

PJM Initial Study

Long-Term Firm Transmission Service

OASIS Assignment Reference

**4841990
AC1-129**

November 23, 2016

Request Details

North Carolina Electric Membership has requested a maximum amount of 25 MW of yearly Firm Point-to-Point Transmission Service on the PJM to CPLE path, beginning January 1, 2018 and ending January 1, 2023. The Point of Receipt (POR) for this request is PJM and the Point of Delivery (POD) is CPLE. This request has been assigned PJM OASIS reference identification 4841990 and was submitted on the PJM OASIS per the PJM Open Access Transmission Tariff (PJM OATT).

Queue #	OASIS ID	Start	Stop	Path	POR	POD	MW
AC1-129	4841990	01/01/2018	01/01/2023	PJM-CPLE	PJM	CPLE	25

General

The Initial Study aims at determining whether all or part of the request for service can be accommodated based on projected system conditions and topology. The Initial Study process includes the following three screenings: Available Transmission Capability (ATC) screening, Generator Deliverability screening and Available Share of Total Flowgate Capability (ASTFC) screening.

ATC screening is employed in this study to make the determination as described in the Initial Study Agreement (ISA). The ATC screening assesses projected available transfer capability (within the ATC calculation horizon) from the POR to the POD using power flow models, load forecasts, planned generation, outages and existing reservations.

The Generator Deliverability screening determines the impact of the requested transfer on the transmission system facilities using tests corresponding with the testing employed for evaluating generation interconnection requests. The screening will identify if the requested transfer prohibits any generator(s) from being deliverable in the PJM system. Generator Deliverability under the Initial Study phase is tested using linear analysis tools. If violations are observed, more detailed testing using AC tools is required under the System Impact Study (SIS) phase.

Lastly, the ASTFC screening, if within the calculation horizon, will identify potential flowgates allocation violations to comply with the PJM-MISO Baseline Congestion Management Process Agreement.

PJM studies long term firm transmission service requests for unlimited rollover rights beyond the requested end date unless otherwise instructed by the customer. Limits identified in the ATC and/or Generator Deliverability screening will result in a need to complete a SIS before service can be accommodated. Limits identified in the ASTFC screening alone will not result in a denial of service but are contingent upon the availability of ASTFC from reciprocal entity(ies). Transactions under SIS phase will be studied using full AC network analysis and provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades.

ATC Results

During the requested period of January 1, 2018 to January 1, 2023 of the PJM to CPLE request, ATC is evaluated from December 1, 2016 to May 31, 2018. ATC beyond this period is not applicable at this time, since it is not within the ATC calculation horizon. During the ATC screening, the following *existing* PJM constraints were identified as an ATC limit:

- Everetts-Greenvil 230 (flo) Heritage-Wake 500

Rollover Period

ATC following the requested termination date of January 1, 2023 of the PJM to CPLE transfer is not applicable at this time, since it is beyond the AFC/ATC calculations horizon.

ASTFC Results

During the requested period of January 1, 2018 to January 1, 2023 of the PJM to CPLE request, ASTFC is evaluated from December 1, 2016 to May 31, 2018. ASTFC beyond this period is not applicable at this time. During the ASTFC screening, the following existing PJM constraints were identified as ASTFC limits for the 25 MW transfer on the PJM-CPLE path.

- AEP-DOM Interface
- AEP-DOM Interface l/o Bedington-Black Oak 500kV

Deliverability Results

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None.

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None.

Steady-State Voltage Requirements

To be determined.

Short Circuit

To be determined.

Delivery of Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Only the most severely overloaded conditions are listed. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed, which will study all overload conditions associated with the overloaded element(s) identified.

Not Applicable.

Light Load Analysis - 2020

Light Load Studies to be conducted during later study phases (as required by PJM Manual 14B).

System Reinforcements

Short Circuit

To be determined .

Stability and Reactive Power Requirement

To be determined.

Summer Peak Load Flow Analysis Reinforcements

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None.

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

Light Load Load Flow Analysis Reinforcements

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None.

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

Conclusion

PJM is unable to grant your request 4841990 for a total of 25 MW of yearly Firm Point-to-Point Transmission Service on the PJM to CPLE path, but is able to provide a counter offer, of monthly Firm Point-to-Point Transmission Services for the months of 04/01/2018 and 05/01/2018 at this time.

