Power System incorporates design cross-flow turbines engineered with composite materials, a permanent magnet generator, a substantially composite support frame and a power electronics system that converts the generator's variable output to grid-compatible power. Over the next two months, Ocean Renewable will demonstrate how tidal energy can be delivered to the U.S. Coast Guard for use at its Eastport station through a battery electrical supply system.

EPA DENIES CLIMATE CHANGE CHALLENGES

The U.S. Environmental Protection Agency denied 10 petitions challenging its 2009 determination that climate change is real, is occurring due to emissions of greenhouse gases from human activities and threatens human health and the environment.

EPA said the petitions to reconsider its Endangerment Finding claim that climate science cannot be trusted, and assert a conspiracy that invalidates the findings of the Intergovernmental Panel on Climate Change (IPCC), the U.S. National Academy of Sciences,and the U.S. Global Change Research Program. The agency said after months of serious consideration of the petitions and of the state of climate change science, EPA "finds no evidence to support these claims." In contrast, EPA's review shows that climate science is "credible, compelling and growing stronger."

WIND ENERGY FARM TO BE BUILT IN ARIZONA

NextEra Energy Resources and Arizona Public Service Co. signed a deal to build a 99 MW wind farm in Arizona. Financial terms were not disclosed and the project is subject to regulatory approvals. NextEra will build and operate the facility, called the Perrin Ranch Wind Energy Center, that is expected to contain 62 turbines. Construction is expected to begin in 2011 and the farm is expected to go into operations in 2012.

SoCalEdison AWARDS SOLAR PV CONTRACTS

Southern California Edison awarded 36 contracts to independent power producers for nearly 60 MW from photovoltaic solar panels. The panels will be installed on 31 unused rooftops and five ground-mount sites in SCE's service territory. The solar rooftop project, approved by the California Public Utilities Commission in June 2009, calls for 500 megawatts of solar generating capacity, most of it on otherwise unused large warehouse rooftops. Half of the 500 MW will be from independent power producers who respond to SCE's request for offers under competitive solicitations; the remaining 250 megawatts will be owned and operated by SCE. Companies that won contracts include Tioga Solar XIX LLC, Greenpower Williams, Sunedison Utility Solutions, SS San Antonio West, Golden Solar, Industry Metrolink PV 1, Advanced Solar Integration Technologies, Photon LLC, Solar Power Inc., SEPV 1 and 2 and Cascade Solar.

DOE RECEIVES 120 OFFSHORE WIND PROPOSALS

The U.S. Department of Energy received 120 responses from 112 different respondents to the Request for Information regarding Offshore Wind Demonstration Projects. The RFI solicited public input regarding the research, development and deployment of advanced technology offshore wind demonstration projects. Responses were due July 14.

DEMONSTRATION OF SOLAR POWERED MICROTURBINE

Capstone Turbine Corp. and HelioFocus demonstrated a product converting sunlight to electricity with a solar receiver driving a microturbine. The demonstration was conducted with a Capstone C65 microturbine by HelioFocus and Capstone on a fixed optical tower using heliostats at a site in Israel. The traditional microturbine engine used gaseous or liquid fuels to heat combustion air. The HelioFocus Solar Concentrator focuses sunlight to provide heat to drive the microturbine. The system's increased power density could reduce the amount of land required by a traditional solar photovoltaic system. Capstone said the concept scales to all of its microturbine products, generating 30 kW to 5 MW of electricity.

Army Corps Solar Project Empowers Nation

By JoAnne Castagna, Ed.D.

With a simple click of a computer mouse, Sea Girt, N.J. residents can instantly view online how they are benefiting by a solar power project the U.S. Army Corps of Engineers constructed for the New Jersey National Guard's National Training Facility Headquarters in Sea Girt.

On Sunviewer.net, an educational research tool, the Guard is showcasing this successful project so that the public can see how it is conserving energy, reducing harmful emissions and saving the Guard and other taxpayers considerable money. The project can be viewed at http://www.sunviewer.net/portals/SeaGirt/

"In addition, we wanted to empower the public about the many benefits of solar power and encourage congress to fund more renewable energy projects,"

said John Hastings, Energy Program Manager at the New Jersey Department of Military and Veterans Affairs.

