

---

## 1 Introduction

---

Pursuant to the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT), SPP has conducted this DISIS for certain generation interconnection requests in the SPP Generation Interconnection Queue. These interconnection requests have been clustered together for the following DISIS window which closed September 30, 2015. The customers will be referred to in this study as the DISIS-2015-002 Interconnection Customers. This DISIS analyzes the interconnecting of multiple generation interconnection requests associated with new generation totaling 6,176.9 MW of new generation which would be located within the transmission systems of American Electric Power – Western (AEPW), Basin Electric Power Cooperative (BEPC), Nebraska Public Power District (NPPD), Oklahoma Gas and Electric (OKGE), Southwestern Public Service (SPS), Southwestern Power Administration (SWPA), Sunflower Electric Power Corporation\Mid-Kansas Electric Company, LLC (SUNC\MKEC), Western Area Power Administration (WAPA), Westar Energy, Inc. (WERE), and Western Farmers Electric Cooperative (WFEC). The various generation interconnection requests have differing proposed in-service dates<sup>2</sup>. The generation interconnection requests included in this DISIS are listed in Appendix A by their queue number, amount, requested interconnection service, area, requested interconnection point, proposed interconnection point, and the requested in-service date. This study represents the “Stand-Alone” analysis for remaining Interconnection Requests in the DISIS-2015-002 analysis.

The primary objective of this DISIS is to identify the system constraints, transient instabilities, and over-dutied equipment associated with connecting the generation to the area transmission system. The Impact Study and other subsequent Interconnection Studies are designed to identify required Transmission Owner Interconnection Facilities, Network Upgrades and other Direct Assignment Facilities needed to inject power into the grid at each specific point of interconnection.

<sup>2</sup> The generation interconnection requests in-service dates may need to be deferred based on the required lead time for the Network Upgrades necessary. The Interconnection Customers that proceed to the Facility Study will be provided a new in-service date based on the completion of the Facility Study or as otherwise provided for in the GIP.

---

## 2 Model Development (Study Assumptions)

---

### 2.1.1 Interconnection Requests Included in the Cluster

SPP included all interconnection requests that submitted a DISIS Agreement no later than September 30, 2015 and were subsequently accepted by Southwest Power Pool under the terms of the Generator Interconnection Procedures (GIP) that were in effect at the time this study commenced on October 1, 2015. The interconnection requests that are included in this study are listed in Appendix A.

### 2.1.2 Affected System Interconnection Request

Also included in this DISIS is one (1) Affected System Study. The Affected System Interconnection Requests have been given the designations with the "ASGI" prefix. These requests are listed in Appendix A. Affected System Interconnection Requests were only studied in "cluster" scenarios.

### 2.1.3 Previously Queued Interconnection Requests

The previous queued requests included in this study are listed in Appendix B. In addition to the Base Case Upgrades, the previous queued requests and associated upgrades were assumed to be in-service and added to the Base Case models. These projects were dispatched as ERIS with equal distribution across the SPP footprint. Prior queued projects that requested NRIS were also dispatched in separate NRIS scenarios into the balancing authority of the interconnecting transmission owner.

## 2.2 Development of Base Cases

### 2.2.1 Power Flow

The 2015 series Integrated Transmission Planning models (used in the 2016 ITPNT) including the 2016 winter peak (16WP) season, the 2017 spring (17G) and 2017 summer peak (17SP) seasons, the 2020 light load (20L), summer (20SP) and winter peak (20WP) seasons, and the 2025 summer peak (25SP) season were the starting seasonal models for this study.

### 2.2.2 Dynamic Stability

The 2015 series SPP Model Development Working Group (MDWG) Models for 2016 winter peak (16WP) season, 2017 summer peak (17SP) season, and the 2025 summer peak (25SP) season cases were used as starting points for this study.

### 2.2.3 Short Circuit

The 2017 and 2025 summer peak stability cases are used for this analysis.

### 2.2.4 Base Case Upgrades

The following facilities are part of the SPP Transmission Expansion Plan, the Balanced Portfolio or recently approved Priority Projects. These facilities have an approved Notification to Construct (NTC) or are in construction stages and were assumed to be in-service at the time of dispatch and added to the base case models. The DISIS-2015-002 Interconnection Customers have not been assigned advancement costs for the below listed projects. The DISIS-2015-002 Interconnection Customers Generation Facilities in service dates may need to be delayed until the completion of the following upgrades. In some cases, the in-service date is beyond the allowable time a customer

can delay. In this case, the Interconnection Customer may move forward with Limited Operation or remain in the DISIS Queue for additional study cycles. If for some reason, construction on these projects is discontinued, additional restudies will be needed to determine the interconnection needs of the DISIS Interconnection Customers.

- 2012 Integrated Transmission Plan (2012 ITP10) Projects
  - Woodward-Tatonga-Mathewson-Cimarron 345kV transmission line circuit #2, scheduled for 2018 in-service<sup>3</sup>
  - Chisholm – Gracemont 345kV transmission line, and Chisholm 345/230kV transformer circuit #1, scheduled for 3/1/2018 in-service<sup>4</sup>
- 2015 Integrated Transmission Plan Near Term (2015 ITPNT) Projects
  - Potash Junction – Intrepid – IMC #1 – Livingston Ridge 115kV rebuild
  - National Enrichment Plant – Targa – Cardinal 115kV circuit #1 rebuild
- Gentleman – Thedford (Cherry County) – Holt County 345kV circuit #1 scheduled for 2019 in-service<sup>5</sup>
- Hoskins – Neligh East 345/115 kV Project<sup>6</sup>
  - Neligh East 345/115 kV substation and transformer
  - Neligh East Area 115 kV upgrades to support new station
  - Hoskins – Neligh East 345 kV circuit #1
- High Priority Incremental Loads (HPILs) Projects<sup>7</sup>:
  - TUCO Interchange – Yoakum – Hobbs Interchange 345/230 kV Project
    - TUCO Interchange – Yoakum – Hobbs Interchange 345 kV circuit #1 and associated terminal equipment upgrades
    - Hobbs 345/230/13 kV transformer circuit #1
    - Yoakum 345/230/13 kV transformer circuit #1
  - Chaves County – Price – CV Pines – Capitan 115 kV circuit #1
  - China Draw – Yeso Hills 115 kV circuit #1
  - Dollarhide – Toboso Flats 115 kV circuit #1
  - Hobbs Interchange – Kiowa 345 kV circuit #1
  - Kiowa – North Loving – China Draw 345/115 kV Projects
    - Kiowa – North Loving – China Draw circuit #1 and associated terminal equipment upgrades
    - China Draw 345/115/13 kV transformer circuit #1
    - North Loving 345/115/13 kV transformer circuit #1
  - Kiowa – Road Runner 345/230/115 kV Projects
    - Kiowa 345/230 kV transformer circuit #1
    - Road Runner 345/115/13 kV transformer circuit #1

<sup>3</sup> SPP Notification to Construct (NTC) 200223

<sup>4</sup> SPP Notification to Construct (NTC) 200240 and 200255

<sup>5</sup> SPP Notification to Construct (NTC) 200220

<sup>6</sup> SPP Regional Reliability 2012 ITP 10 Project Per SPP-NTC-200220

<sup>7</sup> Per Network Upgrades assigned in High Priority Incremental Loads (HPILs) study, Including Direct Assigned Upgrades, Projects in SPP-NTC-200256 and SPP-NTC-200283.

- Livingston Ridge – Sage Brush – Lagarto – Cardinal 115 kV circuit #1
- North Loving – South Loving 115 kV circuit #1
- Ponderosa – Ponderosa Tap 115 kV circuit #1
- Nebraska City – Mullin Creek – Sibley 345kV circuit #1 build, place in-service in 2016<sup>8</sup>

## 2.2.5 Contingent Upgrades

The following facilities do not yet have approval. These facilities have been assigned to higher queued interconnection customers. These facilities have been included in the models for the DISIS-2015-002 study and are assumed to be in service. This list may not be all inclusive. The DISIS-2015-002 Interconnection Customers, at this time, do not have responsibility for these facilities but may later be assigned the cost of these facilities if higher queued customers terminate their Generation Interconnection Agreement or withdraw from the interconnection queue. The DISIS-2015-002 Interconnection Customer Generation Facilities in-service dates may need to be delayed until the completion of the following upgrades.

- Upgrades assigned to DISIS-2010-002 Interconnection Customers:
  - Twin Church – Dixon County 230 kV circuit #1 rerate (320 MVA).
  - Buckner – Spearville 345 kV circuit #1 terminal equipment.
- Upgrades assigned to DISIS-2011-001 Interconnection Customers:
  - Hoskins – Dixon County – Twin Church 230 kV circuit #1 conductor clearance increase.
  - (NRIS only) Woodward District EHV Phase Shifting Transformer.
- Upgrades assigned to DISIS-2012-002 Interconnection Customers:
  - Lake Creek – Lone Wolf 69 kV circuit #1 reset CT, placed in-service
- Upgrades assigned to DISIS-2013-002 Interconnection Customers:
  - Battle Creek – County Line – Neligh East 115kV circuit #1 rebuild.
- Upgrades assigned to DISIS-2014-002 Interconnection Customers:
  - Arnold – Ransom 115kV circuit #1, terminal equipment replacement.
  - Tolk – Plant X 230kV circuit #1 and circuit #2, re-conductor.
  - Tucco 345/230kV transformer replacement.
- Upgrades assigned to DISIS-2015-001 Interconnection Customers:
  - Cimarron River Tap – Kismet – Cudahy – Crooked Creek 115kV circuit #1 rebuild.
  - Oklaunion 345kV Reactive Power Support
    - Install two (2) 130Mvar Capacitor Bank(s).
  - (NRIS Only) Potter County Interchange 345/230/13kV Transformer circuit #2, build.
  - (NRIS Only) Renfrow – Renfrow 138kV circuit #1 rebuild.
  - (NRIS Only) Sundown Interchange 230/115/13.8kV transformer circuit #1 replacement.
  - (NRIS Only) Crawfish Draw Substation 345/230kV
    - Build new 345/230kV substation along TUCO – Border 345kV and TUCO – Swisher 230kV. Tie in and Terminate TUCO 345kV, Border 345kV, TUCO 230kV, and Swisher 230kV at Crawfish Draw (TUCO 2).

<sup>8</sup> SPP Notification to Construct (NTC) 20097 and 20098

- Build 345/230/13kV transformer
- (NRIS Only) Wolfforth Interchange 230/225/13.2kV circuit #1 replacement.

### **2.2.6 Potential Upgrades Not in the Base Case**

Any potential upgrades that do not have a Notification to Construct (NTC) and are not explicitly listed within this report have not been included in the base case. These upgrades include any identified in the SPP Extra-High Voltage (EHV) overlay plan, or any other SPP planning study other than the upgrades listed above in the previous section.

### **2.2.7 Regional Groupings**

The interconnection requests listed in Appendix A are grouped together into ten (10) active regional groups based on geographical and electrical impacts. These groupings are shown in Appendix C.

To determine interconnection impacts, ten (10) different generation dispatch scenarios of the spring, summer, and winter base case models are developed to accommodate the regional groupings.

## **2.3 Development of Analysis Cases**

### **2.3.1 Power Flow**

For Variable Energy Resources (VER) (solar/wind) in each power flow case, ERIS, is evaluated for the generating plants within a geographical area of the interconnection request(s) for the VERs dispatched at 100% nameplate of maximum generation. The VERs in the remote areas are dispatched at 20% nameplate of maximum generation. These projects are dispatched across the SPP footprint using load factor ratios.

Peaking units are not dispatched in the 2017 spring, 2020 light, or in the “High VER” summer and winter peaks. To study peaking units’ impacts, the 2016 winter peak and 2017 summer peak, 2020 summer and winter peaks, and 2025 summer peak models are developed with peaking units dispatched at 100% of the nameplate rating and VERs dispatched at 20% of the nameplate rating. Each interconnection request is also modeled separately at 100% nameplate for certain analyses.

All generators (VER and peaking) that requested NRIS are dispatched in an additional analysis into the interconnecting Transmission Owner’s (T.O.) area at 100% nameplate with ERIS only requests at 80% nameplate. This method allows for identification of network constraints that are common between regional groupings to have affecting requests share the mitigating upgrade costs throughout the cluster.

**2.3.1.1 Additional Sensitivities Considered** – The following sensitivities were run for situations prevalent to the local area for which they were considered

- North Dakota – Canadian border – The phase shifting transformer to Saskatchewan Power (also known as B-10T) and Miles City DC Tie were dispatched at the following levels
  - 2016 Winter Peak –
    - Miles City DC Tie– 200MW East to West transfer
    - B-10T – 65MW South to North transfer

- 2017 Summer Peak –
  - Miles City DC Tie – 200MW East to West transfer
  - B-10T – 200MW North to South transfer
- Other Seasons
  - Miles City DC Tie – 140MW East to West transfer (20WP)
  - Miles City DC Ties – 92MW East to West transfer (17G & 20L)
  - B-10T – 0MW

### 2.3.2 Dynamic Stability

For each group, all interconnection requests are dispatched at 100% nameplate output while the other groups are dispatched at 20% output for VERs and 100% output for thermal requests.

#### 2.3.2.1 Additional Sensitivities Considered

- North Dakota – Canadian border – The phase shifting transformer to Saskatchewan Power (also known as B-10T) and Miles City DC Tie were dispatched at the following levels
  - 2016 Winter Peak –
    - Miles City DC Tie– 200MW East to West transfer
    - B-10T – 65MW South to North transfer
  - 2017 Summer Peak –
    - Miles City DC Tie – 200MW East to West transfer
    - B-10T – 200MW North to South transfer

### 2.3.3 Short Circuit

The dynamic stability models (2017 SP and 2025 SP) are used for this analysis.

## 3 Identification of Network Constraints (System Performance)

### 3.1.1 Thermal Overloads

Network constraints are found by using PSS/E AC Contingency Calculation (ACCC) analysis with PSS/E MUST First Contingency Incremental Transfer Capability (FCITC) analysis on the entire cluster grouping dispatched at the various levels previously mentioned.

For ERIS, thermal overloads are determined for system intact (n-0) (greater than 100% of Rate A - normal) and for contingency (n-1) (greater than 100% of Rate B – emergency) conditions.

The overloads are then screened to determine which of generator interconnection requests have at least

- 3% Distribution Factor (DF) for system intact conditions (n-0),
- 20% DF upon outage based conditions (n-1),
- or 3% DF on contingent elements that resulted in a non-converged solution.

Appropriate transmission support is then determined to mitigate the constraints.

Interconnection Requests that requested NRIS are also studied in a separate NRIS analysis to determine if any constraint measured greater than or equal to a 3% DF. If so, these constraints are also considered for transmission reinforcement under NRIS.

### 3.1.2 Voltage

For non-converged power flow solutions that are determined to be caused by lack of voltage support, appropriate transmission support will be determined to mitigate the constraint.

After all thermal overload and voltage support mitigations are determined; a full ACCC analysis is then performed to determine voltage constraints. The following voltage performance guidelines are used in accordance with the Transmission Owner local planning criteria.

#### SPP Areas (69kV+):

Transmission Owner	Voltage Criteria (System Intact)	Voltage Criteria (Contingency)
AEPW	0.95 – 1.05 pu	0.92 – 1.05 pu
GRDA	0.95 – 1.05 pu	0.90 – 1.05 pu
SWPA	0.95 – 1.05 pu	0.90 – 1.05 pu
OKGE	0.95 – 1.05 pu	0.90 – 1.05 pu
OMPA	0.95 – 1.05 pu	0.90 – 1.05 pu
WFEC	0.95 – 1.05 pu	0.90 – 1.05 pu
SWPS	0.95 – 1.05 pu	0.90 – 1.05 pu
MIDW	0.95 – 1.05 pu	0.90 – 1.05 pu

SUNC	0.95 – 1.05 pu	0.90 – 1.05 pu
KCPL	0.95 – 1.05 pu	0.90 – 1.05 pu
INDN	0.95 – 1.05 pu	0.90 – 1.05 pu
SPRM	0.95 – 1.05 pu	0.90 – 1.05 pu
NPPD	0.95 – 1.05 pu	0.90 – 1.05 pu
WAPA	0.95 – 1.05 pu	0.90 – 1.05 pu
WERE L-V	0.95 – 1.05 pu	0.93 – 1.05 pu
WERE H-V	0.95 – 1.05 pu	0.95 – 1.05 pu
EMDE L-V	0.95 – 1.05 pu	0.90 – 1.05 pu
EMDE H-V	0.95 – 1.05 pu	0.92 – 1.05 pu
LES	0.95 – 1.05 pu	0.90 – 1.05 pu
OPPD	0.95 – 1.05 pu	0.90 – 1.05 pu

**SPP Buses with more stringent voltage criteria:**

Bus Name/Number	Voltage Criteria (System Intact)	Voltage Criteria (Contingency)
TUCO 230kV 525830	0.925 – 1.05 pu	0.925 – 1.05 pu
Wolf Creek 345 kV 532797	0.985 – 1.03 pu	0.985 – 1.03 pu
FCS 646251	1.001 – 1.047 pu	1.001 – 1.047 pu

**Affected System Areas (115kV+):**

Transmission Owner	Voltage Criteria (System Intact)	Voltage Criteria (Contingency)
AECI	0.95 – 1.05 pu	0.90 – 1.05 pu
EES-EAI	0.95 – 1.05 pu	0.90 – 1.05 pu
LAGN	0.95 – 1.05 pu	0.90 – 1.05 pu
EES	0.95 – 1.05 pu	0.90 – 1.05 pu
AMMO	0.95 – 1.05 pu	0.90 – 1.05 pu
CLEC	0.95 – 1.05 pu	0.90 – 1.05 pu
LAFA	0.95 – 1.05 pu	0.90 – 1.05 pu
LEPA	0.95 – 1.05 pu	0.90 – 1.05 pu
XEL	0.95 – 1.05 pu	0.90 – 1.05 pu
MP	0.95 – 1.05 pu	0.90 – 1.05 pu
SMMPA	0.95 – 1.05 pu	0.90 – 1.05 pu
GRE	0.95 – 1.05 pu	0.90 – 1.10 pu
OTP	0.95 – 1.05 pu	0.90 – 1.05 pu
OTP-H (115kV+)	0.97 – 1.05 pu	0.92 – 1.10 pu
ALTW	0.95 – 1.05 pu	0.90 – 1.05 pu
MEC	0.95 – 1.05 pu	0.90 – 1.05 pu
MDU	0.95 – 1.05 pu	0.90 – 1.05 pu
SPC	0.95 – 1.05 pu	0.95 – 1.05 pu



DPC	0.95 – 1.05 pu	0.90 – 1.05 pu
ALTE	0.95 – 1.05 pu	0.90 – 1.05 pu

The constraints identified through the voltage scan are then screened for the following for each interconnection request. 1) 3% DF on the contingent element and 2) 2% change in pu voltage. In certain conditions, engineering judgement was used to determine whether or not a generator had impacts to voltage constraints.

