseline/ PJM Baseline					
Zone (Southern/Mid-Atlantic/Western, TEAC)					
Date Project Was Previously Presented					
Primary Project Driver (Description)	For Rehab Driven (Tlines See Tline Section) (Station See Station Section)				
Description of impacted facilities					
Description of load delivery points served by impacted facilities and their ownership					
Drivers Accounting Class (Distribution, Transmission)					
Proposal Cost					
Proposal Need Date					
Proposal Targeted In-service Date					
"Individual" Stakeholder Comments	Comment				
Power Flow Criteria		Criteria Description	Criteria Measure	Criteria Threshold	Simulated Value
Bus, Branch, Facility, Equipment in Violation and/or Driver (PSSE bus Number, Branch Identifier)					
Contingency or Contingency Causing violation					
PJM's Verification of TO results					



Justification Driver											
Criteria Threshold	Probability of Failure Description	Impact of Failure Description	Risk of Failure Description	Age	Criticality Measure	Equipment Health Value	Historical Reliability Impacts	Historical Performance Measure	Maintenance (O&M)	Spare Part Availability, Software Compatibility, Vendor Support (Description)	Environmental and/or Safety Descriptions
Threshold	P(x)	I(x)	$P(x) * I(x) = R(x)$	Years	Peak Flow MWh Delivered Load Served Transformation	H(x)	CMI CI SAIDI SAIFI CAIDI Loss of Load	List of Outages Momentary Outage, Initiating Cause, Sustained Cause, Date List of Outages Permanent Outage, Initiating Cause, Sustained Cause, Date, Duration System Averages (T-SAIDI, T-SAIFI, T-SAIFI-S, T-MAIFI)	Maintenance Completed and Cost Maintenance Findings and Estimated Cost	Spares in inventory Number of similar assets on system	Description of Issue Number of these issues on the system
Written Description of All Area Issues and Needs											

# Transmission Owner, PJM region, Zone, Area,

**CEII Version  
(One-Line Diagrams)**

**Photo Of Transmission  
Line  
Or Station**

### Description of Proposed Solution

Description of Proposed Project and Reasoning for Selecting Solution	Component Description	Estimated Component Cost	Component In-Service Date

Was Retirement Considered Why or Why not?	
Was rebuild considered: Why or Why not	

### Proposed Facility Details

Current Overloaded Line's Rate "A" Normal (MVA), Rate "B" Emergency (MVA)	Rate A	Rate B
"Proposed" Line's Rate "A" Normal (MVA), Rate "B" Emergency (MVA)	Rate A	Rate B

### Proposed & Impacted Facilities Analysis

Description	Loading % Rate A	Loading % Rate B
"Proposed" Line's "% Loading System Normal (N-0)		

**Analysis For:  
5 Year Forward  
10 Year Forward**

Proposed Facility	N-1 Thermal Overload	Generation Deliverability Thermal Overload	Load Deliverability Thermal Overload	N-1-1 Thermal Overload	N-1 Voltage Drop	N-1 Voltage Magnitude	N-1-1 Voltage Magnitude	Any TO specific analysis and criteria	
									Branch 1.....N
Impacted Facilities	Facility Name, To Bus, From Bus, ID	N-1 Thermal Overload	Generation Deliverability Thermal Overload	Load Deliverability Thermal Overload	N-1-1 Thermal Overload	N-1 Voltage Drop	N-1 Voltage Magnitude	N-1-1 Voltage Magnitude	Any TO specific analysis and criteria
"Proposed" Line's/stations Highest "% Loading, lowest voltage, or largest voltage deviation for all study scenarios									
Existing Line's & Transformers with "% Changes greater than +- 40% for (N-0)									
Existing Line's & Transformers crossing the 80% loading threshold for (N-0)									
Existing Line's & Transformers crossing the 80% loading threshold for all study scenarios									
Existing Line's & Transformers crossing the 80% loading threshold for all study scenarios									
Existing station's PU change of more than 2%, or within 2% of TO criteria threshold									

\*N/A for all none applicable fields

\*\*Request Same Detail Above for Alternative Project Review

Transmission Owner, PJM region, Zone, Area,

# Station Performance Driven Projects

# Transmission Owner, PJM region, Zone, Area,

## Performance Driven Projects Stations:

- Number of Forced Permanent Outage
  - Causes of each outage (Initiating cause and sustained cause)
  - Duration of each outage
- Number of Momentary Outages
  - Causes of each outage (Initiating cause)
- List of the Equipment Outages caused by each event
- Individual event details including number of customers impacted (CI) by each event
- Amount of recorded customer minutes of interruption (CMI) for each event
- Amount of load impacted by each event
- Amount of consequential generation loss due to outage (Generation served by the station)
- Event date & event time
- Calculated System (All voltage classes & each kV class) Average Availability Rate for, Assets Availability Rate
- System (All voltage classes & each kV class) Average values (TSAIDI, TSAIFI, TMAIFI, TSAIFI-S, IEEE SAIDI, IEEE SAIFI, IEEE CAIDI, Number of customers used to calculate SAIDI,SAIFI,CAIDI)
  - References: [https://www9.nationalgridus.com/non\\_html/transmission\\_ntwk\\_perf\\_rpt2008.pdf](https://www9.nationalgridus.com/non_html/transmission_ntwk_perf_rpt2008.pdf)
  - References: <http://grouper.ieee.org/groups/td/dist/sd/doc/Benchmarking-Results-2015.pdf>
  - Reference: <http://www.pjm.com/~media/committees-groups/committees/srrtep-w/20170124/20170124-aep-transmission-owner-needs-guidelines.ashx>
- Station's performance ranking and overall ranking relative to all other stations in system
- Any and all other referenced inputs including but not limited to: Table #1 and Table #2
- Detailed description of how TO applies the data noted above, or any other data not included to determine EOL

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

Transmission Owner, PJM region, Zone, Area,

## Station and Station Asset Condition Driven Projects

[http://assets.fiercemarkets.net/public/smartgridnews/End\\_to\\_end\\_asset\\_health.pdf](http://assets.fiercemarkets.net/public/smartgridnews/End_to_end_asset_health.pdf)

[https://www.satcs.co.za/Transformer\\_Oil\\_Analysis.pdf](https://www.satcs.co.za/Transformer_Oil_Analysis.pdf)

# Transmission Owner, PJM region, Zone, Area,

## Station Condition Inspection Details: Station & Station Structures

- Date of last inspection
- Date condition was first identified and action taken when identified
- List of conditions identified (example: cracked foundations, rusted steel, damaged conductor terminations, missing grounds, broken insulators, cap-N-pin insulators, damaged capacitor cans, flooding/drainage issues)
  - Foundation conditions, number of foundation conditions and severity of conditions
  - Structural conditions, number of conditions, and severity of conditions (rusted, bent, rotten, cracked, split)
  - Grounding conditions, number of conditions, and severity of conditions
  - Insulation conditions, number of conditions, and severity of conditions (insulation type, crack, broken, deteriorated, failed)
- List of operational constraints associated with station
  - Abnormal conditions, date first identified
  - Known failed/Un-operable equipment, date first identified
  - Non-Functioning equipment, date first identified
  - Non-standard Electrical configurations, date configurations was installed
  - Site constraints (clearance issues, drive island concerns, known flooding issues, site access)
- List of safety issues at station
- Station obsolesce items
- Station vandalism reports (stolen grounds, break-ins, gun shots, etc.)
- Station ground assessment details.
- Station shielding
- Telecommunication, RTU needs (Mode of communications, bandwidth, fiber, cable, RTU type and maker, channel available, channels used, RTU install date)
- Relaying needs (relay type, electromechanical, static, microprocessor)
- List of all known conditions at a station and the station's relative condition ranking to all station on the system

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

[https://www.satcs.co.za/Transformer\\_Oil\\_Analysis.pdf](https://www.satcs.co.za/Transformer_Oil_Analysis.pdf)

[http://assets.fiercemarkets.net/public/smartgridnews/End\\_to\\_end\\_asset\\_health.pdf](http://assets.fiercemarkets.net/public/smartgridnews/End_to_end_asset_health.pdf)

