APPENDIX 3 TO GIP

GENERATOR INTERCONNECTION STUDY AGREEMENT

THIS AGREEMENT is made and entered into this _____ day of _____ 20___ by and between _____ a _____ organized and existing under the laws of the State of _____ ("Interconnection Customer") and Southwest Power Pool, Inc. a non-profit organization under the laws of the State of Arkansas ("Transmission Provider "). Interconnection Customer and Transmission Provider each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Interconnection Customer is submitting an Interconnection Request to interconnect its Generating Facility with the Transmission System or adding generating capacity addition to an Existing Generating Facility as detailed in Attachment A to this Agreement; and

WHEREAS, Interconnection Customer has requested Transmission Provider to perform a Definitive Interconnection System Impact Study or Priority System Impact Study to assess the impact of its Interconnection Request to the Transmission System, and of any Affected Systems;

WHEREAS, Interconnection Customer has requested that Transmission Provider perform, subject to further confirmation, an Interconnection Facilities Study to specify and estimate the cost and schedule of the equipment, engineering, procurement and construction work needed to implement the conclusions of the Definitive Interconnection System Impact Study or Priority System Impact Study in accordance with Good Utility Practice to physically and electrically connect the Generating Facility to the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated in the Generator Interconnection Procedures ("GIP") in Attachment V of the Transmission Provider's Tariff.

2.0 Definitive Interconnection System Impact Study or Priority System Impact Study

2.1 Interconnection Customer elects and Transmission Provider shall cause to be performed a Definitive Interconnection System Impact Study Phase One or Priority System Impact Study analysis, consistent with Section 8 of the GIP in accordance with the Tariff.

2.2 If applicable, and the Interconnection Customer elects, Transmission Provider shall cause to be performed a Definitive Interconnection System Impact Study Phase Two analysis, consistent with Section 8. of this GIP in accordance with the Tariff.

2.3 The scope of the Definitive Interconnection System Impact Study or Priority System Impact Study shall be subject to the assumptions set forth in Attachment B to this Agreement.

2.4 The Definitive Interconnection System Impact Study or Priority System Impact Study will be based upon the technical information provided by Interconnection Customer. Transmission Provider reserves the right to request additional technical information from Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the Definitive Interconnection System Impact Study or Priority System Impact Study. If Interconnection Customer modifies its designated Point of Interconnection, Interconnection Request, or the technical information provided therein is modified, the time to complete the Definitive Interconnection System Impact Study or Priority System Impact Study may be extended.

2.5 The Definitive Interconnection System Impact Study or Priority System Impact Study report shall provide the following information:

(i) identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection;

(ii) identification of any thermal overload or voltage limit violations resulting from the interconnection;

(iii) identification of any instability or inadequately damped response to system disturbances resulting from the interconnection;

(iv) description and non-binding, good faith estimated cost of and schedule for facilities required to interconnect the Generating Facility to the Transmission System and to address the identified short circuit, instability, and power flow issues; and

(v) will include a Facilities Analysis as specified in Section 8.4.4 of the GIP that will provide cost estimates for Transmission Owner's Interconnection Facilities and Network Upgrades at the Point of Interconnection.

3.0 Interconnection Facilities Study

3.1 If the Interconnection Customer elects, Transmission Provider shall cause to be performed an Interconnection Facilities Study consistent with Section 8 of the GIP.

3.2 Interconnection Customer shall meet the milestone requirements specified under Section 8.5.2 of the GIP prior to the performance of the Interconnection Facilities Study

3.3 The scope of the Interconnection Facilities Study shall be subject to the data provided in Attachment C to this Agreement.

3.4 The Interconnection Facilities Study report shall provide a description, estimated cost of, and schedule for the following consistent with Section 8.11 of the GIP:

(i) required facilities to interconnect the Generating Facility to the Transmission System and

(ii) the short circuit, instability, and power flow issues identified in the Definitive Interconnection System Impact Study or Priority System Impact Study.

4.0 Interconnection Customer shall provide the deposit specified under Section 8.2 of the GIP for the performance of the Definitive Interconnection System Impact Study or Priority System Impact Study and Interconnection Facilities Study.

Upon receipt of each phase of the Definitive Interconnection System Impact Study or Priority System Impact Study results, Transmission Provider shall charge and Interconnection Customer shall pay the actual costs of each phase of the Definitive Interconnection System Impact Study or Priority System Impact Study.

