Colleges are counting on clean energy from fuel cells to go green

Campuses minimize carbon footprint and reliance on utilities and conserve water with Doosan Fuel Cell

When leadership at California State University San Marcos (CSUSM) recently decided to upgrade the campus's energy system, the goal was to adhere to rigorous state sustainability mandates and reduce greenhouse gas emissions. Fuel cells were the logical answer for the expansive campus north of San Diego, which stretches across 304 acres and serves more than 14,000 students.

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Two 440-kW Doosan PureCell® Model 400 power plants were selected for the institution as well as an absorption chiller, which converts waste heat into chilled water for space cooling. The power plants are projected to reduce the institution's utility consumption by 7 million kWh/year, reduce the carbon footprint by 2.2 million metric tons/year and reduce regional water consumption for energy generation by 2.8 million gallons per year compared to traditional utility water utilization.

"Because we operate an institution of higher learning, we believe it is our responsibility to continually look for the most efficient and innovative ways we can operate our campus," says Lindsey Rowell, director of energy management and utility services for CSUSM.

Doosan fuel cells help universities achieve their financial and environmental goals with an advanced combined heat and power (CHP) solution. By generating electricity through a chemical reaction with hydrogen – rather than by combustion – the power plants are providing a cost-effective means to deliver clean power while protecting the environment. The fuel cells operate quietly and can be installed indoors or outdoors.

"CSUSM's new fuel cells represent a significant step toward achieving our aggressive sustainability goals; they will offset electricity costs and ensure we can sustain continued growth while remaining one of the most energy-efficient universities in the state," says Rowell.

Doosan's fuel cells are providing clean energy savings at many campuses across the country, including the University of Connecticut and Rochester Institute of Technology, while cutting C02 and NOx emissions. And in California, the Doosan PureCell power plants provide the additional performance benefits of water savings at campuses in the drought-stricken state.

At Norco College, part of the Riverside Community College District (RCCD), a Doosan PureCell was installed in April 2015 to shrink overall energy costs and harmful emissions. The PureCell Model 400, which is four times more effective than traditional solar power in reducing a campus's greenhouse gas footprint, operates at zero water consumption, ultimately saving the campus from using 1.4 million gallons annually.

"We are devoted to fostering environmental responsibility and sustainability among our 13,000 students while controlling costs," says Laurens Thurman, consultant of facilities planning and development for the RCCD. "Additionally, with the ongoing water crisis in California, the fact we're now able to conserve water is an added benefit."

The PureCell provides 60 percent of Norco College's average daily requirements for electricity.

"Our partnership with Doosan is about providing cleaner power and allowing us to take control of our college's energy portfolio," says Thurmans.

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