The initial study of the requested service included evaluation of impacts of the request against contingencies utilized in feasibility studies for the remainder of the interconnection requests in PJM's New Services Queue. While no constraints were identified during the study, this study does not incorporate all NERC and PJM contingencies required for the evaluation of projects prior to granting service. The evaluation of all required contingencies is performed during the System Impact Study and may potentially identify constraints and reinforcement requirements.

The next phase of study is the System Impact Study (SIS) if elected by the customer. The SIS identifies the system constraints relating to each proposed new service request included therein and the Attachment Facilities, Direct Assignment Facilities, Local Upgrades and/or Network Upgrades required accommodating such projects. The SIS provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades.

ATTACHMENT FF**Form of****Initial Study Agreement****Company name: North Carolina Electric Membership**

OASIS Request	Start	Stop	Amount	Path	Date & Time of Request
4841990	01/01/2018	01/01/2023	25 MW	PJM-CPLE	10/27/2016; 15:32

PURPOSE

An Initial Study is used to determine whether or not the Transmission System is adequate to accommodate all or part of a request for long-term firm transmission service under both Part II (POINT-TO-POINT TRANSMISSION SERVICE) or Part III (NETWORK INTEGRATION TRANSMISSION SERVICE) of the PJM Open Access Transmission Tariff (the “Tariff”) (together referred to as “long-term firm transmission service”). The FERC comparability standard is applied in evaluating the impact of all requests.

SCOPE OF WORK

The Initial Study will determine if the PJM network has sufficient capability to grant the transmission service.

The Initial Study is required for all long-term firm transmission service requests. The Initial Study indicates whether or not the request for service can be granted based on expected system conditions and topology. Pursuant to Section 19.3 or Section 32.2 of the Tariff, upon completion of the Initial Study, PJM will notify the transmission customer that (a) the transmission service request is accepted, or (b) additional analysis is required. Pursuant to Part VI of the Tariff, additional analysis will only commence if the customer elects to continue to the System Impact Study within 30 days of notification.

General

Initial Studies are performed on transmission service requests in the order in which they are received. Multiple requests for overlapping periods and similar paths are evaluated until a limit is reached. Transmission service requests are held in “Study” status until requests received earlier have been confirmed or withdrawn. If the study demonstrates that the requested service can be accepted, the status of the request is changed to “Accepted” on the PJM OASIS. As soon

as possible after notification of acceptance, the Transmission Customer should “Confirm” the transmission request. If accepted service is not confirmed within 15 days, the request is deemed “Withdrawn,” and other requests waiting in the queue can then be studied.

Available Transmission Capability (ATC)

ATC indicates the transfer capability that is expected to be available on the transmission system during a given period. An initial screening of ATC is required for all firm transmission service requests. This screening is used to evaluate the impact of the requested service on the transmission contingencies that limit available transfer capability. The screening is based on the latest available information regarding existing firm service.

Network Analysis and Deliverability Test

In addition to ATC screening, PJM evaluates requests for long-term firm transmission service using deliverability tests commensurate with the testing employed for evaluating generation interconnection requests. The energy from generating facilities or the energy delivered using long-term firm transmission service that is ultimately committed to meet resource requirements must be deliverable to where it is needed in the event of a system emergency. Therefore, there must be sufficient transmission network transfer capability within the control area. PJM determines the sufficiency of network transfer capability through a series of “deliverability tests.” All generator interconnections and long-term firm transmission service in PJM are subjected to the same deliverability tests. The FERC comparability standard is applied in evaluating the impact of all requests.

Rollover Rights

Pursuant to section 2.2 of the PJM Tariff, a Transmission customer who receives long term firm service for five years or longer may request rollover/renewal priority rights at the end of the term of the service. However, rollover rights may be limited in some cases. For instance, if the System Impact Study identifies limits caused by reliability problems (unless Direct Assignment Facilities or Network Upgrades are constructed to provide the requested service), the Transmission Customer will be notified of the limitation. In such case, the Service Agreement will include language which will reserve to PJM the right to limit rollovers in such circumstances. Therefore, the Transmission Customer may not be able to exercise reservation/rollover priority rights, in whole or in part, which it may otherwise have pursuant to Section 2.2 of the Tariff upon the initial termination date of the Transmission Service unless the Direct Assignment Facilities and/or Network Upgrades identified in the System Impact Study and/or Facilities Studies are completed pursuant to Part VI.

