

2020
VISION

Forecasting the future

Let us point you in the right direction -
There are signs everywhere if you know where to look.



OFFICE PROPERTIES SOLUTIONS | SOLAR ENERGY

Micro-Area-Partnerships (MAPS)

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SOLAR ENERGY...CAN SOLAR ENERGY BENEFIT COMMERCIAL BUILDING OWNERS?

How can solar benefit a commercial building owner?

- Solar energy will save you money.
- It will increase your property value.
- Solar contributes to Arizona's sustainability movement.
- Arizona's natural resource is the sun.

Ninety percent of the price of solar energy is the price of installing a solar energy system. What property owners may not recognize is that federal, state and local utilities will contribute to subsidizing costs to the conversion to solar energy (Figure 1). "Commercial building owners have an obligation to investigate solar power due to the rapid payback, which is five years or less, and the massive environmental benefits," according to Michael Ellenby of Solar Power Arizona. It just makes sense for a commercial building owner to install a solar energy system. A key factor supporting this statement is that the price of solar is a fixed cost. Simple maintenance can be completed by the building property manager. This offers predictable operating costs for the building owner. With solar on your building, you will no longer have rate hikes. You pay an upfront cost for your system and those initial costs can be offset by various programs.

On March 25, 2008, APS announced a 5.4 percent rate hike to business customers. This is the third rate hike, and an increase of 23 percent, over the last three years! APS rate hikes are occurring so regularly due to the continuing need for infrastructure investment. The uncertainty in the price of oil has contributed to the economic challenges we face today. Oil prices, along with the price of natural gas, coal and uranium, make solar an attractive alternative to building owners and keeps dollars in the United States.

FAST FACTS

► SIGNIFICANT FACTORS IMPACTING SOLAR BUILDING COSTS

- Government Subsidies
- Arizona Corporation Commission Regulations
- Third-Party Power Purchase Agreements
- Net Metering
- Solar Component Technology
- Cost of Oil

SOLANA GENERATING STATION



► FIGURE 1: SOLAR SUBSIDY COSTS

SYSTEM SIZE	10 kW	50 kW	100 kW
System Cost - approximate	\$70,000	\$350,000	\$700,000
Utility Rebate, \$2.50/watt, max \$50,000	\$25,000	\$125,000	\$250,000
Federal Tax Credit, 30%	\$21,000	\$105,000	\$210,000
State Tax Credit, 10%, max \$25,000	\$7,000	\$25,000	\$25,000
Depreciation 5 years, 34% Federal Tax rate, 6% state, 50% accelerated depreciation in 2008	\$11,900	\$59,500	\$119,000
Reduction Utility Bill in Year One	\$1,671	\$8,355	\$16,710
Total System Cost in Year One	\$3,429	\$27,145	\$79,290
Total System Cost Paid by You - % of Total Cost	5%	8%	12%

Source: Solar Power Arizona LLC – www.solarpowerarizona.com/businesses.html

"Net metering is a critical piece of the renewable energy puzzle, because it permits the owner of solar panels to receive a fair price from utilities for the energy that they generate and put back on the electric grid. We should have a solid net metering requirement in place at each utility by July of this year."

Kris Mayes, Arizona Corporation Commission, in a Jan. 30, 2008 meeting with Colliers International

ARE FEDERAL & STATE GOVERNMENTS FORECASTING OUR FUTURE?

It is important to note that a commercial property owner doesn't have to have solar on his building to be LEED® certified. Solar energy is listed under the Energy and Atmosphere portion of the LEED certification scorecard and can help toward LEED certification. Section 433 of the 2007 Energy Bill requires all federal buildings to meet the energy performance standards of the 2030 challenge. The most important passage from this section states, "Buildings shall be designed so that the fossil fuel-generated energy consumption of the buildings is reduced, as compared with such energy consumption by a similar building in fiscal year 2003 (as measured by Commercial Buildings Energy Consumption Survey or Residential Energy Consumption Survey data from the Energy Information Agency), by the percentage specified in the following table."