### 3.1.3 Dynamic Stability

Stability issues considered for transmission reinforcement under ERIS. Generators that fail to meet low voltage ride-through requirements (FERC Order #661-A) or SPP's stability criteria for damping or dynamic voltage recovery are assigned upgrades such that these requirements can be met.

### 3.1.4 Upgrades Assigned

Thermal overloads that require transmission support to mitigate are discussed in Section 8 and listed in Appendix G-T. Voltage constraints that may require transmission support are discussed in Section 8 and listed in Appendix G-V (Cluster Analysis). Constraints that are identified solely through the stability analysis are discussed in Section 8 and the appropriate appendix for the detailed stability study of that Interconnection Request. All of these upgrades are cost assigned in Appendix E and Appendix F.

Other network constraints not requiring transmission reinforcements are shown in Appendix H (Cluster Analysis). With a defined source and sink in a Transmission Service Request, this list of network constraints can be refined and expanded to account for all Network Upgrade requirements for firm transmission service. Additional constraints identified by multi-element contingencies are listed in Appendix I.

In no way does the list of constraints in Appendix G (Cluster Analysis) identify all potential constraints that guarantee operation for all periods of time. It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer(s) may be required to reduce their generation output to 0 MW, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.

## 4 Determination of Cost Allocated Network Upgrades

Cost Allocated Network Upgrades of Variable Energy Resources (VER) (solar/wind) generation interconnection requests are determined using the 2017 spring model. Cost Allocated Network Upgrades of peaking units is determined using the 2020 summer peak model. A PSS/E and MUST sensitivity analysis is performed to determine the Distribution Factors (DF), a distribution factor with no contingency that each generation interconnection request has on each new upgrade. The impact each generation interconnection request has on each upgrade project is weighted by the size of each request. Finally the costs due by each request for a particular project are then determined by allocating the portion of each request's impact over the impact of all affecting requests.

For example, assume that there are three Generation Interconnection requests, X, Y, and Z that are responsible for the costs of Upgrade Project '1'. Given that their respective PTDF for the project have been determined, the cost allocation for Generation Interconnection request 'X' for Upgrade Project 1 is found by the following set of steps and formulas:

- Determine an Impact Factor on a given project for all responsible GI requests:

$$\text{Request X Impact Factor on Upgrade Project 1} = \text{PTDF}(X) * \text{MW}(X) = X1$$

$$\text{Request Y Impact Factor on Upgrade Project 1} = \text{PTDF}(Y) * \text{MW}(Y) = Y1$$

$$\text{Request Z Impact Factor on Upgrade Project 1} = \text{PTDF}(Z) * \text{MW}(Z) = Z1$$

- Determine each request's Allocation of Cost for that particular project:

$$\text{Request X's Project 1 Cost Allocation (\$)} = \frac{\text{Network Upgrade Project 1 Cost(\$)} * X1}{X1 + Y1 + Z1}$$

- Repeat previous for each responsible GI request for each Project

The cost allocation of each needed Network Upgrade is determined by the size of each request and its impact on the given project. This allows for the most efficient and reasonable mechanism for sharing the costs of upgrades.

### 4.1.1 Credits/Compensation for Amounts Advanced for Network Upgrades

Interconnection Customer shall be entitled to either credits or potentially Long Term Congestion Rights (LTCR), otherwise known as compensation, in accordance with Attachment Z2 of the SPP Tariff for any Network Upgrades, including any tax gross-up or any other tax-related payments associated with the Network Upgrades, and not refunded to the Interconnection Customer.

---

## 5 Required Interconnection Facilities

---

The requirement to interconnect the 6,176.9 MW of generation into the existing and proposed transmission systems in the affected areas of the SPP transmission footprint consist of the necessary cost allocated shared facilities listed in Appendix F by upgrade. The interconnection requirements for the cluster total an estimated \$5,174,890 for Group 1 Interconnection Customers only and \$701,503,724 for all DISIS-2015-002 Interconnection Customers. not including the following costs.

- **Costs Not Included** – Costs on Affected Systems for particularly Associated Electric Cooperative Inc. (AECI) and Mid-Continent Independent System Operator (MISO)..

Interconnection Facilities specific to each generation interconnection request are listed in Appendix E. A preliminary one-line drawing for each generation interconnection request are listed in Appendix D.

For an explanation of how required Network Upgrades and Interconnection Facilities were determined, refer to the section on “Identification of Network Constraints.”

### 5.1.1 Facilities Analysis

The interconnecting Transmission Owner for each Interconnection Request has provided its preliminary analysis of required Transmission Owner Interconnection Facilities and the associated Network Upgrades, shown in Appendix D. This analysis was limited only to the expected facilities to be constructed by the Transmission Owner at the Point of Interconnection. These costs are included within one-line diagrams in Appendix D and also listed in Appendix E and F as combined “Interconnection Costs”. If the one-lines and costs in Appendix D have been updated by the Transmission Owner’s Interconnection Facilities Study, those costs will be noted in the appendix. These costs will be further refined by the Transmission Owner as part of the Interconnection Facilities Study. Any additional Network Upgrades identified by this DISIS beyond the Point of Interconnection are defined and estimated by either the Transmission Owner or by SPP. These additional Network Upgrade costs will also be refined further by the Transmission Owner within the Interconnection Facilities Study.

### 5.1.2 Environmental Review

For Interconnection Requests that result in an interconnection to, or modification to, the transmission facilities of the Western-UGP, a National Environmental Policy Act (NEPA) Environmental Review will be required. The Interconnection Customer will be required to execute and Environmental Review Agreement per Section 8.6.1 of the GIP.

---

## 6 Affected Systems Coordination

---

The following procedures are in place to coordinate with Affected Systems.

- Impacts on Associated Electric Cooperative Inc. (AECI) – For any observed violations of thermal overloads on AECI facilities, AECI has been notified by SPP to evaluate the violations for impacts on its transmission system. AECI has instructed SPP to notify the affected Interconnection Customers after posting of this study to contact AECI for an Affected System Study Agreement to further study the impacts on the AECI system. AECI has evaluated the Interconnection Requests affecting their system.
- Impacts on Mid Continent Independent System Operation (MISO) – Per SPP's agreement with MISO, MISO has been contacted and provided a list of interconnection requests that proceed to move forward into the Interconnection Facilities Study Queue. MISO is evaluating the Interconnection Requests for impacts and will be in contact with affected Interconnection Customers.
- Impacts on Minnkota Power Cooperative, Inc (MPC) – MPC has been contacted and provided a list of interconnection requests that proceed to move forward into the Interconnection Facilities Study Queue. MP has evaluated the Interconnection Requests for impacts.
- Impacts to other affected systems – For any observed violations of thermal overloads or voltage constraints, SPP will contact the owner of the facility for further information.

## 7 Power Flow Analysis

### 7.1.1 Power Flow Analysis Methodology

The ACCC function of PSS/E is used to simulate single element and special (i.e., breaker-to-breaker, multi-element, etc.) contingencies in portions or all of the modeled control areas of SPP, as well as, other control areas external to SPP and the resulting scenarios analyzed. Single element and multi-element contingencies are evaluated.

### 7.1.2 Power Flow Analysis

A power flow analysis is conducted for each Interconnection Customer's facility using modified versions of the 2016 winter peak (16WP) season, the 2017 spring (17G) and 2017 summer peak (17SP) seasons, the 2020 light load (20L), summer (20SP) and winter peak (20WP) seasons, and the 2025 summer peak (25SP) seasonal models. The output of the Interconnection Customer's facility is offset in each model by a reduction in output of existing online SPP generation. This method allows the request to be studied as an ERIS. Certain requests that are also pursuing NRIS have an additional analysis conducted for displacing resources in the interconnecting Transmission Owner's balancing area.

## 8 Power Flow Results

### 8.1 Cluster Group 1 (Woodward Area)

In addition to the 3,685.1 MW of previously queued generation in the area, 550.0 MW of new interconnection service was studied. ERIS thermal constraints were observed for system intact and N-1 conditions including Cleo Corner – Cleo Corner Tap 138kV circuit #1. Terminal equipment upgrade will be required for Cleo Corner – Cleo Corner Tap 138kV circuit #1 will be required to alleviate the thermal violations.

For Group 1 Cluster Analysis cost allocation, please refer to Appendix E and F.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOAD ING (% MVA)	CONTINGENCY
CLEO CORNER - CLEOPLT4 138 00 138KV CKT 1	191	109 7831	CLEO CORNER (CLEOCOR1) 138/69/13.8KV TRANSFORMER CKT 1
	Mitigation		Replace terminal equipment

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Currently None			

### 8.1.2 Group 1 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	MW	Constraint that most limits LOIS
GEN-2015-048	161	Cleo Corner – Cleo Corner Tap 138kV
GEN-2015-057	100	None
GEN-2015-093	250	None

### 8.2 Cluster Group 2 (Hitchland Area)

In addition to the 3,626.20 MW of previously queued generation in the area, 200.0 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### 8.3 Cluster Group 3 (Spearville Area)

In addition to the 3,230.93 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### 8.4 Cluster Group 4 (Northwest Kansas Area)

In addition to the 1,462.2 MW of previously queued generation in the area, 400.2 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### 8.5 Cluster Group 6 (South Texas Panhandle/New Mexico Area)

In addition to the 4,398.77 MW of previously queued generation in the area, 1,011.60 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### 8.6 Cluster Group 7 (Southwestern Oklahoma Area)

In addition to the 1,923.90 MW of previously queued generation in the area, 413.70 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### 8.7 Cluster Group 8 (North Oklahoma/South Central Kansas Area)

In addition to the 5,226.06 MW of previously queued generation in the area, 2,198.00 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### **8.8 Cluster Group 9 (Nebraska Area)**

In addition to the 2,927.7 MW of previously queued generation in the area, 574.4 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### **8.9 Cluster Group 10 (Southeast Oklahoma/Northeast Texas Area)**

There is no current study Interconnection Request(s) in the Group 10 geographical region.

### **8.10 Cluster Group 12 (Northwest Arkansas Area)**

In addition to the 30.0 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### **8.11 Cluster Group 13 (Northeast Kansas/Northwest Missouri Area)**

In addition to the 634.7 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### **8.12 Cluster Group 14 (South Central Oklahoma Area)**

In addition to the 612.50 MW of previously queued generation in the area, 279.0 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### **8.13 Group 15 (Eastern South Dakota)**

In addition to approximately 1,915.70 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### **8.14 Group 16 (Western North Dakota)**

In addition to approximately 3,152.71 MW of previously queued generation in the area, 550.0 MW of new interconnection service was studied. This group was not analyzed for this restudy and previously identified results remain valid.

### **8.15 Group 17 (Western South Dakota)**

In addition to approximately 470.5 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### **8.16 Group 18 (Eastern North Dakota)**

In addition to approximately 161.5 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### **8.17 Curtailment and System Reliability**

In no way does this study guarantee operation for all periods of time. It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer(s) may be required to reduce their generation output to 0 MW, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.



---

## 9 Stability & Short Circuit Analysis

---

A stability and short circuit analysis is conducted for each Interconnection Customer using modified versions of the 2015 series SPP Model Development Working Group (MDWG) Models 2016 winter (16WP), 2017 summer (17SP), and 2025 summer peak (25SP) dynamic cases<sup>9</sup>. The stability analysis is conducted with all upgrades in service that are identified in the power flow analysis unless otherwise noted in the individual group stability study. For each group, the interconnection requests are studied at 100% nameplate output while the other groups are dispatched at 20% output for Variable Energy Resource (VER) requests and 100% output for other requests. The output of the Interconnection Customer's facility is offset in each model by a reduction in output of existing online SPP generation. Each Interconnection Request is studied in a Stand Alone scenario in addition to the cluster scenario. A synopsis is included for each group. The entire stability study for each group can be found in the Appendices.

Short-circuit analysis is performed but verification of over-dutied equipment is performed by the Transmission Owner within the Interconnection Facilities Study. Results of that analysis may require additional costs to replace circuit breakers and associated equipment.

### 9.1 Cluster Group 1 (Woodward Area)

The Group 1 stability analysis was not performed again for this restudy. This group was not analyzed for this restudy and previously identified restudy results remain valid.

### 9.2 Cluster Group 2 (Hitchland Area)

The Group 2 stability analysis was not performed again for this restudy. This group was not analyzed for this restudy and previously identified restudy results remain valid.

### 9.3 Cluster Group 3 (Spearville Area)

No current study DISIS-2015-002 Interconnection Customer(s) are located in this geographical group.

### 9.4 Cluster Group 4 (Northwest Kansas)

The Group 4 stability analysis was not performed again for this restudy. The original analysis in DISIS-2015-002 is still valid.

### 9.5 Cluster Group 6 (South Texas Panhandle/New Mexico)

The Group 6 stability analysis was not performed again for this restudy. This group was not analyzed for this restudy and previously identified restudy results remain valid.

<sup>9</sup> Short Circuit analysis performed only on the 2017 and 2025 Summer Peak seasonal model. Group 6 Stability Analysis also includes 2020 Summer and Winter Peak seasons.

#### **9.6 Cluster Group 7 (Southwest Oklahoma)**

The Group 7 stability analysis was not performed again for this restudy. The original analysis in DISIS-2015-002 is still valid.

#### **9.7 Cluster Group 8 (South Central Kansas/North Oklahoma)**

The Group 8 stability analysis was not performed again for this restudy. The original analysis in DISIS-2015-002 is still valid.

#### **9.8 Cluster Group 9 (Nebraska)**

The Group 9 stability analysis was not performed again for this restudy. This group was not analyzed for this restudy and previously identified restudy results remain valid.

#### **9.9 Cluster Group 10 (Southeast Oklahoma/Northeast Texas Area)**

There is no current study Interconnection Request(s) in the Group 10 geographical region.

#### **9.10 Cluster Group 12 (Northwest Arkansas Area)**

There is no current study Interconnection Request(s) in the Group 12 geographical region.

#### **9.11 Cluster Group 13 (Northeast Kansas/Northwest Missouri Area)**

There is no current study Interconnection Request(s) in the Group 13 geographical region.

#### **9.12 Cluster Group 14 (South Central Oklahoma)**

The Group 14 stability analysis was not performed again for this restudy. The original analysis in DISIS-2015-002 is still valid.

#### **9.13 Cluster Group 15 (Eastern South Dakota)**

The Group 15 stability analysis was not performed again for this restudy. The original analysis in DISIS-2015-002 is still valid.

#### **9.14 Cluster Group 16 (Western North Dakota)**

The Group 16 stability analysis was not performed again for this restudy. The original analysis in DISIS-2015-002 is still valid.

#### **9.15 Cluster Group 17 (Western South Dakota)**

There is no current study Interconnection Request(s) in the Group 17 geographical region.

#### **9.16 Cluster Group 18 (Eastern North Dakota)**

There is no current study Interconnection Request(s) in the Group 18 geographical region.

---

## 10 Conclusion

---

The minimum cost of interconnecting 6,176.9 MW of new generation interconnection requests included in this DISIS is estimated at \$5,174,890 for Group 1 Interconnection Customers only and \$701,503,724 for all DISIS-2015-002 Interconnection Customers not including the following costs.

- **Costs Not Included** – Costs on Affected Systems for particularly Associated Electric Cooperative Inc. (AECI) and the Mid-Continent Independent System Operator (MISO).

Interconnection Requests allocated Network Upgrades and Transmission Owner Interconnection Facilities listed in Appendix E and F. For Interconnection Requests that result in an interconnection to, or modification to, the transmission facilities of the Western-UGP (WAPA), a National Environmental Policy Act (NEPA) Environmental Review will be required. The Interconnection Customer will be required to execute an Environmental Review Agreement per Section 8.6.1 of the GIP.

These costs do not include the cost of upgrades of other transmission facilities listed in Appendix H which are Network Constraints. These interconnection costs do not include any cost of any Network Upgrades that are identified as required through the short circuit analysis. Potential over-duty circuit breakers capability will be identified by the Transmission Owner in the Interconnection Facilities Study.

Further refinement of total estimated interconnection costs will be provided, should the Interconnection Customer meet the requirements for acceptance and choose to move into the Interconnection Facilities Study following the posting of this DISIS. The Interconnection Facilities Study may include additional study analysis, additional facility upgrades not yet identified by this DISIS, such as circuit breaker replacements and affected system facilities, and further refinement of existing cost estimates.

The required interconnection costs listed in Appendices E, and F, and other upgrades associated with Network Constraints do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request (TSR) through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP Open Access Transmission Tariff (OATT).

---

## **11 Appendices**

---

### **11.1 A: Generation Interconnection Requests Considered for Impact Study**

See next page.

Southwest Power Pool, Inc.

