

NON-FERC INTERCONNECTION STUDIES AGREEMENT
**(for a proposed interconnection of a Generating Facility
to APS' distribution or transmission system)**

This Non-FERC Interconnection Studies Agreement (this "**Agreement**") is entered into by and between Arizona Public Service Company, an Arizona corporation ("**APS**"), and _____, a _____ ("**Applicant**"), hereinafter referred to individually as "**Party**" or collectively as "**Parties.**"

RECITALS

- A. Applicant is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility to be located at _____ (the "**Generating Facility**");
- B. Applicant proposes to interconnect the Generating Facility with APS' electric distribution or transmission system through APS' Non-FERC interconnection process.

APS may conduct three different studies that can be helpful regarding Applicant's decision to move forward with the proposed interconnection. The three studies are: 1) Interconnection Feasibility Study, 2) System Impact Study, and 3) Facilities Study. The scope of work to be performed under each study shall be in accordance with APS' Schedule 6 on file with the Arizona Corporation Commission.
- C. APS is willing to undertake the studies provided for in this Agreement if Applicant advances to APS the required payment associated with each particular study;
- D. Applicant would like APS to prepare one or more of the studies, as agreed to below, even though it has not yet been determined that Applicant will proceed with the interconnection of its Generating Facility to APS' electric system; and
- E. Depending upon the outcome of the Facilities Study (if one is performed pursuant to this Agreement), the Parties may enter into further agreements providing for the design and construction of certain facilities and enhancements to APS' electric distribution and transmission system that are needed to allow for the interconnection of Applicant's Generating Facility to APS' system.

AGREEMENT

NOW, THEREFORE, for and in consideration of the foregoing recitals and further consideration of the covenants and agreements contained herein, the Parties agree as follows:

- 1. Applicant hereby requests that APS prepare the following study, and Applicant hereby pays to APS the applicable sum as set forth below:

<input type="checkbox"/> Interconnection Feasibility Study	\$5,000 flat fee non-refundable
<input type="checkbox"/> System Impact Study	\$15,000 flat fee non-refundable
<input type="checkbox"/> Facilities Study	\$55,000 deposit (the actual cost will be determined after the study is concluded, and Applicant will be required to pay any additional sums needed, or will be reimbursed any excess funds). Applicant must pay any study costs that exceed the deposit without interest within 30 calendar days on receipt of

the invoice. If the deposit exceeds the invoiced fees, APS shall refund such excess within 30 calendar days of the invoice without interest.

2. The Parties agree that if Applicant selected the Interconnection Feasibility Study in Paragraph 1 above, then Applicant may, within 30 calendar days from the receipt of the study results, request that APS prepare the System Impact Study by delivering to APS the following: 1) a signed copy of Attachment 1 along with the appropriate payment (the \$5,000 already paid for the Interconnection Feasibility Study will be credited; therefore, the additional fee of \$10,000 will be required for the System Impact Study), and 2) a completed Exhibit B.
3. The Parties agree that if Applicant selected the Interconnection Feasibility Study or the System Impact Study in Paragraph 1 above, then Applicant may, within 30 calendar days from the receipt of the study results, request that APS prepare the Facilities Study. The specified 30 calendar day period from the receipt of the study results may be extended upon mutual agreement by both Parties and must be confirmed in writing.

The request that APS prepare the Facilities Study must be made by delivering to APS the following: 1) a signed copy of Attachment 2 along with the appropriate payment (the total amount paid for the previous study(s) will be credited towards the deposit; therefore, the additional fee of \$40,000 or \$50,000, as applicable, will be required for the Facilities Study), and 2) a completed Exhibit C.