2007 ENERGY BILL REQUIREMENTS	
FISCAL YEAR	% REDUCTION
2010	55%
2015	65%
2020	80%
2025	90%
2030	100%

Source: www.greenbuild.com

The federal and state governments and local utility companies want you to install solar energy on your commercial property. The goals set by the federal government will be challenging. Federal and state governments are implementing these standards because of the negative effects of greenhouse gases. "Commercial and industrial buildings in the U.S. contribute 45 percent of our national emissions of greenhouse gases."

Federal and state governments realize how important energy efficiency can be on our economy. "...they concluded that LEED buildings are, on average, 25 percent to 30 percent more energy-efficient than non-LEED® buildings as represented in the U.S. Department of Energy's Commercial Buildings Energy Consumption Survey (CBECS) database."(www.enn.com) What is happening in Arizona?

- Arizona currently requires LEED Silver on all state-funded buildings and incorporation of renewable energy. (www.greenbuildingpages.com)
- On March 22, 2005, the Scottsdale city council unanimously approved Resolution No. 6644, establishing the Green Building (LEED) Policy for new city buildings and remodels. This action makes Scottsdale the first city in the nation to adopt a LEED Gold policy. (www.scottsdale.gov)

Is it possible that federal and state governments will make new commercial development and all commercial building owners meet energy performance standards? Or will it be the tenants? There are already a number of tenants in the marketplace that will not look at a commercial building unless it is LEED-certified, as dictated by their corporate policies. What percentage will this rise to by the year 2020? If you are not taking steps to have your buildings LEED-certified, then your buildings may not be included on the next property tour and certainly will be dropped from the list in the future. If analysis has shown us anything, federal and state governments will eventually impose energy performance standards on commercial buildings. I strongly recommend commercial property owners begin taking action now towards LEED certification of their buildings.

SOLAR CAPITAL OF THE WORLD—ARIZONA?

On February 21, 2008, Arizona Public Service announced construction of the world's largest solar facility—a 280-megawatt concentrating solar power plant to be built near Gila Bend, Ariz. According to Don Brandt APS President, "This is a turning point for APS and the future of the state of Arizona as we move to become the solar capital of the world." The Solana Generating Station will produce enough energy to serve 70,000 APS customers at full capacity and is scheduled to begin providing energy in 2011. Solana will be built and operated by Abengoa Solar, Inc.

How much will this impact solar energy on commercial buildings? Directly, it will have very little impact. Indirectly, Solana will raise awareness about solar energy. The plant needs to pass upcoming regulatory and tax hurdles and will not be built at all if the Energy Policy Act of 2005 is not extended. This 30 percent tax credit is the major obstacle facing the solar industry today. Without the 30 percent tax credit on an initial investment, it is too expensive to build Solana and the costs are prohibitive to commercial applications.

LOOKING TO THE FUTURE

By the year 2020, Arizona will have the largest number of commercial building solar applications in the world. Why? Because Arizona's sun can not be ignored as our state's most obvious and powerful natural resource. Arizona's commitment to sustainable energy will become a powerful reason for companies considering relocating to Arizona. As more buildings are able to reduce operating costs, this certainly will become an attractive selling point when comparing Arizona to other states.

▶ (continued on back page)

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GOVERNMENT SUBSIDIES IMPACTING SOLAR COSTS

Arizona Non-Residential Solar & Wind Tax Credit

- ▶ 10 percent of installed cost of qualified "solar energy devices"
- ▶ Commercial, industrial, nonprofit, schools, government, etc.
- ▶ Jan. 1, 2006 – Dec. 31, 2012

Federal Energy Policy Act of 2005

- ▶ Equipment placed in service from Jan. 1, 2006 to Dec. 31, 2008
- ▶ 30 percent for solar, solar hybrid lighting, and fuel cells
- ▶ 10 percent for microturbines
- ▶ Geothermal credit - 10 percent
- ▶ Commercial and industrial
- ▶ Due to expire Dec. 31, 2008

Arizona Solar Energy Property Tax Exemption

- ▶ Amount: 100 percent of increased value
- ▶ Commercial, industrial and residential
- ▶ For solar energy devices and any other device or system designed for the production of solar energy for on-site consumption

"Commercial and industrial buildings in the U.S. contribute 45 percent of our national emissions of greenhouse gases."