Appendix A: Generation Interconnection Requests Considered For Study

## **A: Generation Interconnection Requests Considered for Study**

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date	In Service Date Delayed Until no earlier than*
ASGI-2015-006	9.00	ER	SWPA	Tupelo 138kV	Tupelo 138kV		TBD
GEN-2014-037	200.00	ER	SPS	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV	9/30/2017	TBD
GEN-2015-020	100.00	ER	SPS	Oasis 115kV	Oasis 115kV	12/1/2016	TBD
GEN-2015-031	150.50	ER	SPS	Tap Amarillo South - Swisher 230kV	Tap Amarillo South - Swisher 230kV	9/1/2017	TBD
GEN-2015-034	200.00	ER	OKGE	Ranch Road 345kV	Ranch Road 345kV	10/31/2017	TBD
GEN-2015-045	20.00	ER	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV	Tap Lawton - Sunnyside (Terry Road) 345kV	12/1/2017	TBD
GEN-2015-046	300.00	ER	WAPA	Tande 345kV	Tande 345kV	12/1/2017	TBD
GEN-2015-047	300.00	ER	OKGE	Sooner 345kV	Sooner 345kV	12/1/2017	TBD
GEN-2015-048	200.00	ER	OKGE	Cleo Corner 138kV	Cleo Corner 138kV	12/1/2017	TBD
GEN-2015-052	300.00	ER	WERE	Tap Open Sky - Rose Hill 345kV	Tap Open Sky - Rose Hill 345kV	12/1/2017	TBD
GEN-2015-053	50.00	ER	NPPD	Antelope 115kV	Antelope 115kV	12/31/2017	TBD
GEN-2015-055	40.00	ER	WFEC	Erick 138kV	Erick 138kV	10/30/2016	TBD
GEN-2015-056	101.20	ER	SPS	Crossroads 345kV	Crossroads 345kV	12/1/2017	TBD
GEN-2015-057	100.00	ER	OKGE	Minco 345kV	Minco 345kV	12/1/2016	TBD
GEN-2015-058	50.00	ER	SPS	Atoka 115kV	Atoka 115kV	10/1/2017	TBD
GEN-2015-062	4.50	ER	OKGE	GEN-2012-033 Tap 138kV	GEN-2012-033 Tap 138kV	3/1/2016	TBD
GEN-2015-063	300.00	ER	OKGE	Tap Woodring - Mathewson 345kV	Tap Woodring - Mathewson 345kV	12/1/2017	TBD
GEN-2015-064	197.80	ER	SUNCMKEC	Mingo 115kV	Mingo 115kV	11/1/2017	TBD
GEN-2015-065	202.40	ER	SUNCMKEC	Mingo 345kV	Mingo 345kV	11/1/2017	TBD
GEN-2015-066	248.40	ER	OKGE	Tap Cleveland - Sooner 345kV	Tap Cleveland - Sooner 345kV	12/1/2017	TBD
GEN-2015-068	300.00	ER	SPS	TUCO Interchange 345kV	TUCO Interchange 345kV	12/1/2017	TBD
GEN-2015-069	300.00	ER	WERE	Union Ridge 230kV	Union Ridge 230kV	12/1/2017	TBD
GEN-2015-071	200.00	ER	AEPW	Chisholm 345kV	Chisholm 345kV	9/30/2017	TBD
GEN-2015-073	200.10	ER/NR	WERE	Emporia Energy Center 345kV	Emporia Energy Center 345kV	12/31/2018	TBD
GEN-2015-075	51.50	ER	SPS	Carlisle 69kV	Carlisle 69kV	12/1/2018	TBD
GEN-2015-076	158.40	ER	NPPD	Belden 115kV	Belden 115kV	7/31/2017	TBD
GEN-2015-079	129.20	ER	SPS	Tap Yoakum - Hobbs Interchange 230kV	Tap Yoakum - Hobbs Interchange 230kV	10/1/2018	TBD
GEN-2015-080	129.20	ER	SPS	Tap Yoakum - Hobbs Interchange 230kV	Tap Yoakum - Hobbs Interchange 230kV	5/1/2019	TBD
GEN-2015-083	125.00	ER	WERE	Belle Plain 138kV	Belle Plain 138kV	12/31/2017	TBD
GEN-2015-084	51.30	ER	AEPW	Hollis 138kV	Hollis 138kV	12/10/2018	TBD
GEN-2015-085	122.40	ER	AEPW	Altus Junction 138kV	Altus Junction 138kV	12/10/2018	TBD
GEN-2015-087	66.00	ER/NR	NPPD	Tap Fairbury - Hebron 115kV	Tap Fairbury - Hebron 115kV	1/1/2019	TBD
GEN-2015-088	300.00	ER/NR	NPPD	Tap Moore - Pauline 345kV	Tap Moore - Pauline 345kV	1/1/2019	TBD
GEN-2015-090	220.00	ER	WERE	Tap Thistle - Wichita 345kV Dbl Ckt	Tap Thistle - Wichita 345kV Dbl Ckt	12/1/2017	TBD
GEN-2015-092	250.00	ER	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV	Tap Lawton - Sunnyside (Terry Road) 345kV	12/1/2017	TBD
GEN-2015-093	250.00	ER	OKGE	Gracemont 345kV	Gracemont 345kV	12/1/2017	TBD
GEN-2015-096	150.00	ER	WAPA	Tap Belfied - Rhame 230kV	Tap Belfied - Rhame 230kV	12/31/2017	TBD
GEN-2015-098	100.00	ER	WAPA	Mingusville 230kV	Mingusville 230kV	12/15/2017	TBD
Total: 6,176.90							

## **11.2 B: Prior Queued Interconnection Requests**

See next page.

Southwest Power Pool, Inc.

Appendix B: Prior Queued Generation Interconnection Requests

## B: Prior Queued Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
ASGI-2010-006	150.00	AECI	Remington 138kV	AECI queue Affected Study
ASGI-2010-010	42.20	SPS	Lowington 115kV	Lea County Affected Study
ASGI-2010-020	30.00	SPS	Tap LE-Tatum - LE-Crossroads 69kV	Lea County Affected Study
ASGI-2010-021	15.00	SPS	Tap LE-Saunders Tap - LE-Anderson 69kV	Lea County Affected Study
ASGI-2011-001	27.30	SPS	Lowington 115kV	On-Line
ASGI-2011-002	20.00	SPS	Herring 115kV	On-Line
ASGI-2011-003	10.00	SPS	Hendricks 69kV	On-Line
ASGI-2011-004	20.00	SPS	Pleasant Hill 69kV	Under Study (DISIS-2011-002)
ASGI-2012-002	18.15	SPS	FE-Clovis Interchange 115kV	Under Study (DISIS-2012-002)
ASGI-2012-006	22.50	SUNCMKEC	Tap Hugoton - Rolla 69kV	Under Study (DISIS-2012-001)
ASGI-2013-001	11.50	SPS	PanTex South 115kV	Under Study (DISIS-2013-001)
ASGI-2013-002	18.40	SPS	FE Tucumcari 115kV	Under Study (DISIS-2013-001)
ASGI-2013-003	18.40	SPS	FE Clovis 115kV	Under Study (DISIS-2013-001)
ASGI-2013-004	36.60	SUNCMKEC	Morris 115kV	Under Study (DISIS-2013-002)
ASGI-2013-005	1.65	SPS	FE Clovis 115kV	Under Study (DISIS-2013-002)
ASGI-2013-006	2.00	SPS	SP-Erskine 115kV	
ASGI-2014-001	2.50	SPS	SP-Erskine 115kV	Under Study (DISIS-2014-001)
ASGI-2014-014	56.40	GRDA	Ferguson 69kV	Under Study (DISIS-2014-002)
ASGI-2015-001	6.13	SUNCMKEC	Ninnescah 115kV	Under Study (DISIS-2015-001)
ASGI-2015-002	2.00	SPS	SP-Yuma 69kV	Under Study (DISIS-2015-001)
ASGI-2015-004	56.36	GRDA	Coffeyville City 69kV	Under Study (DISIS-2015-001)
G176	100.00	XEL	Yankee 115kV	
G255	100.00	XEL	Yankee 115kV	MISO Queued Request
G380	150.00	OTP	Rugby 115kV	MISO Queued Request
G408	12.00	XEL	Tap McHenry - Souris 115kV	MISO Queued Request
G502	50.60	MP	Milton Young 230kV	MISO Queued Request
G586	30.00	XEL	Yankee 115kV	
G645	50.00	GRE	Ladish 115kV	MISO Queued Request
G723	10.00	MDU	Haskett 115kV	MISO Queued Request
G736	200.00	OTP	Big Stone South 230kV	
G752	150.00	MDU	Tap Bison - Hettinger 230kV	MISO Queued Request
G788	49.00	GRE	Ladish 115kV	MISO Queued Request
G830	99.00	GRE	GRE McHenry 115kV	MISO Queued Request
GEN-2001-014	96.00	WFEC	Ft Supply 138kV	On-Line
GEN-2001-026	74.30	WFEC	Washita 138kV	On-Line
GEN-2001-033	180.00	SPS	San Juan Tap 230kV	On-Line at 120MW
GEN-2001-036	80.00	SPS	Norton 115kV	On-Line
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV	On-Line
GEN-2001-039A	105.00	SUNCMKEC	Shooting Star Tap 115kV	On-Line
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV	On-Line
GEN-2002-004	200.00	WERE	Latham 345kV	On-Line at 150MW
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV	On-Line
GEN-2002-008	240.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2002-008IS	40.50	WAPA	Edgeley 115kV [Pomona 115kV]	Commercial Operation
GEN-2002-009	80.00	SPS	Hansford 115kV	On-Line
GEN-2002-009IS	40.00	WAPA	Ft Thompson 69kV [Hyde 69kV]	Commercial Operation



Southwest Power Pool, Inc.

Appendix B: Prior Queued Generation Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2002-022	240.00	SPS	Bushland 230kV	On-Line
GEN-2002-023N	0.80	NPPD	Harmony 115kV	On-Line
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV	On-Line
GEN-2003-004	100.00	WFEC	Washita 138kV	On-Line
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV	On-Line
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV	On-Line
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV	On-Line
GEN-2003-020	160.00	SPS	Martin 115kV	On-Line
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV	On-Line
GEN-2003-022	120.00	AEPW	Weatherford 138kV	On-Line
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV	On-Line at 100MW
GEN-2004-020	27.00	AEPW	Weatherford 138kV	On-Line
GEN-2004-023	20.60	WFEC	Washita 138kV	On-Line
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV	On-Line
GEN-2005-003	30.60	WFEC	Washita 138kV	On-Line
GEN-2005-003IS	100.00	WAPA	Nelson 115kV	Commercial Operation
GEN-2005-008	120.00	OKGE	Woodward 138kV	On-Line
GEN-2005-008IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]	Commercial Operation
GEN-2005-012	250.00	SUNCMKEC	Ironwood 345kV	On-Line at 160MW
GEN-2005-013	201.00	WERE	Caney River 345kV	On-Line
GEN-2006-001IS	10.00	XEL	Marshall 115kV	Commercial Operation
GEN-2006-002	101.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-002IS	51.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2006-006IS	10.00	XEL	Marshall 115kV	Commercial Operation
GEN-2006-015IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]	Commercial Operation
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV	On-Line
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV	On-Line
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV	On-Line
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV	On-Line
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV	On-Line
GEN-2006-026	502.00	SPS	Hobbs 230kV & Hobbs 115kV	On-Line
GEN-2006-031	75.00	MIDW	Knoll 115kV	On-Line
GEN-2006-035	225.00	AEPW	Sweetwater 230kV	On-Line at 132MW
GEN-2006-037N1	75.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV	On-Line
GEN-2006-043	99.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-044	370.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2006-044N	40.50	NPPD	North Petersburg 115kV	On-Line
GEN-2006-046	131.00	OKGE	Dewey 138kV	On-Line
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV	On-Line
GEN-2007-013IS	50.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2007-014IS	100.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2007-015IS	100.00	WAPA	Hilken 230kV [Ecklund 230kV]	Commercial Operation
GEN-2007-017IS	166.00	WAPA	Ft Thompson-Grand Island 345kV	On Schedule
GEN-2007-018IS	234.00	WAPA	Ft Thompson-Grand Island 345kV	On Schedule
GEN-2007-020IS	16.00	WAPA	Nelson 115kV	Commercial Operation
GEN-2007-021	201.00	OKGE	Tatonga 345kV	On-Line
GEN-2007-023IS	50.00	WAPA	Formit-Summit 115kV	On Suspension
GEN-2007-025	300.00	WERE	Viola 345kV	On-Line

Southwest Power Pool, Inc.

Appendix B: Prior Queued Generation Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2007-027IS	99.00	WAPA	Bismarck-Garrison 230kV #1	On Suspension
GEN-2007-040	200.00	SUNCMKEC	Buckner 345kV	On-Line at 132MW
GEN-2007-043	200.00	OKGE	Minco 345kV	On-Line
GEN-2007-044	300.00	OKGE	Tatonga 345kV	On-Line at 199MW
GEN-2007-046	200.00	SPS	Hitchland 115kV	On-Line
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV	On-Line at 150MW
GEN-2007-052	150.00	WFEC	Anadarko 138kV	On-Line
GEN-2007-062	425.00	OKGE	Woodward EHV 345kV	On-Line for 225MW, On Schedule and 2017
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV	On-Line
GEN-2008-008IS	5.00	WAPA	Nelson 115kV	Commercial Operation
GEN-2008-013	300.00	OKGE	Hunter 345kV	On-Line at 235MW
GEN-2008-018	250.00	SPS	Finney 345kV	On-Line
GEN-2008-021	42.00	WERE	Wolf Creek 345kV	On-Line
GEN-2008-022	300.00	SPS	Crossroads 345kV	On-Line
GEN-2008-023	150.00	AEPW	Hobart Junction 138kV	On-Line
GEN-2008-037	101.00	WFEC	Slick Hills 138kV	On-Line
GEN-2008-044	197.80	OKGE	Tatonga 345kV	On-Line
GEN-2008-047	300.00	OKGE	Beaver County 345kV	On-Line
GEN-2008-051	322.00	SPS	Potter County 345kV	On-Line at 161MW
GEN-2008-079	99.20	SUNCMKEC	Crooked Creek 115kV	On-Line
GEN-2008-086N02	201.00	NPPD	Meadow Grove 230kV	On-Line
GEN-2008-092	200.60	MIDW	Post Rock 230kV	On-Line
GEN-2008-098	100.80	WERE	Waverly 345kV	On-Line
GEN-2008-119O	60.00	OPPD	S1399 161kV	On-Line
GEN-2008-123N	89.70	NPPD	Tap Pauline - Hildreth (Rosemont) 115kV	On Schedule for 2017
GEN-2008-124	200.10	SUNCMKEC	Ironwood 345kV	On-Line
GEN-2008-129	80.00	KCPL	Pleasant Hill 161kV	On-Line
GEN-2009-001IS	200.00	WAPA	Groton-Watertown 345kV	On Schedule
GEN-2009-006IS	90.00	WAPA	Mission 115kV	On Suspension
GEN-2009-007IS	100.00	WAPA	Mission 115kV	On Suspension
GEN-2009-008	199.50	MIDW	South Hays 230kV	On-Line
GEN-2009-018IS	100.00	WAPA	Groton 115kV	Commercial Operation
GEN-2009-020	48.30	MIDW	Walnut Creek 69kV	On-Line
GEN-2009-020AIS	130.50	WAPA	Tripp Junction 115kV	Commercial Operation
GEN-2009-025	59.80	OKGE	Nardins 69kV	On-Line
GEN-2009-026IS	110.00	WAPA	Dickenson-Heskett 230kV	On Schedule
GEN-2009-040	73.80	WERE	Marshall 115kV	On-Line
GEN-2010-001	300.00	OKGE	Beaver County 345kV	On-Line
GEN-2010-001IS	99.00	WAPA	Bismarck-Glenham 230kV	On Schedule
GEN-2010-003	100.80	WERE	Waverly 345kV	On-Line
GEN-2010-003IS	34.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2010-005	299.20	WERE	Viola 345kV	On-Line at 170MW
GEN-2010-006	205.00	SPS	Jones 230kV	On-Line
GEN-2010-007IS	172.50	WAPA	Antelope Valley 345kV	On Suspension
GEN-2010-009	165.60	SUNCMKEC	Buckner 345kV	On-Line
GEN-2010-011	29.70	OKGE	Tatonga 345kV	On-Line
GEN-2010-014	358.80	SPS	Hitchland 345kV	On Schedule for 2018
GEN-2010-036	4.60	WERE	6th Street 115kV	On-Line
GEN-2010-040	300.00	OKGE	Cimarron 345kV	On-Line

Southwest Power Pool, Inc.

Appendix B: Prior Queued Generation Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2010-041	10.50	OPPD	S1399 161kV	On-Line
GEN-2010-045	197.80	SUNCMKEC	Buckner 345kV	On Suspension
GEN-2010-046	56.00	SPS	TUCO Interchange 230kV	On Schedule for 2016
GEN-2010-051	200.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV	On Schedule for 2018
GEN-2010-055	4.50	AEPW	Wekiwa 138kV	On-Line
GEN-2010-057	201.00	MIDW	Rice County 230kV	On-Line
GEN-2011-008	600.00	SUNCMKEC	Clark County 345kV	On-Line
GEN-2011-010	100.80	OKGE	Minco 345kV	On-Line
GEN-2011-011	50.00	KCPL	Iatan 345kV	On-Line
GEN-2011-014	201.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV	On-Line
GEN-2011-016	200.10	SUNCMKEC	Ironwood 345kV	On Suspension
GEN-2011-018	73.60	NPPD	Steele City 115kV	On-Line
GEN-2011-019	175.00	OKGE	Woodward 345kV	On Schedule for 2017
GEN-2011-020	175.00	OKGE	Woodward 345kV	On Schedule for 2017
GEN-2011-022	299.00	SPS	Hitchland 345kV	On Schedule for 2016 (150MW) and 2017 (149MW)
GEN-2011-025	80.00	SPS	Tap Floyd County - Crosby County 115kV	On Schedule for 2016
GEN-2011-027	120.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV	On Schedule for 2018
GEN-2011-037	7.00	WFEC	Blue Canyon 5 138kV	On-Line
GEN-2011-040	111.00	OKGE	Carter County 138kV	On-Line
GEN-2011-045	205.00	SPS	Jones 230kV	On-Line
GEN-2011-046	27.00	SPS	Lopez 115kV	On-Line
GEN-2011-048	175.00	SPS	Mustang 230kV	On-Line
GEN-2011-049	250.70	OKGE	Border 345kV	On Schedule for 2016
GEN-2011-050	109.80	AEPW	Santa Fe Tap 138kV	On-Line
GEN-2011-054	300.00	OKGE	Cimarron 345kV	On-Line
GEN-2011-056	3.60	NPPD	Jeffrey 115kV	On-Line
GEN-2011-056A	3.60	NPPD	John 1 115kV	On-Line
GEN-2011-056B	4.50	NPPD	John 2 115kV	On-Line
GEN-2011-057	150.40	WERE	Creswell 138kV	On-Line
GEN-2012-001	61.20	SPS	Cirrus Tap 230kV	On-Line
GEN-2012-004	41.40	OKGE	Carter County 138kV	On-Line
GEN-2012-006IS	125.01	WAPA	Williston-Ch. Creek 230kV	On Schedule
GEN-2012-007	120.00	SUNCMKEC	Rubart 115kV	On-Line
GEN-2012-009IS	99.00	WAPA	Fort Randall 115kV	On Suspension
GEN-2012-012IS	75.00	WAPA	Wolf Point-Circle 115kV	On Suspension
GEN-2012-014IS	99.50	WAPA	Groton 115kV	On Schedule
GEN-2012-020	478.00	SPS	TUCO 230kV	On Schedule for 2016
GEN-2012-021	4.80	LES	Terry Bundy Generating Station 115kV	On-Line
GEN-2012-024	180.00	SUNCMKEC	Clark County 345kV	On Schedule for 2017
GEN-2012-028	74.80	WFEC	Gotebo 69kV	On-Line
GEN-2012-032	300.00	OKGE	Open Sky 345kV	On-Line
GEN-2012-033	98.10	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV	On-Line
GEN-2012-034	7.00	SPS	Mustang 230kV	On-Line
GEN-2012-035	7.00	SPS	Mustang 230kV	On-Line
GEN-2012-036	7.00	SPS	Mustang 230kV	On-Line
GEN-2012-037	203.00	SPS	TUCO 345kV	On-Line
GEN-2012-041	121.50	OKGE	Ranch Road 345kV	On-Line
GEN-2013-001IS	90.00	WAPA	Summit-Watertown 115kV	On Suspension

Definitive Interconnection System Impact Study for Grouped Generator Interconnection Requests - (DISIS-2015-002-3)

B-4

Southwest Power Pool, Inc.

