CAMPUS SOLARIZATION STATUS
January 2009

BACKGROUND:

ASU's first installation of a solar photovoltaic system (PV) was completed in 2004 on the top level of Tyler Street Parking Structure. The system produces approximately 30 kW of electrical energy and shades 44 parking spaces. It was installed as part of Phase I of the Energy Performance Contract.

During spring semester of 2006, three students from course ATE 550 conducted a survey of 38 Tempe campus rooftops. The survey, led by Professor Harvey Bryan, indicated that 25 of the 38 rooftops were appropriate for some type of PV system. The study indicated a potential for solar production of more than 4 MW on the 25 rooftops. However, since the study did not include all of the roofs and parking structures at the Tempe campus, ASU facilities staff has estimated the total potential of solar energy to be more than 7 MW and will take 3-5 years to achieve.

In October 2007, ASU initiated plans to install a 150 kW PV system on the roof of Biodesign A and B. This commitment to install the PV system on Biodesign A and B provided the necessary points for the building to receive LEED-Platinum certification – the first in Arizona.

In January 2008, ASU issued an RFP for solar developers to propose installation of developer-owned solar systems on ASU's campuses. This solicitation resulted in ASU executing Master Agreements with three solar developers in June 2008. They are as follows:

SolEquity
Honeywell
Independent Energy Group (IEG)

For 2009 another developer-owner, Arizona Public Service Energy Services (APSES), has become an additional solar partner through a shared agreement with the University of Arizona.

CURRENT STATUS:

The plan for the first phase of the Campus Solarization project was to install approximately 2 MW of solar energy production by the end of December 2008. The following chart shows the status of the Phase I projects:

Current Status of Campus Solarization Phase I					
Building/Facility	Ownership	Appx. Size	Output Cost	Status	Estimated Completion
Tyler Street Structure (PS 2)	ASU	30 kW	N/A	Completed 10/2004	
Stadium Parking Structure (PS 5)	SolEquity (Sun Devil Solar)	711 kW	.1509/kWh	In Construction	12/2008
Apache Blvd Parking Structure (PS 1)	SolEquity (Sun Devil Solar)	880 kW	.1509/kWh	In Construction	1/2009
Lattie Coor Building	SolEquity (Sun Devil Solar)	108 kW	.1509/kWh	In Construction	1/2009
Bio Design	ASU	150 kW	N/A	In Construction	01/2009
Total Installed PV's		**1.88 MW**			

NOTE: Current on-peak cost of electrical energy from APS is 12.6-13 cents per kWh. APS has indicated ASU can expect additional increases over the next several years in addition to the approximate 40% increases that have occurred over the last three years.

PHASE II PROJECTS:

The following chart shows projects that are in planning for completion during calendar year '09:

Phase II Projects Planned for Calendar Year 2009			
Location	Estimated Size	Output Cost	Status
Tempe Campus:			
Parking Structure #4	1100 kW	TBD	Planning
Parking Structure #7	600 kW	TBD	Planning
Parking Structure #3	250 kW	TBD	Planning
GIOS	25 kW	TBD	Planning
Hassayampa Academic Village	425 kW	TBD	Planning
Student Recreation Center	400 kW	TBD	Planning
Hayden Library	300 kW	TBD	Planning
Police Building	50 kW	TBD	Planning
Student Services Building	200 kW	TBD	Planning
Weatherup Center	130 kW	TBD	Planning
Sub-Total Tempe Campus	***3.48 MW***		

West Campus:			
Open Land Area	**2.25 MW**		Planning
Polytechnic Campus:			
Open Land Area	**3.0 MW**		Planning
Downtown Campus:			
Nursing & Healthcare Innovation	.75 kW		Planning
University Center	.125 kW		Planning
Sub-Total Downtown Phoenix Campus	***.20 MW***		
Total Planned for 2009	**8.93 MW**		

GOAL:

By December 31, 2009, the total installed generating capacity of the Solar PV Systems is expected to be 10.81 MW distributed as follows:

- ASU Tempe 5.36 MW
- Polytechnic Campus 3.00 MW
- West Campus 2.25 MW
- Downtown Phoenix .20 MW

Total 10.81 MW

CHALLENGES:

There continues to be numerous challenges that have contributed to delays and also to the inability of one of our partners to be able to obtain financing. These challenges are as follows:

- Interconnect Agreements: In order to connect the solar systems to the ASU electrical grid, ASU must sign Interconnect Agreements with APS. Since a good portion of the electrical feeders serving Tempe campus are what is called Networked Feeders, solar energy systems represent a challenge to the operation of these feeders. Much planning work has been done to resolve the issues. More planning work needs to be done by ASU and APS. This issue currently limits the number of roofs that are otherwise available for solar energy installations.

- Carbon Credits: Carbon Credits are part of the Renewable Energy Credits (RECS) that must be surrendered to APS in exchange for the rebate. APS must retire the RECS immediately. ASU needs the carbon credits towards its goal of carbon neutrality as part of the American College and University Presidents Climate Commitment (ACUPCC). The GIOS staff is working with representatives from the ACUPCC and APS to find a way to deal with this problem.

- Roofs: Since the PV's are primarily mounted on roofs and expected to last well over 20 years, it is highly desirable to mount the systems on new roofs that are not close to needing replacement. Many of ASU's rooftops either need a new roof now or will in the next few years.

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