The project, which was completed in October 2009, is an open panel photovoltaic carport solar power project that was built by the Army Corps' New York District over an existing parking lot and then installed area lighting, inverters, transformers, switchgears and electrical metering equipment. The energy generated is now powering a building less than 200 feet away from the parking lot. The Corps then restored the parking lot pavements, by re-stripping and sealing cracks.

The steel carport structure stands 16 feet above the parking lot pavement and is supported by web steel joists and joist girders. On top of this structure, the solar photovoltaic power panel arrays were installed.

The panels are composed of modules made up of several solar photovoltaic cells that absorb sunlight that produce electricity. The larger the panel, the more electricity is produced.

Electricity in the form of direct current is produced by the panels, which is not directly usable energy for a building. Most buildings require alternating current at a higher voltage. To make usable building power, the solar panel's direct current is fed into an inverter that transforms it into alternating current at a higher voltage.

This alternating current power is then sent to the building's main transformers where it can be used by the buildings for their energy needs. The New Jersey National Guard's solar power system

is tied into the public's power grid and excess power is shared with the community.

The completed structure including the panels is roughly the size of a football field that's expected to generate approximately 250,000 KWH annually.

The project was also designed in a way that will save the National Guard considerable energy savings during the high energy demand for air conditioning during warm weather months. "We are hoping it produces 1,000 kilowatts a day during the summer months," said Hastings.

The panels were placed at a 15-degree angle to allow for optimum performance.

This will provide the building 80 percent of its energy needs. Placing the panels on an angle also facilitates water runoff.

Since the project's completion, the Guard and other taxpayers have been saving considerable amounts of money.

Under the State of New Jersey's Solar Renewable Energy Certificate Program,

(SREC) solar system owners that generate over 1,000 kilowatts of electricity per year and that are connected to the public power grid receive certificates. These certificates are then publicly sold and traded to New Jersey businesses and individuals, enabling them to receive solar power benefits without building a solar power system themselves. The revenue is returned to the solar system owners.

Under the state's SREC Program the project has generated approximately $138,884 savings in kilowatt hours" in eight months, said Hastings. Multiply this by 18 cents, which is typically what utility companies charge per kilowatt hour, this equals $25,000 the Guard is not paying the utility companies, he said.

"If we divide this $138,884 kilowatt hours by 1,000, this gives us 138 solar energy renewable credits, which comes to almost $90,000 earned," he said. Under the SREC Program, every 1,000 kilowatt hour produced by solar energy/power is equivalent to 1 credit. As a result, the project is offering the Guard a cost avoidance and an income and saving a considerable amount of money.

"We are re-investing all of our earned solar energy renewable credits into other energy projects including such things as cost-effective auditing and outreach efforts with universities," he said.

Hastings uses the University of Rowan to conduct energy audits in their facilities. The University brings in their Electrical Engineering and Mechanical Engineering Classes and the students audit all phases of the building from electrical consumption to water consumption. The students study their data and make recommendations for them to become more energy efficient.

Hastings also plans to invite students to their renewable energy projects to give them tours and show them the Sunviewer kiosks so they can learn more about the project hands-on. These kiosks collect the project data that is posted on Sunviewer.net.

Accessing the project on the web site Sunviewer.net is also useful to the Department of Defense (DoD), which wants to see the beneficial results of the renewable energy projects they fund.

"Some high-ranking DoD officials have been so impressed with this that they've made the Sunviewer website a requirement for all renewable projects. This solar power project is setting the standard for the nation," said Hastings.

The Army Corps will perform additional renewable energy projects for the New Jersey National Guard in the near future. This past summer, the Corps was scheduled to complete a similar carport project at the Guard's Joint Forces Headquarters at Fort Dix. The Guard also hired the Corps to perform two additional solar power projects and the Army Corps will complete a wind turbine project at Fort Dix in 2011.

Hastings said the New Jersey military affairs department's partnership with the Army Corps has been strong. "They are a valuable resource that we would like to see become a center of expertise and assist the National Guard throughout the country with their renewable energy needs."

"The Army Corps is helping us empower people who can't get it done and show them and other agencies that it can be done."

Dr. JoAnne Castagna is a technical writer-editor for the U.S. Army Corps of Engineers, New York District.