

Solar Screening Evaluation Checklist

This is a checklist to review the adequacy and quality of a given solar screening and to determine if a more detailed screening needs to be done. If an applicable element at right is missing from the screening, it is recommended a more detailed solar screening for the site be obtained.

The checklist at right is in two parts.

The first part is for solar screenings and pertains to financing mechanisms other than agency funded. **The second part is for solar feasibility studies** and includes recommended information *in addition to* the solar screening.

Solar Screening minimum recommended information *(items 1 - 5)*

1. Confirm shading analysis, available square footage and preliminary size estimate:

- Satellite map view or use of an accurate aerial tool to analyze the potential shading impacts of neighboring buildings, rooftop protrusions, parapets, or vegetation that could block sunlight from a potential solar array and relate these impacts to the available roof or ground area.
- Satellite or accurate aerial tool measurement of the available square footage or acres
- Preliminary estimate of the system size.

2. Confirm annual energy production per unit of capacity:

- Electricity production estimates**
 _____ (kWh/yr/kW installed)
 (available online tools: PV WATTS or IMBY). Inputs for this level of analysis are as follows (unless site conditions preclude, i.e., a steep pitch roof that does not face the equator):
 - 1 kW system size
 - 10 degrees from horizontal-tilt (if you have a pitched roof, enter actual pitch)
 - Local location or nearest location option with similar sun exposure
 - 0.77 derating factor
 - Azimuth (compass orientation—select 180 degrees or 0 degrees so array faces equator or, for a pitched roof, enter the direction that the roof faces)
- Solar thermal**
 (available online tool: RetScreen www.retscreen.net/ang/home.php)
- Solar ventilation preheat**
 (available online tool: RetScreen)
- Solar pool heating**
 (available online tool: RetScreen)

3. Confirm economic analysis:

- Confirm local energy rates**
 _____ (\$/kWh or \$/therm)
- Annual savings**
 _____ (\$/yr/ kW installed)
- Any available incentives?**
 _____ (\$/W or \$/yr/W)
 (i.e. rebates, local Renewable Energy Credits market, other). Check DSIRE: www.dsireusa.org
- Any extraordinary project specific costs?**
 _____ (\$/W)
 Confirm that structural, electrical inter-connection, and equipment location issues have been investigated and any additional costs related to these have been estimated.
- Estimated System cost**
 _____ (\$/W)
- Appropriate economic metric for your decision-making process.**
 _____ (SIR, NPV, LCC, other)
 (Solar Advisor Model is available online and does some financial analysis.)

NOTE: In general, the estimated cost should not exceed \$8 per watt except in special circumstances.

4. If proposed system is rooftop:

- Age of roof**
_____ (yrs)
- Condition of roof**
_____ (yrs of expected remaining life)
- Roof warranty**
_____ (yrs remaining)
- Estimated structural capacity available for solar system**
_____ (lbs/ft²)
- Estimated maximum weight of solar system**
_____ (lbs/ft²)

5. Confirm other considerations have been addressed:

- Historic building issues**
(is the proposed system on a historic building or in a historic district?)
- National Environmental Policy Act (NEPA) issues** (primarily an issue for large ground-mount systems).

Solar feasibility study minimum recommended information in addition to the Solar Screening information (items 1-9)

6. Confirm recommended size

- Is the recommended size in assessment reasonable and is there opportunity for a larger system?**

_____ (kW or area of collectors)

In My Backyard (IMBY) is a Web tool that uses aerial maps and a draw feature to estimate PV system size on a site. (Note: IMBY's output for system size is reasonable for a 14% efficient PV module or 100W/m².) See www.nrel.gov/eis/imby/

7. Confirm shading analysis (recommendations for report)

- Detailed shading analysis with solar collector exclusion areas marked on the plan view of the site adjacent shading obstructions. Exclusion areas should be indicated to the east, west, and toward the equator (if in the northern hemisphere- to the south) of any shading obstruction.
- Unless the array is installed with zero degrees tilt (horizontal), need to see some space between rows in the array layout to prevent rows of PV shading each other.

8. Confirm investigation into interconnection issues:

- Requirements to get utility approval for interconnection (estimated costs if special equipment is required)
- Recommended interconnection point
- Confirmation of space for system electrical equipment

9. Confirm annual energy production for site-specific recommended system

- Electricity production estimates**
_____ (kWh/yr)
(available online tools: PV WATTS or IMBY).

Inputs are:

- _____ (kW) system size
- _____ (degrees from horizontal) tilt
- _____ Location
- _____ Derating factor (default is 0.77)
- _____ (degrees-compass orientation) Azimuth
- Solar thermal**
(available online tool: RetScreen)
- Solar ventilation preheat**
(available online tool: RetScreen)
- Solar pool heating**
(available online tool: RetScreen)