Upon issuance of the final Interconnection Facilities Study report, Transmission Provider shall deduct associated study costs from the Interconnection Customer's study deposits provided in accordance with Section 8.2 of the GIP. Transmission Provider shall continue to hold the amounts on deposit until settlement of the final invoice. Any difference between the study deposit and Interconnection Customer's study cost obligation shall be paid by or refunded to Interconnection Customer, as appropriate per Section 13.3 of the GIP.

5.0 Conditions for Limited Operation. If the Interconnection Customer agrees to proceed under Limited Operation pursuant to Section 8.7 of the GIP, the Interconnection Customer agrees to the following conditions:

1. The Generating Facility will be allowed to operate under Limited Operation in accordance with Section 8.4.3 of the GIP before a Network Upgrades previously approved for construction under Section VI of Attachment O of this Tariff ("Previously Approved Network Upgrade") is placed into service;

2. The Interconnection Customer will meet all requirements of the GIP; and

3. The Interconnection Customer will provide financial security and authorize engineering, procurement, and construction of its cost assigned Network Upgrades and interconnection facilities no later than thirty (30) Calendar Days after the effective date of the GIA

in accordance with Article 11.6 of the GIA.

6.0 Governing Law

6.1 Governance. The validity, interpretation and performance of this Agreement and each of its provisions shall be governed by the laws of the United States of America except to the extent that the laws of the state of Arkansas may apply.

6.2 Applicability. This Agreement is subject to all applicable federal and state Laws and Regulations.

6.3 Reservation of Rights. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

7.0 Notices.

7.1 General. Unless otherwise provided in this Agreement, any notice, demand or request required or permitted to be given by either Party to the other and any instrument required or permitted to be tendered or delivered by either Party in writing to the other shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party.

To Transmission Provider:

Southwest Power Pool, Inc.
201 Worthen Drive
Little Rock, AR 72223-4936
Attention: Manager, GI Studies

To Interconnection Customer:

_____
_____
_____
Attention: _____

7.2 Alternative Forms of Notice. Any notice or request required or permitted to be given by a Party to the other and not required by this Agreement to be given in writing may be so given by telephone, facsimile or email.

8.0 Force Majeure

8.1 Economic Hardship. Economic hardship is not considered a Force Majeure event.

8.2 Default. Neither Party shall be considered to be in Default with respect to any obligation hereunder, other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Party in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone notices given pursuant to this article shall be confirmed in writing as soon as reasonably possible and shall specifically state the full details of the Force Majeure, the time and date when the Force Majeure occurred, and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise due diligence to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

9.0 Indemnity

9.1 Indemnity. The Parties shall at all times indemnify, defend, and hold the other Party harmless from, any and all damages, losses, claims, including claims and actions 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 the other Partys' action or inactions of its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

9.1.1 Indemnified Person. If an indemnified person is entitled to indemnification under this Article 9 as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 9.1 to assume the defense of such claim, such indemnified person may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

9.1.2 Indemnifying Party. If an indemnifying Party is obligated to indemnify and hold any indemnified person harmless under this Article 9, the amount owing to the indemnified person shall be the amount of such indemnified person's actual Loss, net of any insurance or other recovery.

9.1.3 Indemnity Procedures. Promptly after receipt by an indemnified person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 9.1 may apply, the indemnified person shall notify the indemnifying Party of such fact. Any failure

of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with counsel designated by such indemnifying Party and reasonably satisfactory to the indemnified person. If the defendants in any such action include one or more indemnified persons and the indemnifying Party and if the indemnified person reasonably concludes that there may be legal defenses available to it and/or other indemnified persons which are different from or additional to those available to the indemnifying Party, the indemnified person shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an indemnified person or indemnified persons having such differing or additional legal defenses.

The indemnified person shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the indemnifying Party. Notwithstanding the foregoing, the indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the indemnified person and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the indemnified person, or there exists a conflict or adversity of interest between the indemnified person and the indemnifying Party, in such event the indemnifying Party shall pay the reasonable expenses of the indemnified person, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the indemnified person, which shall not be reasonably withheld, conditioned or delayed.

