The Ronald Reagan Presidential Library

While in the Oval Office, Ronald Reagan kept a sign on his desk that said simply: It can be done.

Administrators of his presidential library took the same approach to installation of an innovative, efficient, environmentally-friendly energy system for the facility that houses the late president's legacy.

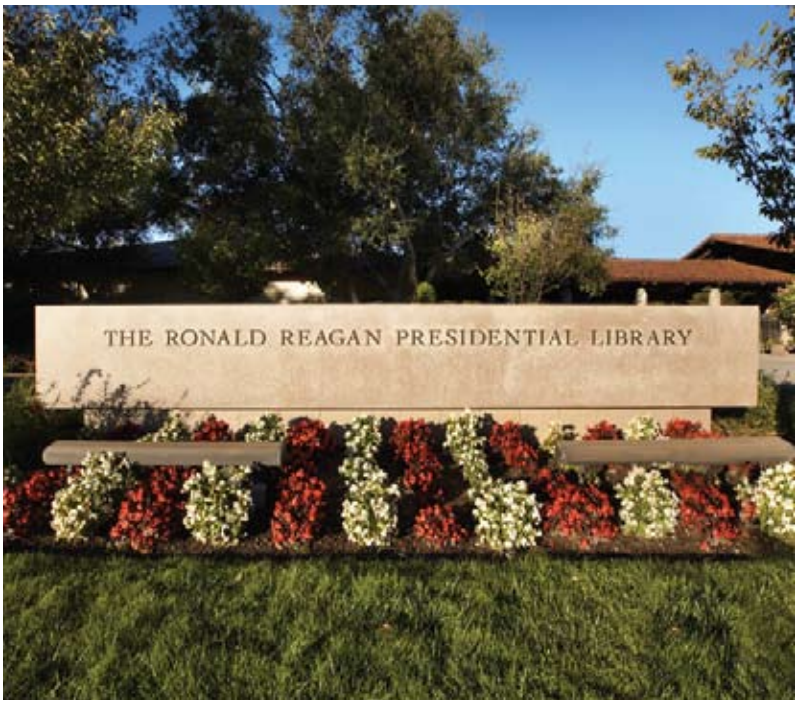
"The environment is a big concern for a lot of big business, as it is for us," said John Lehne, Facilities Manager for the Ronald Reagan Presidential Library in Simi Valley, California "We wanted to make sure the system we installed provided not only the needs and requirements of cooling and energizing the building, but also leaving as little of a carbon footprint on the environment."

It could be, and was, done.

Perched atop a hill with sweeping views of Southern California, the 100,000 square foot Library gets 95 percent of its energy from 16 Capstone microturbines. It also provides electricity for the Air Force One Pavilion which is home to Air Force One, tail number 27000, which flew seven U.S. presidents.

The 16 natural-gas C60 microturbines were commissioned in October 2005. The installed system consists of three UTC PureComfort™ packages, each with four Capstone microturbines and a Carrier absorption chiller. Four stand-alone Capstone C60 (60kW) units were added for a total of 960kW of generating capability.

In addition to having the capability to produce 960kW of electricity, the microturbines provide heating and cooling for the buildings through combined cooling, heating and power (CCHP). This cogeneration method adds to the system's efficiency by using



At a glance

Location

Simi Valley, California, USA

Commissioned

October 2005

Fuel

Natural gas

Technologies

- The 100,000 square foot Library gets 95 percent of its energy from 16 Capstone C60 MicroTurbines™, which can produce 960kW of electricity.
- The turbines provide the heating and cooling for the buildings through a combined cooling, heating and power (CCHP).
- The direct exhaust-fired absorption chillers capture thermal energy from the microturbines to provide 387 tons of refrigeration for cooling the library and pavilion.

Results

- The Library's system runs on natural gas, which has a much lower impact on the environment than traditional fuels.
- Natural gas saves the Library about 10 percent on its energy bill each year.
- The system has had 100 percent availability since its installation.

Capstone®

recyclable heat from power generation for heating, cooling or industrial process purposes.

"Exhaust gas from the running turbines is collected and goes into absorption chiller," Lehne said. "That chiller has a closed water loop through it, which chills and gives us cold water for our air-conditioning system. Some turbines have a hot water loop on them, which give us heat for our buildings as well."

The direct exhaust-fired absorption chillers capture thermal energy from the microturbines to provide 387 tons of refrigeration for cooling the library and pavilion.

That cooling comes in handy for keeping the full-size replica of the White House Oval Office authentic. The Oval Office was kept cool for President Reagan who never took off his suit jacket while in this storied room.

Since the system was installed in 2005, it has had 24/7 availability and required only routine filter changes for maintenance.

"The turbines have only one moving part and air bearings," explains Darren Jamison, Capstone President and CEO. "There's no oil, no anti-freeze. So it's a highly reliable, simple design."

Turbines are very fuel flexible. The Library's system runs on natural gas, which has a much lower impact on the environment than traditional fuels. In addition, natural gas saves the Library about 10 percent on its energy bill each year.

"A lot of people didn't know about this type of system when we first installed it," Lehne said. "A lot of people still don't know about microturbines. But we've had the system three years and it gives us the efficiency we were looking for."

He added that the system meets expectations in all areas.

"It provides power for the full campus and is clean burning," he said. "Overall we are pleased with the performance of the turbines and the efficiency of their electricity-generating capabilities and the hot water they provide to the facility." ■

Sixteen Capstone C60 microturbines running on natural gas provide electricity for the Air Force One Pavillion.

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