4. APS hereby agrees to prepare the study selected in Paragraph 1 above upon receipt of the required payment.
5. If, within 30 calendar days after receiving the results of the Facilities Study, the Applicant notifies APS in writing that the Applicant elects not to proceed with the interconnection of its Generating Facility to APS' electric system, the application shall be withdrawn and final payments shall be handled in accordance with Paragraph 1.
6. If the Facilities Study results are conducive to pursuing an interconnection of Applicant's Generating Facility to APS' electric system, Applicant will have 30 calendar days from the receipt of the Facilities Study results to enter into further agreements providing for the design and construction of certain facilities and enhancements to APS' electric distribution and transmission systems that are needed to allow for the interconnection of Applicant's Generating Facility to APS' electric system. The specified 30-day period may be extended upon mutual agreement by both Parties and must be confirmed in writing.
7. If Applicant elects to proceed with the interconnection of its Generating Facility to APS' electric system and executes APS' standard form agreements providing for the design and extension of facilities required to accomplish such interconnection, any excess funds or shortage from the Facilities Study payment will be applied to the payment obligations as set forth in such agreements.
8. Following the delivery of the results of any phase of study (Feasibility, System Impact, or Facilities), if the Applicant fails to execute the documentation and make the necessary payments required to proceed to the next phase of implementation in the 30 calendar day window, the application shall be deemed withdrawn and all payments (if any) shall be handled in accordance with Paragraph 1.
9. This Agreement shall be binding upon and for the benefit of the heirs, administrators, executors, or assigns of the Parties to this Agreement; provided however, that no assignment or other transfer of this

Agreement shall be binding upon APS or create any rights in Applicant's assignee until such assignment or other transfer is approved and accepted in writing by APS.

- 10. If either Party successfully brings suit to compel performance or for breach of this Agreement, the successful Party shall be entitled to recover reasonable attorney's fees and costs, including reasonable expert witness fees.
- 11. This Agreement constitutes the final and complete agreement between the Parties concerning its subject matter and supersedes all prior agreements and conduct, whether written or oral.
- 12. The provision, terms, and conditions of each of the following documents, attached to this Agreement, are hereby incorporated in full into this Agreement:

Exhibit A, Exhibit B, Exhibit C, Attachment 1, Attachment 2

This Agreement has been executed by duly authorized representatives of the Parties and shall be effective as of the date signed by APS (the "Effective Date").

ARIZONA PUBLIC SERVICE COMPANY

APPLICANT OR APPLICANT'S REPRESENTATIVE

SIGNATURE _____

SIGNATURE _____

NAME _____

NAME _____

TITLE _____

TITLE _____

DATE _____

DATE _____

APS Invoice No: _____

MAILING ADDRESS _____

Prepared By: _____

Amount Paid (same amount stated in Paragraph No. 1 of this Agreement): _____

Date Received: _____

PERMANENT PHONE NUMBER _____

The individual executing this Agreement on behalf of Applicant represents and warrants: (i) that he or she is authorized to do so on behalf of Applicant; (ii) that he or she has full legal power and authority to bind Applicant in accordance with the terms herein and, if necessary, has obtained all required consents or delegations of such power and authority.

**EXHIBIT A
TO
NON-FERC INTERCONNECTION STUDIES AGREEMENT**

Feasibility Study Requirements:

Interconnection Feasibility Studies will be performed in accordance with APS' Service Schedule 6 in effect on the Effective Date, and as it may be amended and supplemented thereafter.

The Interconnection Feasibility Study will be based upon and subject to the technical information provided by Applicant in this Agreement and as may be modified as the result of scoping meetings between the Parties.

Minimal Required Information:

1. Customer Contact Person's Name:

2. Contact Phone, Email, and Mailing Address:

3. Generating Facility Address, Including Legal Description:

4. Generator terminal voltage and total facility system nameplate (kW_{ac}):

5. Energy source (wind, solar thermal, PV, etc.):

6. Generator type: (synchronous, induction, static inverter):

7. Inverter applications only:
 - a. Will the inverters be capable of meeting Low Voltage Ride Through (LVRT)?¹
 - b. Will the inverter have power factor and voltage control capabilities?²
 - c. PSLF model provided (yes/no)?³

¹ Interconnections to 69 kV and higher need to meet WECC/NERC LVRT criteria.

² Interconnections greater than 10 MW or 69 kV and higher need to meet APS power factor criteria (+/- 0.95 pu).

³ Required only for interconnections at 69 kV and higher. Model shall be provided separately but in addition to the information in this Appendix. The model should include the reactive capability, any additional reactive devices, associated control schemes, and EPCL models.