# Transmission Owner, PJM region, Zone, Area,

## Condition Driven Projects: Station Equipment “Transformers, Series & Shunt Reactors”

- **Transformers** (Values if used to assess transformers health or EOL or life expectancy)
  - All recorded test dates and their corresponding data listed below:
  - Date when recorded data first exceeded TO thresholds, action taken prior or date threshold exceeded
  - Past electrical test results if conducted
  - Core ground test result
  - Total combustible gas
  - Gas concentration levels and trending, (IEC 567)
    - Hydrogen (H<sub>2</sub>) ppm, system average ppm
    - Methane (CH<sub>4</sub>) ppm, system average ppm
    - Ethane (C<sub>2</sub>H<sub>6</sub>) ppm, system average ppm
    - Ethylene (C<sub>2</sub>H<sub>4</sub>) ppm, system average ppm
    - Acetylene (C<sub>2</sub>H<sub>2</sub>) ppm, system average ppm
    - Carbon Monoxide (CO) ppm, system average ppm
    - Carbon Dioxide (CO<sub>2</sub>) ppm, system average ppm
  - Water concentration levels and trending (IEC 814)
  - Oil Dielectric Strength and trending (IEC 156)
  - Oil Acidity or Neutralization Numbers and trends (ATSM D971)
  - Interfacial Tension and trends (ASTM D971)
  - Calculated Likelihood of failure, risk of failure, and asset criticality, system averages for each of previously stated items
  - Health score and/or replacement score and/or remaining useful life
  - Recommend solutions and timelines provided by assessment software
  - Asset Age
  - O&M tasks completed on unit, date completed

**Show photo of each TF being replaced including name plate details**

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

[http://assets.fiercemarkets.net/public/smartgridnews/End\\_to\\_end\\_asset\\_health.pdf](http://assets.fiercemarkets.net/public/smartgridnews/End_to_end_asset_health.pdf)

# Transmission Owner, PJM region, Zone, Area,

## Condition Driven Projects: Station Equipment “Circuit Breakers”

- Breaker “Accessories”
  - Function of cabinet, mechanism, and tank heaters
  - Number of hydraulic pump starts
  - Total accumulated run hours of the air compressor
  - Total accumulated run hours of the SF6 compressor
- Breaker “Dielectric”
  - Insulating oil dielectric strength
  - Rated voltage vs. applied voltage
  - Rated current vs. applied current
  - SF6, or oil moisture content, pressure, and purity
  - High-pressure SF6 moisture content, pressure, and purity
  - SF6 Density
- Breaker “Mechanical”
  - Closing time, velocity and acceptable limits
  - Trip time, velocity, trip coil currents and acceptable limits
  - Interpole close time, trip time deltas and acceptable limits
  - Resistor preinsertion time and acceptable limits
  - Total interrupter travel and acceptable limits
- Breaker “Wear”
  - Contact wear (switch operations) and acceptable limits
  - Main nozzle wear and acceptable limits
  - Auxiliary nozzle wear and acceptable limits
  - Contact resistance and acceptable levels
  - Interrupter wear and acceptable levels
- Breaker “Other”
  - Mechanism stored energy state
  - Motor current and run time
  - Time elapsed since last inspection, maintenance and overhaul
  - Breaker age
  - Breaker test or switch operations and acceptable limits
  - Breaker event operations “fault” interruptions
  - Breaker nameplate arc times
- Additional Values if used to make replacement decision
  - Risk of Failure and acceptable levels
  - Asset Criticality Values
  - Probability of failure and acceptable levels
  - Replacement score and maintenance score
  - Asset Health score, Remaining useful life
  - Forecasted Maintenance
  - Priority of asset replacement
  - List of all circuit breakers and their associated scores and rankings

**Show photo of each CB being replaced**

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

[https://static.selinc.com/assets/Literature/Publications/Technical%20Papers/6772\\_RealTime\\_RS\\_20170130\\_Web.pdf?v=20170404-145043](https://static.selinc.com/assets/Literature/Publications/Technical%20Papers/6772_RealTime_RS_20170130_Web.pdf?v=20170404-145043)



# Transmission Owner, PJM region, Zone, Area,

## Risk Driven Projects: Stations

- **Transmission Lines or Substation** (Values if used to assess transmission lines risk, EOL or life expectancy, only if used in TO's assessment)
  - Calculated probability of failure with detailed inputs
  - Associated impact values used to calculate risk
    - Customers impacted
    - Load Impacted
    - System impacts
    - Generation Impacts (Per Planning Model)
    - Expected energy not delivered
    - Dynamic reactive devices impacted and their MVA
    - Number of stations with voltage sags
    - Number of tie line interconnections interrupted
    - Arming of SPS scheme's due to stability or thermal constraints
    - Number of real time operational constraints resulting in load drop warnings
    - Any impacts not listed above
  - List of all stations and their associated Risk scores and risk rankings

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

[https://www.satcs.co.za/Transformer\\_Oil\\_Analysis.pdf](https://www.satcs.co.za/Transformer_Oil_Analysis.pdf)

[http://assets.fiercemarkets.net/public/smartgridnews/End\\_to\\_end\\_asset\\_health.pdf](http://assets.fiercemarkets.net/public/smartgridnews/End_to_end_asset_health.pdf)

Transmission Owner, PJM region, Zone, Area,

## **Transmission Line Rehab Driven Projects**

# Transmission Owner, PJM region, Zone, Area,

## Performance Driven Projects Transmission Lines:

- Number of Forced Permanent Outage
  - Causes of each outage (Initiating cause and sustained cause)
  - Duration of each outage
- Number of Momentary Outages
  - Causes of each outage (Initiating cause)
- List of the Equipment Outages caused by each event
- Individual event details including number of customers impacted (CI) by each event
- Amount of recorded customer minutes of interruption (CMI) for each event
- Amount of load impacted by each event
- Amount of generation impacted
- Event date & event time
- Calculated System (All voltage classes & each kV class) Average Availability Rate for, Assets Availability Rate
- System (All voltage classes & each kV class) Average values (TSAIDI, TSAIFI, TMAIFI, TSAIFI-S, IEEE SAIDI, IEEE SAIFI, IEEE CAIDI, Number of customers used to calculate SAIDI,SAIFI,CAIDI)
  - References: [https://www9.nationalgridus.com/non\\_html/transmission\\_ntwk\\_perf\\_rpt2008.pdf](https://www9.nationalgridus.com/non_html/transmission_ntwk_perf_rpt2008.pdf)
  - References: <http://grouper.ieee.org/groups/td/dist/sd/doc/Benchmarking-Results-2015.pdf>
  - Reference: <http://www.pjm.com/~media/committees-groups/committees/srrtep-w/20170124/20170124-aep-transmission-owner-needs-guidelines.ashx>
- Tline's performance ranking and overall ranking relative to all other Tlines in system
- Any and all other referenced inputs including but not limited to: Table #1 and Table 2

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

# Transmission Owner, PJM region, Zone, Area,

## Condition Driven Projects: Transmission Lines

- Date maintenance was last perform (per structure basis, and on entire asset)
  - Asset Age
    - List of each structure's age associated
    - Total count of all structure
    - Conductor used on each span and conductor age
    - Identified data gaps and/or missing data
  - Asset Design
    - Material comprising structure (Steel, Aluminum, Wood, Concrete, Composite, Underground)
    - Structure design (Monopole, H frame, Lattice)
    - Cross arm material (Wood, Steel: if applicable)
    - Insulators (Glass, Porcelain, composite)
    - Shielding features of each structure (Double/single shield wire, OPGW, structure grounded Y/N)
    - Grounding status of each structure and ground resistance
  - Condition List
    - Detailed description of each condition including component and condition
    - structure or span associated with each condition
    - geographic location of condition
    - severity of condition, date that condition was first identified, date of last inspection
    - Any additional known defects with structure design or components comprising structure
  - Asset's condition ranking and asset's ranking overall as compared to the all other T-line in the system
- \*For each item listed use multiple sheets or (.xls) spreadsheet if required

[https://www.satcs.co.za/Transformer\\_Oil\\_Analysis.pdf](https://www.satcs.co.za/Transformer_Oil_Analysis.pdf)

[http://assets.fiercemarkets.net/public/smartgridnews/End\\_to\\_end\\_asset\\_health.pdf](http://assets.fiercemarkets.net/public/smartgridnews/End_to_end_asset_health.pdf)

