Solar/Alternative Energy Design

The ASU Solar Team is responsible for coordinating the design, installation, operation and maintenance of all solar systems and alternative energy projects (SAE) on/in all ASU properties and ASU facilities.

All new construction and major renovations shall consider alternative energy strategies in their design. The ASU SAE project manager shall be included in the design process.

SAE may include photovoltaic (PV), concentrated photovoltaic (CPV), thermal (cooling, heating, domestic hot water, etc.), geothermal, wind and other future alternative energy sources.

SAE systems may be located:

- On facility rooftops
- On parking structure top decks providing shaded parking
- In surface parking lots providing canopy shaded parking
- On/in open land
- Other locations to be determined

Engineering design guidelines have been established to address the most common project elements at ASU. They are to be used in conjunction with the requirements set forth by applicable codes, laws and ordinances of this jurisdiction, recognized industry standards, good engineering practice and specific program needs. Omission of reference in the engineering design guidelines does not relieve responsibility for compliance with these requirements.

SAE projects fall into two categories: installation in conjunction with new construction, and installation on/in existing facilities/areas. The latter typically includes a 3rd party owner.

1. New construction.
   a. Prior to design, all projects shall coordinate with the ASU Solar Team to determine which SAE system is appropriate for the project as well as the best way to install it. The ASU Solar Team shall be included in the selection of the SAE system installer who shall meet the minimum requirement of 10-yrs experience installing similar systems at universities.
   b. CPMG Project Managers (PM) shall consider SAE system(s) in the design of new facilities/areas. The design may be for complete installation at the time of new construction or to make the facility/area “SAE ready”; i.e., provide infrastructure to allow installation at a future date.
   c. Design shall include locations for all associated equipment needed for the identified alternative energy source.
   d. Guidelines for installation at a future date are addressed below in Section 2 – Existing facilities/areas.
   e. SAE system installation may be accomplished through a 3rd party owner. See Section 3 – 3rd Party projects.

2. Existing facilities/areas.
a. Prior to design, all projects shall coordinate with the ASU Solar Team to determine which SAE system is appropriate for the project as well as the best way to install it. The ASU Solar Team shall be included in the selection of the SAE system installer who shall meet the minimum requirement of 10-yrs experience installing similar systems at universities.

b. Installation of SAE systems on/in existing facilities/areas may mean the infrastructure necessary for the operation of the system does not exist and must be incorporated in the design of the system.

c. Some installations will be for facilities where the infrastructure was installed as part of the facility’s original construction.

d. For rooftop installations, project design must include a full inspection of the facility’s roof to i) ensure the structure can handle the additional load, ii) evaluate the condition of the roof and remaining warranty. The project must determine if a new roof or recoating of existing roof is required prior to installation of the system. All installations must follow ASU Project Guidelines for roofing systems. See Division 7: Thermal and Moisture Protection.

e. SAE system installation may be accomplished through a 3rd party owner. See Section 3 – 3rd Party projects.

3. 3rd party projects.

   a. 3rd party projects are accomplished through a services contract; i.e., QMA (Qualified Management Agreement), PPA (Power Purchase Agreement) or the like, as a result of a RFP (Request for Proposal). These services contracts are usually for 20-25 years.

   b. Prior to design, all projects shall coordinate with the ASU Solar Team to determine which SAE system is appropriate for the project as well as the best way to install it.

   c. 3rd party projects are typically installed on existing facilities and include coordination with the local utility in order to secure production-based incentives for the SAE owner.

   d. 3rd party projects are designed, installed, owned, operated and maintained by 3rd party owners. The 3rd party owner provides operation and maintenance services for 20-25 yrs from date of system installation.

The following guidelines apply for all systems, regardless of location.

Electrical and Conduits.

All installations shall follow ASU Project Guidelines for electrical installations. See Division 26: Electrical.

Equipment Screening.

Equipment visible to the general public may need to be screened from view. The SAE Project Manager Sr. will coordinate with the Office of the University Architect (OUA) and the ASU Solar Team to identify which equipment requires screening and the specifications for screening.
Energy Information System (EIS) Metering.

All SAE systems shall interface with ASU’s EIS. The FSST Technology Support Analyst Coordinator will coordinate the interconnection to the EIS. All installations shall follow ASU Project Guidelines for EIS installations. See Division ??: EIS.

Shading.

The project architect shall provide shading studies to the ASU Solar Team. Shading studies shall be conducted for the Vernal Equinox, Summer Solstice, Autumnal Equinox, and Winter Solstice, and shall include shading at 9am, noon, 3pm and 5pm for each day.

Landscape.

Occasionally existing trees and other landscaping impact the SAE installations through shading and ground cover. Demolition or relocation of the landscaping shall be coordinated with the ASU Solar Team and ASU OUA.

Parking.

All issues related to an SAE installations and parking shall be coordinated with the ASU Solar Team and the Associate Director of Operations, ASU Parking & Transit Service.