September 2, 2016

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E. Room 1A
Washington, D.C.  20426

Re:  PJM Interconnection, L.L.C., Docket No. AD10-2- 007
     Informational Filing of 2015 Simultaneous Import Limit Study Report for PJM Region

Dear Secretary Bose:

PJM Interconnection, L.L.C. (“PJM”) submits to the Federal Energy Regulatory Commission (“Commission” or “FERC”) for informational purposes the 2015 simultaneous import limit (“SIL”) study report for the PJM market. The purpose of the SIL study report is to assist PJM members in responding regarding their market power indicative screens and delivered price test analyses to be submitted under the Commission’s Order Nos. 697, et al.1

I.  BACKGROUND

In Order No. 697, the Commission modified the standards for obtaining and retaining market-based rates for public utilities. The Commission required each transmission providing utility seeking to obtain or retain market-based rate authority to file indicative screens and a delivered price test based on a SIL study.2 Moreover, the Commission found that the SIL study offers a means to measure the effect of transmission limitations on the import capability of a

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2  Order No. 697 at P 347.
relevant geographic market, and would serve as a basis for evaluating a seller’s potential market power through two market power indicative screens and the delivered price test.\(^3\)

Regional Transmission Organizations (“RTO”) and Independent System Operators (“ISO”) are not required to perform SIL studies under Order No. 697.\(^4\) However, “[t]o the extent that an RTO/ISO conducts transmission studies and makes that information available, a [transmission-providing] seller may rely on the information obtained from its RTO/ISO to conduct its SIL study.”\(^5\) PJM, as an RTO and ISO, has conducted the SIL study.

II. **PJM SIL STUDY**

Consistent with Order No. 697, PJM conducted a SIL study for the PJM RTO for the 2015 calendar year. The results of this analysis are in Section II, Table 1. In addition to the PJM RTO SIL analysis, PJM also conducted an Eastern, AP South, and 5004/5004 Submarket SIL analysis. PJM transmission owners may use the new SIL values for any updated market power analysis going forward.

Table 1 defines the results of the PJM RTO SIL analysis. For informational purposes only, Table 2 indicates the calculated SIL values for each season with and without the applied operating procedures. These operating procedures are detailed in Attachment 8 of this filing. The analysis reflects the progression of the season’s SIL value as PJM implemented operational procedures to mitigate associated constraints on limiting transmission equipment. In accordance

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\(^3\) Order No. 697-A at P 136.

\(^4\) Order No. 697 at P 379.

\(^5\) Id.
with Order No. 816, PJM applied the operational procedures during the SIL study consistent with the administration of the PJM Open Access Transmission Tariff.6

<table>
<thead>
<tr>
<th>2015 Season</th>
<th>Month</th>
<th>PJM SIL (Megawatts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WINTER</td>
<td>January</td>
<td>11,997</td>
</tr>
<tr>
<td>SPRING</td>
<td>April</td>
<td>12,723</td>
</tr>
<tr>
<td>SUMMER</td>
<td>August</td>
<td>7,600</td>
</tr>
<tr>
<td>FALL</td>
<td>October</td>
<td>7,067</td>
</tr>
</tbody>
</table>

Table 2: PJM RTO SIL Study Results Showing Impact of Operating Procedures

<table>
<thead>
<tr>
<th>2015 Season</th>
<th>PJM SIL Without Operating Procedures Applied (Megawatts)</th>
<th>PJM SIL With Operating Procedures Applied (Megawatts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WINTER</td>
<td>11,997</td>
<td>N/A</td>
</tr>
<tr>
<td>SPRING</td>
<td>12,723</td>
<td>N/A</td>
</tr>
<tr>
<td>SUMMER</td>
<td>5,731</td>
<td>7,600</td>
</tr>
<tr>
<td>FALL</td>
<td>5,215</td>
<td>7,067</td>
</tr>
</tbody>
</table>

A.  *PJM RTO SIL Study Methodology*

The PJM SIL study simulates imports into the PJM balancing authority area from available generation within each first-tier balancing authority area. Consistent with PJM OASIS practices, each first-tier balancing authority was modeled as a separate first-tier area to retain the granularity of the network, and to replicate the ability of PJM to simultaneously import from

6 Order No. 816 at PP 153-154.
surrounding areas. The SIL is a single calculation at concurrent interface limits, rather than the sum of the non-simultaneous import capabilities from each first-tier balancing authority area. PJM performed its SIL study using power flow cases derived from the applicable North American Electric Reliability Corporation (“NERC”) Interchange Distribution Calculator model for each season. PJM’s SIL study results were calculated using a generator shift methodology as detailed in Attachment 6 of this filing. PJM used the same transmission reliability margin (“TRM”) and capacity benefit margin (“CBM”) values in the SIL analysis as those used to assess available transfer capability (“ATC”) during the respective seasons.