**Show photo of each condition being addressed including pole/structure tag**

# Transmission Owner, PJM region, Zone, Area,

## Risk Driven Projects: Transmission Line and Stations

- **Transmission Lines or Substation** (Values if used to assess transmission lines risk, EOL or life expectancy only if used in TO's assessment)
  - Calculated probability of failure with detailed inputs
  - Associated impact values used to calculate risk
    - Customers impacted
    - Load Impacted
    - System impacts
    - Generation Impacts
    - Expected energy not delivered
    - Dynamic reactive devices impacted and their MVA
    - Number of stations with voltage sags
    - Number of tie line interconnections interrupted
    - Arming of SPS scheme's due to stability or thermal constraints
    - Number of real time operational constraints resulting in load drop warnings
    - Any impacts not listed above
  - List of all stations or lines and their associated Risk scores and risk rankings

\*For each item listed use multiple sheets or (.xls) spreadsheet if required

[https://www.satcs.co.za/Transformer\\_Oil\\_Analysis.pdf](https://www.satcs.co.za/Transformer_Oil_Analysis.pdf)

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**Appendix B**  
**Dr. Rose Survey of PJM Transmission Rates and Charges**

# Survey of PJM Transmission Rates and Charges

Transmission Study for  
American Municipal Power, Inc. (AMP)

Ken Rose  
September 21, 2017

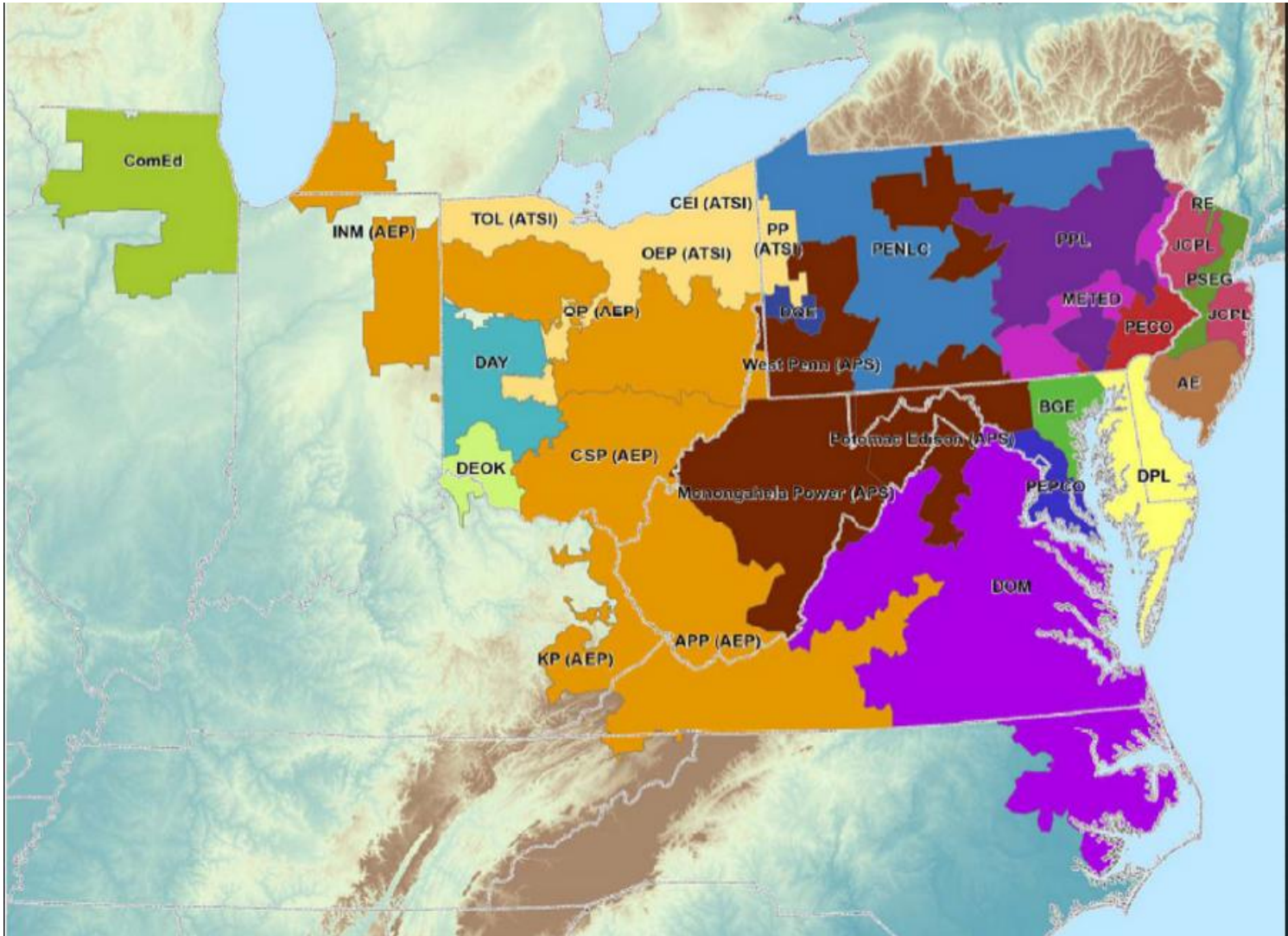
# Summary of Findings

- Revenue Requirement and Transmission Rates for PJM increased considerably in a short amount of time—from 2009 to 2017
  - 12 PJM TOs had a 20% or more increase in revenue requirement
  - 11 PJM TOs had better than 20% increases in Network Integration Transmission (NIT) Rate
  - Not all TOs in PJM had such increases—several had modest or no change in NIT rate
- Transmission enhancement charges for some PJM TOs have also increased during that same time period
  - Total Annual Revenue Requirement for transmission enhancement increased by 294.5% from 2011 to 2017



## Summary of Findings (*continued*)

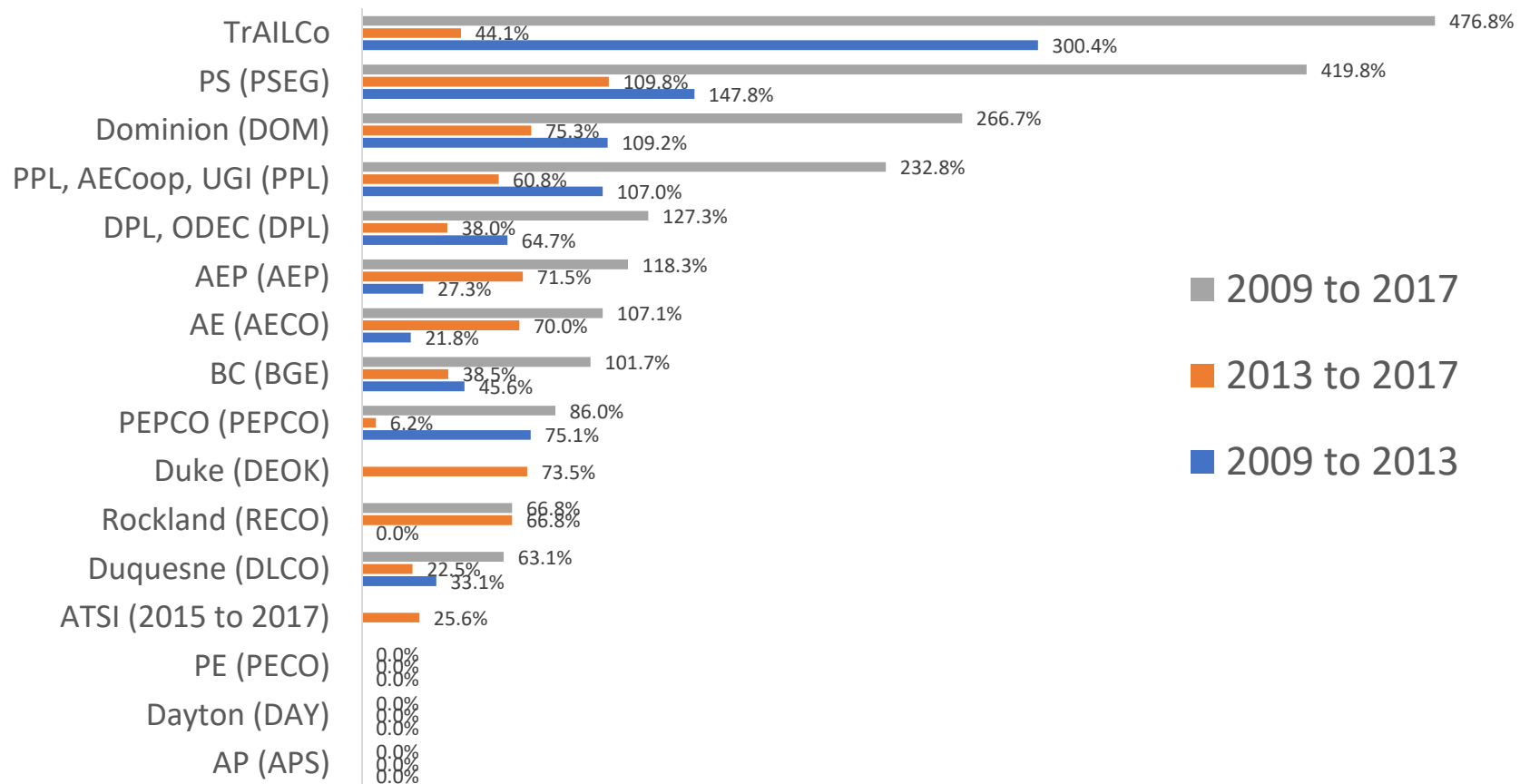
- While there are many legitimate drivers for this increased investment (aging infrastructure, distributed generation, etc.), there has been a marked increase in facilities not needed to meet any established reliability, market efficiency or operational performance criteria. These Supplemental Projects are proposed by individual Transmission Owners (TOs) outside of the PJM planning process and beyond any established criteria PJM TOs may have. Supplemental Projects are also exempt from the competitive transmission requirements of Order 1000.
- Through 2012, there was approximately \$21.3 billion of PJM in-service or planned baseline and network upgrades, as opposed to \$6.8 billion of TOI/Supplemental Projects
- After 2012, there was approximately \$11.6 billion of PJM in-service or planned baseline and network upgrades as opposed to approximately \$12.7 billion of Supplemental Projects
- With the exception of 2016, the amount of Supplemental Projects has steadily increased each year



