

# sol\* mates

A publication for APS Solar Partners  
Fall 2001, Volume 2, Number 4



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From the Desk of Ed Fox  
Building for the Future

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New APS Technology Going Full Tilt  
Partner on Water Treatment  
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## did you know...

APS Solar Power Plants reduce carbon dioxide emissions by about 2.5 million pounds each year. According to the Environmental Protection Agency, this is equivalent to not driving an average car 3 million miles.

From the Desk of Ed Fox  
Vice President of Communications,  
Environment and Safety

## Arizonans Meet the Conservation Challenge

Fall is here and we've made it through another long, hot summer. Thankfully, for APS customers it was a relatively uneventful summer as well. In the face of predicted power shortages, brownouts and blackouts throughout the West, Arizonans rose to the challenge, heeding the APS message that we had enough energy to use but not enough to waste, and conserved their way through what could have been a rough season.

This may not have been possible without teamwork. Throughout the summer, businesses, governments, civic groups and caring residents answered the call, used less energy, and helped ensure power supplies were plentiful. In big and small towns, in large businesses and mom and pop stores, Arizonans stepped up to the plate and made a difference.

Moving forward, there is still some work to be done. APS is busily planning for Arizona's future energy needs so we can ensure power will always be there when you need it. This is where programs like Solar Partners are vital. By showing your dedication to our environment, you are helping make sure solar energy will play an ever-growing role in our collective future.

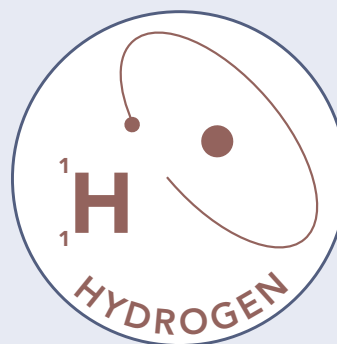
Working together, Arizonans made this summer a powerful one.

Thank you.

## APS Building for the Future with Hydrogen CNG Refueling Station

Clean, efficient, compressed natural gas (CNG) has fueled vehicles for more than 50 years and has been an important fleet fuel since the oil crisis of the early 1970s. Now, APS is exploring increasing the efficiency of compressed gas fuel by building a hydrogen/compressed natural gas fueling station for its fleet vehicles.

One of only three such stations in the United States, the APS facility converts water into hydrogen gas and is able to dispense hydrogen, natural gas and a mixture of the two. A mixture of 30 percent hydrogen and 70 percent natural gas results in an even more efficient and cleaner burning fuel than 100 percent natural gas.



“Hydrogen is the fuel of the future,” said APS’ Technology Department Leader Peter Johnston. “And with this new hydrogen/CNG refueling station, we will be exploring the feasibility of using hydrogen in vehicles in anticipation of one day using it to fuel electric generation.”

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## Creating a Solar Future

*Customers and APS — Partners in Progress*

### New APS Technology Going Full Tilt

With its newest solar technology, APS' solar development is going full "tilt" at the APS Solar Test And Research Center (STAR).

On display at the APS STAR Center, APS' patented "Tilt Tracker" technology takes the concept of tracking the sun's movement and literally adds a twist to it. This new technology utilizes the tracking capability of more traditional systems while raising the flat panel units off the ground at a 30-degree angle. This allows the units to track the sun on two planes, thereby increasing efficiency. The unit's tilt of 30 degrees was chosen to coincide with Phoenix's approximate latitude of 30 degrees.

APS recently installed 23 new 3-kilowatt (kW) triangle-shaped tilted tracker units at the STAR Center. STAR is currently testing their capabilities against traditional max tracker units.



The new units, aside from being more efficient, also offer some additional benefits not found in other tracking technology. The tilt tracker's compact size is suited to stand-alone and rural applications where terrain and flora may inhibit the use of other solar technologies. In addition, the tilted trackers use a hydraulic drive mechanism to increase accuracy and reduce maintenance. The units can also be adapted to include battery storage and a generator for remote and off-grid use.

