PJM Initial Study

Long-Term Firm Transmission Service

OASIS Assignment Reference

4641473, 4641474, and 4641475
Z2-065, Z2-066, and Z2-067

May 21, 2014

Request Details

North Carolina Electric Membership has requested a maximum amount of 165 MW (55 MW each) of yearly firm network transmission service on the CPLE to PJM path, beginning June 1, 2019 and ending June 1, 2024. The Point of Receipt (POR) for this request is CPLE and the Point of Delivery (POD) is PJM. This request has been assigned PJM OASIS reference identification 4641473, 4641474, and 4641475 and was submitted on the PJM OASIS per the PJM Open Access Transmission Tariff (PJM OATT).

OASIS ID	Start	Stop	Path	POR	POD	MW
4641473	06/01/2019	06/01/2024	CPLE-PJM	CPLE	PJM	55
4641474	06/01/2019	06/01/2024	CPLE-PJM	CPLE	PJM	55
4641475	06/01/2019	06/01/2024	CPLE-PJM	CPLE	PJM	55

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-Midwest ISO 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

ATC for the requested period of June 1, 2019 to June 1, 2024 of the CPLE to PJM transfer is not applicable at this time since it is beyond the AFC/ATC calculations horizon.

Rollover Period

ATC following the requested termination date of June 1, 2024 of the CPLE to PJM transfer is not applicable at this time since it is beyond the AFC/ATC calculations horizon.

Deliverability Results

Z2-065, Z2-066 and Z2-067 were studied as one 165 MW transfer from the Hamlet plant. PJM transmission constraints listed below are impacted by the 165 MW transfer from CPLE to PJM and have been identified as potential problems.

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

None

Multiple Facility Contingency
(Double Circuit Tower Line, Failed 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)

1. (DVP - DVP) The 8BRUNSWICK-8CARSON 500 kV line (from bus 314935 to bus 314902 ckt 1) loads from 105.08% to 106.1% (**DC power flow**) of its emergency rating (3424 MVA) for the single line contingency outage of 'LN 511'. This project contributes approximately 34.93 MW to the thermal violation.

CONTINGENCY 'LN 511'
OPEN BRANCH FROM BUS 314902 TO BUS 314936 CKT 1 /* 8CARSON 500.00 - 8RAWLINGS 500.00
END

Please refer to Appendix 1 for a table containing the generators having contribution to this flowgate.

2. (CPLE - DVP) The 6PERSON230 T-6HALIFAX 230 kV line (from bus 304070 to bus 314697 ckt 1) loads from 109.36% to 112.28% (**DC power flow**) of its emergency rating (712 MVA) for the line fault with failed breaker contingency outage of '570T509'. This project contributes approximately 20.79 MW to the thermal violation.

Please refer to Appendix 2 for a table containing the generators having contribution to this flowgate.

3. (DVP - DVP) The 6PRINCE EDW-6FARMVIL 230 kV line (from bus 313802 to bus 314692 ckt 1) loads from 134.58% to 136.51% (**DC power flow**) of its emergency rating (608 MVA) for the line fault with failed breaker contingency outage of '511T595'. This project contributes approximately 11.72 MW to the thermal violation.

Please refer to Appendix 3 for a table containing the generators having contribution to this flowgate.

4. (DVP - DVP) The 6BRIERY-6PRINCE EDW 230 kV line (from bus 314268 to bus 313802 ckt 1) loads from 135.57% to 137.49% (**DC power flow**) of its emergency rating (608 MVA) for the line fault with failed breaker contingency outage of '511T595'. This project contributes approximately 11.72 MW to the thermal violation.

Please refer to Appendix 4 for a table containing the generators having contribution to this flowgate.

5. (DVP - DVP) The 6CLOVER-6BRIERY 230 kV line (from bus 314686 to bus 314268 ckt 1) loads from 136.62% to 138.55% (**DC power flow**) of its emergency rating (608 MVA) for the line fault with failed breaker contingency outage of '511T595'. This project contributes approximately 11.72 MW to the thermal violation.

Please refer to Appendix 5 for a table containing the generators having contribution to this flowgate.

6. (DVP - DVP) The 8RAWLINGS-8CARSON 500 kV line (from bus 314936 to bus 314902 ckt 1) loads from 144.22% to 145.61% (**DC power flow**) of its emergency rating (2598 MVA) for the single line contingency outage of 'LN 595'. This project contributes approximately 36.21 MW to the thermal violation.

Please refer to Appendix 6 for a table containing the generators having contribution to this flowgate.