Appendix B: Prior Queued Generation Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2013-002	50.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2	On Suspension
GEN-2013-007	100.30	OKGE	Tap Prices Falls - Carter 138kV	On-Line
GEN-2013-008	1.20	NPPD	Steele City 115kV	On-Line
GEN-2013-009IS	19.50	WAPA	Redfield NW 115kV	Commercial Operation
GEN-2013-010	99.00	SUNCMKEC	Tap Spearville - Post Rock (North of GEN-2011-017 Tap) 345kV	On Suspension
GEN-2013-011	30.00	AEPW	Turk 138kV	On-Line
GEN-2013-012	147.00	OKGE	Redbud 345kV	On-Line
GEN-2013-016	203.00	SPS	TUCO 345kV	On Schedule for 2017
GEN-2013-019	73.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2	On Suspension
GEN-2013-022	25.00	SPS	Norton 115kV	On-Line
GEN-2013-027	150.00	SPS	Tap Tolk - Yoakum 230kV	On Schedule for 2018
GEN-2013-028	559.50	GRDA	Tap N Tulsa - GRDA 1 345kV	On Schedule for 2017
GEN-2013-029	300.00	OKGE	Renfrow 345kV	On-Line for 151.6MW
GEN-2013-030	300.00	OKGE	Beaver County 345kV	On Schedule for 2016 (200MW) and 2017 (100MW)
GEN-2013-032	204.00	NPPD	Antelope 115kV	On Schedule for 2017
GEN-2013-033	28.00	MIDW	Knoll 115kV	On-Line
GEN-2014-001	200.60	WERE	Tap Wichita - Emporia Energy Center (GEN-2014-001 Tap) 345kV	On Suspension
GEN-2014-001IS	103.70	WAPA	Newell-Maurine 115kV	On Suspension
GEN-2014-002	10.50	OKGE	Tatonga 345kV (GEN-2007-021 POI)	On-Line
GEN-2014-003	15.80	OKGE	Tatonga 345kV (GEN-2007-044 POI)	On-Line
GEN-2014-003IS	91.00	WAPA	Culbertson 115kV	On Schedule
GEN-2014-004	4.00	NPPD	Steele City 115kV (GEN-2011-018 POI)	On-Line
GEN-2014-004IS	384.20	WAPA	Charlie Creek 345kV	IA Pending
GEN-2014-005	5.70	OKGE	Minco 345kV (GEN-2011-010 POI)	On-Line
GEN-2014-006IS	125.00	WAPA	Williston 115kV	On Schedule
GEN-2014-010IS	150.00	WAPA	Neset 115kV	On Schedule
GEN-2014-012	225.00	SPS	Tap Hobbs Interchange - Andrews 230kV	On Suspension
GEN-2014-013	73.50	NPPD	Meadow Grove (GEN-2008-086N2 Sub) 230kV	On-Line
GEN-2014-014IS	151.50	WAPA	Belfield-Rhame 230kV	On Schedule
GEN-2014-020	100.00	AEPW	Tuttle 138kV	On Schedule for 2017
GEN-2014-021	300.00	KCPL	Tap Nebraska City - Mullin Creek 345kV	On Schedule for 2017
GEN-2014-025	2.40	MIDW	Walnut Creek 69kV	On-Line
GEN-2014-028	35.00	EMDE	Riverton 161kV	On-Line
GEN-2014-031	35.80	NPPD	Meadow Grove 230kV	On-Line
GEN-2014-032	10.20	NPPD	Meadow Grove 230kV	On Schedule for 2016
GEN-2014-033	70.00	SPS	Chaves County 115kV	On-Line
GEN-2014-034	70.00	SPS	Chaves County 115kV	On-Line
GEN-2014-035	30.00	SPS	Chaves County 115kV	On Schedule for 2018
GEN-2014-039	73.40	NPPD	Friend 115kV	On Schedule for 2017
GEN-2014-040	320.40	SPS	Castro 115kV	On-Line
GEN-2014-041	120.80	SUNCMKEC	Arnold 115kV	On Suspension
GEN-2014-047	40.00	SPS	Crossroads 345kV	On Schedule for 2017
GEN-2014-056	250.00	OKGE	Minco 345kV	On Schedule for 2016
GEN-2014-057	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV	On-Line
GEN-2014-064	248.40	OKGE	Otter 138kV	On Suspension
GEN-2015-001	200.00	OKGE	Ranch Road 345kV	On-Line

Southwest Power Pool, Inc.

Appendix B: Prior Queued Generation Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2015-004	52.90	OKGE	Border 345kV	On Schedule for 2017
GEN-2015-005	200.10	KCPL	Tap Nebraska City - Sibley 345kV	On-Line
GEN-2015-007	160.00	NPPD	Hoskins 345kV	On Schedule for 2019
GEN-2015-013	120.00	WFEC	Snyder 138kV	FACILITY STUDY STAGE
GEN-2015-014	150.00	SPS	Tap Cochran - Lehman 115kV	FACILITY STUDY STAGE
GEN-2015-015	154.60	OKGE	Tap Medford Tap - Coyote 138kV	On Schedule for 2017
GEN-2015-016	200.00	KCPL	Tap Marmaton - Centerville 161kV	On Schedule for 2018
GEN-2015-021	20.00	SUNCMKEC	Johnson Corner 115kV	On Schedule for 2019
GEN-2015-022	112.00	SPS	Swisher 115kV	FACILITY STUDY STAGE
GEN-2015-023	300.70	NPPD	Holt County 345kV	On Schedule for 2020
GEN-2015-024	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT	On-Line
GEN-2015-025	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT	On-Line
GEN-2015-029	161.00	OKGE	Tatonga 345kV	On Suspension
GEN-2015-030	200.10	OKGE	Sooner 345kV	On Suspension
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV	On-Line
J003	20.00	MDU	Baker 115kV	MISO Queued Request
J249	180.00	MDU	MDU Tatanka 230kV	MISO Queued Request
J262	100.00	OTP	Jamestown 345	MISO Queued Request
J263	100.00	OTP	Jamestown 345	MISO Queued Request
J290	150.00	XEL	Tap Glenboro South - Rugby 230kV	MISO Queued Request
J316	150.00	MDU	MDU 230 kV Tatanka-Ellendale line	MISO Queued Request
J436	150.00	OTP	Big Stone South 345kV	MISO Queued Request
J437	150.00	OTP	Big Stone South 345kV	MISO Queued Request
J442	200.00	OTP	Big Stone 230 kV	MISO Queued Request
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV	On-Line
MPC01200	98.90	OTP	Maple River 230kV	IA Pending
MPC02100	100.00	OTP	Tap Center - Mandan 230kV	On-Line
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV	On-Line
NPPD Distributed (Buffalo County Solar)	10.00	NPPD	Kearney Northeast	On-Line
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV	On-Line
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV	On-Line
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV	On-Line
NPPD Distributed (North Platte - Lexington)	54.00	NPPD	Multiple: Jeffrey 115kV, John_1 115kV, John_2 115kV	On-Line
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV	On-Line
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV	On-Line
SPS Distributed (Carson)	10.00	SPS	Martin 115kV	On-Line
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV	On-Line
SPS Distributed (Etter)	20.00	SPS	Etter 115kV	On-Line
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV	On-Line
SPS Distributed (Jal)	10.00	SPS	S_Jal 115kV	On-Line
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV	On-Line
SPS Distributed (Monument)	10.00	SPS	Monument 115kV	On-Line
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV	On-Line
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV	On-Line
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV	On-Line
SPS Distributed (Spearman)	10.00	SPS	Spearman 69kV	On-Line
SPS Distributed (TC-Texas County)	20.00	SPS	Texas County 115kV	On-Line
SPS Distributed (Yuma)	2.57	SPS	SP-Yuma 69kV	On-Line
Total:		33478.5		

### **11.3 C: Study Groupings**

See next page

Southwest Power Pool, Inc.

Appendix C: Study Groupings

## C. Study Groups

GROUP 1: WOODWARD AREA			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-014	96.00	WFEC	Ft Supply 138kV
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV
GEN-2005-008	120.00	OKGE	Woodward 138kV
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV
GEN-2006-046	131.00	OKGE	Dewey 138kV
GEN-2007-021	201.00	OKGE	Tatonga 345kV
GEN-2007-043	200.00	OKGE	Minco 345kV
GEN-2007-044	300.00	OKGE	Tatonga 345kV
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV
GEN-2007-062	425.00	OKGE	Woodward EHV 345kV
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV
GEN-2008-044	197.80	OKGE	Tatonga 345kV
GEN-2010-011	29.70	OKGE	Tatonga 345kV
GEN-2010-040	300.00	OKGE	Cimarron 345kV
GEN-2011-010	100.80	OKGE	Minco 345kV
GEN-2011-019	175.00	OKGE	Woodward 345kV
GEN-2011-020	175.00	OKGE	Woodward 345kV
GEN-2011-054	300.00	OKGE	Cimarron 345kV
GEN-2014-002	10.50	OKGE	Tatonga 345kV (GEN-2007-021 POI)
GEN-2014-003	15.80	OKGE	Tatonga 345kV (GEN-2007-044 POI)
GEN-2014-005	5.70	OKGE	Minco 345kV (GEN-2011-010 POI)
GEN-2014-020	100.00	AEPW	Tuttle 138kV
GEN-2014-056	250.00	OKGE	Minco 345kV
GEN-2015-029	161.00	OKGE	Tatonga 345kV
GEN-2015-048	200.00	OKGE	Cleo Corner 138kV
GEN-2015-057	100.00	OKGE	Minco 345kV
GEN-2015-093	250.00	OKGE	Gracemont 345kV

GROUP 2: HITCHLAND AREA			
Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2011-002	20.00	SPS	Herring 115kV
ASGI-2013-001	11.50	SPS	PanTex South 115kV
GEN-2002-008	240.00	SPS	Hitchland 345kV
GEN-2002-009	80.00	SPS	Hansford 115kV
GEN-2002-022	240.00	SPS	Bushland 230kV
GEN-2003-020	160.00	SPS	Martin 115kV
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV
GEN-2006-044	370.00	SPS	Hitchland 345kV
GEN-2007-046	200.00	SPS	Hitchland 115kV
GEN-2008-047	300.00	OKGE	Beaver County 345kV
GEN-2008-051	322.00	SPS	Potter County 345kV
GEN-2010-001	300.00	OKGE	Beaver County 345kV
GEN-2010-014	358.80	SPS	Hitchland 345kV
GEN-2011-014	201.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV
GEN-2011-022	299.00	SPS	Hitchland 345kV
GEN-2013-030	300.00	OKGE	Beaver County 345kV
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV
SPS Distributed (Carson)	10.00	SPS	Martin 115kV
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV
SPS Distributed (Etter)	20.00	SPS	Etter 115kV
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV
SPS Distributed (Spearman)	10.00	SPS	Spearman 69kV
SPS Distributed (TC-Texas County)	20.00	SPS	Texas County 115kV
GEN-2014-037	200.00	SPS	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV



GROUP 3: SPEARVILLE AREA			
Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2012-006	22.50	SUNCMKEC	Tap Hugoton - Rolla 69kV
ASGI-2015-001	6.13	SUNCMKEC	Ninnescah 115kV
GEN-2001-039A	105.00	SUNCMKEC	Shooting Star Tap 115kV
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV
GEN-2005-012	250.00	SUNCMKEC	Ironwood 345kV
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV
GEN-2007-040	200.00	SUNCMKEC	Buckner 345kV
GEN-2008-018	250.00	SPS	Finney 345kV
GEN-2008-079	99.20	SUNCMKEC	Crooked Creek 115kV
GEN-2008-124	200.10	SUNCMKEC	Ironwood 345kV
GEN-2010-009	165.60	SUNCMKEC	Buckner 345kV
GEN-2010-045	197.80	SUNCMKEC	Buckner 345kV
GEN-2011-008	600.00	SUNCMKEC	Clark County 345kV
GEN-2011-016	200.10	SUNCMKEC	Ironwood 345kV
GEN-2012-007	120.00	SUNCMKEC	Rubart 115kV
GEN-2012-024	180.00	SUNCMKEC	Clark County 345kV
GEN-2013-010	99.00	SUNCMKEC	Tap Spearville - Post Rock (North of GEN-2011-017 Tap) 345kV
GEN-2015-021	20.00	SUNCMKEC	Johnson Corner 115kV
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV

GROUP 4: NORTHWEST KANSAS AREA			
Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2013-004	36.60	SUNCMKEC	Morris 115kV
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV
GEN-2006-031	75.00	MIDW	Knoll 115kV
GEN-2008-092	200.60	MIDW	Post Rock 230kV
GEN-2009-008	199.50	MIDW	South Hays 230kV
GEN-2009-020	48.30	MIDW	Walnut Creek 69kV
GEN-2010-057	201.00	MIDW	Rice County 230kV
GEN-2013-033	28.00	MIDW	Knoll 115kV
GEN-2014-025	2.40	MIDW	Walnut Creek 69kV
GEN-2014-041	120.80	SUNCMKEC	Arnold 115kV
GEN-2015-064	197.80	SUNCMKEC	Mingo 115kV
GEN-2015-065	202.40	SUNCMKEC	Mingo 345kV

GROUP 6: SOUTH TEXAS PANHANDLE/NEW MEXICO AREA			
Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2010-010	42.20	SPS	Lovington 115kV
ASGI-2010-020	30.00	SPS	Tap LE-Tatum - LE-Crossroads 69kV
ASGI-2010-021	15.00	SPS	Tap LE-Saunders Tap - LE-Anderson 69kV
ASGI-2011-001	27.30	SPS	Lovington 115kV
ASGI-2011-003	10.00	SPS	Hendricks 69kV
ASGI-2011-004	20.00	SPS	Pleasant Hill 69kV
ASGI-2012-002	18.15	SPS	FE-Clovis Interchange 115kV
ASGI-2013-002	18.40	SPS	FE Tucumcari 115kV
ASGI-2013-003	18.40	SPS	FE Clovis 115kV
ASGI-2013-005	1.65	SPS	FE Clovis 115kV
ASGI-2013-006	2.00	SPS	SP-Erskine 115kV
ASGI-2014-001	2.50	SPS	SP-Erskine 115kV
ASGI-2015-002	2.00	SPS	SP-Yuma 69kV
GEN-2001-033	180.00	SPS	San Juan Tap 230kV
GEN-2001-036	80.00	SPS	Norton 115kV
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV
GEN-2006-026	502.00	SPS	Hobbs 230kV & Hobbs 115kV
GEN-2008-022	300.00	SPS	Crossroads 345kV
GEN-2010-006	205.00	SPS	Jones 230kV
GEN-2010-046	56.00	SPS	TUCO Interchange 230kV
GEN-2011-025	80.00	SPS	Tap Floyd County - Crosby County 115kV
GEN-2011-045	205.00	SPS	Jones 230kV
GEN-2011-046	27.00	SPS	Lopez 115kV
GEN-2011-048	175.00	SPS	Mustang 230kV
GEN-2012-001	61.20	SPS	Cirrus Tap 230kV
GEN-2012-020	478.00	SPS	TUCO 230kV
GEN-2012-034	7.00	SPS	Mustang 230kV
GEN-2012-035	7.00	SPS	Mustang 230kV
GEN-2012-036	7.00	SPS	Mustang 230kV
GEN-2012-037	203.00	SPS	TUCO 345kV
GEN-2013-016	203.00	SPS	TUCO 345kV
GEN-2013-022	25.00	SPS	Norton 115kV
GEN-2013-027	150.00	SPS	Tap Tolk - Yoakum 230kV
GEN-2014-012	225.00	SPS	Tap Hobbs Interchange - Andrews 230kV
GEN-2014-033	70.00	SPS	Chaves County 115kV
GEN-2014-034	70.00	SPS	Chaves County 115kV
GEN-2014-035	30.00	SPS	Chaves County 115kV
GEN-2014-040	320.40	SPS	Castro 115kV
GEN-2014-047	40.00	SPS	Crossroads 345kV
GEN-2015-014	150.00	SPS	Tap Cochran - Lehman 115kV
GEN-2015-022	112.00	SPS	Swisher 115kV
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV
SPS Distributed (Jal)	10.00	SPS	S_Jal 115kV
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV
SPS Distributed (Monument)	10.00	SPS	Monument 115kV
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV
SPS Distributed (Yuma)	2.57	SPS	SP-Yuma 69kV

GEN-2015-020	100.00	SPS	Oasis 115kV
GEN-2015-031	150.50	SPS	Tap Amarillo South - Swisher 230kV
GEN-2015-056	101.20	SPS	Crossroads 345kV
GEN-2015-058	50.00	SPS	Atoka 115kV
GEN-2015-068	300.00	SPS	TUCO Interchange 345kV
GEN-2015-075	51.50	SPS	Carlisle 69kV
GEN-2015-079	129.20	SPS	Tap Yoakum - Hobbs Interchange 230kV
GEN-2015-080	129.20	SPS	Tap Yoakum - Hobbs Interchange 230kV