Come see APS' newest technology at the upcoming STAR tour on November 17.

### APS and the City of Scottsdale Partner on Water Treatment Plant Installation

In addition to the existing solar plants at Scottsdale facilities, the City and APS have agreed to build a 150-kW installation at its water processing facility.

With an expected completion date of April 2002, the flat-panel, tracking plant will sit atop underground storage tanks at the Scottsdale Water Campus near Pima Road and Union Hills Drive in north Scottsdale. The underground tank, with storage for several million gallons of water, has a surface area of more than 40,000 square feet that otherwise would simply reflect the sun's energy back into the atmosphere.

Once completed, the plant will feed electricity directly into the electric grid used by all APS customers. The plant consists of 512 modules specially anchored to the roof of the tank.

In 1999, Scottsdale formed a unique alliance with APS in an effort to meet the

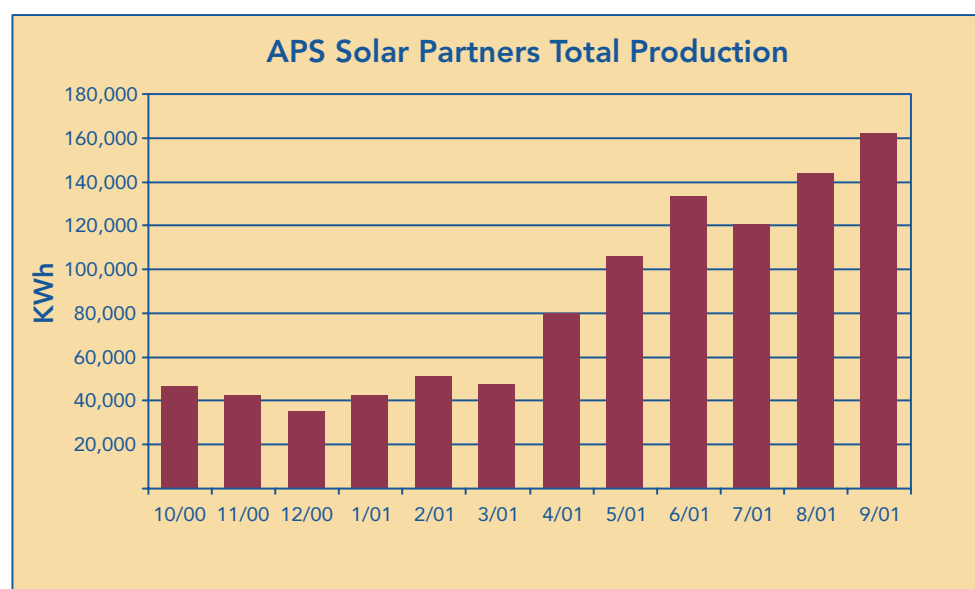
need for covered parking at its commercial buildings with a practical way of generating clean energy. An 8,500 square-foot parking structure covered with photovoltaic panels generates energy at a City of Scottsdale service yard.

### New Solar Power Plant Slated for Yuma Area

APS is proud to be building a new solar power plant near Yuma, which will generate 100 kW of power. The plant will be located at the APS Yucca Power Plant and will generate enough energy to serve about 31 homes.

Construction began in October and the plant is expected to be online in early 2002. Once operational, the plant will feed into the electric grid serving APS customers.

APS also designed and built a 105-kW hybrid solar plant that powers the Yuma Proving Ground's Smart Munitions Test Range.



**You're Invited to an Open House!**

**At the APS Solar Test And Research Center — STAR**

**When:** 8 a.m. to noon, Saturday, November 17, 2001

**Where:** 1500 E. University Drive, Tempe (on University, west of McClintock)

**Advance reservations are required. RSVP:** Janet Crow at 602-250-4990 or e-mail Janet\_Crow@aps.com.

**Note:** Please wear comfortable shoes, not sandals, as the grounds of STAR are covered in loose gravel.



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