Solar Electrical Generator
In-Service Test Criteria

1. Solar Block Circuit major construction work is complete.
2. Solar Block Circuit preoperational tests have been successfully completed.
3. Facility or Solar Block Circuit successfully meets contract operational guarantees that are necessary for satisfactory completion of all other items in this list.
4. Upon observation of the facility or Solar Block Circuit for 72 consecutive hours, the facility or Solar Block Circuit will have demonstrated that when sunlight was shining on it during that period it produced power in a standard operating mode.
5. Facility or Solar Block Circuit shall meet at least 95% of the guaranteed capacity (in MW AC) based on the Capacity Test in Attachment 1. The Capacity Test shall determine the facility's Corrected Capacity at the Design Point Conditions.
6. Sufficient transmission/distribution interconnection facilities shall exist for the total plant design or Solar Bock Circuit net electrical capacity at the time the facility or Solar Block Circuit is declared fully operational and used for service.
7. Sufficient transmission/distribution facilities shall exist for the total plant design net electrical capacity into the utility service territory at the time the facility or Solar Block Circuit is declared fully operational and used for service.

Attachment 1

Definitions:

"Block" means modules, wiring, combiner boxes, grounding wires, and other items electrically connected to the low DC side of a single inverter skid (inclusive), and racks, conduit, wiring, monitoring and other equipment electrically or mechanically attached to such items.

"Corrected Capacity" means the most recent actual tested Capacity, in MW-AC, corrected to Design Point Conditions (DPC) as described herein.

"Design Point Conditions" (DPC) means a set of ambient reference conditions, which include a solar irradiance of {1050 watts per square meter}*, module cell temperature of {forty-five degrees (45°)}* Celsius, atmospheric air mass of {1.5 or less and wind speed of one (1) meter per second}*.

"POA" means plan of array irradiance.

"Solar Block Circuit" means a Block or group of Blocks that are connected to an AC collection system feeder to the substation and components thereof and are capable of producing electricity separately from any other Solar Block Circuit.

The In-Service Capacity Test shall determine the Corrected Capacity at the Design Point Conditions, and shall be based on the relevant environmental conditions in the field at the time of such test, including field irradiance and temperature. The measured Capacity shall then be "corrected" to the Design Point Conditions and the resulting Corrected Capacity shall be compared to the Guaranteed Capacity as set forth herein.

The In-Service Capacity Test data shall consist of a minimum of fifty (50) 15-minute blocks of average Plane of Array (POA) Irradiance solar irradiance data, where POA is at least 500 W/m^2 for months March through October.

The Capacity Test shall consist of a minimum of fifty (50) 15-minute blocks of average Plane of Array Irradiance (POA) solar irradiance data where the POA is at least 500 W/m^2. However, if any portion of the test falls within the months of November through February, and the test has been in progress for 30 calendar days without providing fifty (50) 15-minute blocks of data with a minimum POA of 500 W/m^2, data collected from November through February during the in-progress test with a minimum POA of 300 W/m^2 may be utilized to complete the test.

a. **Calculations Procedures:**

(1) $T_{cell} = T_{module} + \{1.5\}$

(2) $W_{COR} = W_{meas} * (IRR_{DPC}/IRR) * (1/(1+TCOEFF\ (T_{cell}-T_{DPC})))$

$$(3)\quad W_{guar} = \frac{W_{COR}}{W_{GUAR}}$$

Where …

- W_{MEAS} = Measured AC capacity in [MW]
- W_{COR} = Corrected AC capacity at Design Point Condition (DPC) in [MW]
- IRR_{DPC} = Direct normal irradiance at DPC {1050 W/M^2}* in [W/m^2]
- IRR = Measured irradiance in [W/m^2]
- TCOEFF = Temperature at coefficient of maximum power of installed panel {(-0.00XX/°C) [/°C]}
- T_{module} = Measured module temperature in [°C]
- T_{cell} = Measured module/backsheet temperature in [°C] + {1.5 correction factor [°C]}*
- T_{DPC} = Temperature at DPC {(45°C)}*
- W_{GUAR} = Guaranteed AC capacity of the system {(XXX.X MW-AC)} in [MW]

*Note: Formula {constants} to be adjusted pursuant the final equipment selection and design.