# PJM's Network Integration Transmission Service

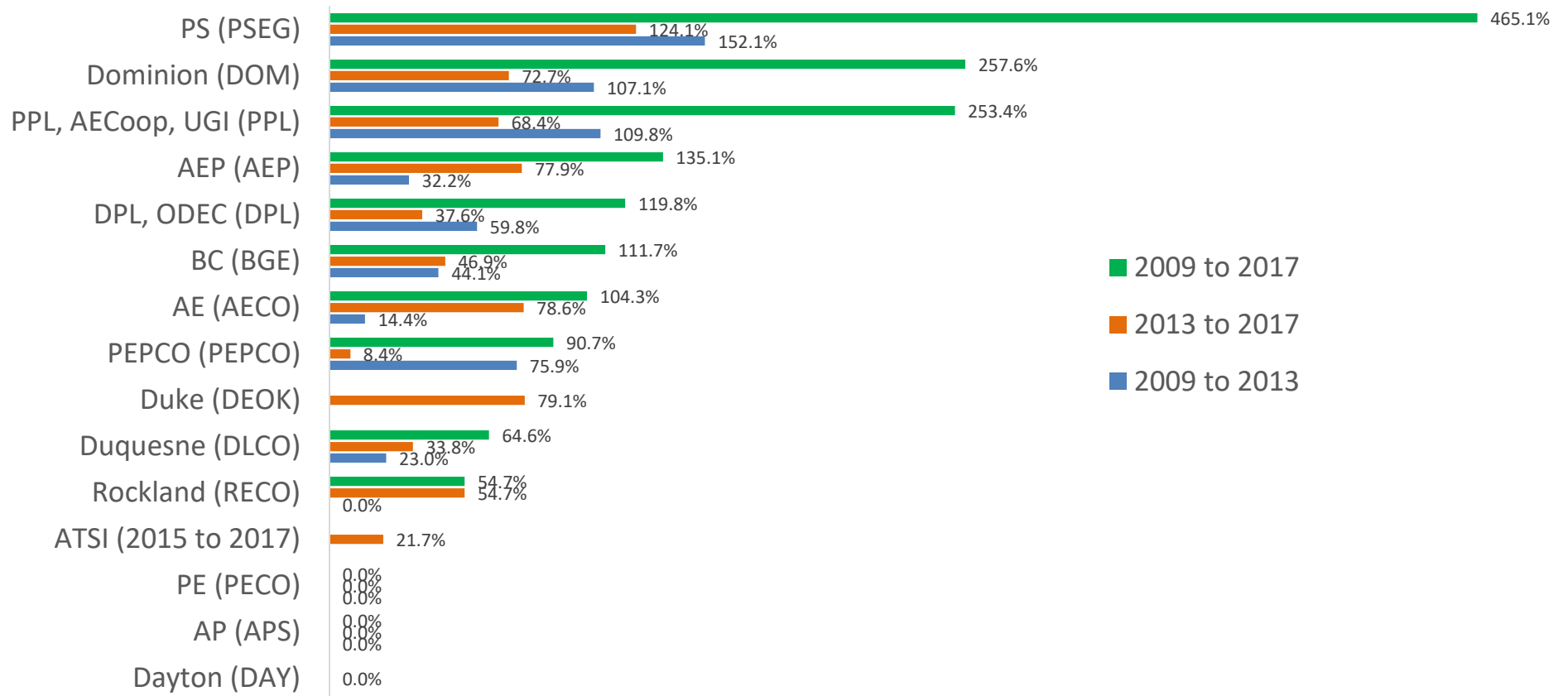
- From PJM's description:
  - Network customers pay daily demand charges to PJM transmission owners using the applicable zonal or non-zone Network Integration Transmission Service rates.
  - **Charges:** Daily demand charges calculated as network customers' daily network service peak load contribution times  $1/365^{\text{th}}$  of the applicable zonal rate(s) for the zone(s) in which the network load is located

## Transmission Revenue Requirement Increases by Transmission Owner

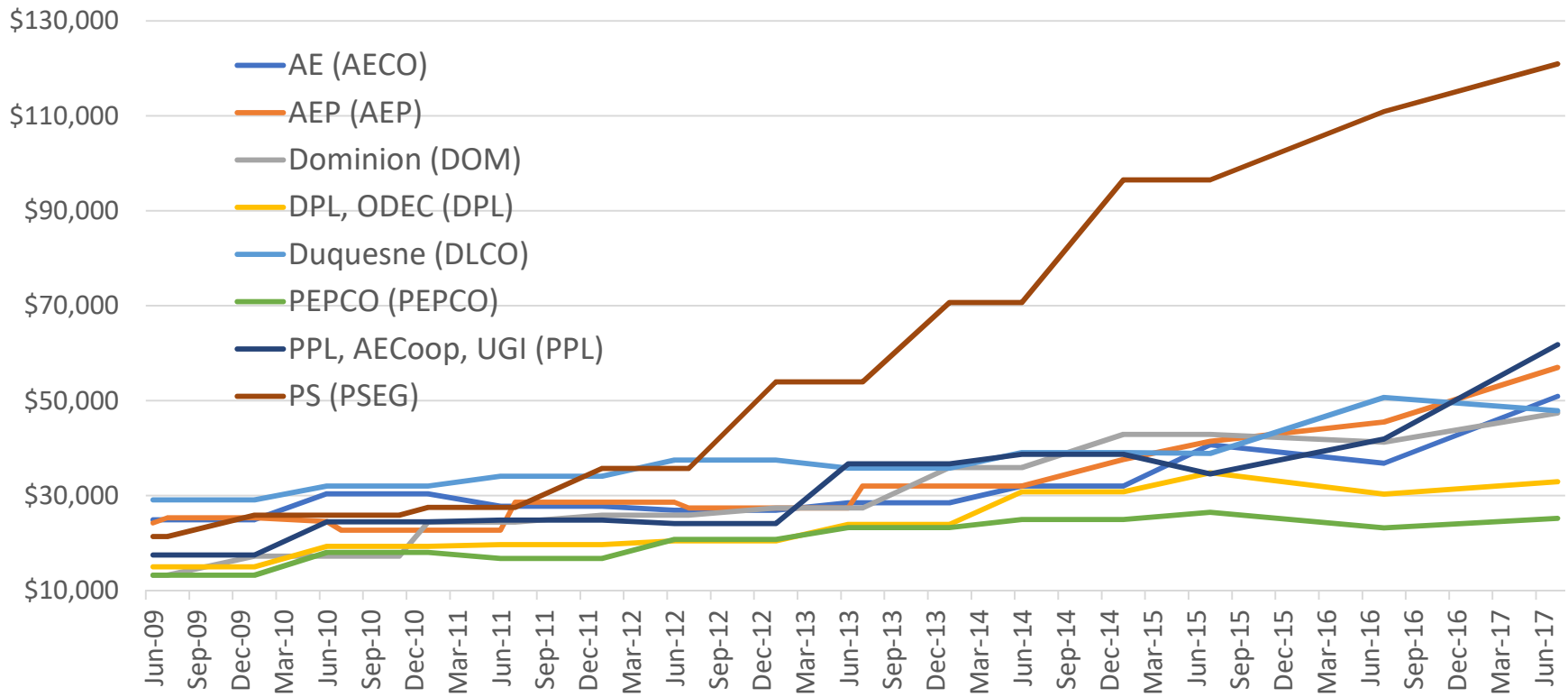


\*Note: TrAIL Co is not a PJM transmission zone with load.