GROUP 7: SOUTHWEST OKLAHOMA AREA			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-026	74.30	WFEC	Washita 138kV
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV
GEN-2003-004	100.00	WFEC	Washita 138kV
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV
GEN-2003-022	120.00	AEPW	Weatherford 138kV
GEN-2004-020	27.00	AEPW	Weatherford 138kV
GEN-2004-023	20.60	WFEC	Washita 138kV
GEN-2005-003	30.60	WFEC	Washita 138kV
GEN-2006-002	101.00	AEPW	Sweetwater 230kV
GEN-2006-035	225.00	AEPW	Sweetwater 230kV
GEN-2006-043	99.00	AEPW	Sweetwater 230kV
GEN-2007-052	150.00	WFEC	Anadarko 138kV
GEN-2008-023	150.00	AEPW	Hobart Junction 138kV
GEN-2008-037	101.00	WFEC	Slick Hills 138kV
GEN-2011-037	7.00	WFEC	Blue Canyon 5 138kV
GEN-2011-049	250.70	OKGE	Border 345kV
GEN-2012-028	74.80	WFEC	Gotebo 69kV
GEN-2015-004	52.90	OKGE	Border 345kV
GEN-2015-013	120.00	WFEC	Snyder 138kV
GEN-2015-055	40.00	WFEC	Erick 138kV
GEN-2015-071	200.00	AEPW	Chisholm 345kV
GEN-2015-084	51.30	AEPW	Hollis 138kV
GEN-2015-085	122.40	AEPW	Altus Junction 138kV

GROUP 8: NORTH OKLAHOMA/SOUTH CENTRAL KANSAS AREA			
Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2010-006	150.00	AECI	Remington 138kV
ASGI-2014-014	56.40	GRDA	Ferguson 69kV
ASGI-2015-004	56.36	GRDA	Coffeyville City 69kV
GEN-2002-004	200.00	WERE	Latham 345kV
GEN-2005-013	201.00	WERE	Caney River 345kV
GEN-2007-025	300.00	WERE	Viola 345kV
GEN-2008-013	300.00	OKGE	Hunter 345kV
GEN-2008-021	42.00	WERE	Wolf Creek 345kV
GEN-2008-098	100.80	WERE	Waverly 345kV
GEN-2009-025	59.80	OKGE	Nardins 69kV
GEN-2010-003	100.80	WERE	Waverly 345kV
GEN-2010-005	299.20	WERE	Viola 345kV
GEN-2010-055	4.50	AEPW	Wekiwa 138kV
GEN-2011-057	150.40	WERE	Creswell 138kV
GEN-2012-032	300.00	OKGE	Open Sky 345kV
GEN-2012-033	98.10	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV
GEN-2012-041	121.50	OKGE	Ranch Road 345kV
GEN-2013-012	147.00	OKGE	Redbud 345kV
GEN-2013-028	559.50	GRDA	Tap N Tulsa - GRDA 1 345kV
GEN-2013-029	300.00	OKGE	Renfrow 345kV
GEN-2014-001	200.60	WERE	Tap Wichita - Emporia Energy Center (GEN-2014-001 Tap) 345kV

GEN-2014-028	35.00	EMDE	Riverton 161kV
GEN-2014-064	248.40	OKGE	Otter 138kV
GEN-2015-001	200.00	OKGE	Ranch Road 345kV
GEN-2015-015	154.60	OKGE	Tap Medford Tap - Coyote 138kV
GEN-2015-016	200.00	KCPL	Tap Marmaton - Centerville 161kV
GEN-2015-024	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT
GEN-2015-025	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT
GEN-2015-030	200.10	OKGE	Sooner 345kV
GEN-2015-034	200.00	OKGE	Ranch Road 345kV
GEN-2015-047	300.00	OKGE	Sooner 345kV
GEN-2015-052	300.00	WERE	Tap Open Sky - Rose Hill 345kV
GEN-2015-062	4.50	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV
GEN-2015-063	300.00	OKGE	Tap Woodring - Mathewson 345kV
GEN-2015-066	248.40	OKGE	Tap Cleveland - Sooner 345kV
GEN-2015-069	300.00	WERE	Union Ridge 230kV
GEN-2015-073	200.10	WERE	Emporia Energy Center 345kV
GEN-2015-083	125.00	WERE	Belle Plain 138kV
GEN-2015-090	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT

#### GROUP 9: NEBRASKA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-023N	0.80	NPPD	Harmony 115kV
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV
GEN-2006-037N1	75.00	NPPD	Broken Bow 115kV
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV
GEN-2006-044N	40.50	NPPD	North Petersburg 115kV
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV
GEN-2007-017IS	166.00	WAPA	Ft Thompson-Grand Island 345kV
GEN-2007-018IS	234.00	WAPA	Ft Thompson-Grand Island 345kV
GEN-2008-086N02	201.00	NPPD	Meadow Grove 230kV
GEN-2008-119O	60.00	OPPD	S1399 161kV
GEN-2008-123N	89.70	NPPD	Tap Pauline - Hildreth (Rosemont) 115kV
GEN-2009-040	73.80	WERE	Marshall 115kV
GEN-2010-041	10.50	OPPD	S1399 161kV
GEN-2010-051	200.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV
GEN-2011-018	73.60	NPPD	Steele City 115kV
GEN-2011-027	120.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV
GEN-2011-056	3.60	NPPD	Jeffrey 115kV
GEN-2011-056A	3.60	NPPD	John 1 115kV
GEN-2011-056B	4.50	NPPD	John 2 115kV
GEN-2012-021	4.80	LES	Terry Bundy Generating Station 115kV
GEN-2013-002	50.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2
GEN-2013-008	1.20	NPPD	Steele City 115kV
GEN-2013-019	73.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2
GEN-2013-032	204.00	NPPD	Antelope 115kV
GEN-2014-004	4.00	NPPD	Steele City 115kV (GEN-2011-018 POI)
GEN-2014-013	73.50	NPPD	Meadow Grove (GEN-2008-086N2 Sub) 230kV

Definitive Interconnection System Impact Study for Grouped Generator Interconnection Requests - (DISIS-2015-002-3)

C-7

GEN-2014-031	35.80	NPPD	Meadow Grove 230kV
GEN-2014-032	10.20	NPPD	Meadow Grove 230kV
GEN-2014-039	73.40	NPPD	Friend 115kV
GEN-2015-007	160.00	NPPD	Hoskins 345kV
GEN-2015-023	300.70	NPPD	Holt County 345kV
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV
NPPD Distributed (Buffalo County Solar)	10.00	NPPD	Kearney Northeast
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV
NPPD Distributed (North Platte - Lexington)	54.00	NPPD	Multiple: Jeffrey 115kV, John_1 115kV, John_2 115kV
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV
GEN-2015-053	50.00	NPPD	Antelope 115kV
GEN-2015-076	158.40	NPPD	Belden 115kV
GEN-2015-087	66.00	NPPD	Tap Fairbury - Hebron 115kV
GEN-2015-088	300.00	NPPD	Tap Moore - Pauline 345kV

#### GROUP 10: SOUTHEAST OKLAHOMA/NORTHEAST TEXAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
---------	----------	------	-----------------------------------

#### GROUP 12: NORTHWEST ARKANSAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
---------	----------	------	-----------------------------------

GEN-2013-011	30.00	AEPW	Turk 138kV
--------------	-------	------	------------

#### GROUP 13: NORTHWEST MISSOURI AREA

Request	Capacity	Area	Proposed Point of Interconnection
---------	----------	------	-----------------------------------

GEN-2008-129	80.00	KCPL	Pleasant Hill 161kV
GEN-2010-036	4.60	WERE	6th Street 115kV
GEN-2011-011	50.00	KCPL	Iatan 345kV
GEN-2014-021	300.00	KCPL	Tap Nebraska City - Mullin Creek 345kV
GEN-2015-005	200.10	KCPL	Tap Nebraska City - Sibley 345kV

#### GROUP 14: SOUTH CENTRAL OKLAHOMA AREA

Request	Capacity	Area	Proposed Point of Interconnection
---------	----------	------	-----------------------------------

GEN-2011-040	111.00	OKGE	Carter County 138kV
GEN-2011-050	109.80	AEPW	Santa Fe Tap 138kV
GEN-2012-004	41.40	OKGE	Carter County 138kV
GEN-2013-007	100.30	OKGE	Tap Prices Falls - Carter 138kV
GEN-2014-057	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV
ASGI-2015-006	9.00	SWPA	Tupelo 138kV
GEN-2015-045	20.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV
GEN-2015-092	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV

GROUP 15: E-SOUTH DAKOTA AREA			
Request	Capacity	Area	Proposed Point of Interconnection
G176	100.00	XEL	Yankee 115kV
G255	100.00	XEL	Yankee 115kV
G586	30.00	XEL	Yankee 115kV
G736	200.00	OTP	Big Stone South 230kV
GEN-2002-009IS	40.00	WAPA	Ft Thompson 69kV [Hyde 69kV]
GEN-2007-013IS	50.00	WAPA	Wessington Springs 230kV
GEN-2007-014IS	100.00	WAPA	Wessington Springs 230kV
GEN-2007-023IS	50.00	WAPA	Formit-Summit 115kV
GEN-2009-001IS	200.00	WAPA	Groton-Watertown 345kV
GEN-2009-018IS	100.00	WAPA	Groton 115kV
GEN-2010-001IS	99.00	WAPA	Bismarck-Glenham 230kV
GEN-2010-003IS	34.00	WAPA	Wessington Springs 230kV
GEN-2012-014IS	99.50	WAPA	Groton 115kV
GEN-2013-001IS	90.00	WAPA	Summit-Watertown 115kV
GEN-2013-009IS	19.50	WAPA	Redfield NW 115kV
GEN-2014-001IS	103.70	WAPA	Newell-Maurine 115kV
J436	150.00	OTP	Big Stone South 345kV
J437	150.00	OTP	Big Stone South 345kV
J442	200.00	OTP	Big Stone 230 kV



GROUP 16: W-NORTH DAKOTA AREA			
Request	Capacity	Area	Proposed Point of Interconnection
G380	150.00	OTP	Rugby 115kV
G408	12.00	XEL	Tap McHenry - Souris 115kV
G502	50.60	MP	Milton Young 230kV
G645	50.00	GRE	Ladish 115kV
G723	10.00	MDU	Haskett 115kV
G752	150.00	MDU	Tap Bison - Hettinger 230kV
G788	49.00	GRE	Ladish 115kV
G830	99.00	GRE	GRE McHenry 115kV
GEN-2005-008IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]
GEN-2006-015IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]
GEN-2007-015IS	100.00	WAPA	Hilken 230kV [Ecklund 230kV]
GEN-2007-027IS	99.00	WAPA	Bismarck-Garrison 230kV #1
GEN-2009-026IS	110.00	WAPA	Dickenson-Heskett 230kV
GEN-2010-007IS	172.50	WAPA	Antelope Valley 345kV
GEN-2012-006IS	125.01	WAPA	Williston-Ch. Creek 230kV
GEN-2012-012IS	75.00	WAPA	Wolf Point-Circle 115kV
GEN-2014-003IS	91.00	WAPA	Culbertson 115kV
GEN-2014-004IS	384.20	WAPA	Charlie Creek 345kV
GEN-2014-006IS	125.00	WAPA	Williston 115kV
GEN-2014-010IS	150.00	WAPA	Neset 115kV
GEN-2014-014IS	151.50	WAPA	Belfield-Rhame 230kV
J003	20.00	MDU	Baker 115kV
J249	180.00	MDU	MDU Tatanka 230kV
J262	100.00	OTP	Jamestown 345
J263	100.00	OTP	Jamestown 345
J290	150.00	XEL	Tap Glenboro South - Rugby 230kV
J316	150.00	MDU	MDU 230 kV Tatanka-Ellendale line
MPC01200	98.90	OTP	Maple River 230kV
MPC02100	100.00	OTP	Tap Center - Mandan 230kV
GEN-2015-046	300.00	WAPA	Tande 345kV
GEN-2015-096	150.00	WAPA	Tap Belfield - Rhame 230kV
GEN-2015-098	100.00	WAPA	Mingusville 230kV

GROUP 17: W-SOUTH DAKOTA AREA			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2006-002IS	51.00	WAPA	Wessington Springs 230kV
GEN-2009-006IS	90.00	WAPA	Mission 115kV
GEN-2009-007IS	100.00	WAPA	Mission 115kV
GEN-2009-020AIS	130.50	WAPA	Tripp Junction 115kV
GEN-2012-009IS	99.00	WAPA	Fort Randall 115kV

GROUP 18: E-NORTH DAKOTA AREA			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-008IS	40.50	WAPA	Edgeley 115kV [Pomona 115kV]
GEN-2005-003IS	100.00	WAPA	Nelson 115kV
GEN-2007-020IS	16.00	WAPA	Nelson 115kV
GEN-2008-008IS	5.00	WAPA	Nelson 115kV

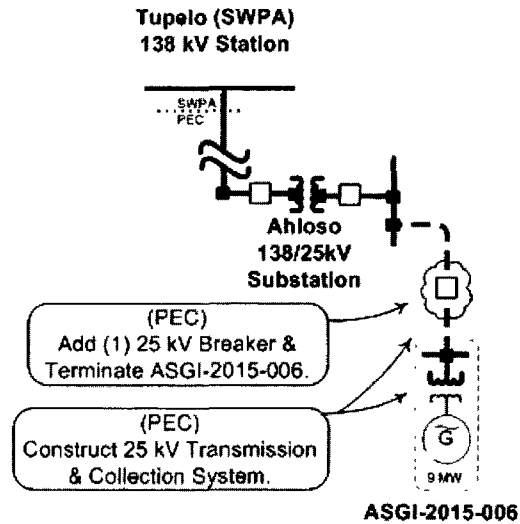
CLUSTER TOTAL (CURRENT STUDY)	6,176.9	MW
PQ TOTAL (PRIOR QUEUED)	33,478.5	MW
CLUSTER TOTAL (INCLUDING PRIOR QUEUED)	39,655.4	MW

## **11.4 D: Proposed Point of Interconnection One Line Diagrams**

See next page

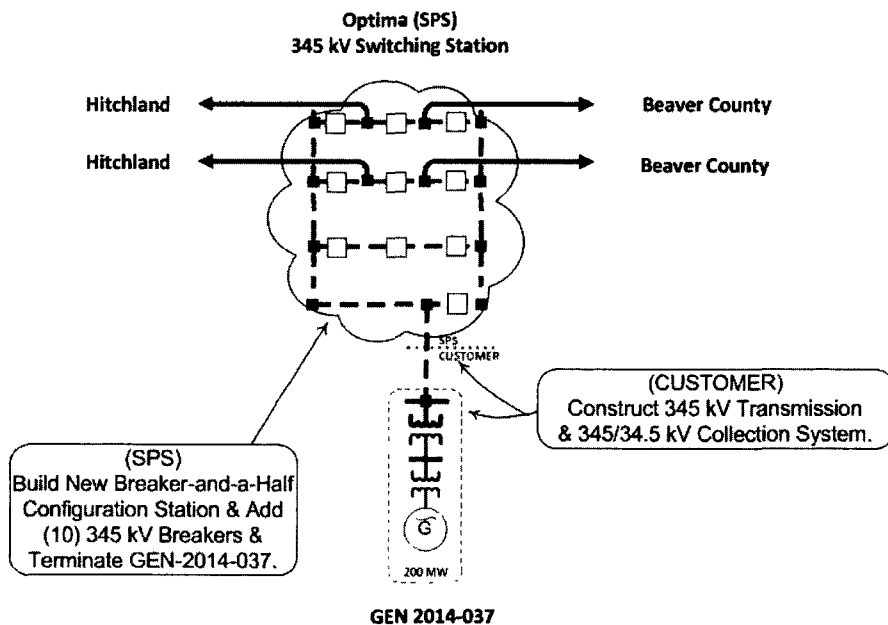
\*Note: If not denoted otherwise for Affected System Generator Interconnection Requests (ASGI) interconnection cost estimate could include distribution system or third party system network upgrades and costs estimates.

**ASGI-2015-006**  
**Estimated Cluster Analysis Interconnection Cost: \$0**



\* Interconnection Cost Estimate(s) only include Affected System Interconnection costs

**GEN-2014-037**  
**Estimated Cluster Analysis Interconnection Cost: \$20,334,923**



**GEN-2015-020**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-031**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-034**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-045**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-046**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-047**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-048**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-052**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-053**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-055**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-056**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-057**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-058**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-062**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-063**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-064**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-065**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-066**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-068**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-069**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-071**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-073**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-075**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-076**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-079**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-080**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-083**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-084**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-085**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-087**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-088**

Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions

**GEN-2015-090**

**Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions**

**GEN-2015-092**

**Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions**

**GEN-2015-093**

**Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions**

**GEN-2015-096**

**Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions**

**GEN-2015-098**

**Please refer to the Interconnection Facility Study (IFS) Report for latest cost and upgrade descriptions**

## **11.5 E: Cost Allocation per Interconnection Request (Including Prior Queued Upgrades)**

Important Note:

**\*\*WITHDRAWAL OF HIGHER QUEUED PROJECTS WILL CAUSE A RESTUDY  
AND MAY RESULT IN HIGHER INTERCONNECTION COSTS\*\***

This section shows each Generation Interconnection Request Customer, their current study impacted Network Upgrades, and the previously allocated upgrades upon which they rely to accommodate their interconnection to the transmission system.

The costs associated with the current study Network Upgrades are allocated to the Customers shown in this report.

In addition should a higher queued request, defined as one this study includes as a prior queued request, withdraw, the Network Upgrades assigned to the withdrawn request may be reallocated to the remaining requests that have an impact on the Network Upgrade under a restudy. Also, should an Interconnection Request choose to go into service prior to the operation date of any necessary Network Upgrades, the costs associated with those upgrades may be reallocated to the impacted Interconnection Request. The actual costs allocated to each Generation Interconnection Request Customer will be determined at the time of a restudy.

The required interconnection costs listed do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT. In addition, costs associated with a short circuit analysis will be allocated should the Interconnection Request Customer choose to execute a Facility Study Agreement.

There may be additional costs allocated to each Customer. See Appendix F for more details.