9.2 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

10.0 Assignment

10.1 Assignment. This Agreement may be assigned by either Party only with the written consent of the other Party; provided that either Party may assign this Agreement without the consent of the other Party to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement; and provided further that the Interconnection Customer shall have the right to assign this Agreement, without the consent of Transmission Provider for collateral security purposes to aid in providing financing for the Generating Facility, provided that the Interconnection Customer will require any secured party, trustee or mortgagee to notify the Transmission Provider of any such assignment. Any financing arrangement entered into by the Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify the Transmission Provider of the date and particulars of any such exercise of assignment right. Any attempted assignment that violates this Article or Applicable Laws and Regulations is void and ineffective. Any assignment under this Agreement shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

11.0 Severability

11.1 Severability. If any provision in this Agreement is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this Agreement.

12.0 Comparability

12.1 Comparability. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations, as amended from time to time.

13.0 Deposits and Invoice Procedures

13.1 General. The Transmission Provider and the Interconnection Customer may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under the GIP, including credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

13.2 Study Deposits. The Interconnection Customer shall provide study deposits, in accordance with the GIP to the Transmission Provider. The study deposits amounts and schedule shall be in accordance with the GIP.

13.3 Final Invoice. Within six months after completion of the studies Transmission Provider shall provide an invoice of the final cost of the studies and shall set forth such costs in sufficient detail to enable the Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Provider shall refund to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of the studies within thirty (30) Calendar Days of the issuance of such final study invoice.

13.4 Payment. Invoices shall be rendered to the paying Party at the address specified Appendix A to this Agreement. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by either Party will not constitute a waiver of any rights or claims either Party may have under the GIP.

13.5 Disputes. In the event of a billing dispute between Transmission Provider and Interconnection Customer, Transmission Provider shall continue to provide studies for Interconnection Service under the GIP as long as Interconnection Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may provide notice to Interconnection Customer of a Default pursuant to Article 15 of this Agreement. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to the other Party shall pay the amount due together with accrued interest in accordance with Section 3.7 of this Attachment V.

14.0 Representations, Warranties, and Covenants

14.1 General. Each Party makes the following representations, warranties and covenants:

14.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this Agreement and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this Agreement.

14.1.2 Authority. Such Party has the right, power and authority to enter into this Agreement, to become a party hereto and to perform its

obligations hereunder. This Agreement is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

14.1.3 **No Conflict**. The execution, delivery and performance of this Agreement does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

14.1.4 **Consent and Approval**. Such Party has sought or obtained, or, in accordance with this Agreement will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this Agreement, and it will provide to any Governmental Authority notice of any actions under this Agreement that are required by Applicable Laws and Regulations.

15.0 Breach, Cure and Default

15.1 **General.** A breach of this Agreement ("Breach") shall occur upon the failure by a Party to perform or observe any material term or condition of this Agreement. A default of this Agreement ("Default") shall occur upon the failure of a Party in Breach of this Agreement to cure such Breach in accordance with the provisions of Article 15.3 of this Agreement.

15.2 **Events of Breach.** A Breach of this Agreement shall include:

(a) The failure to pay any amount when due;

(b) The failure to comply with any material term or condition of this Agreement, including but not limited to any material Breach of a representation, warranty or covenant made in this Agreement;

(c) If a Party: (1) becomes insolvent; (2) files a voluntary petition in bankruptcy under any provision of any federal or state bankruptcy law or shall consent to the filing of any bankruptcy or reorganization petition against it under any similar law; (3) makes a general assignment for the benefit of its creditors; or (4) consents to the appointment of a receiver, trustee or liquidator;

(d) Assignment of this Agreement in a manner inconsistent with the terms of this Agreement;

(e) Failure of any Party to provide information or data to the other Party as required under this Agreement, provided the Party entitled to the information or data under this Agreement requires such information or data to satisfy its obligations under this Agreement.

15.3 Cure and Default. Upon the occurrence of an event of Breach, the Party not in Breach (hereinafter the "Non-Breaching Party"), when it becomes aware of the Breach, shall give written notice of the Breach to the Breaching Party (the "Breaching Party") and to any other person a Party to this Agreement identifies in writing to the other Party in advance. Such notice shall set forth, in reasonable detail, the nature of the Breach, and where known and applicable, the steps necessary to cure such Breach. Upon receiving written notice of the Breach hereunder, the Breaching Party shall have thirty (30) days to cure such Breach. If the Breach is such that it cannot be cured within thirty (30) days, the Breaching Party will commence in good faith all steps as are reasonable and appropriate to cure the Breach within such thirty (30) day time period and thereafter diligently pursue such action to completion. In the event the Breaching Party fails to cure the Breach, or to commence reasonable and appropriate steps to cure the Breach, within thirty (30) days of becoming aware of the Breach, the Breaching Party will be in Default of the Agreement.

