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Seeking solar solutions

$35M research center to find cheaper ways to use sun's energy

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WITH THE SKYROCKETING price of crude oil, it would seem logical that more homeowners would turn to solar energy to power their washers, refrigerators and other appliances.

What's holding them back, says Dr. Yacov Shamash, is the high cost of the technology used to harness the energy of the sun's rays.

Finding ways to make solar cells and fuel cells more affordable — and more efficient — will be among the chief goals of a new $35 million research center that Shamash is helping develop at Stony Brook University.

On Oct. 16, ground at the school's research park will be broken to clear the way for the Advanced Energy Research & Technology Center, a 50,000-square-foot, two-story state-of-the-art facility that will employ upward of 200 scientists and technicians when it opens in 2009.

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"The purpose of the center is to look for new methods of generating power and replacing fossil fuels," said Shamash, Stony Brook's vice president of economic development and the dean of its college of engineering and applied science.

Stony Brook has teamed up with a host of private and public partners to create the center, including Brookhaven National Laboratory, along with the U.S. Department of Energy, National Grid (formerly KeySpan), Long Island Power Authority, Anorad, Future Tech, Industrial Polymer, Northrop Grumman and Pall Corp.

"We will look at every aspect of the energy business, from energy production to the delivery system to the appliances we use," said Bob Catell, executive chairman of National Grid USA, one of the center's key boosters.

Catell described the center as a "focal point" where researchers from a variety of fields will collaborate on finding ways to wean our nation from dependence on foreign oil and focus on "delivering energy to the consumer in a more efficient and environmentally friendly way."

Shamash said every aspect of energy usage and consumption will be examined. For example, he said, the center will look at methods of greatly reducing the amount of electricity that a computer's microchips use.

"If you can reduce the power [it takes to run] a computer by 50%, that's a huge power savings when you multiply it by the millions and millions of home and office computers in this country," he said.

The center also will look at innovations to save electricity, like being able to turn on an air conditioner via cell phone before arriving home, rather than leaving the appliance on all day.

The center also will study ways to better convert biomass — from ethanol and corn to experiments with turkey intestines — into fuel.

Reducing the costs of harnessing solar and wind energy also are high on the center's priority list.

Shamash said that in the future, homeowners who have solar panels might be able to swap some of their electricity with power companies.

"With solar panels, they can't be run 100% of the time," because of cloudy weather and nighttime hours, he said.

"At times when you are generating [extra energy], that power can go back to the grid so you can get credit for it and use it when you need it later."

A primary objective of the center will be to work hand in hand with companies to advance and test their technologies.

"Like an honest broker, we could actually determine if there are any problems with [their system] and whether it really does what it's supposed to do," Shamash said.

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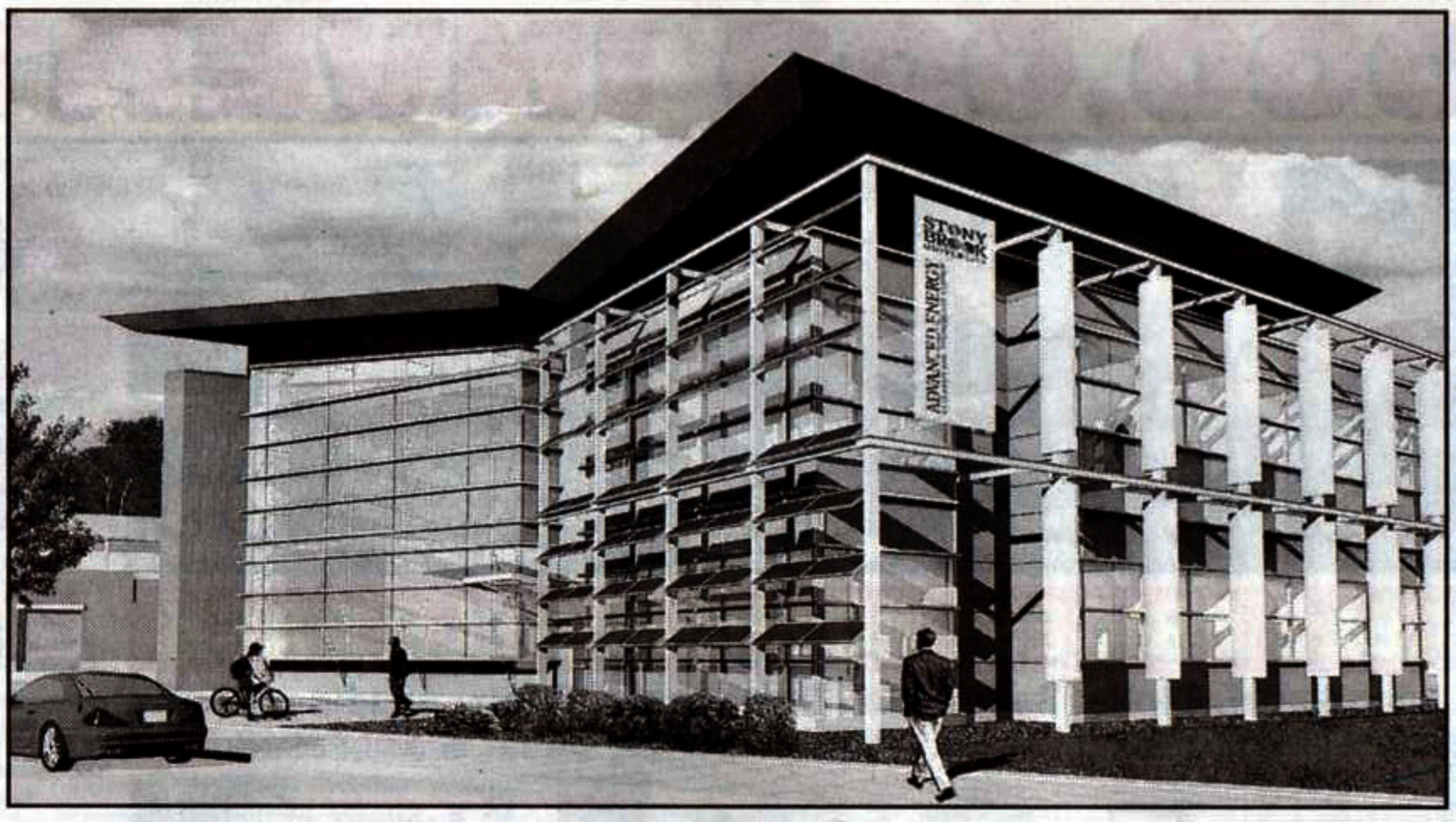

Dr. Yacov Shamash (r.), Stony Brook University's vice president of economic development, and Bob Catell, executive chairman of National Grid USA, have high hopes for new research center (artist's rendering at l.).