To ensure the analysis is consistent with PJM operating processes, procedures, the requirements outlined in FERC Order No. 697, PJM used its ATC software, along with the data used in the ATC calculation process for the SIL analysis. PJM utilizes PowerGEM LLC’s (“PowerGEM”) Transmission Adequacy & Reliability Assessment (“TARA”) software and PowerGEM’s AFC-ATC Calculator (“PAAC”) software in the calculation of ATC. PJM applies the FERC-accepted flowgate methodology to calculate ATC, the requirements of which are detailed in the MOD-030-2 NERC standard. In accordance with a request from FERC staff that PJM received in 2013 in the process of submitting PJM’s 2012 SIL study, long term reservations were excluded from the calculation of the Simultaneous Incremental Transfer Capability component of the SIL by using a variant of our approved ATC methodology. Attachment 10 of this filing contains additional details on this process. Except as otherwise described in Attachment 10, PJM applied input data and calculated values in the SIL study (e.g., NERC System Data Exchange (“SDX”) data, reservation information from PJM and external OASIS nodes, load forecast information, etc.) in a manner consistent with PJM’s ATC practices and
procedures. PJM calculated the PJM SIL by simulating the impacts of available generators from first tier balancing authorities. The list of first tier balancing authorities considered in the SIL analysis is consistent with PJM’s OASIS practices and can be found in Attachment 6 of this filing.

Consistent with ATC practices, PJM calculated the SIL by scaling the import contribution from each first tier balancing authority. PJM calculated each individual path capability and then adjusted the value to appropriately reflect activity on the adjacent paths, in accordance with PJM’s OASIS practices. The resultant SIL reflects a single, simultaneous import capability calculation sourced from individual first tier balancing authorities at concurrent interface limits. This process replicates the process applied within the PAAC software to calculate ATC. The SIL is not the sum of the non-simultaneous import capabilities from each balancing authority; nor is it a theoretical maximum simultaneous value. Rather, the SIL is the sum of the flow on all individual paths that could be scheduled simultaneously.

The PJM RTO SIL value was calculated for each season by following the FERC instructions in Attachment 1 and 2 of this filing. Key assumptions employed for the PJM RTO SIL analysis include the following.

1) PJM used the monthly firm transmission service data to perform the SIL study based on the requirement that the SIL must consider all existing firm import reservations at least 28 days in duration.

2) PJM used the forecasted monthly peak load for the respective study periods. This is the data that PJM uses to manage the OASIS-ATC when assessing transmission availability, and is consistent with PJM practices and procedures. The data is derived from PJM’s
annual load forecast report, which is posted publicly at the following location:


3) PJM used NERC SDX data, along with PJM OASIS and external OASIS data in the SIL analysis. PJM uses these data to manage the OASIS-ATC when assessing transmission availability, and is consistent with PJM practices and procedures.

4) The granularity of the first tier areas was represented by their respective balancing authorities.

a) PJM calculated these SIL values based on its ability to import from each balancing authority while simultaneously respecting the limiting elements of other balancing authorities.

b) The granularity of available generation within each first tier balancing authority was respected.

c) PJM calculated the transfer distribution factors of each balancing authority on the network. The impact that each balancing authority has on the other balancing authorities was used to calculate the SIL. The SIL is a single calculation at concurrent interface limits rather than the sum of the non-simultaneous import capabilities from each balancing authority. This process is consistent with PJM practices and procedures.

B. PJM Submarket SIL Study Methodology

The results from the PJM Submarket supplement the results from the PJM RTO SIL study. To ensure this supplemental analysis was consistent with the PJM RTO SIL study and the requirements outlined in Orders 697, PJM used its ATC software along with the same data used
for the PJM RTO SIL study. Additional details related to PJM’s Submarket SIL methodology can be found in Attachment 13 of this filing.