15.4 Right to Compel Performance. Notwithstanding the foregoing, upon the occurrence of an event of Default, the non-Defaulting Party shall be entitled to: (1) commence an action to require the Defaulting Party to remedy such Default and specifically perform its duties and obligations hereunder in accordance with the terms and conditions hereof, and (2) exercise such other rights and remedies as it may have in equity or at law.

16.0 Miscellaneous

16.1 Binding Effect. This Agreement and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

16.2 Conflicts. In the event of a conflict between the body of this Agreement and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this Agreement shall prevail and be deemed the final intent of the Parties.

16.3 Rules of Interpretation. This Agreement, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this Agreement, and reference to a person

in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this Agreement), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder.

16.4 Entire Agreement. This Agreement, including all Appendices and Schedules attached hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants that constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

16.5 No Third Party Beneficiaries. This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

16.6 Waiver. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or Default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of Interconnection Customer's legal rights to obtain an interconnection from Transmission Provider. Any waiver of this Agreement shall, if requested, be provided in writing.

16.7 Headings. The descriptive headings of the various Articles of this Agreement have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this Agreement.

16.8 Multiple Counterparts. This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

16.9 Amendment. The Parties may by mutual agreement amend this Agreement by a written instrument duly executed by the Parties.

16.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this Agreement by a written instrument duly executed by the Parties. Such amendment shall become effective and a part of this Agreement upon satisfaction of all Applicable Laws and Regulations.

16.11 No Partnership. This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

IN WITNESS THEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Transmission Provider]

By: _____

Title: _____

Date: _____

[Insert name of Interconnection Customer]

By: _____

Title: _____

Date: _____

Attachment A to Appendix 3

INTERCONNECTION REQUEST

1. The undersigned Interconnection Customer submits this request to interconnect its Generating Facility with the Transmission System pursuant to the Tariff.

2. This Interconnection Request is for (check one):

   _____ A proposed new Generating Facility.

   _____ An increase in the generating capacity or a Material Modification of an Existing Generating Facility.

      _____ Check if requesting Priority Processing pursuant to Section 3.11 of the GIP

   _____ Replacement of Existing Generating Facility with no increase in capacity

3. The type of interconnection service requested (check one):

   _____ Energy Resource Interconnection Service

   _____ Network Resource Interconnection Service

4. All requests for Network Resource Interconnection Service are also studied for Energy Resource Interconnection Service.

5. The Interconnection Customer provides the following information:

   a. Address or location or the proposed new Generating Facility site (to the extent known) or, in the case of an Existing Generating Facility, the name and specific location of the Existing Generating Facility:

      _____

      _____

      Geographic coordinates of the proposed new or Existing Generating Facility site:

      Latitude: ___ degrees, ___ minutes, ___ seconds (North)

      Longitude: ___ degrees, ___ minutes, ___ seconds (West);

   b. Nameplate Capacity of the proposed new Generating Facility or the amount of increase in the Nameplate Capacity of an Existing Generating Facility, in alternating current megawatts;

      Requested Maximum Injection Capability or the amount of increase in Maximum

Injection Capability in megawatts (Maximum Injection Capability must be less than or equal to Nameplate Capacity);

Requested Network Resource Deliverability or the amount of increase in Network Resource Deliverability in megawatts (Network Resource Deliverability must be less than or equal to Maximum Injection Capability).

	Existing MW	Increased MW	Total MW
Nameplate Capacity			
Maximum Injection Capability (at POI)			
Network Resource Deliverability (at POI)			

c. A description of the equipment configuration (i.e. Number of generators/inverters and number of Intermediate Step-up transformers) for the entire Generating Facility.

d. Preliminary one-line diagram of the Generating Facility that includes:
- Breaker layout, bus configuration (if available) and number of generators
- Zero impedance lines (if applicable)
- Distance from the collector substation to the POI in miles and the line impedance;

e. Collector System Feeder Spreadsheet and Layout Diagrams;

f. PSS/E User Defined Model files (.dll, .lib, .obj), documentation (generator model, power plant controller, etc.), and stability model files (.dyr, generator model, power plant controller, etc.);

g. Commercial Operation Date (month/day/year); ____/____/_____;

h. Name, address, telephone number, and e-mail address of Interconnection Customer's contact person in Item 9 below;

i. Location of the proposed Point of Interconnection including the substation name or the name of the line to be tapped (including the voltage), the estimated distance from the substation endpoints of a line tap, address, and GPS coordinates.