- d. Are the inverters tested and certified to UL 1741 (yes/no)?⁴:
8. Greater than 10 MW or 69 kV and higher applications only:
- a. Q_{\min} :
 - b. Q_{\max} :
 - c. Station step-up transformer information (at meter):
 - i. Normal MVA Rating:
 - ii. Emergency MVA Rating:
 - iii. Low/High Voltages (kV):
 - iv. Impedance (Z): ____% on ____ kVA/MVA base
 - v. X/R Ratio:
 - vi. Tap settings (if available):
 - vii. Specify if the transformer is automatic regulating (TCUL, LTC, etc.):
 - d. Generator Tie-Line information (if applicable):
 - i. Conductor Type and size
 - ii. Conductor Rating (Amps/MVA):
 - iii. Line Length (miles):
 - iv. Resistance (R) (pu on 100 MVA base):
 - v. Reactance (X) (pu on 100 MVA base):
 - vi. Susceptance (B) (pu on 100 MVA base):
9. Plant Location Diagram(s) – Applicant must provide map(s) adequately showing property location, where the generating facility will be located, proposed point of interconnection, lat/long coordinates, north arrow, and cross streets (if applicable).

APS reserves the right to request additional technical information from Applicant as may reasonably become necessary during the course of the Interconnection Feasibility Study.

⁴ For interconnections 69 kV and higher, anti-islanding capabilities must be disabled.

**EXHIBIT B
TO
NON-FERC INTERCONNECTION STUDIES AGREEMENT**

This Exhibit B is to be used only if a System Impact Study or higher level study is being performed.

System Impact Study Requirements:

System Impact Studies will be performed in accordance with APS' Service Schedule 6 in effect on the Effective Date, and as it may be amended and supplemented thereafter.

A System Impact Study will be based upon the results of the Interconnection Feasibility Study (if one was performed) and the technical information provided by Applicant in this Agreement and as may be modified as the result of scoping meetings between the Parties.

Minimal Required Information:

- 1) Completed Exhibit A
- 2) Electrical One-Line Diagram⁵
- 3) Static inverter information (inverter applications only):
 - a. Manufacturer:
 - b. Model Number#:
 - c. Inverter Documentation provided (yes/no)⁶:
 - d. Terminal voltage:
 - e. Inverter nameplate continuous AC power output rating (kW_{ac}):
 - f. No of inverter units:
 - g. Total Gross System Nameplate rating (kW_{ac}):
 - h. Aux Loads (kW_{ac}):
- 4) Inverter step up transformer (inverter applications only, and only if used within the GF in addition to the station transformer provided in Exhibit A):

⁵ Diagram(s) must show all generation sources (e.g. photovoltaic panels, wind generator, etc.) and any associated DC electrical components, inverter(s), any combiner panels, metering, Utility Disconnect Switch, as well as the electric service entrance.

⁶ Required only for interconnections greater than 10 MW or 69 kV and higher. Technical documentation must be provided for the chosen inverters, which show the specifications and capabilities for interconnection into a utility's transmission system; including power factor and voltage control capabilities.

- a. Number of units:
- b. Normal kVA Rating:
- c. Emergency kVA Rating:
- d. Low/High Voltages (kV):
- e. Impedance (Z): _____% on _____ kVA/MVA base
- f. X/R Ratio:
- g. Tap settings (if available):

5) Rotating Generator Electrical Characteristics (rotating generators only):

- a. Generator type (synchronous, induction):
- b. Manufacturer and Model #:
- c. PSLF model (provided yes/no)⁷:
- d. AC & DC Control Schematics⁸:
- e. Terminal voltage:
- f. Number of units:
- g. Continuous power rating (kW_{ac}):
- h. Total System kW_{ac} :
- i. Synchronous reactance (X_d):
- j. Transient Reactance (X'_d):
- k. Subtransient Reactance (X''_d):
- l. Stator Resistance (R_a):

⁷ Required only for interconnections at 69 kV and higher. Model shall be provided separately in addition to the information in this Appendix. The model should include the reactive capability, any additional reactive devices, associated control schemes, and EPCL models

⁸ Diagram(s) must show the detailed phase wiring of all electrical equipment as specified above for the Electrical One-Line Diagram, including protective relaying, associated instrument transformers, breaker control circuitry, and additional control schemes. Include control power source and all associated AC and DC connections.

