Reference Tool for Prospective
Solar PV Interconnection Customers

Attachment A. LARGE GENERATING FACILITY DATA

LARGE GENERATING FACILITY DATA
UNIT RATINGS

kVA **X** each x **Y** units °F **Z**   Voltage __**V**__   Power Factor __**PF**__
Speed (RPM) __N/A__   Connection (e.g. Wye) _____
Short Circuit Ratio __**X/R**__   Frequency, Hertz_60___
Stator Amperes at Rated kVA__N/A___   Field Volts _N/A_____
Max Turbine MW_N/A_____   °F _N/A__

X: Identify kVA of each individual unit (i.e. 2000 kVA)
Y: Identify number of units (i.e. 100 units)
Z: Identify temperature range (i.e. 40–90 °F)
V: Identify inverter voltage
PF required to be designed within a range of 0.95 leading to 0.95 lagging at continuous rated power output at the Point of Interconnection (Article 9.6.1 of OATT).

If requested information is not applicable, indicate by marking "N/A."

COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H = __N/A_____kW sec/kVA
Moment-of-Inertia, WR2 =_N/A_____lb. ft.2

REACTANCE DATA (PER UNIT-RATED KVA)

Project utilizes solid state photovoltaic inverters. For short circuit studies, use $X"d =$___ p.u. on plant MVA base to approximate ____ p.u. current limit.

Please fill in all blanks highlighted in yellow in the Interconnection Request (IR).

	DIRECT AXIS	QUADRATURE AXIS
	N/A	N/A
Synchronous – saturated	X_{dv} _____	X_{qv} _____
Synchronous – unsaturated	X_{di} _____	X_{qi} _____
Transient – saturated Transient	X'_{dv} _____	X'_{qv} _____
– unsaturated Subtransient	X'_{di} _____	X'_{qi} _____
– saturated Subtransient	$X"_{dv}$ _____	$X"_{qv}$ _____
– unsaturated Negative	$X"_{di}$ _____	$X"_{qi}$ _____
Sequence – saturated	$X2_{v}$ _____	
Negative Sequence – unsaturated	$X2_{i}$ _____	
Zero Sequence – saturated	$X0_{v}$ _____	
Zero Sequence – unsaturated	$X0_{i}$ _____	
Leakage Reactance	Xl_{m} _____	

FIELD TIME CONSTANT DATA (SEC)
N/A

Open Circuit T'$_{do}$	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 TIME CONSTANT DATA (SEC)
N/A

Three Phase Short Circuit	$T_a^{\ 3}$	_____
Line to Line Short Circuit	$T_a^{\ 2}$	_____
Line to Neutral Short Circuit	$T_a^{\ 1}$	_____

NOTE: If requested information is not applicable, indicate by marking "N/A."

MW CAPABILITY AND PLANT CONFIGURATION
LARGE GENERATING FACILITY DATA

ARMATURE WINDING RESISTANCE DATA (PER UNIT)

Positive	$R^{\ 1}$	_____
Negative	R_2	_____
Zero	R_0	_____

Rotor Short Time Thermal Capacity $I_2{}^2 t = $ _____

Field Current at Rated kVA, Armature Voltage and PF = _____ amps

Field Current at Rated kVA and Armature Voltage, 0 PF = _____ amps

Three Phase Armature Winding Capacitance = _____ microfarad

Field Winding Resistance = _____ ohms _____ °C

Armature Winding Resistance (Per Phase) = _____ ohms _____ °C

CURVES

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

GENERATOR STEP-UP TRANSFORMER DATA RATINGS

Capacity Self-cooled/ Maximum Nameplate ___/____ /____MVA

Voltage Ratio (Generator Side/System side/Tertiary) _____/_____/_____kV

Winding Connections (Low V/High V/Tertiary V (Delta or Wye))
_____/_____/_____

Fixed Taps Available ———————————————————————

Present Tap Setting ————————————————————————

IMPEDANCE

Positive Z_1 (on self-cooled kVA rating)_____% _____X/R

Zero Z_0 (on self-cooled kVA rating)_____% _____X/R

Please provide all information highlighted in yellow in the Interconnection Request

EXCITATION SYSTEM DATA

N/A – Project utilizes solid state photovoltaic inverters

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

N/A – Project utilizes solid state photovoltaic inverters

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.

SOLAR GENERATORS

Number of generators to be interconnected pursuant to this Interconnection Request: **N**

Elevation: N/A_____   _____ Single Phase   _____ Three Phase

Inverter manufacturer, model name, number, and version:
_____ (i.e. Manufacturer name, Model name, model number, rating per inverter)_____

List of adjustable setpoints for the protective equipment or software:

_____

Note: A completed General Electric Company Power Systems Load Flow (PSLF) data sheet or other compatible formats, such as IEEE and PTI power flow models, must be supplied with the Interconnection Request. If other data sheets are more appropriate to the proposed device, then they shall be provided and discussed at Scoping Meeting.

Please provide the manufacturer's model for this project in GE PSLF format.

INDUCTION GENERATORS
N/A

(*)   Field   Volts: _____
(*) Field   Amperes: _____
(*) Motoring Power (kW): _____
(*) Neutral Grounding Resistor (If Applicable): _____
(*) 122t or K (Heating Time Constant): _____   (*)
Rotor Resistance: _____
(*) Stator Resistance: _____   (*)
Stator Reactance: _____   (*)
Rotor Reactance: _____   (*)
Magnetizing Reactance: _____
(*) Short Circuit Reactance: _____
(*) Exciting Current: _____
(*) Temperature Rise: _____
(*) Frame Size: _____   (*)
Design Letter: _____
(*) Reactive Power Required In Vars (No Load): _____ (*)
Reactive Power Required In Vars (Full Load): _____
(*) Total Rotating Inertia, H:_____Per Unit on KVA Base

Note: Please consult Transmission Provider prior to submitting the Interconnection
Request to determine if the information designated by (*) is required.