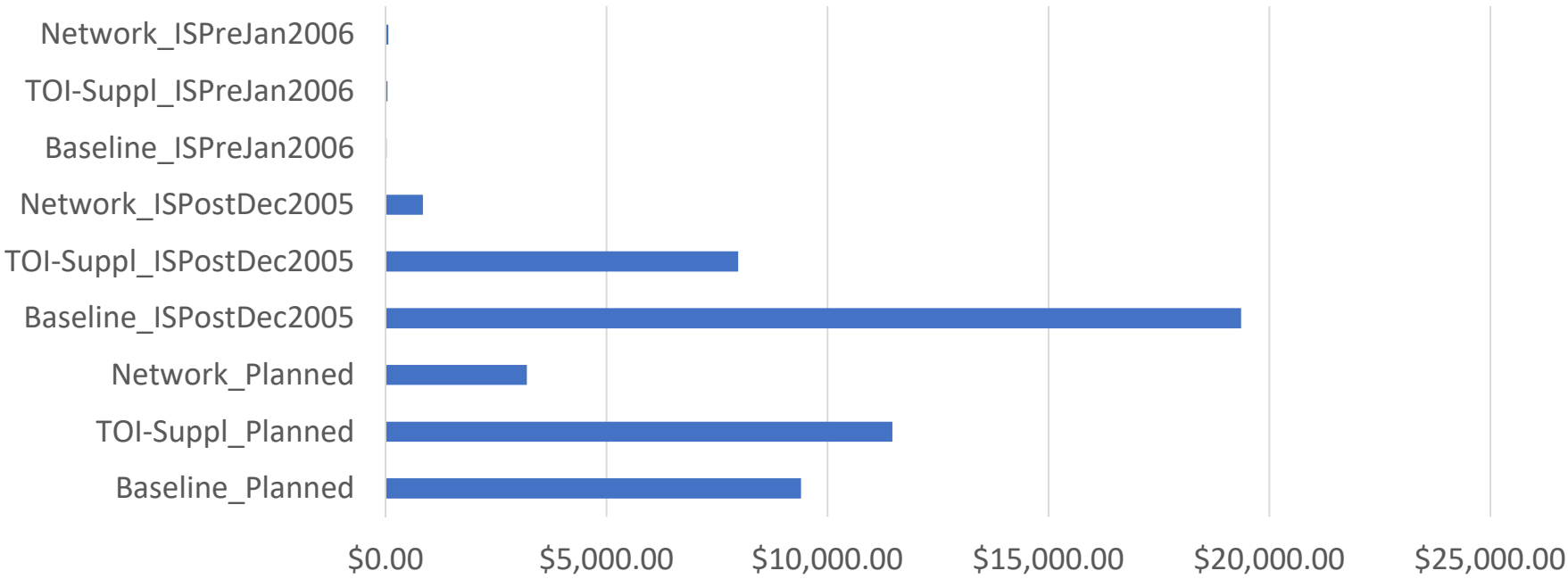
# Transmission Rate Increases by Transmission Owner



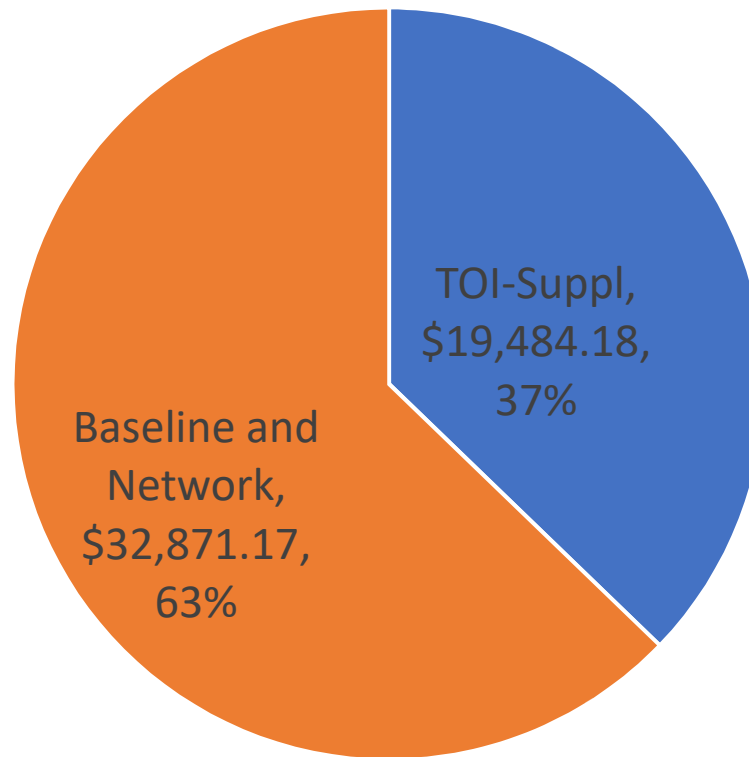
## Transmission Rates by Transmission Owner, 2009 to 2017 (\$/MW-year)



# Transmission Construction Cost by Category and Time Period, though September 2017 (millions of dollars)

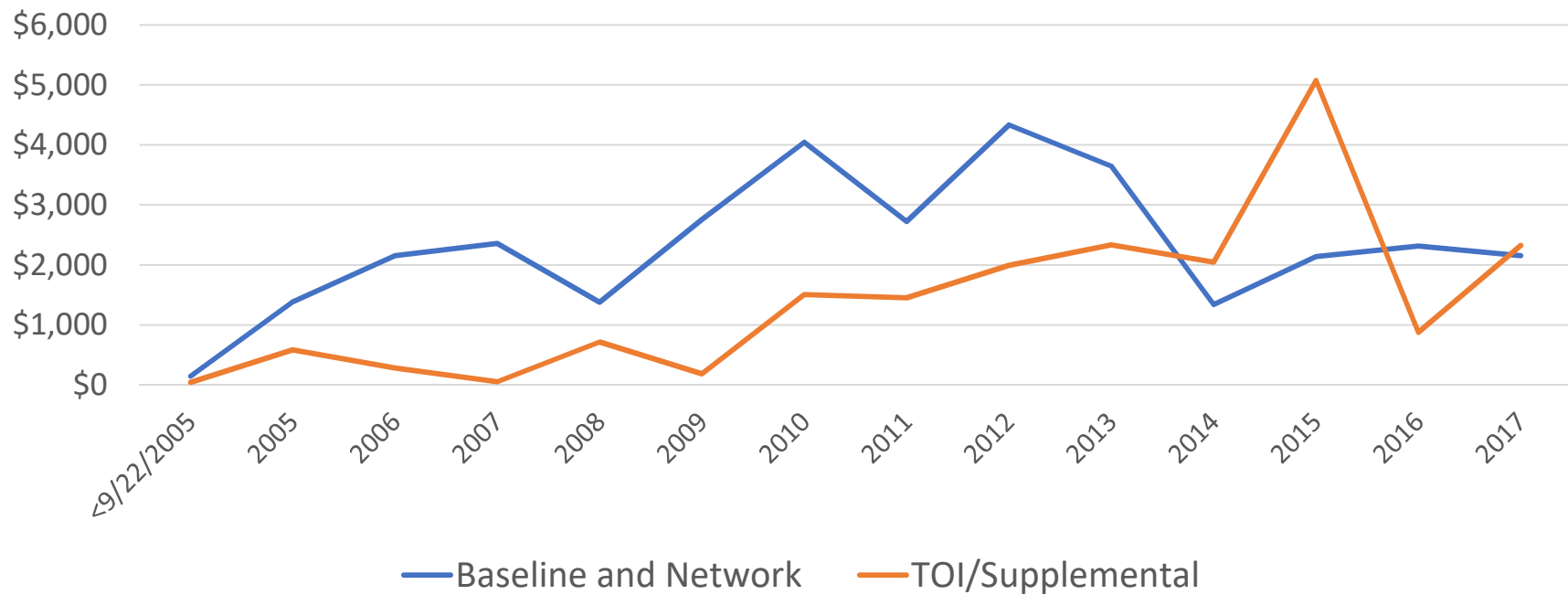


Total Transmission Construction Estimated Cost  
by Category, through September 2017 (millions of  
dollars)

