

SOL★MATES

*A publication for APS Solar Partners
Spring 2003*



From the Desk of Ed Fox

Congressman Pastor Tours STAR Center

APS Solar Partner Production

Solar Powers Gray Wolf Landfill

DID YOU KNOW...

Using the same number of solar panels, the APS designed Tilted Tracker gets about 25% more energy from the sun than a non-tracking PV system.

FROM THE DESK OF ED FOX

Vice President of Communications,
Environment and Safety

Taking a Leadership Role

With escalating fuel costs dominating the news and an increasing global demand to reduce the use of fossil fuels, it is more important than ever to invest in the development of renewable energy resources and technology.

As a leader in the development of renewable energy resources in Arizona and nationally, APS is committed to furthering technologies that serve our customers and support our environment today and in the years to come.

As an APS Solar Partner you too are playing a vital role in helping us to not only create opportunities for building solar power plants across the state, but in helping solar and other renewable technologies manufacturers produce better products.

As many of you already know, the APS STAR Center houses much of the world's leading-edge technologies. At STAR, APS tests and evaluates the effectiveness of new technologies, while fine-tuning and developing its own proprietary designs.

By supporting industry efforts, APS aims to help develop meaningful technology that can make a mainstream impact in the future.

Leadership often carries with it an added responsibility to exceed goals and past accomplishments. One project, which will be difficult to surpass, is the newest Solar Partners plant near Prescott Airport.

Completion of the plant is expected in the next five years, when the facility's capacity will reach five megawatts, complementing several APS' solar power plants across the state. Once completed, it should be one of the world's largest photovoltaic plants.

While that is truly a tough act to follow, we will continue to look for opportunities and partnerships to make renewable energy resources a viable alternative to traditional fuels.

Leadership can also attract a certain amount of notoriety. Thanks to publicity surrounding STAR and APS Solar Partner plants, APS' reputation has gone international. The company has entered into talks with Israel's Weizmann Institute to investigate and hopefully develop a new high-concentration solar turbine generation technology, using both U.S. and Israeli technology.

While talks are preliminary, I look forward to a partnership that yields a useable technology and produces an on-going dialogue and exploration of other renewable technologies.

With all that is going on, I am looking forward to a great year. As an APS Solar Partner, you are an integral part of all we do and you should be proud.

And I want to thank you for your continued support.

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CREATING A SOLAR FUTURE

Customers and APS — Partners in Progress

Solar Powers Gray Wolf Landfill

An APS-developed solar-hybrid power system will greatly reduce the use of diesel generators at Waste Management of Arizona's Gray Wolf Landfill facility just outside of Prescott.

Located in a remote area in Dewey, Waste Management's Gray Wolf Landfill originally was powered by three diesel generators. The solar system uses photovoltaic solar, battery storage to decrease fuel use and improve air quality for backup generators.

"Our commitment is to the safe and responsible management of waste and the highest quality of service," said Vince Murphy, Director of Operations for Waste Management. "Partnering with APS on this project helps ensure that we, indeed, are acting responsibly toward the public and the environment."

Gray Wolf will serve as the first commercial application of the APS Tilted Tracker Photovoltaic System. Developed by APS, the tilted trackers use a hydraulic actuator and electronic controls to advance the position of the modules by approximately two degrees every eight minutes to maximize exposure to the sun. With the tilted axis rotation, these modules can deliver more solar energy throughout the year than if they were fixed or rotated on a horizontal basis. The Gray Wolf facility features eight such trackers.

This solar-hybrid site took root in 1999. The Arizona Department of Commerce Energy Office, working in partnership with APS, attained a U.S. Department of Energy grant that resulted in partial funding for the Gray Wolf Solar-Hybrid Power System. The hope is that this project will lead to many subsequent systems being installed in Arizona and around the United States.



Congressman Pastor Tours STAR Center, Hydrogen Refueling Station

Fuel cells and hydrogen fuel technology have become hot topics since President Bush promoted fuel cell cars in his State of the Union address.

Arizona Congressman Ed Pastor wanted to find out more about these promising technologies and toured the APS Solar Test and Research (STAR) Center Feb. 18 to see the cutting edge research APS is conducting.

Pinnacle West Vice President Communications, Environment and Safety Ed Fox, and Technology Department Leader Peter Johnston acted as Pastor's guides through the center. He also visited the APS Hydrogen Refueling station in downtown Phoenix.

"Congressman Pastor was most interested in the clean energy aspects of solar and wind generated electricity and how it could be used to manufacture hydrogen from water molecules," said Johnston. "The congressman also was impressed that our technology enabled energy generated by the sun or wind to be stored as hydrogen fuel."

Pastor is instrumental in the appropriation of federal funding for the Concentrating Solar Power Group – funding that is threat-



Arizona Congressman Ed Pastor and APS CEO Bill Post at APS' Hydrogen Refueling Station.

ened in the upcoming budget. Pastor and Pinnacle West Vice President Federal Affairs Robbie Aiken currently are working to have the Department of Energy's David Garman tour STAR and see firsthand APS' unique concentrating solar research.

Most concentrated solar research is devoted to thermal concentration, but APS is working on concentrating solar on photovoltaic with great success. "APS has been funding its own concentrating photovoltaic products on a small scale," said Johnston. "But with DOE money, we could grow exponentially – from generating hundreds of kilowatts to tens of thousands of kilowatts in a very short time."