## Appendix E. Cost Allocation Per Request (Including Previously Allocated Network Upgrades\*)

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
<b>GEN-2015-048</b>			
Cleo Corner - Cleo Plant Tap 138kV CKT 1 Replace terminal equipment to at least 1200 amps	Current Study	\$61,890	\$61,890
GEN-2015-048 Interconnection Costs See One-Line Diagram	Current Study	\$2,968,000	\$2,968,000
Woodward EHV Phase Shifting Transformer CKT 1 Install one phase shifting transformer at Woodward	Previously Allocated		\$7,200,000
	<b>Current Study Total</b>	\$3,029,890	
<b>GEN-2015-057</b>			
GEN-2015-057 Interconnection Costs See One-Line Diagram	Current Study	\$20,000	\$20,000
	<b>Current Study Total</b>	\$20,000	
<b>GEN-2015-093</b>			
GEN-2015-093 Interconnection Costs See One-Line Diagram	Current Study	\$2,125,000	\$2,125,000
	<b>Current Study Total</b>	\$2,125,000	
<b>TOTAL CURRENT STUDY COSTS:</b>		<b>\$5,174,890*</b>	

\* Total Current Study Costs reported are for Group 1 Interconnection Requests only

\* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

## 11.6 F: Cost Allocation per Proposed Study Network Upgrade

Important Note:

**\*\*WITHDRAWAL OF HIGHER QUEUED PROJECTS WILL CAUSE A RESTUDY  
AND MAY RESULT IN HIGHER INTERCONNECTION COSTS\*\***

This section shows each Direct Assigned Facility and Network Upgrade and the Generation Interconnection Request Customer(s) which have an impact in this study assuming all higher queued projects remain in the queue and achieve commercial operation.

The required interconnection costs listed do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT. In addition, costs associated with a short circuit analysis will be allocated should the Interconnection Request Customer choose to execute a Facility Study Agreement.

There may be additional costs allocated to each Customer. See Appendix E for more details.

## Appendix F. Cost Allocation by Upgrade

<b>Cleo Corner - Cleo Plant Tap 138kV CKT 1</b>		<b>\$61,890</b>
Replace terminal equipment to at least 1200 amps		
	GEN-2015-048	\$61,890
	<b>Total Allocated Costs</b>	<b>\$61,890</b>
<b>GEN-2015-048 Interconnection Costs</b>		<b>\$2,968,000</b>
See One-Line Diagram		
	GEN-2015-048	\$2,968,000
	<b>Total Allocated Costs</b>	<b>\$2,968,000</b>
<b>GEN-2015-057 Interconnection Costs</b>		<b>\$20,000</b>
See One-Line Diagram		
	GEN-2015-057	\$20,000
	<b>Total Allocated Costs</b>	<b>\$20,000</b>
<b>GEN-2015-093 Interconnection Costs</b>		<b>\$2,125,000</b>
See One-Line Diagram		
	GEN-2015-093	\$2,125,000
	<b>Total Allocated Costs</b>	<b>\$2,125,000</b>

\* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

### **11.7 G-T: Thermal Power Flow Analysis (Constraints Requiring Transmission Reinforcement)**

See next page.

Southwest Power Pool, Inc

Appendix G-T Thermal Power Flow Analysis (Constraints Requiring Transmission Reinforcements)

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB (MVA)	TDF	1" LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.64105	109.7831	CLEO CORNER (CLEOCOR1) 138/69/13 8KV TRANSFORMER CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.64103	108.5615	CLEO CORNER (CLEOCOR1) 138/69/13 8KV TRANSFORMER CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.64066	107.0074	CLEO CORNER (CLEOCOR1) 138/69/13 8KV TRANSFORMER CKT 1
FDNS	01ALL	0125P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.64104	105.8527	CLEO CORNER (CLEOCOR1) 138/69/13 8KV TRANSFORMER CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.64145	105.6206	CLEO CORNER (CLEOCOR1) 138/69/13 8KV TRANSFORMER CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.5993	102.154	CLEO CORNER - CLEO JCT 69KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.5993	102.1553	CLEO JCT - RINGWOOD 69KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57484	101.9532	CEDARDALE - PIC4 138 00 138KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57484	101.7746	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57492	101.6161	CEDARDALE - PIC4 138 00 138KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57878	101.6	BEARCAT 138 00 - MOORELAND 138KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57492	101.4241	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.58929	101.1924	CLEO CORNER - CLEO JCT 69KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.58929	101.1898	CLEO JCT - RINGWOOD 69KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57878	101.1442	BEARCAT 138 00 - NINE MILE 138KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57872	101.1292	BEARCAT 138 00 - MOORELAND 138KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.60262	100.8052	CLEO CORNER - CLEOTP 2 69 000 69KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.57872	100.6725	BEARCAT 138 00 - NINE MILE 138KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.60262	100.4615	ALINETP2 69 000 - CLEOTP 2 69 000 69KV CKT 1
FDNS	01ALL	0175P	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.60262	100.3091	ALINETP2 69 000 - ALVA 69KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.60261	100.153	CLEO CORNER - CLEOTP 2 69 000 69KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.60261	100	ALINETP2 69 000 - CLEOTP 2 69 000 69KV CKT 1
FDNS	01ALL	016WP	G15 048	FROM->TO	CLEO CORNER - CLEOPLT4	138 00 138KV CKT 1	191	191	0.60261	99.9	ALINETP2 69 000 - ALVA 69KV CKT 1

## **11.8 G-V: Voltage Power Flow Analysis (Constraints Requiring Transmission Reinforcement)**

Available upon request. Contact SPP Generation Interconnection Studies for details.

### **11.9 H-T: Thermal Power Flow Analysis (Other Constraints Not Requiring Transmission Reinforcement)**

Available upon request. Contact SPP Generation Interconnection Studies for details.

### **11.10 H-T-AS: Affected System Thermal Power Flow Analysis (Constraints for Potential Upgrades)**

Available upon request. Contact SPP Generation Interconnection Studies for details.



### **11.11 H-V-AS: Affected System Voltage Power Flow Analysis(Constraints for Potential Upgrades)**

Available upon request. Contact SPP Generation Interconnection Studies for details.

## **11.12 I: Power Flow Analysis (Constraints from Multi-Contingencies)**

Available upon request. Contact SPP Generation Interconnection Studies for detail.

**SOAH DOCKET NO. 473-19-6862  
PUC DOCKET NO. 49737**

**SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO EAST TEXAS  
ELECTRIC COOPERATIVE, INC. AND NORTHEAST TEXAS ELECTRIC  
COOPERATIVE, INC.'S FIRST REQUEST FOR INFORMATION**

**Question No. 1-13:**

Please provide a copy of all interconnection agreements, whether executed or not, that relate to any of the Selected Wind Facilities.

**Response No. 1-13:**

The only final interconnection agreement available is for Sundance. Please see ETEC/NTEC 1-13 Attachment 1 for the Sundance generator interconnection agreement. The Company will provide other interconnection agreements for the Selected Wind Facilities as they become available.

Prepared By: Joseph A. Karrasch

Title: Dir Renewable Energy Devlpmnt

Prepared By: Edward J. Locigno

Title: Regulatory Analysis & Case Mgr

Sponsored By: Jay F. Godfrey

Title: VP Energy Mktng & Renewables

**SA# 3392**

**GENERATOR INTERCONNECTION AGREEMENT (GIA)**

entered into by the

Southwest Power Pool, Inc.,

Oklahoma Gas and Electric Company

and

Sundance Wind Project, LLC

entered into on the 12th day of January, 2018

**GEN-2015-048 (IFS-2015-002-11)**

## TABLE OF CONTENTS

### GEN-2015-048 (IFS-2015-002-11)

Recitals.....	- 1 -
Article 1. Definitions.....	- 1 -
Article 2. Effective Date, Term, and Termination .....	- 10 -
2.1 Effective Date .....	- 10 -
2.2 Term of Agreement.....	- 10 -
2.3 Termination Procedures .....	- 10 -
2.4 Termination Costs.....	- 11 -
2.5 Disconnection .....	- 12 -
2.6 Survival .....	- 12 -
Article 3. Regulatory Filings.....	- 12 -
3.1 Filing.....	- 12 -
Article 4. Scope of Service .....	- 12 -
4.1 Interconnection Product Options .....	- 12 -
4.1.1 Energy Resource Interconnection Service .....	- 12 -
4.1.1.1 The Product.....	- 12 -
4.1.1.2 Transmission Delivery Service Implications .....	- 13 -
4.1.2 Network Resource Interconnection Service.....	- 13 -
4.1.2.1 The Product.....	- 13 -
4.1.2.2 Transmission Delivery Service Implications .....	- 13 -
4.2 Provision of Service .....	- 14 -
4.3 Performance Standards .....	- 14 -
4.4 No Transmission Delivery Service .....	- 15 -
4.5 Interconnection Customer Provided Services.....	- 15 -

Article 5.	Interconnection Facilities Engineering, Procurement, and Construction .....	15 -
5.1	Options.....	15 -
5.1.1	Standard Option .....	15 -
5.1.2	Option to Build .....	15 -
5.1.3	Negotiated Option.....	16 -
5.2	General Conditions Applicable to Option to Build.....	16 -
5.3	Liquidated Damages .....	17 -
5.4	Power System Stabilizers.....	18 -
5.5	Equipment Procurement.....	18 -
5.6	Construction Commencement.....	19 -
5.7	Work Progress.....	19 -
5.8	Information Exchange.....	19 -
5.9	Limited Operation.....	19 -
5.10	Interconnection Customer's Interconnection Facilities ('ICIF') .....	19 -
5.10.1	Interconnection Customer's Interconnection Facility Specifications.....	20 -
5.10.2	Transmission Owner's Review .....	20 -
5.10.3	ICIF Construction .....	20 -
5.10.4	Updated Information Submission by Interconnection Customer.....	20 -
5.10.5	Information Supplementation .....	21 -
5.11	Transmission Owner's Interconnection Facilities Construction.....	22 -
5.12	Access Rights.....	22 -
5.13	Lands of Other Property Owners .....	22 -
5.14	Permits .....	22 -
5.15	Early Construction of Base Case Facilities.....	23 -
5.16	Suspension .....	23 -

5.17	Taxes .....	- 25 -
5.17.1	Interconnection Customer Payments Not Taxable .....	- 25 -
5.17.2	Representations and Covenants .....	- 25 -
5.17.3	Indemnification for the Cost Consequences of Current Tax Liability Imposed Upon the Transmission Owner.....	- 25 -
5.17.4	Tax Gross-Up Amount.....	- 26 -
5.17.5	Private Letter Ruling or Change or Clarification of Law .....	- 27 -
5.17.6	Subsequent Taxable Events .....	- 27 -
5.17.7	Contests.....	- 27 -
5.17.8	Refund.....	- 28 -
5.17.9	Taxes Other Than Income Taxes .....	- 29 -
5.18	Tax Status.....	- 29 -
5.19	Modification.....	- 29 -
5.19.1	General.....	- 29 -
5.19.2	Standards.....	- 30 -
5.19.3	Modification Costs.....	- 30 -
5.20	Delays .....	- 30 -
Article 6.	Testing and Inspection .....	- 30 -
6.1	Pre-Commercial Operation Date Testing and Modifications .....	- 30 -
6.2	Post-Commercial Operation Date Testing and Modifications.....	- 31 -
6.3	Right to Observe Testing .....	- 31 -
6.4	Right to Inspect.....	- 31 -
Article 7.	Metering.....	- 31 -
7.1	General.....	- 31 -
7.2	Check Meters .....	- 31 -
7.3	Standards.....	- 32 -

7.4	Testing of Metering Equipment .....	- 32 -
7.5	Metering Data .....	- 32 -
Article 8.	Communications .....	- 32 -
8.1	Interconnection Customer Obligations .....	- 32 -
8.2	Remote Terminal Unit .....	- 33 -
8.3	No Annexation.....	- 33 -
8.4	Provision of Data from a Variable Energy Resource.....	- 33 -
Article 9.	Operations .....	- 34 -
9.1	General.....	- 34 -
9.2	Control Area Notification .....	- 34 -
9.3	Transmission Provider and Transmission Owner Obligations .....	- 34 -
9.4	Interconnection Customer Obligations .....	- 34 -
9.5	Start-Up and Synchronization.....	- 34 -
9.6	Reactive Power .....	- 35 -
9.6.1	Power Factor Design Criteria.....	- 35 -
9.6.1.1	Synchronous Generation.....	- 35 -
9.6.1.2	Non-Synchronous Generation.....	- 35 -
9.6.2	Voltage Schedules.....	- 35 -
9.6.2.1	Governors and Regulators.....	- 35 -
9.6.3	Payment for Reactive Power.....	- 36 -
9.7	Outages and Interruptions .....	- 36 -
9.7.1	Outages .....	- 36 -
9.7.1.1	Outage Authority and Coordination.....	- 36 -
9.7.1.2	Outage Schedules.....	- 36 -
9.7.1.3	Outage Restoration.....	- 37 -



9.7.2	Interruption of Service .....	- 37 -
9.7.3	Under-Frequency and Over Frequency Conditions .....	- 38 -
9.7.3.1	Frequency Ride Through and Voltage Ride Through for a Generating Facility no larger than 20 MW .....	- 38 -
9.7.4	System Protection and Other Control Requirements .....	- 39 -
9.7.4.1	System Protection Facilities.....	- 39 -
9.7.5	Requirements for Protection .....	- 40 -
9.7.6	Power Quality .....	- 40 -
9.8	Switching and Tagging Rules .....	- 40 -
9.9	Use of Interconnection Facilities by Third Parties .....	- 40 -
9.9.1	Purpose of Interconnection Facilities.....	- 40 -
9.9.2	Third Party Users .....	- 40 -
9.10	Disturbance Analysis Data Exchange.....	- 41 -
Article 10.	Maintenance .....	- 41 -
10.1	Transmission Owner Obligations .....	- 41 -
10.2	Interconnection Customer Obligations .....	- 41 -
10.3	Coordination .....	- 41 -
10.4	Secondary Systems .....	- 41 -
10.5	Operating and Maintenance Expenses .....	- 41 -
Article 11.	Performance Obligation .....	- 42 -
11.1	Interconnection Customer Interconnection Facilities .....	- 42 -
11.2	Generating Facility.....	- 42 -
11.3	Transmission Owner's Interconnection Facilities .....	- 42 -
11.4	Network Upgrades and Distribution Upgrades .....	- 42 -
11.5	Transmission Credits .....	- 43 -
11.6	Initial Payment. ....	- 43 -

11.7	Provision of Security.....	- 44 -
11.8	Interconnection Customer Compensation.....	- 45 -
	11.8.1 Interconnection Customer Compensation for Actions During Emergency Condition .....	- 45 -
Article 12.	Invoice.....	- 45 -
12.1	General.....	- 45 -
12.2	Final Invoice .....	- 45 -
12.3	Payment.....	- 46 -
12.4	Disputes.....	- 46 -
Article 13.	Emergencies.....	- 46 -
13.1	Definition .....	- 46 -
13.2	Obligations.....	- 46 -
13.3	Notice.....	- 46 -
13.4	Immediate Action.....	- 47 -
13.5	Transmission Provider and Transmission Owner Authority .....	- 47 -
	13.5.1 General.....	- 47 -
	13.5.2 Reduction and Disconnection .....	- 47 -
13.6	Interconnection Customer Authority .....	- 48 -
13.7	Limited Liability .....	- 48 -
Article 14.	Regulatory Requirements and Governing Law.....	- 48 -
14.1	Regulatory Requirements.....	- 48 -
14.2	Governing Law .....	- 48 -
Article 15.	Notices .....	- 49 -
15.1	General.....	- 49 -
15.2	Billings and Payments.....	- 49 -
15.3	Alternative Forms of Notice .....	- 49 -

15.4	Operations and Maintenance Notice .....	- 49 -
Article 16.	Force Majeure .....	- 49 -
16.1	Force Majeure .....	- 49 -
Article 17.	Default.....	- 50 -
17.1	Default.....	- 50 -
17.1.1	General.....	- 50 -
17.1.2	Right to Terminate .....	- 50 -
Article 18.	Indemnity, Consequential Damages and Insurance .....	- 50 -
18.1	Indemnity .....	- 50 -
18.1.1	Indemnified Person .....	- 50 -
18.1.2	Indemnifying Party .....	- 50 -
18.1.3	Indemnity Procedures .....	- 51 -
18.2	Consequential Damages.....	- 51 -
18.3	Insurance.....	- 52 -
Article 19.	Assignment .....	- 53 -
19.1	Assignment .....	- 53 -
Article 20.	Severability .....	- 54 -
20.1	Severability .....	- 54 -
Article 21.	Comparability .....	- 54 -
21.1	Comparability .....	- 54 -
Article 22.	Confidentiality .....	- 54 -
22.1	Confidentiality .....	- 54 -
Article 23.	Environmental Releases.....	- 57 -
Article 24.	Information Requirements .....	- 57 -
24.1	Information Acquisition.....	- 58 -

24.2	Information Submission by Transmission Provider .....	- 58 -
Article 25.	Information Access and Audit Rights.....	- 58 -
25.1	Information Access .....	- 58 -
25.2	Reporting of Non-Force Majeure Events.....	- 58 -
25.3	Audit Rights .....	- 58 -
25.4	Audit Rights Periods .....	- 59 -
25.4.1	Audit Rights Period for Construction-Related Accounts and Records .....	- 59 -
25.4.2	Audit Rights Period for All Other Accounts and Records.....	- 59 -
25.5	Audit Results.....	- 59 -
Article 26.	Subcontractors.....	- 59 -
26.1	General.....	- 59 -
26.2	Responsibility of Principal.....	- 59 -
26.3	No Limitation by Insurance .....	- 59 -
Article 27.	Disputes.....	- 59 -
27.1	Submission.....	- 60 -
Article 28.	Representations, Warranties, and Covenants.....	- 60 -
28.1	General.....	- 60 -
28.1.1	Good Standing .....	- 60 -
28.1.2	Authority .....	- 60 -
28.1.3	No Conflict.....	- 60 -
28.1.4	Consent and Approval.....	- 60 -
Article 29.	Joint Operating Committee .....	- 60 -
29.1	Joint Operating Committee .....	- 60 -
Article 30.	Miscellaneous .....	- 61 -
30.1	Binding Effect.....	- 61 -

30.2	Conflicts.....	- 61 -
30.3	Rules of Interpretation .....	- 61 -
30.4	Entire Agreement .....	- 62 -
30.5	No Third Party Beneficiaries .....	- 62 -
30.6	Waiver.....	- 62 -
30.7	Headings .....	- 62 -
30.8	Multiple Counterparts .....	- 62 -
30.9	Amendment.....	- 62 -
30.10	Modification by the Parties.....	- 62 -
30.11	Reservation of Rights.....	- 63 -
30.12	No Partnership .....	- 63 -

Appendix A - Interconnection Facilities, Network Upgrades and Distribution Upgrades

Appendix B – Milestones

Appendix C – Interconnection Details

Appendix D – Security Arrangements Details

Appendix E – Commercial Operation Date

Appendix F – Addresses for Delivery of Notices and Billings

Appendix G – Requirements of Generators Relying on Newer Technologies

## GENERATOR INTERCONNECTION AGREEMENT

### THIS GENERATOR INTERCONNECTION AGREEMENT

("Agreement") is made and entered into this 12th day of January, 2018, by and among Sundance Wind Project, LLC, a limited liability company organized and existing under the laws of the State of Delaware ("Interconnection Customer" with a Generating Facility), Southwest Power Pool, Inc., a corporation organized and existing under the laws of the State of Arkansas ("Transmission Provider") and Oklahoma Gas and Electric Company, a corporation organized and existing under the laws of the State of Oklahoma ("Transmission Owner"). Interconnection Customer, Transmission Provider and Transmission Owner each may be referred to as a "Party" or collectively as the "Parties."

