APPENDIX 1 to LGLIP
INTERCONNECTION REQUEST FOR
A LARGE GENERATING FACILITY

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

2. This Interconnection Request is for (check one):
   _____ A proposed new Large Generating Facility.
   _____ An increase in the generating capacity or a Material Modification of an existing Generating Facility.

3. The type of interconnection service requested (check one):
   _____ Energy Resource Interconnection Service
   _____ Network Resource Interconnection Service

4. _____ Check here only if Interconnection Customer requesting Network Resource Interconnection Service also seeks to have its Generating Facility studied for Energy Resource Interconnection Service

5. Interconnection Customer provides the following information:

   a. Address or location of the proposed new Large Generating Facility site (to the extent known);

   b. Maximum summer at ____ degrees C and winter at _____ degrees C megawatt electrical output of the proposed new Large Generating Facility;

   c. General description of the equipment configuration;

   d. Commercial Operation Date (day, month, and year);

   e. Name, address, telephone number, and e-mail address of Interconnection Customer's contact person;

   f. Approximate location of the proposed Point of Interconnection (optional); and

   g. Interconnection Customer data (set forth in Attachment A)

   h. Requested capacity (in MW) of Interconnection Service (if lower than the Generating Facility Capacity)

6. Applicable deposit amount as specified in the LGLIP.

7. Evidence of Site Control as specified in the LGLIP (check one)

____ Is attached to this Interconnection Request
____ Will be provided at a later date in accordance with this LGLIP

8. This Interconnection Request shall be submitted to the representative indicated below:

Chelan PUD
Attn: Transmission Engineering Manager
P.O. Box 1231
Wenatchee, WA 98807-1231
interconnectionrequest@chelanpud.org

9. Representative of Interconnection Customer to contact:

[To be completed by Interconnection Customer]

Name: _____

Address: _____

_____

Telephone: _____

Email: _____

10. This Interconnection Request is submitted by:

Name of Interconnection Customer: _____

By (signature): _____

Name (type or print): _____

Title: _____

Date: _____

Interconnection Request for a Large Generating Facility

Attachment A

Generating Facility Name:

_____

Interconnection Capacity

Gross Generating Facility Capability (at Inverter Terminals): _____ MVA

Maximum Net Export Capability (at POI): _____ MW

Revision Date: 07/09/2018

Revision Number: 1

P.U.D.
CHELAN COUNTY

Part 1: Connection Location

a) Locations of new substations, generators or new taps on existing lines must include:

State: _____

County: _____

Township: _____

Range: _____

Elevation: _____

Latitude: _____

Longitude: _____

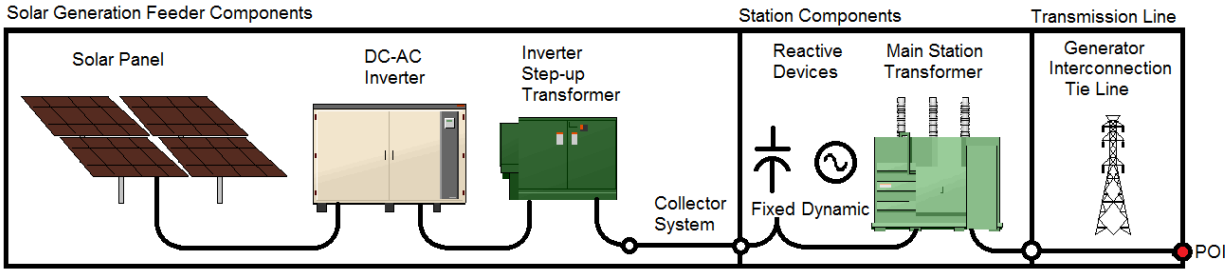
b) Identify the substation if connecting to an existing District substation (Y/N). If the connection is between two existing substations, then both substations need to be identified. _____

c) For connection to an existing District transmission line, identify the line by name as well as the location of the proposed interconnection. _____