www.energystar.gov

SIGNIFICANT FACTORS IMPACTING SOLAR BUILDING COSTS

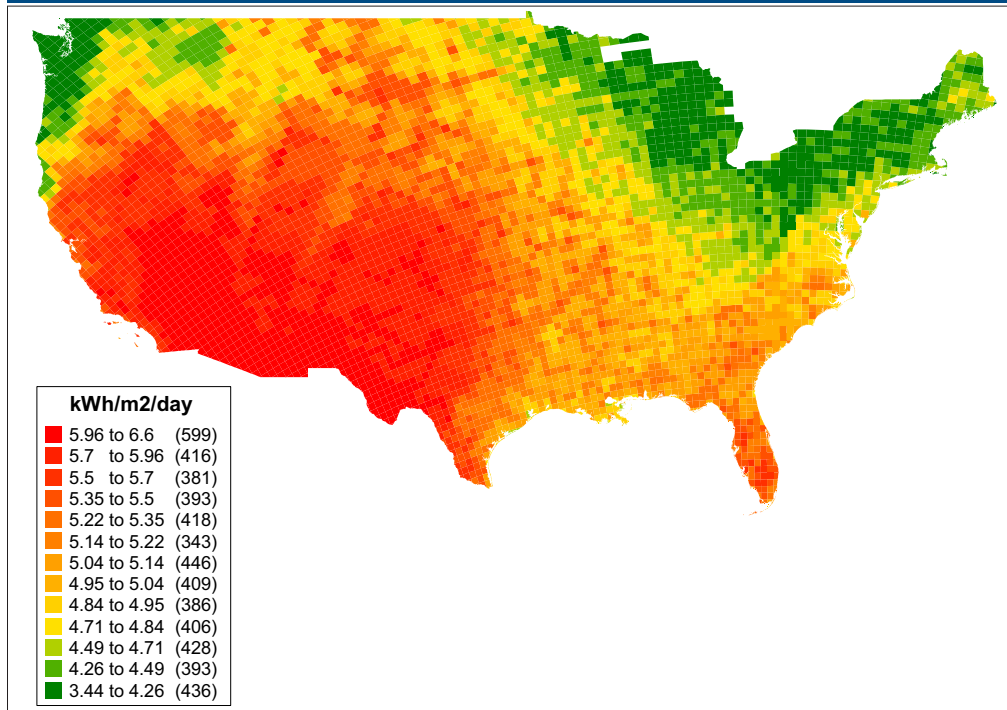
Government Subsidies. Federal and state subsidies need to provide assistance for the short-term success of solar. Solana and other state solar projects depend on these incentives to get solar projects off the ground.

Arizona Corporation Commission. The Arizona Corporation Commission regulates 16 electric companies, seven natural gas utilities and over 350 private water and sewer utilities. Arizona first implemented the Environmental Portfolio Standard (EPS) with a renewable requirement for electric utilities in 2001. In 2006, the Commission approved the Renewable Energy Standard (RES), which builds upon the EPS and puts Arizona in the forefront of renewable energy, particularly solar. The RES requires regulated utilities to generate 15 percent of their energy from renewable sources by 2025. RES allows utilities to use solar, wind and other similar technologies to generate clean energy.

Power Purchase Agreement. The third party power purchase agreement involves a private investor assuming ownership of a solar energy system and entering into an agreement with the building owner/occupant to sell the power produced by the solar system over a 20-year period (timeframe may vary). This creates a huge advantage for building owners as there is no up front cost and their capital is not tied up in such a low return on investment. Investors do not factor in the time value of money. Third party purchase agreements will be essential to building owners and the success of solar on commercial buildings.

Net Metering. Net metering allows consumers to receive rebates from the utility company for excess generation of power to homes and businesses. Power companies currently rebate for residential applications of 10 kw or less and are proposing to expand that to 20kw or less. Power companies will need to eventually offer net metering to commercial businesses; however, this will significantly cut into the utilities' revenue stream.

ANNUAL AVERAGE DAILY SOLAR INSOLATION—UNITED STATES



Source: National Renewable Energy Laboratory (NREL)

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