ASTFC Results

ASTFC for the requested period of June 1, 2019 to June 1, 2024 of the CPLE to PJM transfer is not applicable at this time since it is beyond the ASTFC calculation horizon.

Conclusion

Based on the Deliverability Results screenings provided in this report, PJM is unable to accept your request 4641473, 4641474, and 4641475 for a total of 165 MW of yearly firm network transmission service on the CPLE to PJM path at this time. The next phase of study is the 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 to accommodate such projects. The System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades.

Appendices

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact.
It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

Appendix 1

(DVP - DVP) The 8BRUNSWICK-8CARSON 500 kV line (from bus 314935 to bus 314902 ckt 1) loads from 105.08% to 106.1% (**DC power flow**) of its emergency rating (3424 MVA) for the single line contingency outage of 'LN 511'. This project contributes approximately 34.93 MW to the thermal violation.

CONTINGENCY 'LN 511'
 OPEN BRANCH FROM BUS 314902 TO BUS 314936 CKT 1 /* 8CARSON 500.00 - 8RAWLINGS 500.00
 END

Bus Number	Bus Name	Full Contribution
242902	05CRG2L	0.46
242701	05LEESVI	0.17
242750	05PHILPO	0.05
246843	05SMG1	0.22
246844	05SMG2	0.57
246845	05SMG3	0.34
246846	05SMG4	0.59
246847	05SMG5	0.22
246895	05VACITY	1.24
242850	05WOLFH1	0.31
242851	05WOLFH2	0.22
315102	1BRUNSWICKG1	4.75
315103	1BRUNSWICKG2	4.75
315104	1BRUNSWICKG3	4.75
315105	1BRUNSWICKS1	9.87
315150	1BUGGS 1	0.37
315151	1BUGGS 2	0.37
315153	1CLOVER1	5.27
315154	1CLOVER2	5.34
342900	1COOPER1 G	0.23
342903	1COOPER2 G	0.45
315131	1EDGECMA	0.2
315132	1EDGECMB	0.2
315156	1HALLBR1	0.24
315165	1HURT 1	0.17
315166	1HURT 2	0.17
315158	1KERR 1	0.06
315159	1KERR 2	0.18
315160	1KERR 3	0.18
315161	1KERR 4	0.18
315162	1KERR 5	0.18
315163	1KERR 6	0.18
315164	1KERR 7	0.18

315266	1PLYWOOD A	0.35
244221	INDDRVL	0.12
244761	RACINE	0.11
242889	REUSENS	0.01
297087	V2-040	0.03
LTF	X4-041	13.95
LTF	Y1-002	56.08
LTF	Y1-004	71.8
LTF	Y1-007	49.86
914001	Y2-001 C	-6.62
LTF	Y2-004	28.24
LTF	Y2-005	11.29
LTF	Y2-006	28.98
LTF	Y2-033	10.09
LTF	Y2-034	32.61
LTF	Y2-035	35.31
LTF	Y2-036	22.49
914151	Y2-066	-1.41
LTF	Y2-068	196.44
914171	Y2-074	-1.16
914181	Y2-076	5.59
914191	Y2-077	-4.33
LTF	Y2-114	9.27
LTF	Y2-115	10.14
LTF	Y3-028	17.93
LTF	Y3-069	21.92
LTF	Y3-072	21.92
LTF	Y3-094	20.29
915741	Y3-119 C	0.51
LTF	Z1-025	29.82
LTF	Z1-027	11.95
LTF	Z1-029	4.5
LTF	Z1-046	22.55
LTF	Z1-067	8.57
LTF	Z1-071	17.49
916301	Z1-086 C	953.24
LTF	Z2-067	34.93

Appendix 2

(CPLE - DVP) The 6PERSON230 T-6HALIFAX 230 kV line (from bus 304070 to bus 314697 ckt 1) loads from 109.36% to 112.28% (**DC power flow**) of its emergency rating (712 MVA) for the line fault with failed breaker contingency outage of '570T509'. This project contributes approximately 20.79 MW to the thermal violation.

```
CONTINGENCY '570T509'                                   /*BRUNSWICK
  OPEN BRANCH FROM BUS 314935 TO BUS 304183 CKT 1       /*BRUNSWICK TO
WAKE (LINE 570)
  REMOVE MACHINE G1 FROM BUS 315102                     /*BRUNSWICK UNIT G1
(LINE 509)
  REMOVE MACHINE G2 FROM BUS 315103                     /*BRUNSWICK UNIT G2
(LINE 509)
  REMOVE MACHINE G3 FROM BUS 315104                     /*BRUNSWICK UNIT G3
(LINE 509)
  REMOVE MACHINE S1 FROM BUS 315105                     /*BRUNSWICK UNIT S1
(LINE 509)
  END
```