- m. Zero Sequence Reactance (X_0):
- n. Zero Sequence Resistance (R_0):
- o. Negative Sequence Reactance (X_2):
- p. Negative Sequence Resistance (R_2):

APS reserves the right to request additional technical information from Applicant as may reasonably become necessary during the course of the System Impact Study.

**EXHIBIT C
TO
NON-FERC INTERCONNECTION STUDIES AGREEMENT**

This Exhibit C is to be used only if a Facilities Study is being performed.

Facilities Study Requirements:

Facilities Studies will be performed in accordance with APS' Service Schedule 6 in effect on the Effective Date, and as it may be amended and supplemented thereafter.

A Facilities Study will be based upon the results of the Interconnection Feasibility Study and/or the System Impact Study (if either were performed) and the technical information provided by Applicant in this Agreement and as may be modified as the result of scoping meetings between the Parties.

Minimal Required Information:

1. Completed Exhibit A and Exhibit B
2. Site Plan⁹
3. What type of control system or PLC will be located at the Generating Facility? (APS will assume, unless instructed in writing otherwise, that it is acceptable to use APS' control standards.)
4. 7.5-minute quadrangle map of the site. Indicate the plant, station, distribution line, and property lines.
5. The following proposed schedule dates:
 - a. Begin construction
 - b. Generator step-up transformers receive back feed power
 - c. Generation testing
 - d. Commercial operation

APS reserves the right to request additional technical information from Applicant as may reasonably become necessary during the course of the Facilities Study.

⁹ 7.5 minute quadrangle map showing clearly show the major GF equipment individual components and their locations, including the electric service entrance section, utility meter, location of the inverter(s), Utility Disconnect Switch and any lock-boxes, property lines, and distribution and/or transmission lines. Include building structure location and any walls, fences and gates etc, to clearly indicate unobstructed access to APS equipment, including any required special metering and the Utility Disconnect Switch. Include a North arrow.

ATTACHMENT 1*
TO
NON-FERC INTERCONNECTION STUDIES AGREEMENT

between

Arizona Public Service Company

and

_____ **(Applicant)**

with the Effective Date of _____

Applicant previously requested an Interconnection Feasibility Study pursuant to Paragraph No. 1 of the Interconnection Studies Agreement, and Applicant now hereby requests that APS prepare a System Impact Study in accordance with Paragraph No. 2. Therefore, accompanying this request is Applicant's payment of \$10,000.

The effective date of this Attachment 1 shall be the date signed by APS below.

ARIZONA PUBLIC SERVICE COMPANY

APPLICANT OR APPLICANT'S REPRESENTATIVE

SIGNATURE _____

SIGNATURE _____

NAME _____

NAME _____

TITLE _____

TITLE _____

DATE _____

DATE SIGNED _____

AMOUNT RECEIVED _____

*This form is for use after an Interconnection Feasibility Study has been performed, and Applicant now wants to request a System Impact Study.

ATTACHMENT 2*
TO
NON-FERC INTERCONNECTION STUDIES AGREEMENT

between

Arizona Public Service Company

and

_____ **(Applicant)**

with the Effective Date of _____

Pursuant to the Interconnection Studies Agreement, Applicant previously requested (check only one):

___ an Interconnection Feasibility Study (total price paid - \$5,000); or

___ a System Impact Study with or without also requesting an Interconnection Feasibility Study (total price paid - \$15,000)

Applicant now hereby requests that APS prepare a Facilities Study in accordance with Paragraph No. 3 of the Interconnection Studies Agreement. Therefore, accompanying this request is Applicant's payment of (check the one that applies):

___ \$40,000 (if payment for a System Impact Study was previously made)

___ \$50,000 (if payment for only an Interconnection Feasibility Study was previously made)

ARIZONA PUBLIC SERVICE COMPANY

APPLICANT OR APPLICANT'S REPRESENTATIVE

SIGNATURE _____

SIGNATURE _____

NAME _____

NAME _____

TITLE _____

TITLE _____

DATE _____

DATE SIGNED _____

AMOUNT RECEIVED _____

*This form is for use after an Interconnection Feasibility Study and/or a System Impact Study have been performed, and Applicant now wants to request a Facilities Study.