POI substation name: _____

If a line tap, POI line name:_____(endpoint 1) to _____(endpoint 2)

POI Distance from endpoint 1: _____miles

POI Distance from endpoint2: _____miles

POI voltage: ___kV

Address or location of the Point of Interconnection:

_____

_____

Geographic coordinates of the proposed Point of Interconnection:

Latitude: _____degrees, _____minutes, _____seconds (North)

Longitude: ___degrees, _____minutes, _____seconds (West);

j. Geographical map showing the approximate location of the proposed Point of Interconnection and the location of the Generating Facility;

k. Generating Facility Data (set forth in Attachment B to this Appendix 3);

l. Reserved for future use

m. Fuel type(s) included in this project configuration:
__ Battery/Storage
__ Hybrid
__ Hydro
__ Nuclear
__ Solar
__ Thermal
__ Wind
__ Other: _____

Describe the prime mover (Combined Cycle Comb. Turbine, Combined Cycle Steam, Gas Turbine, Internal Combustion Engine, Steam Turbine, etc.): _____

n. Primary frequency response operating range for electric storage resources;

o. If Interconnection Facilities will be shared, the project number of other Existing Generating Facilities or Interconnection Requests with which Interconnection Facilities will be shared shall be listed below. If no project number is available, state the name of the Interconnection Customer and describe the applicable Generating Facilities below.

_____

_____

p. For request for Generating Facility Replacement, the planned or actual date of cessation of operation of the Existing Generating Facility: (month/day/year) ___/____/____.

6. Applicable deposit amount and application fee as specified in the GIP.

7. Evidence of Site Control as specified in Section 8.2 the GIP:

____ Site Control for the Generating Facility and one of the following:

____ Site Control for at least fifty percent (50%) of the Generating Facility's high voltage tie line to Point of Interconnection; **OR**

_____ Additional financial security in the amount of $80,000 per line right-of-way mile.

8. This Interconnection Request shall be submitted electronically, in the manner specified in Section 1 of the "Guidelines for the SPP GIP Process and Business Practices" manual posted on the Transmission Provider's Generator Interconnection Study posting page on OASIS.

9. Representative of Interconnection Customer to contact (including e-mail address):

Name of Contact Person: _____

Mailing Address: _____

City, State, Zip_____

Telephone: _____

E-mail address: _____

10. This Interconnection Request is submitted by:

Name of Interconnection Customer (Company): _____

By (signature): _____

Name (type or print): _____

Title:_____

Date:_____

Attachment B to Appendix 3

ASSUMPTIONS USED IN CONDUCTING THE DEFINITIVE INTERCONNECTION SYSTEM IMPACT STUDY

The Definitive Interconnection System Impact Study will be based upon the information set forth in the Interconnection Requests and results of applicable prior studies, subject to any modifications in accordance with Section 4.4 of the GIP.

GENERATING FACILITY DATA FOR THE DEFINITIVE INTERCONNECTION SYSTEM IMPACT STUDY

Interconnection Facilities Tie Line Information

Nominal Voltage (kV)	
Line length (miles)	
Summer Line Rating (MVA)	
Winter Line Rating (MVA)	
Positive Sequence Resistance R1(in p.u.*)	
Positive Sequence Reactance X1(in p.u.*)	
Positive Sequence Susceptance B1(in p.u.*)	
Zero Sequence Resistance R0(in p.u.*)	
Zero Sequence Reactance X0(in p.u.*)	
Zero Sequence Susceptance B0 (in p.u.*)	
Positive Sequence Shunt G1 (in p.u.*)	
Positive Sequence Shunt B1 (in p.u.*)	
Zero Sequence Shunt G0 (in p.u.*)	

Zero Sequence Shunt B0 (in p.u.*)	

*On 100-MVA Base

Main Substation Transformer

(for a single generator or the step-up from collector system to POI voltage)