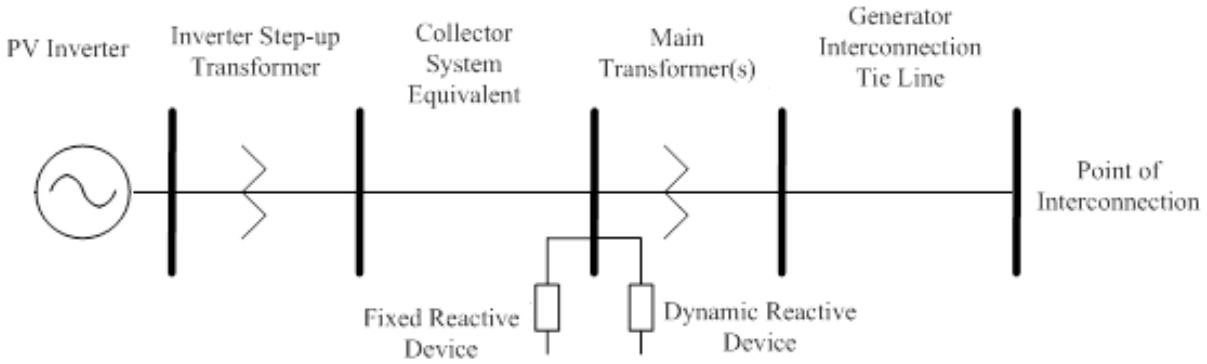
d) Driving directions to site of proposed facility: _____

Part 2: Simplified One-Line Diagram

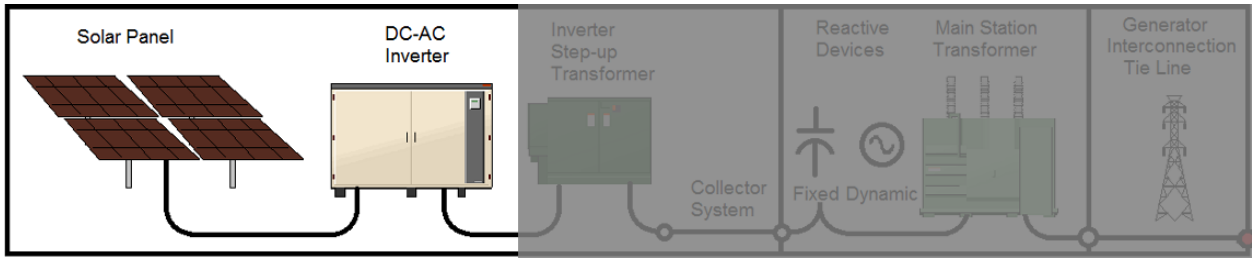
Typical solar interconnection arrangement



Please mark up the diagram below with details of the proposed interconnection. Please include circuit breaker and disconnect switch arrangement details. This One-Line Diagram may be modified as needed, or a proposed One-Line Diagram may be attached. ☐ **Attached**



Part 3: Solar Panel and Inverter Data



Solar Panel Data

i) Manufacturer _____

i) Model Name _____

ii) Model Number _____

iii) Model Version _____

b) Number of Solar Panels _____

c) Type of photovoltaic system Fixed or Tracked

d) Provide a summary of solar panel electrical data ☐ **Attached**

e) Expected monthly peak generation profile ☐ **Attached**

Inverter Data

i) Manufacturer _____

ii) Model Name _____

iii) Model Number _____

iv) Model Version _____

b) Number of Inverters: _____

c) Nominal Voltage: _____

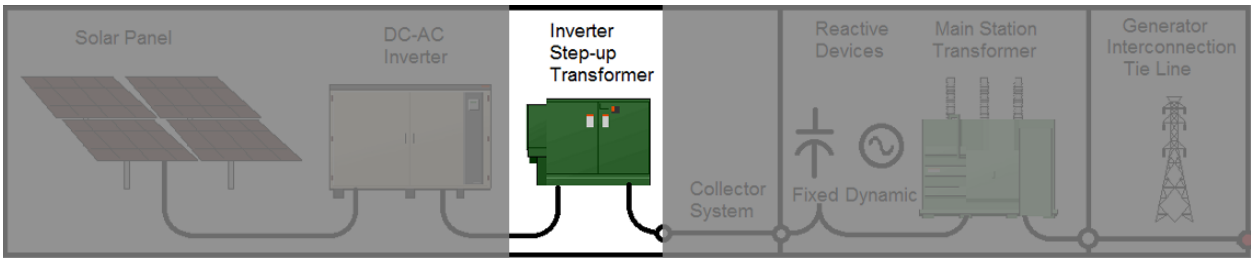
d) Nameplate Rating _____ kW/ _____ kVA

e) Describe inverter reactive capability _____

f) Provide with this form the inverter specification sheet with reactive capability curve ☐ **Attached**