Bus Number	Bus Name	Full Contribution
244012	PINNACLE	1.54
292791	U1-032 E	-1.21
LTF	X4-041	8.87
LTF	Y1-002	35.67
LTF	Y1-004	45.83
LTF	Y1-007	31.83
914001	Y2-001 C	-2.56
LTF	Y2-004	17.97
LTF	Y2-005	7.18
LTF	Y2-006	18.42
LTF	Y2-033	6.42
LTF	Y2-034	20.74
LTF	Y2-035	23.33
LTF	Y2-036	14.47
914151	Y2-066	-0.54
LTF	Y2-068	128.82
914171	Y2-074	-0.48
914181	Y2-076	-3.25
914191	Y2-077	-1.81
LTF	Y2-114	5.89
LTF	Y2-115	6.44
LTF	Y3-028	11.46
LTF	Y3-069	13.97
LTF	Y3-072	13.97
LTF	Y3-094	12.96

LTF	Z1-025	18.95
LTF	Z1-027	7.61
LTF	Z1-046	14.35
LTF	Z1-067	5.44
LTF	Z1-070A	7.21
LTF	Z1-070B	30.45
LTF	Z1-071	11.16
LTF	Z2-067	20.79

Appendix 3

(DVP - DVP) The 6PRINCE EDW-6FARMVIL 230 kV line (from bus 313802 to bus 314692 ckt 1) loads from 134.58% to 136.51% (**DC power flow**) of its emergency rating (608 MVA) for the line fault with failed breaker contingency outage of '511T595'. This project contributes approximately 11.72 MW to the thermal violation.

```
CONTINGENCY '511T595'                                   /*CARSON
  OPEN BRANCH FROM BUS 314902 TO BUS 314935 CKT 1       /*CARSON TO
BRUNSWICK (LINE 595)
  OPEN BRANCH FROM BUS 314936 TO BUS 314902 CKT 1       /*RAWLINGS TO
CARSON (LINE 511)
  END
```

Bus Number	Bus Name	Full Contribution
315102	1BRUNSWICKG1	1.3
315103	1BRUNSWICKG2	1.3
315104	1BRUNSWICKG3	1.3
315105	1BRUNSWICKS1	2.7
315153	1CLOVER1	2.86
315154	1CLOVER2	2.89
315266	1PLYWOOD A	0.18
244012	PINNACLE	0.69
297087	V2-040	0.02
LTF	Y2-035	11.96
LTF	Y2-068	57.68
914181	Y2-076	3.02
LTF	Z1-067	2.86
916301	Z1-086 C	261.11
916302	Z1-086 E	8.17
LTF	Z2-067	11.72

Appendix 4

(DVP - DVP) The 6BRIERY-6PRINCE EDW 230 kV line (from bus 314268 to bus 313802 ckt 1) loads from 135.57% to 137.49% (**DC power flow**) of its emergency rating (608 MVA) for the line fault with failed breaker contingency outage of '511T595'. This project contributes approximately 11.72 MW to the thermal violation.

CONTINGENCY '511T595' /*CARSON
OPEN BRANCH FROM BUS 314902 TO BUS 314935 CKT 1 /*CARSON TO BRUNSWICK (LINE 595)
OPEN BRANCH FROM BUS 314936 TO BUS 314902 CKT 1 /*RAWLINGS TO CARSON (LINE 511)
END

Bus Number	Bus Name	Full Contribution
315102	1BRUNSWICKG1	1.3
315103	1BRUNSWICKG2	1.3
315104	1BRUNSWICKG3	1.3
315105	1BRUNSWICKS1	2.7
315153	1CLOVER1	2.86
315154	1CLOVER2	2.89
315266	1PLYWOOD A	0.18
244012	PINNACLE	0.69
297087	V2-040	0.02
LTF	Y2-035	11.96
LTF	Y2-068	57.68
914181	Y2-076	3.02
LTF	Z1-067	2.86
916301	Z1-086 C	261.11
916302	Z1-086 E	8.17
LTF	Z2-067	11.72

Appendix 5

(DVP - DVP) The 6CLOVER-6BRIERY 230 kV line (from bus 314686 to bus 314268 ckt 1) loads from 136.62% to 138.55% (**DC power flow**) of its emergency rating (608 MVA) for the line fault with failed breaker contingency outage of '511T595'. This project contributes approximately 11.72 MW to the thermal violation.