Number of transformers ____

RATINGS	Self-Cooled	Maximum Nameplate	
Capacity (kVA)			
MVA Base	_____MVA		
Maximum Nameplate Ratings		_____/_____MVA	
	Generator Side	System Side	Tertiary
Voltage Ratio			
	Primary	Secondary	
Nominal Voltage			
Winding Connections (Delta or Wye)			
Tapped Winding			
	Low Voltage	High Voltage	Tertiary Voltage
Winding Connections (Delta or Wye)			
IMPEDANCE	Primary-Secondary	Primary-Tertiary	Secondary-Tertiary
Positive Z1 (on self-cooled kVA rating)			

Zero Z0 (on self-cooled kVA rating)			
	Fixed Taps Available	Present Taps Available	
TAP SETTING			
Tap Ratio Range			
Number of Taps			
No Load Loss	_____ W		
Exciting I:	_____ p.u.		

Static Reactive Compensation Device

Voltage (kV)	
Total Size (MVAR)	
Step Size (MVAR)	Number of Steps

Equivalent Collector System

Equivalent Collector System for each modeled medium voltage feeder line
Collector system voltage = _____kV
R = _____per unit on 100 MVA Base and collector kV base (positive sequence)
X = _____per unit on 100 MVA Base and collector kV base (positive sequence)
B = _____per unit on 100 MVA Base and collector kV base (positive sequence)

Generator Step-up Transformer

Number of transformers ____

RATINGS	Self-Cooled	Maximum Nameplate	
Capacity (kVA)			
MVA Base	_____MVA		

Maximum Nameplate Ratings		_____/_____MVA	
	Generator Side	System Side	Tertiary
Voltage Ratio			
	Primary	Secondary	
Nominal Voltage			
Winding Connections (Delta or Wye)			
Tapped Winding			
	Low Voltage	High Voltage	Tertiary Voltage
Winding Connections (Delta or Wye)			
IMPEDANCE	Primary-Secondary	Primary-Tertiary	Secondary-Tertiary
Positive Z1 (on self-cooled kVA rating)			
Zero Z0 (on self-cooled kVA rating)			
	Fixed Taps Available	Present Taps Available	
TAP SETTING			
Tap Ratio Range			
Number of Taps			
No Load Loss	_____W		
Exciting I:	____ p.u.		

Unit Ratings

Number of generating units	

Inverter manufacturer, model name, number and version	
Nameplate kVA rating	
Voltage	
Terminal Voltage	
Generator type (e.g. Type III – DFIG or Type IV – Inverter)	
Fuel Type	
Prime Mover Type	
Power Factor (Lead/Lag)	
Connection (e.g. Wye)	
Max Turbine Power Output Capability (Summer MW/Winter MW)	
Frequency, Hertz	
Stator Amperes at Rated kVA	

COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H = _____ kW sec/kVA

REACTANCE DATA (PER UNIT-RATED KVA)

Subtransient (first cycle) Positive Sequence Resistance R1*	
Subtransient (first cycle) Positive Sequence Reactance X1*	
Subtransient (first cycle) Negative Sequence Resistance R2*	
Subtransient (first cycle) Negative Sequence Reactance X2*	
Subtransient (first cycle) Zero Sequence Resistance R0*	
Subtransient (first cycle) Zero Sequence Reactance X0*	
Stationary (after 50ms) Positive Sequence Resistance R1*	

Stationary (after 50ms) Positive Sequence Reactance X1*	
Stationary (after 50ms) Negative Sequence Resistance R2*	
Stationary (after 50ms) Negative Sequence Reactance X2*	
Stationary (after 50ms) Zero Sequence Resistance R0*	
Stationary (after 50ms) Zero Sequence Reactance X0*	
Voltage Controlled Current Source (VCCS) curve	

*In p.u. nameplate kVA based

	Direct Axis	Quadrature Axis
Synchronous – saturated	Xdv	Xqv
Synchronous – unsaturated	Xdi	Xqi
Transient – saturated	X'dv	X'qv
Transient – unsaturated	X'di	X'qi
Subtransient – saturated	X"dv	X"qv
Subtransient – unsaturated	X"di	X"qi
Negative Sequence – saturated	X2v	
Negative Sequence – unsaturated	X2i	
Zero Sequence – saturated	X0v	
Zero Sequence – unsaturated	X0i	
Leakage Reactance	Xlm	

