

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE
SMART GRID, CENTER FOR COMMERCIALIZATION OF
ELECTRIC TECHNOLOGY (CCET), TECHNOLOGY SOLUTIONS FOR
WIND INTEGRATION IN ERCOT, HOUSTON, TEXAS**

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: DOE completed the *Final Environmental Assessment for the Smart Grid, Center for Commercialization of Electric Technology (CCET), Technology Solutions for Wind Integration in ERCOT, Houston, Texas* (DOE/EA-1750). Based on the analysis in the environmental assessment (EA), DOE determined that its proposed action – providing a federal financial assistance grant to the CCET to facilitate the development and demonstration of a synergistic approach to managing fluctuations in wind power within the Electric Reliability Council of Texas (ERCOT) transmission grid – would result in no significant adverse impacts. DOE further determined that CCET’s project would result in a minor reduction in greenhouse gas emissions and have a net beneficial impact on air quality in the region.

BACKGROUND: As part of the *American Recovery and Reinvestment Act of 2009* (Recovery Act) (Public Law 111-5, 123 Stat. 115), DOE’s National Energy Technology Laboratory (NETL), on behalf of the Office of Electricity Delivery and Energy Reliability, is providing up to \$435 million in federal funding through competitively awarded agreements to facilitate the deployment of Smart Grid Demonstrations, specifically: (1) regionally unique demonstration projects to quantify costs, benefits and cost-effectiveness, verify technology viability; and validate new business models; and (2) energy storage projects for major utility-scale storage installations to determine costs and benefits, verify technical performance, and validate system reliability and durability.

The federal proposed action of providing funding for these projects requires compliance with the *National Environmental Policy Act (NEPA) of 1969*, as amended (NEPA; 42 U.S.C. 4321 et seq.), Council on Environmental Quality regulations (40 CFR Parts 1500 to 1508), and DOE NEPA implementing procedures (10 CFR Part 1021). DOE prepared an EA to evaluate the potential environmental consequences of providing a grant for CCET’s proposed project under the Smart Grid Initiative.

PURPOSE AND NEED: The overall purpose and need for DOE’s action, pursuant to the Smart Grid Demonstration Program and the Recovery Act, is to accelerate the development and production of a smarter, more efficient, more resilient electrical grid. The program will help verify smart grid technology viability, quantify smart grid costs and benefits, and validate new smart grid business models at a scale that can be readily adapted and replicated around the country. DOE considers CCET’s project to be one that can meet these objectives.

DESCRIPTION OF THE PROPOSED ACTION: DOE's proposed action is to provide financial assistance to partially fund CCET's project to: (1) purchase, install, and demonstrate the Texas Future Community, which would include a 500-kilowatt solar panel array, a 250-kilowatt storage battery and pad, a supervisory control and data acquisition system, and electronic equipment in select homes within an existing housing development (Discovery at Spring Trails); and (2) install monitoring equipment in 13 existing or proposed electrical substations within the regional transmission system, including installation of microwave radio towers at three of the sites. These project elements would be integrated with the Smart Meter Texas Portal being developed outside the proposed project. The Portal (not otherwise addressed in the EA) will eventually provide electrical grid operators with the capacity to shed large-scale blocks of electrical demand by linking to hundreds of thousands of participants with demand response capabilities or capacity. Thus, reductions in wind power generation could trigger reductions in electrical demand on the grid by triggering changes in electricity use by customers throughout the system. This would include large, industrial customers and individual residences with the ability to adjust demand through the use of components such as home battery systems, photovoltaic systems, and demand response appliances. CCET's proposed project would install: (1) monitoring equipment within the grid to provide the Portal with information on the real-time conditions of the electrical transmission system; and (2) in a small number of test residences appropriate electrical components that would demonstrate demand reductions when signaled to do so. DOE would provide \$13.5 million in financial assistance in the form of a cooperative agreement to CCET. The estimated cost of the entire project is \$27.4 million.

ALTERNATIVES CONSIDERED: In addition to the proposed action, DOE considered the No-Action Alternative as required under NEPA. Under the No-Action Alternative, DOE would not provide funds to the proposed project. For the purposes of the EA, DOE assumed that the project would not proceed without DOE funding. This assumption established a baseline against which the potential environmental impacts of the proposed project were compared.

ENVIRONMENTAL CONSEQUENCES: DOE evaluated the potential environmental consequences of the proposed project and the No-Action Alternative. DOE considered 14 environmental resource areas in the EA; however, not all areas were evaluated at the same level of detail. For nine of the resource areas (land use; geology and soils; cultural resources; environmental justice; socioeconomics; occupational health and safety; transportation and traffic; utilities, energy, and materials; and waste generation) and a portion of another (water resources – groundwater), DOE determined there would be no impacts or the potential impacts would be small, temporary, or both, and therefore did not carry these areas forward for additional analysis. DOE focused its more detailed analyses on those resources that could require new or amended permits, have the potential for significant impacts or controversy, or interest the public. These resource areas included air quality, noise, aesthetics and visual resources, biological resources, and water resources. Evaluations of these resource areas addressed the Texas Future Community component of the proposed project. Although a significant component of the overall project, the ERCOT transmission grid monitoring system was not evaluated for specific environmental

impacts in the EA because of the negligible effects of installing equipment in existing electrical substations.