g) Inverter short circuit ratio limit _____

Part 4: Inverter Step-Up Transformer



Number of inverter transformers: _____

Provide data for either two-winding or three-winding transformer as appropriate

Two-Winding Inverter Step-Up Transformer Data (as applicable):

a) Nameplate Rating: _____ MVA

b) Maximum Rating (if applicable): _____ MVA

c) Nominal Voltage for each winding (Low/High): _____ / _____ kV

d) Winding Connections (Low/High): Delta or Wye / Delta or Wye

e) Available taps: _____ / _____ / _____ / _____ / _____ kV **or** _____ % _____ # of taps.

f) Load or no-load tap changer and location of tap changer: _____

g) Positive sequence impedance (Z_1) _____ %, _____ X/R on MVA rating above.

h) Zero sequence impedance (Z_0) _____ %, _____ X/R on MVA rating above.

Three-Winding Inverter Step-Up Transformer Data (as applicable)

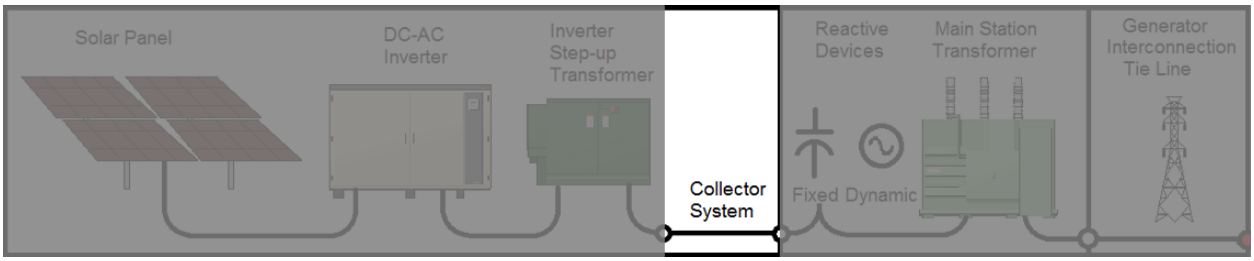
h) GSU connection and winding (attach diagram and mark to reference this form).

	H Winding Data	**X Winding Data**	**Y Winding Data**
Nameplate ratings (i.e. OA/FA/FA)	_____/_____/_____ MVA	_____/_____/_____ MVA	_____/_____/_____ MVA
Rated winding voltage base	_____ kV Delta or Wye connected	_____ kV Delta or Wye connected	_____ kV Delta or Wye connected
Tap positions available	_____/ _____/ _____/ _____/ _____ kV	_____/ _____/ _____/ _____/ _____ kV	_____/ _____/ _____/ _____/ _____ kV
Present Tap Setting (if applicable)	_____ kV	_____ kV	_____ kV
Solid or impedance grounding	_____ Ohms	_____ Ohms	_____ Ohms
BIL rating	_____ kV	_____ kV	_____ kV

Three-Winding Inverter Step-Up Transformer Impedance Data (as applicable)

	H-X Winding Data	H-Y Winding Data	X-Y Winding Data
Transformer Per-unit base	_____ MVA	_____ MVA	_____ MVA
Positive sequence impedance Z_1	_____ % _____ X/R	_____ % _____ X/R	_____ % _____ X/R
Zero sequence impedance Z_0	_____ % _____ X/R	_____ % _____ X/R	_____ % _____ X/R

Part 5: Collector System Equivalent Model



Provide either absolute or per unit impedance values.

a) Collector system voltage = _____ kV

b) Total length of collector system = _____ miles

c) Overhead or underground construction _____

d) Collector system equivalent model rating at -15°C/20°C/30°C ambient = _____/_____/_____ MVA

e) R_1 = _____ ohm or _____ pu on 100 MVA and line kV base (positive sequence)

f) X_1 = _____ ohm or _____ pu on 100 MVA and line kV base (positive sequence)

g) B_1 = _____ μF or _____ pu on 100 MVA and line kV base (positive sequence)