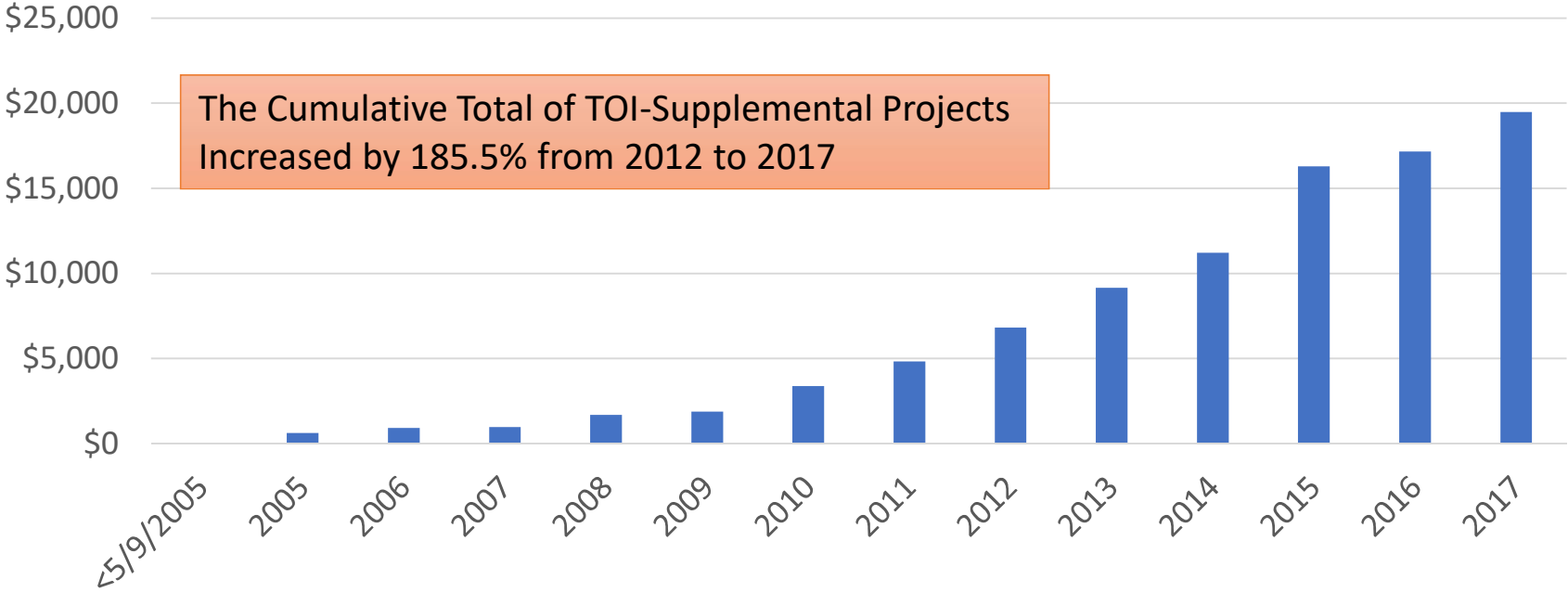




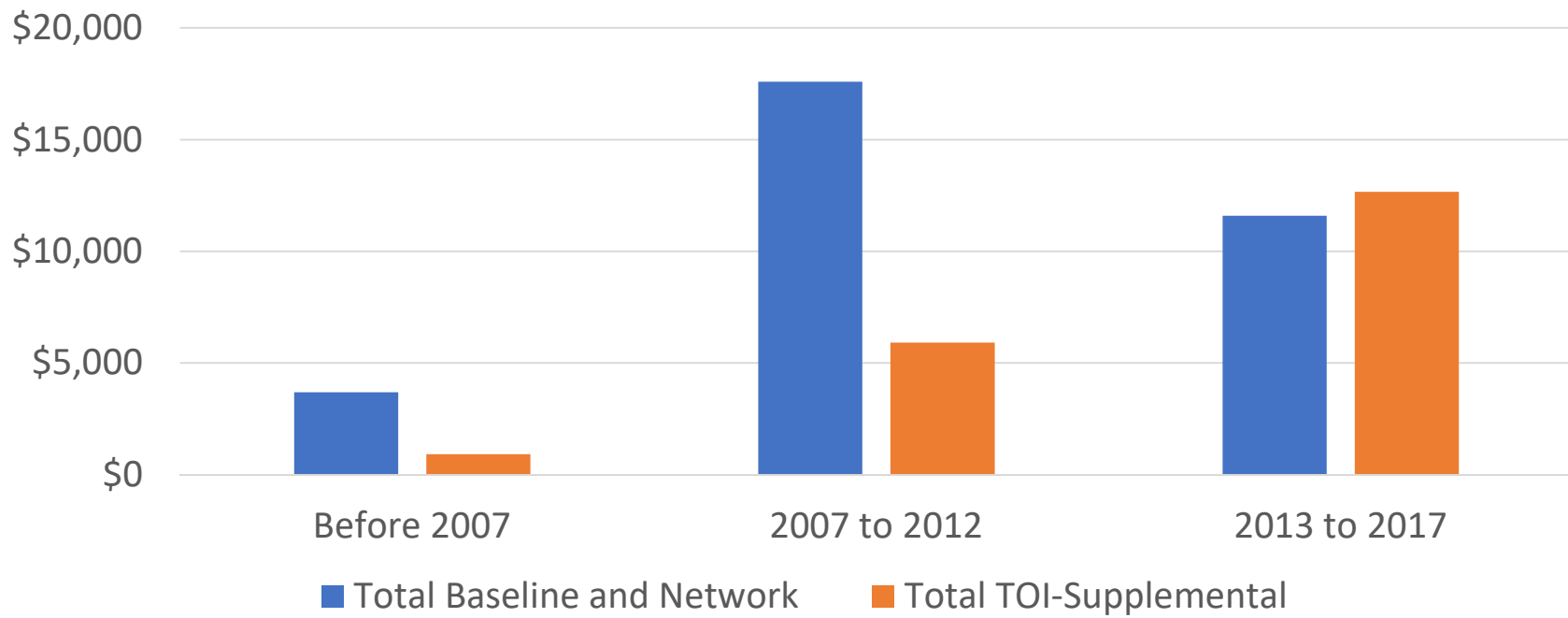
## Total Baseline and Network and TOI-Supplemental Projects by Year (millions of dollars)



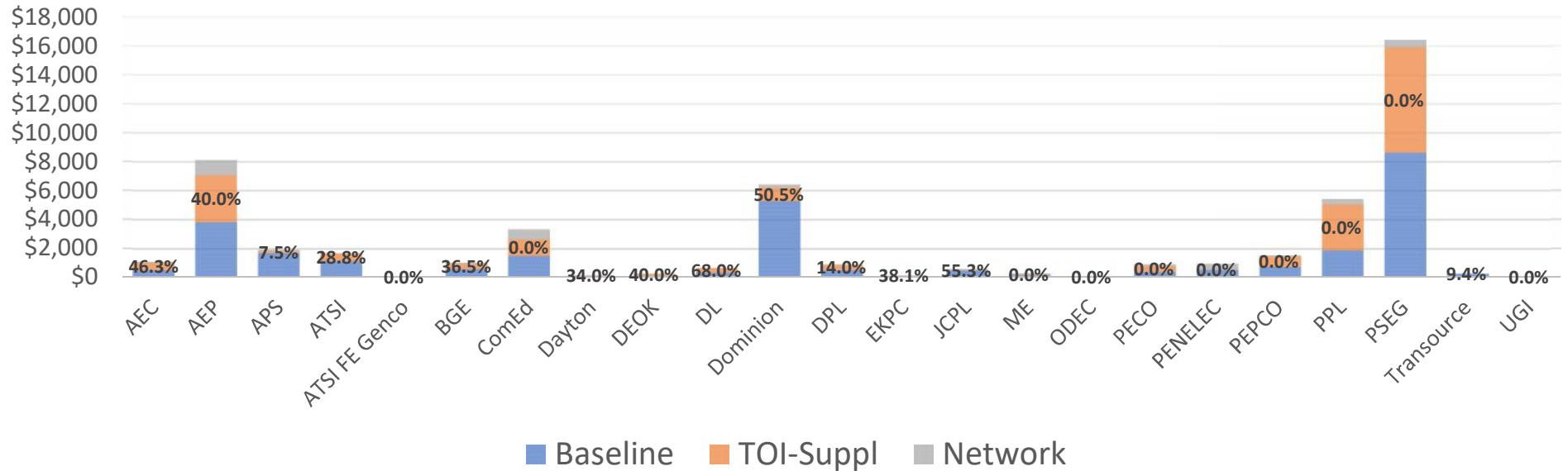
# Cumulative Total of TOI-Supplemental Projects (millions of dollars)