The proposed project is in Montgomery County, Texas, which is a nonattainment area for the 8-hour ozone National Ambient Air Quality Standard (NAAQS). The Texas State Implementation Plan for the Houston-Galveston-Brazoria area, which includes Montgomery County, requires measures to achieve attainment of this standard by June 2019. The proposed project would involve air emissions during construction. Once completed, the proposed project would produce a quantity of electricity via solar energy, thereby reducing the amount of pollutants produced from burning fossil fuels to generate electricity. The proposed project would reduce regional greenhouse gas emissions and aid in the attainment of the NAAQS.

The solar photovoltaic arrays would not generate noise. Any associated noise from the operation of a 250-kilowatt storage battery would be similar to, or less than, that produced by the adjacent water treatment facility, which is about 35 to 45 A-weighted decibels, comparable to a whispered conversation in a library.

The aesthetics of the Discovery at Spring Trails community would change with the addition of the solar photovoltaic panels, which would be housed on rows of metal framework designed to allow the panels to be sloped toward the south for optimal exposure to the sun. The top edge of the modules would be 10 to 11 feet above the ground, and the bottom edge would be about 2 feet above the ground. Mitigation for visual impacts could involve peripheral landscaping of the adjoining area.

Developing 4 acres for the solar farm would not significantly impact any population of plant or animal species. Because the project site is small and isolated from larger tracts of undisturbed land, and because plant and animal species found there are expected to be widespread in the region. For sensitive species, the area is not a unique habitat. The red-cockaded woodpecker, which is an endangered species protected under the federal *Endangered Species Act*, occurs in Montgomery County. However, forest habitat in the project vicinity is second growth, due to past development activities in the area, and the potential occurrence of the woodpecker is low in this type of habitat.

Operation of the solar farm would involve no discharge of liquids or wastes of any type to the ground. Operations and maintenance would not impact surface water. There would be no impacts to groundwater from the proposed project, as it would not involve use of groundwater or discharges that could adversely affect it.

According to the National Wetland Inventory, there are wetlands labeled "freshwater emergent" adjacent to the project site. However, these wetlands are isolated and do not extend to the location of the solar farm, the battery storage facility, or the plug-in hybrid electric vehicle stations. In addition, the U.S. Army Corps of Engineers (USACE) has determined that a Section 404 permit is not required.

Under the No-Action Alternative, DOE would not provide funding to CCET and the solar array and storage battery would not be installed or operated, nor would the ERCOT grid monitoring system. For comparison purposes, it is assumed no impacts to the existing environment would occur, and the beneficial impacts discussed above would not be realized.

PUBLIC AVAILABILITY: DOE issued the draft EA on October 9, 2010, and advertised its release in the *Conroe Courier* on October 15, 16, and 17, 2010. In addition, DOE sent copies for public review to the Montgomery County Memorial Library, South Regional Library (in The Woodlands, Texas). DOE established a 21-day public comment period that began October 9, 2010, and ended October 29, 2010. DOE announced it would accept comments by mail, email, or fax. The draft EA was also sent to the applicable federal, state, and local agencies. No public comments were received.

DOE also met with the Galveston District office of the USACE regarding the potential need for a USACE permit due to the presence of waters of the United States (including wetlands) in the project area. A comment from the USACE notified DOE that if USACE Section 10 or 404 permits are not required for the project, a request for coordination or a permit application would not need to be submitted to the USACE. The State of Texas currently does not regulate isolated wetlands. Therefore, after consideration of best management practices and avoidance through design and construction, there is no regulatory requirement to obtain a permit or provide mitigation for these isolated waters.

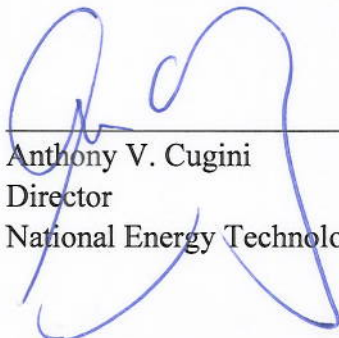
Notices of availability for the final EA and this FONSI were sent to stakeholders and resource agencies that provided comments or consultation, and the documents were made available at DOE's NETL web site at <http://www.netl.doe.gov/publications/others/nepa/ea.html> and DOE's NEPA web site at http://nepa.energy.gov/DOE_NEPA_documents.htm. Copies of the final EA and FONSI can also be obtained by sending a request to:

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DETERMINATION: On the basis of the evaluations in the final EA, DOE determined that its proposed federal action – providing \$13.5 million in financial assistance to partially fund CCET's development and demonstration of a synergistic approach to managing fluctuations in wind power within the ERCOT transmission grid – would have no significant impacts on the human environment. All potential environmental impacts identified and analyzed in the EA would not be

significant. Therefore, preparation of an environmental impact statement is not required, and DOE is issuing this FONSI.

Issued in Pittsburgh, PA, this ____ day of August 2011.



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