CONTINGENCY '511T595' /*CARSON
OPEN BRANCH FROM BUS 314902 TO BUS 314935 CKT 1 /*CARSON TO BRUNSWICK (LINE 595)
OPEN BRANCH FROM BUS 314936 TO BUS 314902 CKT 1 /*RAWLINGS TO CARSON (LINE 511)
END

Bus Number	Bus Name	Full Contribution
315102	1BRUNSWICKG1	1.3
315103	1BRUNSWICKG2	1.3
315104	1BRUNSWICKG3	1.3
315105	1BRUNSWICKS1	2.7
315153	1CLOVER1	2.86
315154	1CLOVER2	2.89
315266	1PLYWOOD A	0.18
244012	PINNACLE	0.69
297087	V2-040	0.02
LTF	Y2-035	11.96
LTF	Y2-068	57.68
914181	Y2-076	3.02
LTF	Z1-067	2.86
916301	Z1-086 C	261.11
916302	Z1-086 E	8.17
LTF	Z2-067	11.72

Appendix 6

(DVP - DVP) The 8RAWLINGS-8CARSON 500 kV line (from bus 314936 to bus 314902 ckt 1) loads from 144.22% to 145.61% (**DC power flow**) of its emergency rating (2598 MVA) for the single line contingency outage of 'LN 595'. This project contributes approximately 36.21 MW to the thermal violation.

CONTINGENCY 'LN 595'
 OPEN BRANCH FROM BUS 314902 TO BUS 314935 CKT 1 /* 8CARSON 500.00 - 8BRUNSWICK 500.00
 END

Bus Number	Bus Name	Full Contribution
242900	05CRG1L	0.49
242902	05CRG2L	0.49
242701	05LEESVI	0.18
242750	05PHILPO	0.05
246843	05SMG1	0.23
246844	05SMG2	0.61
246845	05SMG3	0.36
246846	05SMG4	0.63
246847	05SMG5	0.24
246895	05VACITY	1.29
242850	05WOLFH1	0.33
242851	05WOLFH2	0.23
315102	1BRUNSWICKG1	4.82
315103	1BRUNSWICKG2	4.82
315104	1BRUNSWICKG3	4.82
315105	1BRUNSWICKS1	10.01
315150	1BUGGS 1	0.4
315151	1BUGGS 2	0.4
315153	1CLOVER1	5.93
315154	1CLOVER2	6.01
315131	1EDGECMA	0.21
315132	1EDGECMB	0.21
315156	1HALLBR1	0.26
315165	1HURT 1	0.18
315166	1HURT 2	0.18
315158	1KERR 1	0.07
315159	1KERR 2	0.19
315160	1KERR 3	0.19
315161	1KERR 4	0.19
315162	1KERR 5	0.19
315163	1KERR 6	0.19
315164	1KERR 7	0.19
315266	1PLYWOOD A	0.38

244221	INDDRVL	0.12
244761	RACINE	0.11
242889	REUSENS	0.01
297087	V2-040	0.04
LTF	X4-041	14.53
LTF	Y1-002	58.43
LTF	Y1-004	74.82
LTF	Y1-007	51.97
914001	Y2-001 C	-7.
LTF	Y2-004	29.43
LTF	Y2-005	11.76
LTF	Y2-006	30.19
LTF	Y2-033	10.52
LTF	Y2-034	33.98
LTF	Y2-035	36.78
LTF	Y2-036	23.42
914151	Y2-066	-1.49
LTF	Y2-068	205.16
914171	Y2-074	-1.22
914181	Y2-076	6.28
914191	Y2-077	-4.56
LTF	Y2-114	9.65
LTF	Y2-115	10.57
LTF	Y3-028	18.69
LTF	Y3-069	22.84
LTF	Y3-072	22.84
LTF	Y3-094	21.15
915741	Y3-119 C	0.54
LTF	Z1-025	31.07
LTF	Z1-027	12.45
LTF	Z1-029	4.69
LTF	Z1-046	23.51
LTF	Z1-067	8.91
LTF	Z1-071	18.24
916301	Z1-086 C	966.59
LTF	Z2-067	36.21

ATTACHMENT FF

Form of

Initial Study Agreement

Company name: North Carolina Electric Membership

OASIS Request	Start	Stop	Amount	Path	Date & Time of Request
4641475	6/1/2019	6/1/2024	55 MW	CPLE-PJM	4/17/14 11:17:38

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

Agent: _____

Date: 4/23/2014

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

Agent: John Lemmi

Date: 4/22/14