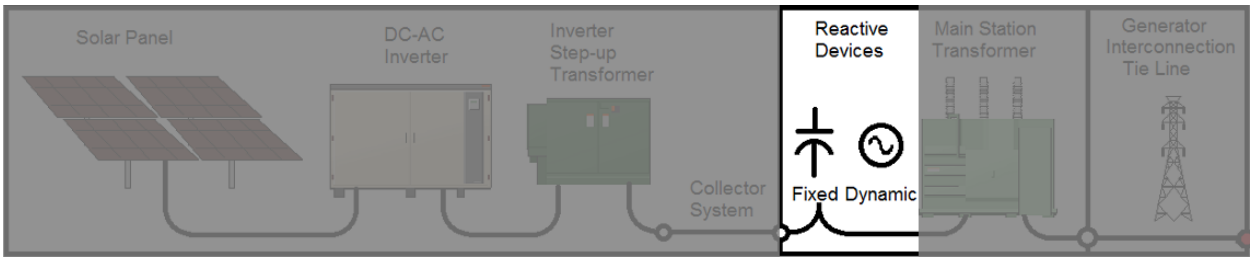
h) R_0 = _____ ohm or _____ pu on 100 MVA and line kV base (zero sequence)

i) X_0 = _____ ohm or _____ pu on 100 MVA and line kV base (zero sequence)

j) B_0 = _____ μF or _____ pu on 100 MVA and line kV base (zero sequence)

Part 6: Station Reactive Compensation Devices

(This describes devices beyond the inverter's built-in reactive capability)



a) Type of reactive compensation device(s): Fixed or Dynamic

b) Individual fixed shunt reactive device type: _____

- Number and size of each: _____×_____ MVA

c) Dynamic reactive control device (e.g., SVC, STATCOM): _____

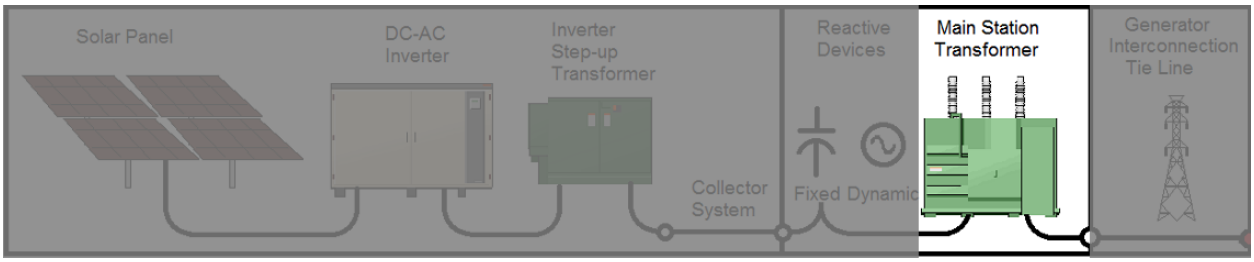
d) Control range at rated MW output: _____ Mvar (lead and lag)

e) Control mode: ☐ Voltage, maintained within CHPD's voltage schedule

f) Regulation point: ☐ High side of Main Station Transformer

g) Describe the overall reactive power control strategy: _____

Part 7: Main Station Transformer



Number of main transformers: _____

Provide data for either two-winding or three-winding transformer as appropriate.

Two-Winding Main Transformer Data (as applicable)

a) Nameplate Rating (OA/FA/FA): _____ / _____ / _____ MVA

b) Nominal Voltage for each winding (Low/High): _____ / _____ kV

c) Winding Connections (Low/High): Delta or Wye / Delta or Wye

d) Available tap positions: _____ / _____ / _____ / _____ / _____ kV **or** _____ % _____ # of taps.

e) Load or no-load tap changer and location of tap changer: _____

f) Positive sequence impedance Z_1: _____ %, _____ X/R on self-cooled (OA) MVA rating above.

g) Zero sequence impedance Z_0: _____ %, _____ X/R on self-cooled (OA) MVA rating above.

h) For pad mount transformer, construction: 3 / 4 / 5 -legged

Three-Winding Main Transformer Data (as applicable)