### RECITALS

**WHEREAS**, Transmission Provider functionally controls the operation of the Transmission System; and,

**WHEREAS**, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix C to this Agreement; and,

**WHEREAS**, Transmission Owner owns facilities to which the Generating Facility is to be interconnected and may be constructing facilities to allow the interconnection; and,

**WHEREAS**, Interconnection Customer, Transmission Provider and Transmission Owner have agreed to enter into this Agreement for the purpose of interconnecting the Generating Facility with the Transmission System;

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this Generator Interconnection Agreement, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used or the Open Access Transmission Tariff (Tariff).

### ARTICLE 1. DEFINITIONS

**Adverse System Impact** shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

**Affected System** shall mean an electric system other than the Transmission System that may be affected by the proposed interconnection.

**Affected System Operator** shall mean the entity that operates an Affected System.

**Affiliate** shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more

intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

**Ancillary Services** shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

**Applicable Laws and Regulations** shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

**Applicable Reliability Council** shall mean the reliability council applicable to the Transmission System to which the Generating Facility is directly interconnected.

**Applicable Reliability Standards** shall mean the requirements and guidelines of NERC, the Applicable Reliability Council, and the Control Area of the Transmission System to which the Generating Facility is directly interconnected.

**Base Case** shall mean the base case power flow, short circuit, and stability data bases used for the Interconnection Studies by the Transmission Provider.

**Breach** shall mean the failure of a Party to perform or observe any material term or condition of the Generator Interconnection Agreement.

**Breaching Party** shall mean a Party that is in Breach of the Generator Interconnection Agreement.

**Business Day** shall mean Monday through Friday, excluding Federal Holidays.

**Calendar Day** shall mean any day including Saturday, Sunday or a Federal Holiday.

**Clustering** shall mean the process whereby a group of Interconnection Requests is studied together, instead of serially, for the purpose of conducting Interconnection Studies.

**Commercial Operation** shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

**Commercial Operation Date** of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to the Generator Interconnection Agreement.

**Confidential Information** shall mean any confidential, proprietary or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise.

**Control Area** shall mean an electrical system or systems bounded by interconnection metering and telemetry, capable of controlling generation to maintain its interchange schedule with other Control Areas and contributing to frequency regulation of the interconnection. A Control Area must be certified by the Applicable Reliability Council.

**Default** shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of the Generator Interconnection Agreement.

**Definitive Interconnection System Impact Study** shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in a Preliminary Interconnection System Impact Study or that may be caused by the withdrawal or addition of an Interconnection Request, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

**Definitive Interconnection System Impact Study Agreement** shall mean the form of agreement contained in Appendix 3A of the Generator Interconnection Procedures for conducting the Definitive Interconnection System Impact Study.

**Definitive Interconnection System Impact Study Queue** shall mean a Transmission Provider separately maintained queue for valid Interconnection Requests for a Definitive Interconnection System Impact Study.

**Dispute Resolution** shall mean the procedure in Section 12 of the Tariff for resolution of a dispute between the Parties in which they will first attempt to resolve the dispute on an informal basis.

**Distribution System** shall mean the Transmission Owner's facilities and equipment that are not included in the Transmission System. The voltage levels at which Distribution Systems operate differ among areas.

**Distribution Upgrades** shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the transmission service necessary to effect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

**Effective Date** shall mean the date on which the Generator Interconnection Agreement becomes effective upon execution by the Parties subject to acceptance by FERC, or if filed unexecuted, upon the date specified by FERC.

**Emergency Condition** shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of Transmission Provider, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Transmission Owner, is imminently likely (as determined in a non-discriminatory



manner) to cause a material adverse effect on the security of, or damage to Transmission Owner's Interconnection Facilities; or (4) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions; provided, that Interconnection Customer is not obligated by the Generator Interconnection Agreement to possess black start capability.

**Energy Resource Interconnection Service** shall mean an Interconnection Service that allows the Interconnection Customer to connect its Generating Facility to the Transmission System to be eligible to deliver the Generating Facility's electric output using the existing firm or nonfirm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service in and of itself does not convey transmission service.

**Engineering & Procurement (E&P) Agreement** shall mean an agreement that authorizes the Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

**Environmental Law** shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

**Federal Power Act** shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a et seq.

**FERC** shall mean the Federal Energy Regulatory Commission (Commission) or its successor.

**Force Majeure** shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include acts of negligence or intentional wrongdoing by the Party claiming Force Majeure.

**Generating Facility** shall mean Interconnection Customer's device for the production of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities.

**Generating Facility Capacity** shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

**Generator Interconnection Agreement (GIA)** shall mean the form of interconnection agreement applicable to an Interconnection Request pertaining to a Generating Facility that is included in the Transmission Provider's Tariff.

**Generator Interconnection Procedures (GIP)** shall mean the interconnection procedures applicable to an Interconnection Request pertaining to a Generating Facility that are included in the Transmission Provider's Tariff.

**Good Utility Practice** shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Governmental Authority** shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include Interconnection Customer, Transmission Provider, Transmission Owner or any Affiliate thereof.

**Hazardous Substances** shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

**Initial Synchronization Date** shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

**In-Service Date** shall mean the date upon which the Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain back feed power.

**Interconnection Customer** shall mean any entity, including the Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

**Interconnection Customer's Interconnection Facilities** shall mean all facilities and equipment, as identified in Appendix A of the Generator Interconnection Agreement, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Customer's Interconnection Facilities are sole use facilities.

**Interconnection Facilities** shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

**Interconnection Facilities Study** shall mean a study conducted by the Transmission Provider or a third party consultant for the Interconnection Customer to determine a list of facilities (including Transmission Owner's Interconnection Facilities and Network Upgrades as identified in the Definitive Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission System. The scope of the study is defined in Section 8 of the Generator Interconnection Procedures.

**Interconnection Facilities Study Agreement** shall mean the form of agreement contained in Appendix 4 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

**Interconnection Facilities Study Queue** shall mean a Transmission Provider separately maintained queue for valid Interconnection Requests for an Interconnection Facilities Study.

**Interconnection Feasibility Study** shall mean a preliminary evaluation of the system impact and cost of interconnecting the Generating Facility to the Transmission System, the scope of which is described in Section 6 of the Generator Interconnection Procedures.

**Interconnection Feasibility Study Agreement** shall mean the form of agreement contained in Appendix 2 of the Generator Interconnection Procedures for conducting the Interconnection Feasibility Study.

**Interconnection Feasibility Study Queue** shall mean a Transmission Provider separately maintained queue for valid Interconnection Requests for an Interconnection Feasibility Study.

**Interconnection Queue Position** shall mean the order of a valid Interconnection Request within the Interconnection Facilities Study Queue, relative to all other pending valid Interconnection Requests within the Interconnection Facilities Study Queue, which is established based upon the requirements in Section 4.1.3 of the Generator Interconnection Procedures.

**Interconnection Request** shall mean an Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, in accordance with the Tariff, to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Transmission System.

**Interconnection Service** shall mean the service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Generator Interconnection Agreement and, if applicable, the Tariff.

**Interconnection Study** shall mean any of the following studies: the Interconnection Feasibility Study, the Preliminary Interconnection System Impact Study, the Definitive Interconnection System Impact Study and the Interconnection Facilities Study described in the Generator Interconnection Procedures.

**Interconnection Study Agreement** shall mean any of the following agreements: the Interconnection Feasibility Study Agreement, the Preliminary Interconnection System Impact Study Agreement, the Definitive Interconnection System Impact Study Agreement and the Interconnection Facilities Study Agreement described in the Generator Interconnection Procedures.

**IRS** shall mean the Internal Revenue Service.

**Joint Operating Committee** shall be a group made up of representatives from Interconnection Customer, Transmission Owner and the Transmission Provider to coordinate operating and technical considerations of Interconnection Service.

**Loss** shall mean any and all losses relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from another Party's performance, or non-performance of its obligations under the Generator Interconnection Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnifying Party.

**Material Modification** shall mean those modifications that have a material impact on the cost or timing of any Interconnection Request with a later Queue priority date.

**Metering Equipment** shall mean all metering equipment installed or to be installed at the Generating Facility pursuant to the Generator Interconnection Agreement at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

**NERC** shall mean the North American Electric Reliability Corporation or its successor organization.

**Network Resource** shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

**Network Resource Interconnection Service** shall mean an Interconnection Service that allows the Interconnection Customer to integrate its Generating Facility with the Transmission System in a manner comparable to that in which the Transmission Owner integrates its generating facilities to serve Native Load Customers as a Network Resource. Network Resource Interconnection Service in and of itself does not convey transmission service.

**Network Upgrades** shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System to accommodate the interconnection of the Generating Facility to the Transmission System.

**Notice of Dispute** shall mean a written notice of a dispute or claim that arises out of or in connection with the Generator Interconnection Agreement or its performance.

**Party or Parties** shall mean Transmission Provider, Transmission Owner, Interconnection Customer or any combination of the above.

**Point of Change of Ownership** shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

**Point of Interconnection** shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Facilities connect to the Transmission System.

**Preliminary Interconnection System Impact Study** shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in an Interconnection Feasibility Study or that may be caused by an Interconnection Request, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

**Preliminary Interconnection System Impact Study Agreement** shall mean the form of agreement contained in Appendix 3 of the Generator Interconnection Procedures for conducting the Preliminary Interconnection System Impact Study.

**Preliminary Interconnection System Impact Study Queue** shall mean a Transmission Provider separately maintained queue for valid Interconnection Requests for a Preliminary Interconnection System Impact Study.

**Previous Network Upgrade** shall mean a Network Upgrade that is needed for the interconnection of one or more Interconnection Customers' Generating Facilities, but is not the cost responsibility of the Interconnection Customer, subject to restudy, and which is identified in Appendix A of the Generator Interconnection Agreement.

**Queue** shall mean the Interconnection Feasibility Study Queue, the Preliminary Interconnection System Impact Study Queue, the Definitive Interconnection System Impact Study Queue, or the Interconnection Facilities Study Queue, as applicable.

**Reasonable Efforts** shall mean, with respect to an action required to be attempted or taken by a Party under the Generator Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

**Scoping Meeting** shall mean the meeting between representatives of the Interconnection Customer, Transmission Owner and Transmission Provider conducted for the purpose of discussing alternative interconnection options, to exchange information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

**Shared Network Upgrade** shall mean a Network Upgrade listed in Appendix A of the Generator Interconnection Agreement that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared funding responsibility of such Interconnection Customers that may also benefit other Interconnection Customer(s) that are later identified as beneficiaries.

**Site Control** shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site of sufficient size for the purpose of constructing the Generating Facility; (2) an option to purchase or acquire a leasehold site of sufficient size for such purpose; or (3) an exclusivity or other business relationship between Interconnection Customer and the entity having the right to sell, lease or grant Interconnection Customer the right to possess or occupy a site of sufficient size for such purpose.

**Small Generating Facility** shall mean a Generating Facility that has an aggregate net Generating Facility Capacity of no more than 2 MW.

**Stand Alone Network Upgrades** shall mean Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. The Transmission Provider, Transmission Owner and the Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to the Generator Interconnection Agreement.

**System Protection Facilities** shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

**Tariff** shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with FERC, and as amended or supplemented from time to time, or any successor tariff.

**Transmission Owner** shall mean an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at the Point of Interconnection and may be a Party to the Generator Interconnection Agreement to the extent necessary.

**Transmission Provider** shall mean the public utility (or its Designated Agent) that owns, controls, or operates transmission or distribution facilities used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff. The term Transmission

Provider should be read to include the Transmission Owner when the Transmission Owner is separate from the Transmission Provider.

**Transmission Owner's Interconnection Facilities** shall mean all facilities and equipment owned, controlled or operated by the Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to the Generator Interconnection Agreement, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades Stand Alone Network Upgrades, or Network Upgrades.

**Transmission System** shall mean the facilities owned, controlled or operated by the Transmission Provider or Transmission Owner that are used to provide transmission service under the Tariff.

**Trial Operation** shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

**Variable Energy Resource** shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

## **ARTICLE 2. EFFECTIVE DATE, TERM, AND TERMINATION**

**2.1 Effective Date.** This GIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this GIA with FERC upon execution in accordance with Article 3.1, if required.

**2.2 Term of Agreement.** Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of twenty (20) years from the Effective Date and shall be automatically renewed for each successive one-year period thereafter.

### **2.3 Termination Procedures.**

**2.3.1 Written Notice.** This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice, or by Transmission Provider notifying FERC after the Generating Facility permanently ceases Commercial Operation.

**2.3.2** If the Generating Facility fails to achieve Commercial Operation for three (3) consecutive years following the Commercial Operation Date, this GIA may be terminated by the Transmission Provider after giving the Interconnection Customer ninety (90) Calendar Days advance written notice. Where a portion of the Generating Facility fails to achieve Commercial Operation for three (3) consecutive years following the Commercial Operation Date, the Transmission Provider shall issue a revised GIA to reflect the amount of the Generating Facility Capacity that

achieved Commercial Operation. The revised GIA shall be consistent with the GIP in effect on the Effective Date of the GIA.

**2.3.3 Default.** Any Party may terminate this GIA in accordance with Article 17.

**2.3.4** Notwithstanding Articles 2.3.1, 2.3.2 and 2.3.3, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, which notice has been accepted for filing by FERC.

**2.4 Termination Costs.** If a Party elects to terminate this Agreement pursuant to Article 2.3 above, Interconnection Customer and Transmission Owner shall pay all costs incurred (including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment) or charges assessed by any other Party, as of the date of such Party's receipt of such notice of termination, that are the responsibility of the Terminating Party under this GIA. In the event of termination by any Party, all Parties shall use Commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by FERC:

**2.4.1** With respect to any portion of Transmission Owner's Interconnection Facilities that have not yet been constructed or installed, Transmission Owner shall to the extent possible and with Interconnection Customer's authorization cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer, Transmission Owner shall promptly refund such amounts to Interconnection Customer, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any Network Upgrades for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer and the Interconnection Customer's allocated share of Network Upgrade(s) costs as calculated pursuant to Section 4.2.5 of the GIP and as listed in Appendix A of this GIA which are required for service to other Interconnection Customer(s).

**2.4.2** Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept



delivery of, in which case Transmission Owner shall be responsible for all costs associated with procuring such materials, equipment, or facilities.

- 2.4.3** With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation or other disposition or retirement of such materials, equipment, or facilities.
- 2.5 Disconnection.** Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission System. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.
- 2.6 Survival.** This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit payments for any credits under this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of another Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

### ARTICLE 3. REGULATORY FILINGS

- 3.1 Filing.** Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. Interconnection Customer may request that any information so provided be subject to the confidentiality provisions of Article 22. If Interconnection Customer has executed this GIA, or any amendment thereto, Interconnection Customer shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

### ARTICLE 4. SCOPE OF SERVICE

- 4.1 Interconnection Product Options.** Interconnection Customer has selected the following (checked) type of Interconnection Service:
- 4.1.1 Energy Resource Interconnection Service.**
- 4.1.1.1 The Product.** Energy Resource Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission System and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive Energy Resource Interconnection Service, Transmission Provider shall construct facilities identified in Appendix A.

**4.1.1.2 Transmission Delivery Service Implications.** Under Energy Resource Interconnection Service, Interconnection Customer will be eligible to inject power from the Generating Facility into and deliver power across the Transmission System on an "as available" basis. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission System at such time as a transmission service request is made that would accommodate such delivery. The provision of Firm Point-To-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network Upgrades.

**4.1.2 Network Resource Interconnection Service.**

**4.1.2.1 The Product.** Transmission Provider must conduct the necessary studies and construct the Network Upgrades needed to integrate the Generating Facility in a manner comparable to that in which Transmission Owner integrates its generating facilities to serve Native Load Customers as all Network Resources. To the extent Interconnection Customer wants to receive Network Resource Interconnection Service, Transmission Owner shall construct the facilities identified in Appendix A to this GIA.

**4.1.2.2 Transmission Delivery Service Implications.** Network Resource Interconnection Service allows Interconnection Customer's Generating Facility to be designated by any Network Customer under the Tariff on the Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as existing Network Resources interconnected to the Transmission System, and to be studied as a Network Resource on the assumption that such a designation will occur. Although Network Resource Interconnection Service does not convey a reservation of transmission service, any Network Customer under the Tariff can utilize its network service under the Tariff to obtain delivery of energy from the interconnected Interconnection Customer's Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving Network Resource Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if an Interconnection Customer's Generating Facility has not been designated as a Network Resource by any load, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or Firm Point-To-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and

upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

Network Resource Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its Generating Facility to any particular load on the Transmission System without incurring congestion costs. In the event of transmission constraints on the Transmission System, Interconnection Customer's Generating Facility shall be subject to the applicable congestion management procedures in Transmission Provider's Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that Interconnection Customer's Generating Facility be designated as a Network Resource by a Network Service Customer under the Tariff or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to Transmission Provider's Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining Network Resource Interconnection Service, any future transmission service request for delivery from the Generating Facility within the Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether or not such Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term transmission service for deliveries from the Generating Facility outside the Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

- 4.2 Provision of Service.** Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.
- 4.3 Performance Standards.** Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice, and to the extent a Party is required or prevented or limited in taking any action by such regulations and standards, such Party shall not be deemed to be in Breach of this GIA for its compliance therewith. If such Party is a Transmission Provider or Transmission Owner, then that Party shall amend the GIA and submit the amendment to FERC for approval.