Reliability problems which may be identified by the System Impact Study and which may require additional Direct Assignment Facilities or Network Upgrades to provide the requested service include the following:

Limiting rollover rights for ATC.

If there is not enough ATC to accommodate rollover rights beyond the initial term PJM may explicitly state in the transmission service agreement that rollover rights for the requested service will be limited.

Limiting rollover rights for earlier queued transmission or generation interconnections.

As a part of the Initial Study, the request is tested to verify that the service can co-exist with generators whose interconnection request predates the transmission service request. If the transmission service can not co-exist with a planned generator whose interconnection request predates the transmission service request, and the original transmission service request does not conflict with the generator in service date, the request will be approved. However, the transmission customer will be notified that the service has limited rollover rights. If the customer requests to renew the transmission service, another Initial Study may be required.

Estimated Elapsed Time and Cost to Complete the Initial Study

The Initial Study analysis to determine if the request can be accommodated will take approximately 10 man-days of effort. The study is estimated to take approximately 14 calendar days to complete but may take as long as 60 days to complete. The cost to complete the Initial Study is estimated at \$5,000.

**ADDITIONAL TERMS AND CONDITIONS
INITIAL STUDY AGREEMENT
FOR LONG-TERM FIRM TRANSMISSION SERVICE REQUESTS**

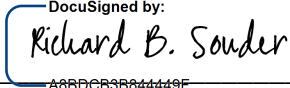
- 1.0 This Agreement for an Initial Study for Long-Term Firm Transmission Service Requests ("Initial Study Agreement") is entered into, by and between PJM Interconnection, L.L.C. ("PJM") and **North Carolina Electric Membership** ("Customer").
- 2.0 PJM has determined that the Transmission Customer has completed the Application for Firm Point-To-Point Transmission Service or Network Service under the PJM Open Access Transmission Tariff ("Tariff") and has provided an Application deposit in accordance with the provisions of the Tariff. The Tariff is accessible through the PJM OASIS.

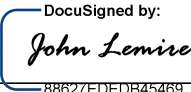
- 3.0 PJM has determined that an Initial Study for Transmission Service needs to be conducted to evaluate the request.
- 4.0 PJM will conduct the Initial Study in accordance with the procedures described in the PJM Manual for Transmission Service Request, which is accessible through the PJM OASIS, the Tariff and this Initial Study Agreement.
- 5.0 This Initial Study Agreement indicates the Scope of the Work required to evaluate the request and provides an estimated cost and schedule for completing the subject Initial Study for Transmission Service. The Customer shall be responsible for actual charges associated with the Initial Study.
- 6.0 Any notice or request made to or by either PJM or the Transmission Customer, regarding this Initial Study Agreement shall be made to the representatives listed below.
- 7.0 This Initial Study Agreement **must be executed** by the Transmission Customer **and returned to PJM within (fifteen) 15 days** of the Date stated below, or this Agreement will be void and the service request will be deemed withdrawn.
- 8.0 In accordance with Part II, (POINT-TO-POINT TRANSMISSION SERVICE), Section 19 (Initial Study Procedures for Long-Term Firm Point-to-Point Transmission Service Requests) Section 19.1 (Notice of Need for Initial Study) and Part III, (NETWORK INTEGRATION TRANSMISSION SERVICE), Section 32 (Initial Study Procedures for Network Integration Transmission Service Requests), and Section 32.1 (Notice of Need for Initial Study) of the Tariff, the Eligible Customer shall agree to reimburse the Transmission Provider for performing the required Initial Study.

In some cases, the requested service cannot be granted upon completion of the Initial Study. If the Customer has withdrawn its New Service Request or has not requested completion of a System Impact Study within 30 days of completion of the Initial Study, its New Service Request will be deemed to be withdrawn and terminated.

Transmission Provider
PJM Interconnection, L.L.C.
2750 Monroe Blvd
Audubon, PA 19403

Transmission Customer
North Carolina Electric Membership
3400 Sumner Blvd., P.O. Box 27306
Raleigh, NC 27611

Agent: 
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Agent: 
88627EDED845469...

Date: 11/2/2016

Date: 11/2/2016