EXHIBIT I - CT GREEN BANK MODELING BEST PRACTICES

This document outlines best practices for PV solar production forecasting models in support of any financing or proposal involving the CT Green Bank. These best practices have been compiled from analysis of our fleet of over 30 MW of residential, commercial and industrial projects across the state of Connecticut with historical data going back to 2015.

Proposals should only submit models that adhere to these best practices or provide written exceptions/clarifications for CT Green Bank review. Deviations may be accepted at the discretion of CT Green Bank, to the extent they are accompanied with sufficient data and/or based on actual production analyses for systems located in Connecticut. CT Green Bank can provide further guidance as necessary to help upon request.

a. **Approved Production Modeling Software**

   Helioscope

   PVSyst

b. **Weather Files**

   Helioscope: TMY3 weather dataset from the nearest rank (I) source. Consideration will be given to rank (II) and (III) sources at the discretion of CT Green Bank.

   PVSyst: Meteonorm 8.1 or 8.2

   Generally, CT Green Bank finds that weather sources using satellite based algorithms will over-estimate insolation, based on our review of models against actual performance, and are not accepted.

c. **Soiling Losses**
   Use the monthly soiling values from the table below.

Month	**Soiling Loss (%)**	
	Rooftop / Carport	**Ground-mounted**
January	12	10
February	15	12
March	8	8

April	3	3
May	3	1
June	3	1
July	3	1
August	3	1
September	3	1
October	3	1
November	3	1
December	10	7

d. Shading

Any model submitted for review shall include shading analysis and take into account obstructions within a reasonably justifiable distance from any array including but not limited to:

1) Trees
2) Buildings
3) Chimneys
4) Vents
5) HVAC units

Model submission shall include:

1) shade report (helioscope) or
2) perspective of the PV-Field and surrounding shading scene (PVsyst)

CT Green Bank will be reviewing lidar and/or satellite based 3-D imagery for accuracy and will not accept models that do not reasonably attempt to capture existing site shade conditions.

Any trees that are to be removed should be identified in writing and/or on a sketch/drawing.

e. Setbacks and Maintenance Access

Models shall include setbacks to account for code-required spaces between equipment and roof edges. Models shall also consider maintenance requirements for roof mounted equipment.

Commercial systems should be modeled with 4 ft of space on all sides of roof mounted arrays.

Conservatively, residential systems should be modeled with 3 ft of space on all sides of roof mounted arrays. Deviations may be accepted with written descriptions of the deviation and supporting code analysis.

Ground mounted arrays shall include a reasonable space to permit access for maintenance, 6 ft of space is recommended from fence lines. Arrays should consider a distance from any trees of 2-3 times the height.

The model shall clearly identify the recommended setback using the keepout feature of Helioscope or be accompanied with a dimensioned sketch/drawing of the modelled array with the recommended setback or some other acknowledgement of compliance.

f. **AC Losses**
AC Losses should be site specific and consider conductor lengths, transformers, point of interconnection, etc.

g. DC:AC Ratio Requirement
The DC:AC ratio of any proposed System shall not exceed 1.5. Deviations may be considered but in no case shall the model exceed DC loading beyond the inverter manufacturer's requirements.

h. **Capacity Factors**
Project size, production estimate, and the calculated capacity factor will be reviewed and analyzed. The Green Bank may request supporting documentation from Proposer where the submitted capacity factors are outside of anticipated ranges. Such additional documentation may include but is not limited to historical production data of equivalent operational assets achieving similar capacity factors.