FIELD TIME CONSTANT DATA (SEC)

Open Circuit	T'_{do}	_____	T'_{qo}	_____
Three-Phase Short Circuit Transient	T'_{d3}	_____	T'_{q}	_____
Line to Line Short Circuit Transient	T'_{d2}	_____		
Line to Neutral Short Circuit Transient	T'_{d1}	_____		
Short Circuit Subtransient	T''_{d}	_____	T''_{q}	_____
Open Circuit Subtransient	T''_{do}	_____	T''_{qo}	_____

ARMATURE WINDING RESISTANCE DATA (PER UNIT)

Positive	R_1	_____
Negative	R_2	_____
Zero	R_0	_____

CURVES

Provide Saturation, Vee, Reactive Capability, Capacity Temperature Correction curves. Designate normal and emergency Hydrogen Pressure operating range for multiple curves.

EXCITATION SYSTEM DATA

Identify appropriate IEEE model block diagram of excitation system and power system stabilizer (PSS) for computer representation in power system stability simulations and the corresponding excitation system and PSS constants for use in the model.

GOVERNOR SYSTEM DATA

Identify appropriate IEEE model block diagram of governor system for computer representation in power system stability simulations and the corresponding governor system constants for use in the model.

MODELS FOR NON-SYNCHRONOUS GENERATORS

For a non-synchronous Generating Facility, Interconnection Customer shall provide (1) a validated user-defined root mean squared (RMS) positive sequence dynamics model; (2) an appropriately parameterized generic library RMS positive sequence dynamics model, including model block diagram of the inverter control and plant control systems, as defined by the selection in Table 1 or a model otherwise approved by the Western Electricity Coordinating Council, that corresponds to Interconnection Customer's Generating Facility; and (3) if applicable, a validated electromagnetic transient model if Transmission Provider performs an electromagnetic transient study as part of the interconnection study process. A user-defined model is a set of programming code created by equipment manufacturers or developers that captures the latest features of controllers that are mainly software based and represents the entities' control strategies but does not necessarily correspond to any generic library model. Interconnection Customer must also demonstrate that the model is validated by providing evidence that the equipment behavior is consistent with the model behavior (e.g., an attestation from Interconnection Customer that the model accurately represents the entire Generating Facility; attestations from each equipment manufacturer that the user defined model accurately represents the component of the Generating Facility; or test data).

Table 1: Acceptable Generic Library RMS Positive Sequence Dynamics Models

GE PSLF	Siemens PSS/E*	PowerWorld Simulator	Description
pvd1		PVD1	Distributed PV system model
der_a	DERAU1	DER_A	Distributed energy resource model
regc_a	REGCAU1, REGCA1	REGC_A	Generator/converter model
regc_b	REGCBU1	REGC_B	Generator/converter model
wt1g	WT1G1	WT1G and WT1G1	Wind turbine model for Type-1 wind turbines (conventional directly connected induction generator)
wt2g	WT2G1	WT2G and WT2G1	Generator model for generic Type-2 wind turbines
wt2e	WT2E1	WT2E and WT2E1	Rotor resistance control model for wound-rotor induction wind-turbine generator wt2g
reec_a	REECAU1, REECA1	REEC_A	Renewable energy electrical control model
reec_c	REECCU1	REEC_C	Electrical control model for battery energy storage system
reec_d	REECDU1	REEC_D	Renewable energy electrical control model
wt1t	WT12T1	WT1T and WT12T1	Wind turbine model for Type-1 wind turbines (conventional directly connected induction generator)
wt1p_b	wt1p_b	WT12A1U_B	Generic wind turbine pitch controller for WTGs of Types 1 and 2
wt2t	WT12T1	WT2T	Wind turbine model for Type-2 wind turbines (directly connected induction generator wind turbines with an external rotor resistance)
wtgt_a	WTDTAU1, WTDTA1	WTGT_A	Wind turbine drive train model
wtga_a	WTARAU1, WTARA1	WTGA_A	Simple aerodynamic model
wtgp_a	WTPTAU1, WTPTA1	WTGPT_A	Wind Turbine Generator Pitch controller
wtgq_a	WTTQAU1, WTTQA1	WTGTRQ_A	Wind Turbine Generator Torque controller
wtgwgo_a	WTGWGOAU	WTGWGO_A	Supplementary control model for Weak Grids

