

PV SITE SELECTION SURVEY

Desirable Site and Project Characteristics

Roof-Mounted vs. Ground-Mounted

Photovoltaic (PV) systems can be mounted on roofs or at ground level on rack structures. In general, roof-mounted systems are preferred because they require shorter wire runs, are less vulnerable to vandalism and are more aesthetically appealing than ground-mounted systems. Where roof-mounting is not an option, open, adjacent land is an attractive alternative with its own advantages: easy access during installation as well as for cleaning and occasional maintenance after system start-up, and easy expansion with additional modules.

Please complete the following table for each building/site presented for consideration. (Please photocopy table for multiple buildings/sites.)

Building Address	
Square footage	
Year built	
Building dimensions	
Column spacing	
Last year re-roofed	
Height of building	
Service Voltage from Utility	
Transformer Size	
Main Breaker Amperage	
Ventilation in Electrical Room?	
Available space for inverter, transformer and AC disconnects	

Roof Condition and Project Timing

To maximize the PV potential of a building, solar energy system design should be ideally considered and coordinated with the architectural design of a project. This provides the greatest flexibility in PV array configuration while ensuring that the installation is well integrated with the structure and end-use. The best time to install a roof-mounted PV system is during building construction or roof replacement to achieve the lowest installation cost. It is not recommended to install a PV system on a roof that may need to be replaced in the near term. PV modules have a 20-25 year warranty and often last longer than that. The roofing material should last long enough to avoid re-roofing around the PV system.

	Roof Condition 1 – poor 2 – fair 3 – good 4 – excellent 5 – new	Roof Material (asphalt, shingles, standing-seam metal, tile, etc.)	Expected date of Construction/Re- roofing	Expected life of roof (years)	Is roof under warrantee? If so, how many years remain on warrantee?
ROOF 1					
ROOF 2					
ROOF 3					
ROOF 4					
ROOF 5					

Orientation

South facing is best to maximize overall production, but it is still possible to achieve near optimal production even with a Southeast or Southwest facing site.

	Flat Roof/ Pitched Roof (Select one)	Roof Orientation (S, SE, SW, N, W, etc.)	Approximate Angle of Roof	Images of Roof Available?
ROOF 1				
ROOF 2				
ROOF 3				
ROOF 4				
ROOF 5				

Drawings (please circle all that are available)

- Roof survey/layout showing the location and physical dimension of every object (HVAC equipment, exhaust fans, parapets, etc.) mounted on the roof.
- Roof construction detail including building elevation, joist locations
- Floor plan showing electrical room location
- Building single line electrical drawing

Having these drawings accessible and ready to share will greatly facilitate the design and construction of a PV project.

Shade-Free Site

Solar panels work best in shade-free conditions. The most common items that will cause shading are trees, other buildings, telecommunications and HVAC equipment.

Proximity to Electric Meter and Electric Load

PV systems should be as close to the meter as possible to avoid transmission losses over long wires. Please estimate the annual electrical load, cost and end use for proposed site or building.

	Approximate Distance to Electric Meter (ft.)	Name of Electricity Provider	Account Number	Type of service/ rate schedule
Site 1				
Site 2				
Site 3				
Site 4				
Site 5				

Electricity Usage at Site

	Approximate Annual Electrical Cost (\$/yr.)	Approximate Annual Electrical Consumption (kWh/yr.)	Average Summer Monthly Electrical Consumption (kWh/mo.)	Average Winter Monthly Electrical Consumption (kWh/mo.)	Primary Electricity End Uses (e.g., A/C, lighting, pumps, etc.)
Site 1					
Site 2					
Site 3					
Site 4					
Site 5					

Site Area Size and Height

As a rule of thumb, about 100 sq. ft. of area is needed for each kilowatt of system capacity.

Ideal rooftop space is free of pipes, HVAC and telecommunications equipment and vents. Candidate sites should have at least 6000 sq. ft. of clear, shade-free space.

The installation cost of a system increases with roof height. Larger cranes and increased safety precautions raise installation cost. Preference is given to lower rooftops.

	Approximate Area (sq. feet)	Roof or Ground-Mounted (please indicate)	If Roof-Mounted, Approximate Height of Roof (ft.)
Site 1			
Site 2			
Site 3			
Site 4			
Site 5			

Weight and Structural Calculations

The roof must be strong enough to support the PV system. In general, PV equipment weighs about 3-5 pounds per sq. ft., depending on the technology used and installation methods.

	Roof/Structural Drawings Available?	Dead Weight Load (psf)	Live Load (psf)	Snow Load (psf)
	Y/N			
Roof 1				
Roof 2				
Roof 3				
Roof 4				
Roof 5				

Undesirable Site and Project Characteristics

There are many possible difficulties with a given installation. All of them are undesirable, and cumulatively, they may cause a given installation to be too expensive. They include:

- Lack of Availability of Structural Drawings, when doing roof-mounted systems
- Lack of Availability of Soil Reports, when doing ground-mounted systems
- Long distance (more than 100 ft.) from inverter to nearest panel
- Larger than 480Vac interconnections
- Unfriendly local jurisdiction requiring board and council meetings
- Excessive zoning-related fees (typically associated with ground-mounted systems or canopies or buildings in historical areas)
- Any special environmental reports required by local jurisdiction
- Any known special permitting fees per panel
- Fences around equipment or other special security considerations

Please circle any above issues that may affect a solar project at your facility.

Site Attributes Which Can Make a Project Unfeasible

- Non-south-facing non-flat roof
- Any portion of the roof that is shaded by another building
- Excessively long distance (more than 600 ft.) from inverter to nearest panel
- Reinforcement of roof necessary
- Soil requiring lots of cement casing for ground-mounted systems

Please circle any above issues that may affect a solar project at your facility.

Other Considerations: Energy Efficiency

Renewable energy installations should not be considered for buildings that are energy inefficient.

	Has an energy audit been performed within last four years by a certified energy manager (CEM), professional engineer (PE) or utility-sponsored efficiency program?	If so, please indicate steps taken to improve energy efficiency and manage electricity consumption. (<i>Please attach additional sheet if necessary.</i>)
Site 1		
Site 2		
Site 3		
Site 4		
Site 5		

Contact Information

1. Person who can authorize installation of a solar array.

Name and Title: _____

Email/phone: _____

2. Facilities Manager or other person who will have information on roof loads, roof layout.

Name and Title: _____

Email/phone: _____

3. Architect/structural engineer (if known)

Name and Title: _____

Email/phone: _____

4. Electrical engineer (if known)

Name and Title: _____

Email/phone: _____

5. Roofing Company Contact (if known)

Name and Title: _____

Email/phone: _____