Key assumptions employed for the PJM Submarket SIL analyses include the following.

1) PJM used the forecasted monthly peak load for the respective study periods. This is the data that PJM uses to manage the OASIS-ATC when assessing transmission availability, and is consistent with PJM practices and procedures. The data is derived from PJM’s annual load forecast report, which is posted publicly at the following location: [http://pjm.com/~media/documents/reports/2015-load-forecast-report.ashx](http://pjm.com/~media/documents/reports/2015-load-forecast-report.ashx).

2) In the SIL analysis, PJM used NERC SDX data along with PJM and external OASIS data. PJM uses these data to manage the OASIS-ATC when assessing transmission availability and is consistent with PJM practices and procedures.

3) Imports into the PJM Submarkets were supplied from available generation within the PJM balancing authority area, which was not included in the Submarket definition.

4) The generation included in each PJM Submarket definition is consistent with the criteria used by the PJM Market Monitor. Namely, units deleterious to the Submarket’s associated reactive interface were considered external to the Submarket; units that relieve loading on the Submarket’s associated reactive interface, including those units outside of the defined Submarket transmission zones, were identified and treated as Submarket facilities.

All of the SIL values reported in this informational filing should be considered conservative as they do not reflect anticipated import limit increases that would typically result
from the full range of PJM’s re-dispatch, and other operational actions available to mitigate internal limitations.

III. DOCUMENTS ENCLOSED

Along with this transmittal letter, PJM submits the following attachments:

1. Attachment 1: 2015 Summary Table of SIL Components;
2. Attachment 2: Table of Long-Term Firm Transmission Reservations–Redacted from this Public File as critical energy infrastructure information (“CEII”);
3. Attachment 3: Reference Base Case Models–Redacted from this Public File as CEII;
4. Attachment 4: Seasonal Benchmark Case Models–Redacted from this Public File as CEII;
5. Attachment 5: Contingency File and Monitor File;
6. Attachment 6: Sub-System File–Redacted from this Public File as CEII;
7. Attachment 7: First Contingency Incremental Transfer Capability (FCITC) Results;
8. Attachment 8: PJM Operating Guides used for SIL Study–Redacted from this Public File as CEII;
9. Attachment 9: Summary of Non-Affiliated Load Served by First Tier in SIL Study;
10. Attachment 10: Special Cases from Historical OASIS Practices;
11. Attachment 11: PJM Operating Reserves;
12. Attachment 12: PJM Submarket Definitions–Redacted from this Public File as CEII;

13. Attachment 13: PJM Submarket SIL Results; and

14. Attachment 14: Description of Supplemental Data Files- Redacted from this Public File as CEII.

IV. CORRESPONDENCE AND COMMUNICATIONS

Correspondence and communications regarding this filing should be sent to the following individuals:

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V. REQUEST FOR CRITICAL ENERGY INFRASTRUCTURE INFORMATION TREATMENT

PJM requests that the Commission maintain the files associated with the SIL study identified above as CEII and withhold them from public release. Attachments 2, 3, 4, 6, 8, 12 and 14 contain base case power flow data that provide an electronic model and analysis of PJM’s actual transmission system and adjacent regions. Such information meets the definition of CEII as defined in the Commission’s regulations at 18 C.F.R. § 388.113(c)(1) and is the same as the base case power flow data in Part II of FERC Form No. 715, which the Commission has held to be CEII. Attachments 2, 3, 4, 6, 8, 12 and 14 are also considered CEII because they contain details about critical facilities for the generation and transmission of electric power as well as
transactional data extracted from OASIS reservations. In accordance with the Commission’s regulations, these files are provided under separate cover of this electronic filing and are designated with “CEII” and labeled with “Contains Critical Energy Infrastructure Information – Do Not Release.”

VI. CONCLUSION

For the reasons stated above, PJM respectfully requests that the Commission accept the PJM RTO SIL Study Report, the PJM East SIL Study, the PJM AP South SIL Study and the PJM 5004/5004 SIL Study, consistent with Order No. 697 and No. 697-A.

Respectfully submitted,

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