GE PSLF	Siemens PSS/E*	PowerWorld Simulator	Description
wtgibffr_a	WTGIBFFRA	WTGIBFFR_A	Inertial-base fast frequency response control
wtgp_b	WTPTBU1	WTGPT_B	Wind Turbine Generator Pitch controller
wtgt_b	WTDTBU1	WTGT_B	Drive train model
repc_a	Type 4: REPCAU1 (v33), REPCA1 (v34) Type 3: REPCTAU1 (v33), REPCTA1 (v34)	REPC_A	Power Plant Controller
repc_b	PLNTBU1	REPC_B	Power Plant Level Controller for controlling several plants/devices In regard to Siemens PSS/E*: Names of other models for interface with other devices: REA3XBU1, REAX4BU1- for interface with Type 3 and 4 renewable machines SWSAXBU1- for interface with SVC (modeled as switched shunt in powerflow) SYNAXBU1- for interface with synchronous condenser FCTAXBU1- for interface with FACTS device
repc_c	REPCCU	REPC_C	Power plant controller

ELECTRIC STORAGE RESOURCES

Device manufacturer: _____

Technology (Li-ion, Lead Acid, Flow Battery, Pumped Hydro, Flywheel, etc.)_____

Check one of the following:
_____ Stand-alone
_____ Co-located with another Generating Facility (co-located means at the same POI)

Maximum Energy Output Rating (MWh) _____ at Maximum Power Output (MW) _____

Maximum Contractual Power Output (MW) _____

Charging Parameters

The maximum rate of charge capability of the Generating Facility will be _____ MW.

The maximum rate of charge to be utilized (requested maximum) will be_____MW.

Charging Power Factor _____ lag _____ lead at rated output

The control technologies (software and/or hardware) that will limit the operation of the Generating Facility to the operating assumptions submitted by Interconnection Customer is described as follows:

_____
_____
_____

Inverter-Based Resource Data

Phase-Locked Loop ("PLL") controller parameters for inverter-based resources:

- PLL Proportional Gain K_p _____
- PLL Integral Gain K_i _____
- PLL Frequency Limits ω_l _____ (rad/sec) and ω_h _____ (rad/sec)

The above data applies to a generic structure of the PLL (also commonly known as a synchronous reference frame PLL) and that the actual PLL structure within an Original Equipment Manufacturer's (OEM) device may differ from this generic structure. Should a difference exist, the parameter values of the PLL shall be provided such that the most recent equivalently parameterized generic industry model shows the same trend as the performance shown by actual OEM equipment.

Plant Load

Load MW _____ ____

Load MVAR_____
Specify Load Bus Voltage _____kV

Mutual Coupling Impedance

Mutual coupling impedance and 'B' factors for mutually coupled transmission lines

Electromagnetic Transient (EMT) Models:

See SPP Electromagnetic Transient (EMT) Model Requirements Document

Attachment C to Appendix 3

DATA FORM TO BE PROVIDED BY INTERCONNECTION CUSTOMER FOR THE INTERCONNECTION FACILITIES STUDY

Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, transmission circuits, etc.

One set of metering is required for each generation connection to the new ring bus or existing Transmission Provider station. Number of generation connections:

On the one line diagram indicate the generation capacity attached at each metering location. (Maximum load on CT/PT)

On the one line diagram indicate the location of auxiliary power. (Minimum load on CT/PT) Amps

Will an alternate source of auxiliary power be available during CT/PT maintenance?

_____ Yes _____ No

Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? _____Yes _____ No (Please indicate on one line diagram).

What type of control system or PLC will be located at Interconnection Customer's Generating Facility?

_____

What protocol does the control system or PLC use?

_____

Please provide a 7.5-minute quadrangle of the site. Sketch the plant, station, transmission line, and property line.

Physical dimensions of the proposed interconnection station:

_____

Bus length from generation to interconnection station:

_____

Line length from interconnection station to Transmission Provider's transmission line.

_____

Tower number observed in the field. (Painted on tower leg)* _____

Number of third party easements required for transmission lines*:

_____

* To be completed in coordination with Transmission Provider.

Is the Generating Facility in the Transmission Provider's service area?

_____ Yes _____ No Local provider: _____

Please provide proposed schedule dates:

Begin Construction	Date:_____
Generator step-up transformer receives back feed power	Date: _____
Generation Testing	Date: _____
Commercial Operation	Date: _____