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TEAM Initiative Renewable Energy Projects Take Shape

Putting the U.S. Department of Energy (DOE) on the path to meet and exceed the renewable energy consumption goal of the Energy Policy Act of 2005, the Transformational Energy Action Management (TEAM) Initiative on-site renewable energy projects include the following signed agreements and Energy Savings Performance Contracts (ESPC). Once completed, the projects below will increase electricity ouput from renewable energy by a factor of nearly six and thermal output by a factor of over 800 compared to FY2007.

National Renewable Energy Laboratory (NREL) Projects. NREL is developing two photovoltaic (PV) projects that will have a combined electric capacity of 2.35 MW, and a biomass heating plant. The projects will meet 23% of NREL's total electricity requirements and 46% of its heating load. The NREL Mesa Top PV Array (750 kW) will provide an estimated 1,200 megawatt-hours (MWh) of clean, renewable electric power annually from solar energy. It is expected to be completed by Fall 2008. Phase 2 projects include a 1.1 MW capacity PV array at NREL's National Wind Technology Center (NWTC) and up to 500 kW of PV on NREL's South Table Mountain campus, with a combined annual output of 2,754 MWh. Signed agreements are expected to be completed during September, 2008. Both projects were financed through Power Purchase Agreements (PPA) between DOE's Western Area Power Administration (Western) and SunEdison, with Western purchasing on behalf of DOE's Golden Field Office and NREL. The solar Renewable Energy Certificates (RECs) are being sold to the local utility, and NREL is purchasing replacement RECs as allowed by the renewable energy guidance REC swap provisions. The third project is the Biomass Renewable Fuel Heating Plant (RFHP) which will provide heat to the NREL National Science and Technology Facility (NSTF) and other research buildings on the Laboratory's South Table Mountain campus.

Top: Map of Mesa Top project.
Middle: Map of Phase II project at the NWTC.
Bottom: Taking delivery of equipment for the RFHP.

Tuba City Solar Parabolic Trough. The DOE Legacy Management Disposal Site in Tuba City, Arizona, signed a contract with Abengoa Solar IST on February 18, 2008 for the installation of a 1,700-square foot solar parabolic trough collector. The new solar thermal facility will preheat water for the site's water distillation system, reducing the energy consumption of the current electric-powered distillation system by an estimated 537 million Btu per year. The $177,000 cost of the project is funded by appropriations. The solar thermal system is currently under construction.

ESPC Awards – Renewable Energy Conservation Measures

Idaho National Laboratory. The DOE Idaho National Laboratory ESPC project was awarded on July 23, 2008 and will include the installation of solar transpired collectors on two of the site's buildings. The collectors will generate approximately 500 million Btu of solar energy to provide heating to the buildings, thus reducing the amount of electric heating required. During the cooling season the collectors will shield the buildings from solar gain and motorized dampers will bypass the solar walls so that ventilation cooling loads do not increase.

National Energy Technology Laboratory. The DOE National Energy Technology Laboratory ESPC project is estimated to generate 9 MWh of renewable electricity annually from PV and other renewable energy sources and the biomass steam boiler is estimated to generate 15,056 million Btu of renewable thermal energy.

Oak Ridge National Laboratory. The DOE Oak Ridge National Laboratory ESPC project is expected to install a biomass steam production plant estimated to generate 407 billion Btu of renewable thermal energy. The new biomass system will displace current fossil fuel use. The new biomass plant will use wood chips as a source of renewable energy.

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