- 4.4 No Transmission Delivery Service.** The execution of this GIA does not constitute a request for, nor the provision of, any transmission delivery service under Transmission Provider's Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.
- 4.5 Interconnection Customer Provided Services.** The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.5.1. Interconnection Customer shall be paid for such services in accordance with Article 11.8.

**ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION**

- 5.1 Options.** Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select the In-Service Date, Initial Synchronization Date, and Commercial Operation Date; and either the Option To Build as described under Article 5.1.2 or the Negotiated Option described under Article 5.1.3 if the Interconnection Customer and the Transmission Owner cannot reach agreement under the Standard Option described under Article 5.1.1, for completion of Transmission Owner's Interconnection Facilities and Network Upgrades as set forth in Appendix A, Interconnection Facilities and Network Upgrades, and such dates and selected option, as applicable, shall be set forth in Appendix B, Milestones.
- 5.1.1 Standard Option.** Transmission Owner shall design, procure, and construct Transmission Owner's Interconnection Facilities and Network Upgrades, using Reasonable Efforts to complete Transmission Owner's Interconnection Facilities and Network Upgrades by the dates set forth in Appendix B, Milestones. Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, and Applicable Laws and Regulations. In the event Transmission Owner reasonably expects that it will not be able to complete Transmission Owner's Interconnection Facilities, and Network Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and shall undertake Reasonable Efforts to meet the earliest dates thereafter.
- 5.1.2 Option to Build.** If the dates designated by Interconnection Customer are not acceptable to Transmission Owner, Transmission Owner shall so notify Interconnection Customer within thirty (30) Calendar Days, and unless the Parties agree otherwise, Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades on the dates specified in Article 5.1.1. Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

**5.1.3 Negotiated Option.** If Interconnection Customer elects not to exercise its option under Article 5.1.2, Option to Build, Interconnection Customer shall so notify Transmission Provider and Transmission Owner within thirty (30) Calendar Days, and the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives or the procurement and construction of a portion of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by Interconnection Customer) pursuant to which Transmission Owner is responsible for the design, procurement and construction of Transmission Owner's Interconnection Facilities and Network Upgrades. If the Parties are unable to reach agreement on such terms and conditions, Transmission Owner shall assume responsibility for the design, procurement and construction of Transmission Owner's Interconnection Facilities and Network Upgrades pursuant to 5.1.1, Standard Option.

**5.2 General Conditions Applicable to Option to Build.** If Interconnection Customer assumes responsibility for the design, procurement and construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades,

- (1) Interconnection Customer shall engineer, procure equipment, and construct Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Owner;
- (2) Interconnection Customer's engineering, procurement and construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law to which Transmission Provider would be subject in the engineering, procurement or construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;
- (3) Transmission Owner shall review and approve the engineering design, equipment acceptance tests, and the construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;
- (4) Prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider and Transmission Owner a schedule for construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider and Transmission Owner;
- (5) At any time during construction, Transmission Owner shall have the right to gain unrestricted access to Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;
- (6) At any time during construction, should any phase of the engineering, equipment procurement, or construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications

provided by Transmission Owner, Interconnection Customer shall be obligated to remedy deficiencies in that portion of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;

- (7) Interconnection Customer shall indemnify Transmission Provider and Transmission Owner for claims arising from Interconnection Customer's construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1 Indemnity;
- (8) The Interconnection Customer shall transfer control of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Provider;
- (9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of Transmission Owner's Interconnection Facilities and Stand-Alone Network Upgrades to Transmission Owner not later than the Commercial Operation Date;
- (10) Transmission Owner shall approve and accept for operation and maintenance Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2; and
- (11) Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information, and any other documents that are reasonably required by Transmission Owner to assure that the Interconnection Facilities and Stand- Alone Network Upgrades are built to the standards and specifications required by Transmission Provider.

**5.3 Liquidated Damages.** The actual damages to Interconnection Customer, in the event Transmission Owner's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission Owner pursuant to subparagraph 5.1.3, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Owner to Interconnection Customer in the event that Transmission Owner does not complete any portion of Transmission Owner's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to  $\frac{1}{2}$  of 1 percent per day of the actual cost of Transmission Owner's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Owner has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of Transmission Owner's Interconnection Facilities and Network Upgrades for which Transmission Owner has assumed responsibility to design, procure, and construct. The foregoing payments will be made by Transmission Owner to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable

liquidated damages, but not as a penalty or a method to secure performance of this GIA. Liquidated damages, when the Parties agree to them, are the exclusive remedy for the Transmission Owner's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Owner's delay; (2) Transmission Owner's failure to meet the specified dates is the result of the action or inaction of Interconnection Customer or any other Interconnection Customer who has entered into a GIA with Transmission Owner or any cause beyond Transmission Owner's reasonable control or reasonable ability to cure; (3) the Interconnection Customer has assumed responsibility for the design, procurement and construction of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades; or (4) the Parties have otherwise agreed.

- 5.4 Power System Stabilizers.** The Interconnection Customer shall procure, install, maintain and operate Power System Stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider reserves the right to reasonably establish minimum acceptable settings for any installed Power System Stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's Power System Stabilizers are removed from service or not capable of automatic operation, Interconnection Customer shall immediately notify Transmission Owner's system operator, or its designated representative. The requirements of this paragraph shall not apply to non-synchronous generators.
- 5.5 Equipment Procurement.** If responsibility for construction of Transmission Owner's Interconnection Facilities or Network Upgrades is to be borne by Transmission Owner, then Transmission Owner shall commence design of Transmission Owner's Interconnection Facilities or Network Upgrades and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:
- 5.5.1** Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement;
  - 5.5.2** Transmission Owner has received written authorization to proceed with design and procurement from Interconnection Customer by the date specified in Appendix B, Milestones; and
  - 5.5.3** Interconnection Customer has provided security to Transmission Provider in accordance with Article 11.7 by the dates specified in Appendix B, Milestones.

- 5.6 Construction Commencement.** Transmission Owner shall commence construction of Transmission Owner's Interconnection Facilities and Network Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:
- 5.6.1** Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval;
  - 5.6.2** Necessary real property rights and rights-of-way have been obtained, to the extent required for the construction of a discrete aspect of Transmission Owner's Interconnection Facilities and Network Upgrades;
  - 5.6.3** Transmission Owner has received written authorization to proceed with construction from Interconnection Customer by the date specified in Appendix B, Milestones; and
  - 5.6.4** Interconnection Customer has provided security to Transmission Provider in accordance with Article 11.7 by the dates specified in Appendix B, Milestones.
- 5.7 Work Progress.** The Parties will keep each other advised periodically as to the progress of their respective design, procurement and construction efforts. Parties may, at any time, request a progress report from other Parties. If, at any time, Interconnection Customer determines that the completion of Transmission Owner's Interconnection Facilities and Network Upgrades will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of Transmission Owner's Interconnection Facilities and Network Upgrades will be required.
- 5.8 Information Exchange.** As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Parties' Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System, and shall work diligently and in good faith to make any necessary design changes.
- 5.9 Limited Operation.** If any of Transmission Owner's Interconnection Facilities or Network Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and Interconnection Customer's Interconnection Facilities may operate prior to the completion of Transmission Owner's Interconnection Facilities or Network Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA ("Limited Operation"). Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and Interconnection Customer's Interconnection Facilities under Limited Operation in accordance with the results of such studies performed by Transmission Provider.
- 5.10 Interconnection Customer's Interconnection Facilities ('ICIF').** Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set



forth in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

**5.10.1 Interconnection Customer's Interconnection Facility Specifications.**

Interconnection Customer shall submit initial specifications for the ICIF, including System Protection Facilities, to Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Owner shall review such specifications to ensure that the ICIF are compatible with the technical specifications, operational control, and safety requirements of Transmission Owner and comment on such specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

**5.10.2 Transmission Owner's Review.** Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control, and safety requirements of Transmission Owner.

**5.10.3 ICIF Construction.** The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. The Interconnection Customer shall provide Transmission Owner specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

**5.10.4 Updated Information Submission by Interconnection Customer.** The updated information submission by the Interconnection Customer, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date. Interconnection Customer shall submit a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to

Transmission Provider for the Interconnection Feasibility and Interconnection Facilities Studies. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, the Interconnection Customer will work with a consultant mutually agreed to by the Parties to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study agreements between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 5.10.4. The Interconnection Customer shall not begin Trial Operation until such studies are completed.

**5.10.5 Information Supplementation.** Prior to the Commercial Operation Date, or as soon as possible thereafter, the Parties shall supplement their information submissions described above in this Article 5 with any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. The Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice such as an open circuit "step voltage" test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 percent) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses of Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to the Transmission Provider for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, the Interconnection Customer shall provide Transmission Owner and Transmission Provider any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide the Interconnection Customer and Transmission Provider any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner-owned substation that may affect the Interconnection Customer's Interconnection Facilities equipment

ratings, protection or operating requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

- 5.11 Transmission Owner's Interconnection Facilities Construction.** Transmission Owner's Interconnection Facilities and Network Upgrades shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Interconnection Customer the following "as-built" drawings, information and documents for Transmission Owner's Interconnection Facilities and Network Upgrades [include appropriate drawings and relay diagrams].

Transmission Owner will obtain control of Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades upon completion of such facilities.

- 5.12 Access Rights.** Upon reasonable notice and supervision by a Party, and subject to any required or necessary regulatory approvals, a Party ("Granting Party") shall furnish at no cost to any other Party ("Access Party") any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party's facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

- 5.13 Lands of Other Property Owners.** If any part of Transmission Owner's Interconnection Facilities and/or Network Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Owner, Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority, and to the extent consistent with state law, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove Transmission Owner's Interconnection Facilities and/or Network Upgrades upon such property.

- 5.14 Permits.** Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses, and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Provider or Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to Transmission Provider's own, or an Affiliate's generation.

**5.15 Early Construction of Base Case Facilities.** Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades required for Interconnection Customer to be interconnected to the Transmission System which are included in the Base Case of the Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date.

**5.16 Suspension.**

**5.16.1** Interconnection Customer, upon written notice to Transmission Provider and Transmission Owner, may suspend, for a period not to exceed 18 months, work by Transmission Owner associated with the construction and installation of Transmission Owner's Interconnection Facilities and/or Network Upgrades required under this GIA under the following terms and conditions,

- i. Construction of Network Upgrades that are required to provide Interconnection Service to other Generating Facilities and for which Interconnection Customer shares cost responsibility cannot be suspended pursuant to this Article 5.16.
- ii. If the suspension period begins later than or extends beyond six months following the Effective Date of the GIA, the Interconnection Customer shall provide to the Transmission Provider security in the form described under Article 11.7 in an amount equal to the greater of:
  - a. the Interconnection Customer's allocated share of Network Upgrade(s) as calculated pursuant to Section 4.2.5 of the GIP and as identified in Appendix A of this GIA unless previously provided under Section 8.9 of the GIP; or
  - b. \$5,000,000 if the Generating Facility is greater than or equal to 100 MW; or
  - c. \$2,500,000 if the Generating Facility is greater than or equal to 50 MW and less than 100 MW; or
  - d. \$1,000,000 if the Generating Facility is less than 50 MW; or
  - e. \$500,000 if the Generating Facility is less than or equal to 2 MW.
- iii. In the event that this GIA is terminated under this Article 5.16, the Transmission Provider shall retain the security provided pursuant to Article 5.16.1.ii in the amount required to meet Interconnection Customer's obligations pursuant to this GIA. Any difference between the security provided and Interconnection Customer's obligations shall be settled pursuant to Article 12.
- iv. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.16 and has not requested Transmission Owner to resume the work required under this GIA on or before the expiration of 18 months from the date of suspension, this GIA shall be deemed terminated unless Article 16 applies.

- v. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.16 and has not complied requirements of Article 5.16.1.ii on or before the later of the expiration of 6 months following the effective date of the GIA or the date the suspension is requested, this GIA shall be deemed terminated by the Interconnection Customer.
- vi. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.16, the Transmission System shall be left in a safe and reliable condition in accordance with Good Utility Practice and Transmission Owner's safety and reliability criteria. Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Owner and Transmission Provider (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission System during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Owner shall obtain Interconnection Customer's authorization to do so. Transmission Owner and Transmission Provider shall invoice Interconnection Customer for such costs pursuant to Article 12 and shall use due diligence to minimize its costs.
- vii. In the event Interconnection Customer provides written notice to resume work for those facilities for which work has been suspended pursuant to this Article 5.16.1, the Interconnection Customer shall receive a refund, including interest, of any payments provided in accordance with Article 5.16.1.ii in excess of the sum of Interconnection Customer's allocated share of Network Upgrade(s) costs and any costs incurred under Article 5.16.1.vi within 30 days of the date of such notice.

**5.16.2 Exemptions.** The Interconnection Customer shall be exempt from the payments described under Article 5.16.1.ii.b, 5.16.1.ii.c and 5.16.1.ii.d if the following occurs or Suspension is requested for the following reasons:

- i. Construction of a Network Upgrade or the Generating Facility is prevented by order of a Governmental Authority; or
- ii. Transmission Provider determines through an Interconnection Study that the Suspension does not qualify as a modification that has an impact on the cost or timing of any Interconnection Request with an equal or later Queue priority date (Material Modification); or
- iii. Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction of a Network Upgrade.

## **5.17 Taxes.**

**5.17.1 Interconnection Customer Payments Not Taxable.** The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of Transmission Owner's Interconnection Facilities and the Network Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws.

**5.17.2 Representations and Covenants.** In accordance with IRS Notice 2001-82 and IRS Notice 88-129, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 88-129, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 88-129. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above. Transmission Owner represents and covenants that the cost of Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

**5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Imposed Upon the Transmission Owner.** Notwithstanding Article 5.17.1, Interconnection Customer shall protect, indemnify and hold harmless Transmission Owner from the cost consequences of any current tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

Transmission Owner shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this GIA unless (i) Transmission Owner has determined, in good faith, that the

payments or property transfers made by Interconnection Customer to Transmission Owner should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Owner to report payments or property as income subject to taxation; provided, however, that Transmission Owner may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences of any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30) Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

**5.17.4 Tax Gross-Up Amount.** Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the Parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, and Network Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.17) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner's composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner's anticipated tax depreciation deductions as a result of such payments or property transfers by Transmission Owner's current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows:  $(\text{Current Tax Rate} \times (\text{Gross Income Amount} - \text{Present Value of Tax Depreciation})) / (1 - \text{Current Tax Rate})$ . Interconnection Customer's

estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

- 5.17.5 Private Letter Ruling or Change or Clarification of Law.** At Interconnection Customer's request and expense, Transmission Owner shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Owner under this GIA are subject to federal income taxation. Interconnection Customer will prepare the initial draft of the request for a private letter ruling, and will certify under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Owner and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Owner shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Owner shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

- 5.17.6 Subsequent Taxable Events.** If, within 10 years from the date on which the relevant Transmission Owner's Interconnection Facilities are placed in service, (i) Interconnection Customer Breaches the covenants contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities and Network Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

- 5.17.7 Contests.** In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner may file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably



permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

**5.17.8 Refund.** In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA, Transmission Owner shall promptly refund to Interconnection Customer the following:

- (i) any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,
- (ii) interest on any amount paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the methodology set forth in FERC's regulations at 18 CFR §35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

- (iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave the Parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

**5.17.9 Taxes Other Than Income Taxes.** Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

**5.18 Tax Status.** All Parties shall cooperate with each other to maintain their tax status. Nothing in this GIA is intended to adversely affect any Party's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

**5.19 Modification.**

**5.19.1 General.** Each Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect another Party's facilities, that Party shall provide to the other Parties sufficient information regarding such modification so that the other Parties may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be confidential hereunder and shall include information concerning the timing of such modifications and whether such modifications are

expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Parties at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Owner shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission System, Transmission Owner's Interconnection Facilities or Network Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof.

**5.19.2 Standards.** Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

**5.19.3 Modification Costs.** Interconnection Customer shall not be directly assigned for the costs of any additions, modifications, or replacements that Transmission Owner makes to Transmission Owner's Interconnection Facilities or the Transmission System to facilitate the interconnection of a third party to Transmission Owner's Interconnection Facilities or the Transmission System, or to provide transmission service to a third party under Transmission Provider's Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

**5.20 Delays.** If a Network Upgrade(s) identified in Appendix A is delayed during the construction process and the Commercial Operation Date for the Generating Facility identified in Appendix B is no longer feasible, the Commercial Operation Date in Appendix B may be modified to no later than six (6) months following the in-service date for the last Network Upgrade identified in Appendix A.

## **ARTICLE 6. TESTING AND INSPECTION**

**6.1 Pre-Commercial Operation Date Testing and Modifications.** Prior to the Commercial Operation Date, Transmission Owner shall test Transmission Owner's Interconnection Facilities and Network Upgrades and Interconnection Customer shall test the Generating Facility and Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Each Party shall make any modifications to its facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.

- 6.2 Post-Commercial Operation Date Testing and Modifications.** Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission System in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the other Party's facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.
- 6.3 Right to Observe Testing.** Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties have the right, at its own expense, to observe such testing.
- 6.4 Right to Inspect.** Each Party shall have the right, but shall have no obligation to: (i) observe another Parties' tests and/or inspection of any of its System Protection Facilities and other protective equipment, including power system stabilizers; (ii) review the settings of the other Parties' System Protection Facilities and other protective equipment; and (iii) review another Parties' maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. Any Party may exercise these rights from time to time as it deems necessary upon reasonable notice to the other Parties. The exercise or non-exercise by another Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that any Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

## **ARTICLE 7. METERING**

- 7.1 General.** Each Party shall comply with the Applicable Reliability Council requirements. Unless otherwise agreed by the Parties, Transmission Owner shall install Metering Equipment at the Point of Interconnection prior to any operation of the Generating Facility and shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at Transmission Owner's option, compensated to, the Point of Interconnection. Transmission Owner shall provide metering quantities, in analog and/or digital form, to Interconnection Customer and Transmission Provider on a same-time basis using communication as provided in Article 8. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.
- 7.2 Check Meters.** Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check Transmission Owner's meters. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Owner or its designee.