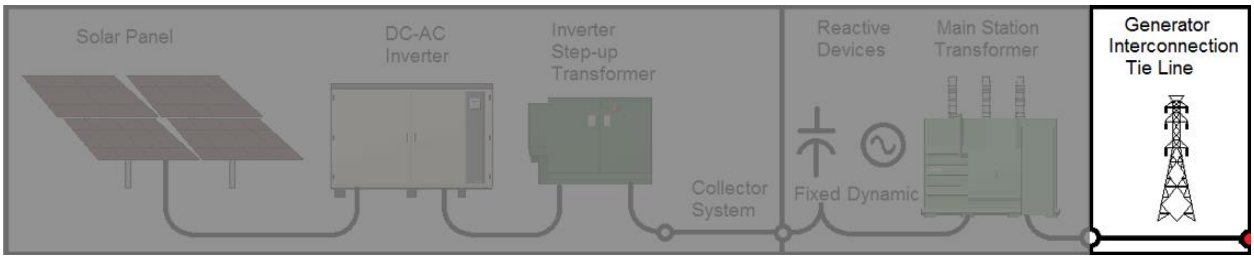
i) GSU connection and winding (attach diagram and mark to reference this form).

	H Winding Data	X Winding Data	Y Winding Data
Nameplate ratings (i.e. OA/FA/FA)	_____/_____/_____ MVA	_____/_____/_____ MVA	_____/_____/_____ MVA
Rated winding voltage base	_____ kV Delta or Wye connected	_____ kV Delta or Wye connected	_____ kV Delta or Wye connected
Tap positions available	_____/ _____/ _____/ _____/ _____ kV	_____/ _____/ _____/ _____/ _____ kV	_____/ _____/ _____/ _____/ _____ kV
Present Tap Setting (if applicable)	_____ kV	_____ kV	_____ kV
Solid or impedance grounding	_____ Ohms	_____ Ohms	_____ Ohms
BIL rating	_____ kV	_____ kV	_____ kV

Three-Winding Inverter Step-Up Transformer Impedance Data (as applicable)

	H-X Winding Data	H-Y Winding Data	X-Y Winding Data
Transformer Per-unit base	_____ MVA	_____ MVA	_____ MVA
Positive sequence impedance Z_1	_____ % _____ X/R	_____ % _____ X/R	_____ % _____ X/R
Zero sequence impedance Z_0	_____ % _____ X/R	_____ % _____ X/R	_____ % _____ X/R

Part 8: Generator Interconnection Tie Line



Provide either absolute or per unit impedance values.

a) Point of Interconnection (utility substation/line name): AA

b) Line voltage: _____ kV

c) Line length: _____ miles

d) Overhead or underground construction _____

e) Line rating at -15°C/20°C/30°C ambient = _____/_____/_____ MVA

f) R_1 = _____ ohm or _____ pu on 100 MVA and line kV base (positive sequence)

g) X_1 = _____ ohm or _____ pu on 100 MVA and line kV base (positive sequence)

h) B_1 = _____ μF or _____ pu on 100 MVA and line kV base (positive sequence)

i) R_0 = _____ ohm or _____ pu on 100 MVA and line kV base (zero sequence)

j) X_0 = _____ ohm or _____ pu on 100 MVA and line kV base (zero sequence)

k) B_0 = _____ μF or _____ pu on 100 MVA and line kV base (zero sequence)

Part 9: Dynamic Modeling Data

a) Provide with this form the WECC approved (and if applicable, recommended) dynamic models for generation facilities, including any additional dynamic reactive control devices.

Models Attached ☐

- Include plant volt/var control function model and active power/frequency control function model.
- All the associated files for dynamic modeling should be in PSLF or PowerWorld format, and must be shareable on an interconnection-wide basis to support use in the interconnection-wide cases.
- Model parameters for inverters shall include:

  (1) Voltage response and ride-thru settings.
  (2) Frequency response and ride thru settings.
  (3) Control mode (voltage control for POI >100 kV, power factor control for POI < 100 kV).
  (4) Any plant-level real power limits.

Chelan PUD requires the solar installation to align with the recommended performance characteristics and other recommendations related to inverter-based resource performance, analysis, and modeling as identified by NERC's Inverter-Based Resource Performance Joint Task Force.

Data Revisions

a) If submitting revised data, record the date and a summary of the sections that have been updated:

1. _____