## Transmission Project Estimated Cost by Year (millions of dollars)



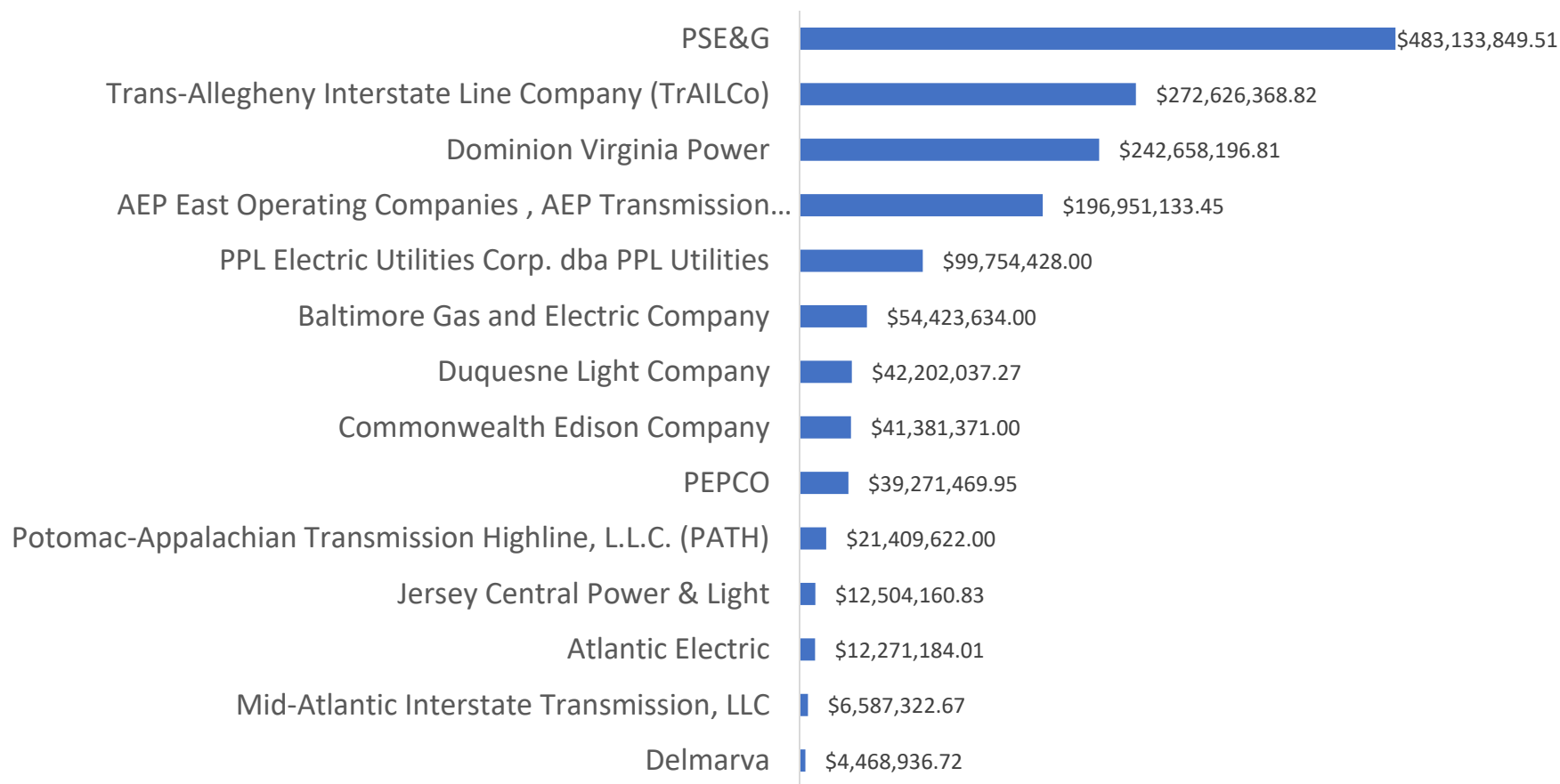
## PJM Transmission Construction Estimated Cost By Project Category, Through September 2017 (millions of dollars)



# PJM's Transmission Enhancement (OATT Schedule 12)

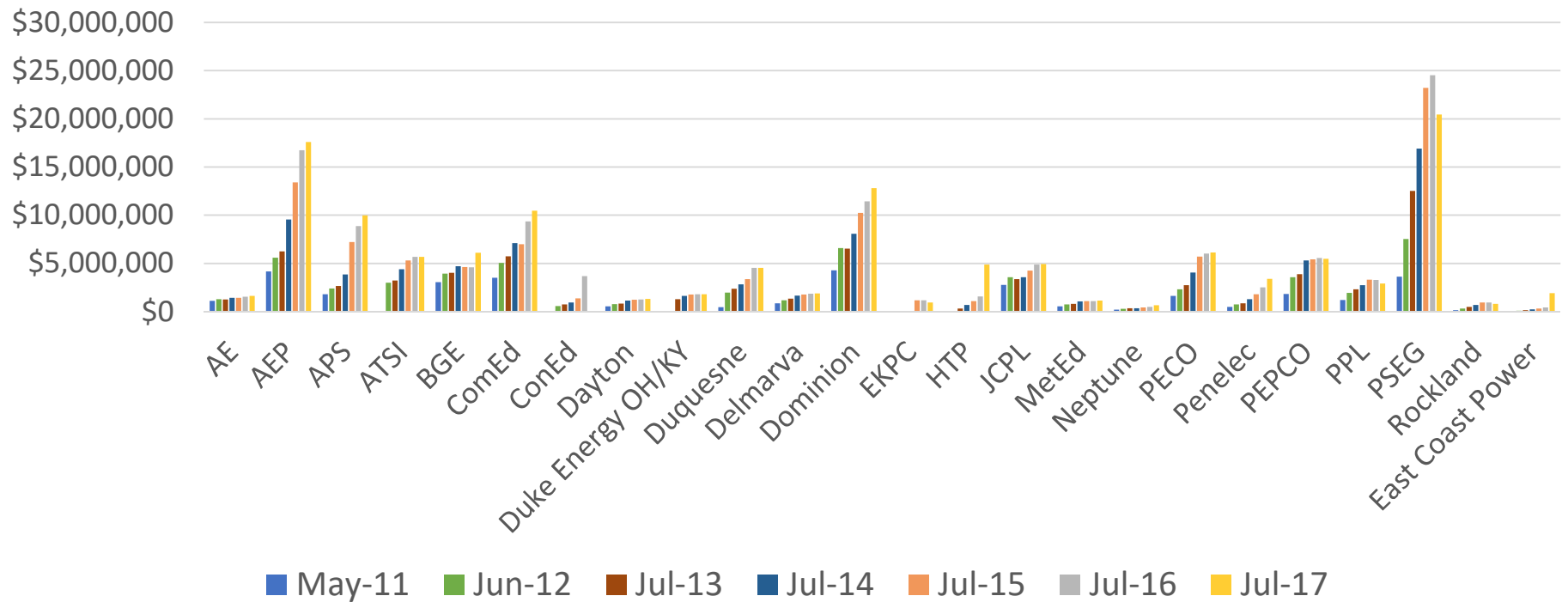
- PJM's description:
  - All network customers and merchant transmission owners pay transmission owners for required transmission enhancement projects in accordance with zonal cost responsibility allocations
  - Charges: All network customers serving load in a responsible zone pay for that zone's applicable projects' revenue requirements in proportion to their network service peak load share in that zone, and responsible merchant transmission owners also pay their share of applicable revenue requirements

