

"We're trying to find out if hydrogen is ready for prime time."

Richard Cromwell III, SunLine general manager and chief executive officer

Hydrogen age blossoms in the valley

SunLine only commercial site where fuel available in the nation

BY LUKAS VELUSH
THE DESERT SUN

The country's first commercial hydrogen-fueling station for fuel-cell vehicles is now open for business in the Coachella Valley.

There just aren't any private fuel-cell vehicles to use it.

Yet.

There are only four government-owned fuel-cell vehicles in the Coachella Valley, but officials at SunLine Transit Agency hope that will increase dramatically now that there is a hydrogen-fueling station at SunLine's Thousand Palms facility.

Industry experts predict fuel-cell vehicles will, within the next decade, become the car-type of choice.

The fuel-cell station was constructed with federal and state grants from the many partners involved in the project.

UNIQUE OPERATION: "There's nothing like this in the world, much less the United States," said Richard Cromwell III, SunLine's general manager and CEO.

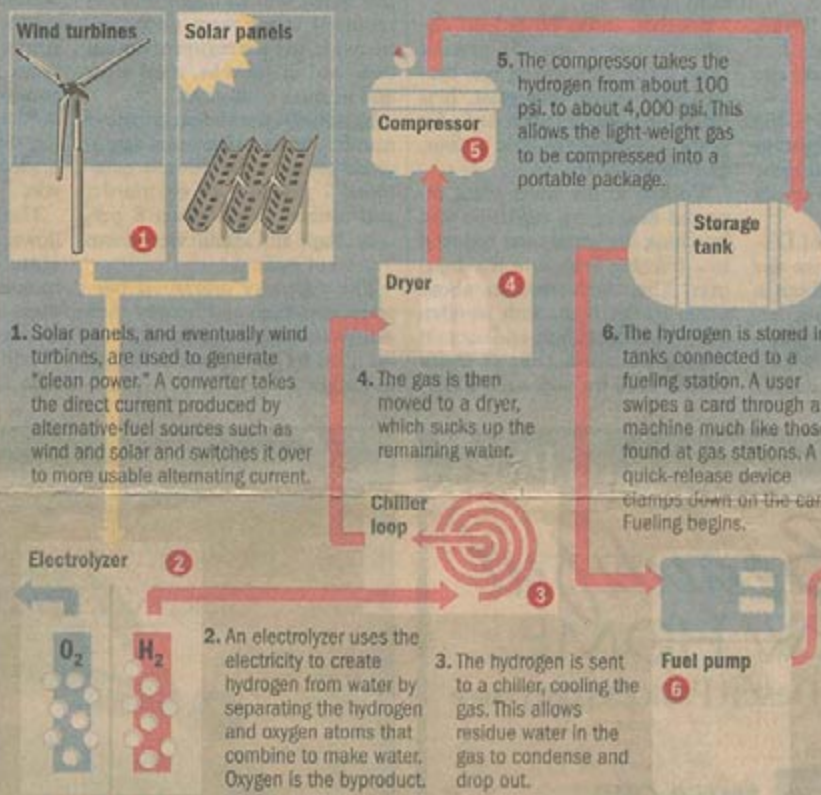
Zero-emission fuel-cell vehicles are powered by electricity produced when a fuel cell converts hydrogen and air into electricity and water.

Because fuel cells produce nothing but a little water, the only way they can pollute the atmosphere is when the hydrogen used to power a fuel cell is pulled out of the air and compressed.

Cromwell said SunLine's new hydrogen gas station — at least in part — relies on solar energy to create the hydrogen. The hope is to also

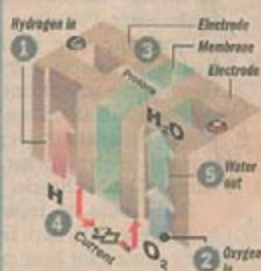
Creating hydrogen, and putting it to use

Emission-free fuel-cell vehicles are expected to become available to the general public during the next decade. The Coachella Valley and SunLine Transit Agency look to play a key role in the switch to cleaner automobiles. Already leading a move to use clean-burning natural gas to power government fleets and private vehicles alike, SunLine is now poised to facilitate the eventual shift to using emission-free hydrogen to power the next generation of automobiles.



SOURCE: SCHATZ ENERGY RESEARCH CENTER, HUMBOLDT STATE UNIVERSITY.

A fuel cell uses hydrogen and oxygen to create an electric current.



1. Hydrogen is pumped into one side of the fuel cell.
2. Oxygen into the other.
3. Hydrogen protons pass through the membrane.
4. That leaves behind negatively charged electrons (the electricity).
5. On the other side of the membrane, the hydrogen protons create a positive charge and combine with the oxygen to form water, which is vented.



SunLine's "ZE Bus" is powered by fuel cell

MICHAEL DONLAN, THE DESERT SUN

use wind that, like sunlight, is in ample supply in the Coachella Valley.

The U.S. Department of Energy and a long list of partners are using SunLine as their test site for extended use of fuel-cell technology, Cromwell said.

SunLine converted its entire fleet of buses and mass-transit vehicles to compressed natural gas in 1992 and created a similar facility for it. That was so successful that several other agencies in the valley also converted to compressed natural gas, including Waste Management

of the Desert and local branches of the U.S. Postal Service.

The next step for SunLine was to convert from natural gas to fuel-cell technology. If it proves to be as successful as compressed natural gas, others could follow suit.

THE BIG QUESTION: "We're trying to find out if hydrogen is ready for prime time," Cromwell said.

Cromwell said three types of hydrogen-generating methods are being tested at the SunLine station.

Two methods use electric-
Please see FUELS, A12



WADE BYARS, THE DESERT SUN

Fill 'er up: Research engineer James Zoellick of Schatz Energy Research Center pumps hydrogen gas at the SunLine Transit Agency yard in Thousand Palms on Wednesday.

The Desert Sun

www.thedesertsun.com

Thursday May 11, 2000

Fuels

Continued from A1

ity and the third, called a reformer, pulls hydrogen out of natural gas, rather than water.

Wednesday was the first day any of the three — all of which are still being tested and developed — worked from beginning to end.

"We've had each piece working before, but today is the first day we've had the entire system working," said Jim Zoellick, research engineer for Humboldt State University's Schatz Energy Research Center.

The Schatz Energy Research Center's method created the hydrogen equivalent of about 2.6 gallons of gasoline.

In contrast, another method being tested at the site created the equivalent of about 85 gallons of gasoline per day. But it also used much more electricity.

Similar comparisons on the third method, the natural-gas reformer, were not available.

Lukas Velush covers environment and transportation for The Desert Sun. He can be reached at 778-4625.