## Transmission Enhancement Charges by Project, July 2017

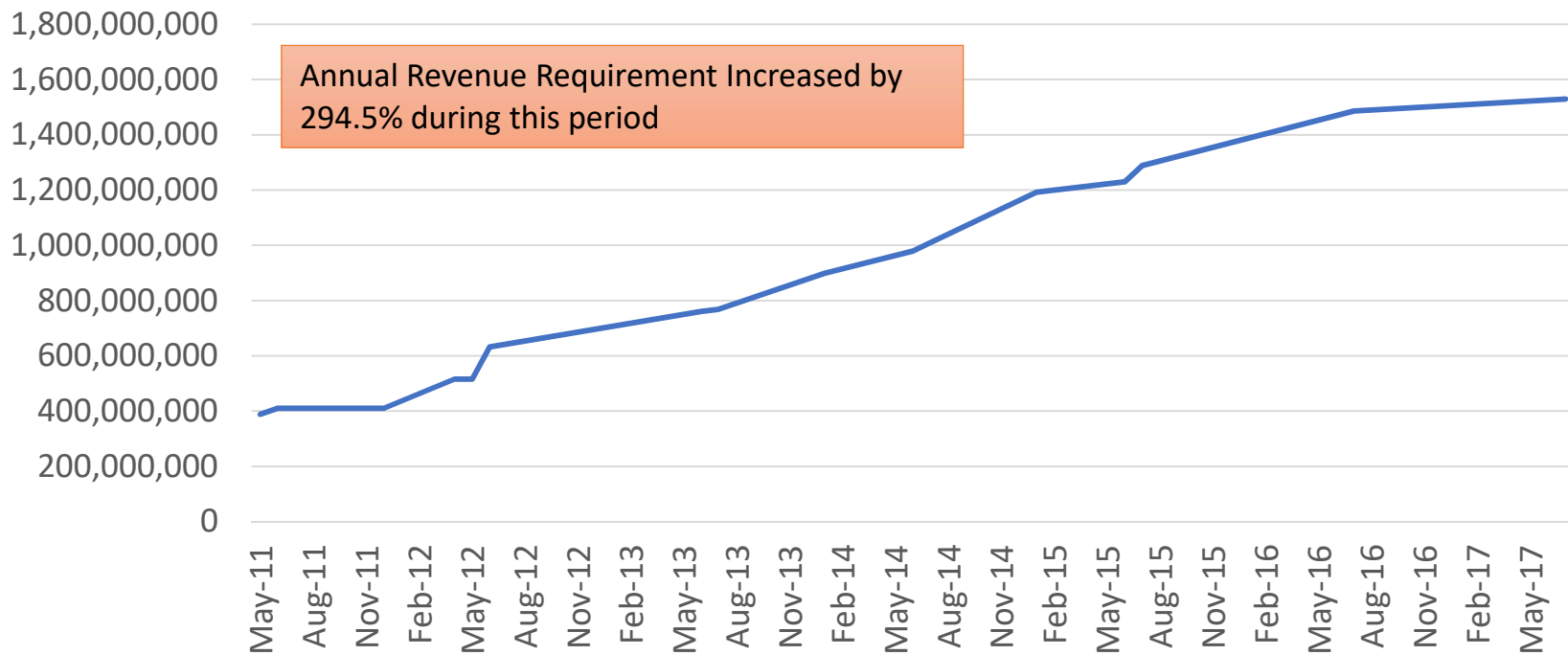


\*Note: TrAIL Co is not a PJM transmission zone with load.

## Allocated shares of monthly transmission enhancement charges by zone and year, 2011 to 2017



## Total Annual Revenue Requirement for transmission enhancement, 2011 to 2017





**Appendix C**  
**Email Correspondence from PJM Transmission Planning Staff to AMP Dated**  
**January 26, 2018**

## Errin Harris

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**Subject:** New Message: Info Request: Mid-Atlantic Region

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**From:** Farmer, Lawrence [<mailto:Lawrence.Farmer@pjm.com>]  
**Sent:** Friday, January 26, 2018 11:30 AM  
**To:** Ryan Dolan <[rdolan@amppartners.org](mailto:rdolan@amppartners.org)>  
**Cc:** Ed Tatum <[etatum@amppartners.org](mailto:etatum@amppartners.org)>; Steve Lieberman <[sliebman@amppartners.org](mailto:sliebman@amppartners.org)>; Sims, Mark <[Mark.Sims@pjm.com](mailto:Mark.Sims@pjm.com)>; Berner, Aaron <[Aaron.Berner@pjm.com](mailto:Aaron.Berner@pjm.com)>  
**Subject:** RE: New Message: Info Request: Mid-Atlantic Region

Hello Ryan,

As discussed in prior SRRTEP committee meetings, PJM's network simulation for supplemental projects that have corresponding power flow modeling is "do no harm" to the bulk electric system.

As part of the existing process, PJM analyzes supplemental projects to determine any reliability criteria violations. With respect to other aspects of the project that are outside of PJM's scope of work as a Transmission Planner, stakeholders are always welcome to address their concerns with the respective transmission owner. The PJM SRRTEP process has no provision to validate transmission owner's need for supplemental projects nor the prudence of the project. As such there is no basis for additional committee review of these projects absent an identified "harm" to the bulk electric system.

I hope that answers your question. Thank you.

Larry Farmer  
Sr. Admin Analyst, Transmission Planning

(610) 666-2237 | [lawrence.farmer@pjm.com](mailto:lawrence.farmer@pjm.com)  
PJM Interconnection | 2750 Monroe Blvd. | Audubon, PA 19403

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From: Ryan Dolan [<mailto:rdolan@amppartners.org>]  
Sent: Thursday, January 25, 2018 11:20 AM  
To: Farmer, Lawrence  
Cc: Ed Tatum; Steve Lieberman  
Subject: RE: New Message: Info Request: Mid-Atlantic Region

**External Email! Think before clicking links or attachments.**

Larry,

Will these projects be discussed further? I'm very appreciative that PJM is starting to provide the requested files but I just want to make sure we are given future opportunities to discuss our results if necessary. As you know these requests have been submitted prior to the second read of the projects and unfortunately we aren't getting the files until after the

projects are moved out of the SRTEP process. Going forward we would hope that AMP's planning team is given adequate time to assess the files and discuss results with PJM and the TO's prior to the second read of projects.

None the less, I want to say thank you for providing these files. This will be a big step going forward.

Ryan Dolan

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**From:** [Lawrence.Farmer@pjm.com](mailto:Lawrence.Farmer@pjm.com) [mailto:Lawrence.Farmer@pjm.com]

**Sent:** Thursday, January 25, 2018 10:52 AM

**To:** Ryan Dolan <[rdolan@amppartners.org](mailto:rdolan@amppartners.org)>

**Subject:** New Message: Info Request: Mid-Atlantic Region

Message Information	
To	<a href="mailto:rdolan@amppartners.org">rdolan@amppartners.org</a> , <a href="mailto:wyi@teainc.org">wyi@teainc.org</a>
Cc	<a href="mailto:mark.sims@pjm.com">mark.sims@pjm.com</a> , <a href="mailto:aaron.berner@pjm.com">aaron.berner@pjm.com</a> , <a href="mailto:lawrence.farmer@pjm.com">lawrence.farmer@pjm.com</a>
Attachments	<a href="#">AMP Request.zip</a> (16.96 MB) <a href="#">Download All Files</a>

Hello Ryan and Weili,

Attached is our response to several of your CEII requests. We are working on a table to help all of us track the requests and the responses. Look for that soon. Meanwhile, for the sake of expediency, we are transmitting these responses now.

Please click the link to open a secure tunnel to transfer the file to your computer.

Please contact us if you have any questions. Thank you.

Larry Farmer  
Sr. Admin Analyst, Transmission Planning  
(610) 666-2237 | [lawrence.farmer@pjm.com](mailto:lawrence.farmer@pjm.com)  
PJM Interconnection | 2750 Monroe Blvd. | Audubon, PA 19403

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