

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE
BEACON POWER CORPORATION FLYWHEEL FREQUENCY REGULATION
PLANT, CHICAGO HEIGHTS, ILLINOIS, AND HAZLE TOWNSHIP,
PENNSYLVANIA**

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

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: DOE's National Energy Technology Laboratory (NETL) completed the *Final Environmental Assessment for the Beacon Power Corporation Flywheel Frequency Regulation Plant, Chicago Heights, Illinois (Site 1), and Hazle Township, Pennsylvania (Site 2)* (DOE/EA-1753, EA). Based on the analyses in the environmental assessment (EA), DOE determined that its proposed action—awarding a federal grant to Beacon Power Corporation (Beacon Power) to facilitate installation and operation of a 20-megawatt flywheel frequency regulation plant—would result in no significant adverse impacts. DOE further determined that the proposed project could result in beneficial impacts to the nation's energy efficiency and air quality. Operating the flywheel plant could result in a decrease in carbon dioxide emissions from regional power plants. In addition, there would be small positive socioeconomic impacts from the expenditures for the project.

BACKGROUND: As part of the *American Recovery and Reinvestment Act of 2009* (Recovery Act; Public Law 111-5, 123 Stat. 115), NETL, on behalf of the Office of Electricity Delivery and Energy Reliability, is providing up to \$435 million in funding for competitively awarded financial assistance to facilitate the deployment of Smart Grid Demonstrations. Funding was awarded for (1) regionally unique smart grid demonstration projects to quantify smart grid costs, benefits, and cost-effectiveness; verifying smart grid technology viability; and validating new smart grid business models; and (2) energy storage demonstration projects for major, utility-scale, installations to help establish costs and benefits, verify technical performance, and validate system reliability and durability.

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

PURPOSE AND NEED: The overall purpose and need for DOE's action pursuant to the Smart Grid Demonstrations Program and the funding opportunity under 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 costs and benefits, and validate new business models at a scale that can be readily adapted and replicated around the

country. DOE considers Beacon Power's proposed project to be one that can meet these objectives.

DESCRIPTION OF THE PROPOSED ACTION: DOE's proposed action is to provide cost-shared funding to the project proponent, Beacon Power, for its proposed 20-megawatt flywheel frequency regulation plant. Beacon Power would construct the plant either at 305 Salk Trail Road in Chicago Heights, Cook County, Illinois, or at Site 30-A of the Humboldt North area of the Humboldt Industrial Park in Hazle Township, Luzerne County, Pennsylvania. The proposed plant would consist of 20 frequency regulation pods, each containing 10 individual flywheels, and the associated energy conversion, electrical control, and power distribution equipment. DOE would provide \$24 million in financial assistance under a cooperative agreement to Battelle. The total cost of the project is estimated at \$48.1 million at the Illinois location and \$53 million at the Pennsylvania location.

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 for the proposed project. For the purposes of the EA, DOE assumed 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:

Site 1, Chicago Height, Illinois:

DOE evaluated the potential environmental consequences of the proposed project and the no-action alternative. DOE considered 16 environmental resource areas in the EA. However, not all areas were evaluated at the same level of detail. For some of the resource areas, DOE determined there would be no impacts or that 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, such as socioeconomics. DOE conducted more detailed analyses of potential impacts on the following resources areas: air quality, socioeconomics, environmental justice, and occupational health and safety.

Construction activities would have short-term adverse impacts that Beacon Power would mitigate through best management practices such as soil stabilization and watering of exposed soils. The proposed flywheel plant would not burn fossil fuel, so it would produce no direct emissions of combustion gases. Further, use of flywheel-based frequency regulation would reduce the amount of fossil fuels regional power plants would use to accomplish this function, which would result in a net reduction in dependence on fossil fuels.

The proposed project would create a small number of direct jobs during construction, which would last less than a year, so there would be no significant changes to population, infrastructure, or the level of social services in the area. There would be minor indirect positive economic consequences as vendors and equipment suppliers would benefit from capital orders for equipment and support systems. DOE determined that no high and adverse impacts would occur

to any member of the community, including socioeconomic impacts, so there would be no high and adverse impacts to any minority or low-income population.

The work force for site preparation and installation would be limited and employed for a short term. DOE expects work-related incidents would be within industry incidence rates. Beacon Power would operate the facility almost entirely by remote control with limited onsite personnel. Therefore, there would be limited exposure of workers to hazardous situations at the facility. The installed equipment would have monitors and sensors to alert responders to any accident that might occur, and Beacon Power would brief and train local first responders.

The other environmental resource areas DOE evaluated for potential impacts were geology and soils; land use; water resources; biological resources; historic and cultural resources; aesthetics and visual resources; noise; waste; utilities, energy, and materials; and transportation. DOE determined that there would be no adverse impacts for these resource areas, or that the impacts would be small, temporary, or both. The EA provides more detail on the reasons DOE did not conduct more detailed evaluations of these areas.

Under the no-action alternative, DOE assumed the project would not proceed without the financial assistance from the grant. If abandoned, the potential environmental consequences would not occur. Furthermore, the potential beneficial impacts would also not occur.

Site 2, Hazle Township, Pennsylvania:

DOE evaluated the potential environmental consequences of the proposed project and the no-action alternative. DOE considered 16 environmental resource areas in the EA. However, not all areas were evaluated at the same level of detail. For some of the resource areas, DOE determined there would be no impacts or that 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, such as socioeconomic. DOE conducted more detailed analyses of potential impacts on the following resources areas: air quality, biological resources, socioeconomic, environmental justice, and occupational health and safety.

Construction activities would have short-term adverse impacts to air quality that Beacon Power would mitigate through best management practices such as soil stabilization and watering of exposed soils. The proposed flywheel plant would not burn fossil fuel, so it would produce no direct emissions of combustion gases. Further, use of flywheel-based frequency regulation would reduce the amount of fossil fuels regional power plants would use to accomplish this function, which would result in a net reduction in dependence on fossil fuels.

There would be small but temporary impacts to wildlife on or near the proposed project site during the construction period. Wildlife could be displaced from the area due to the presence of people, vehicles, and operating equipment and, in some circumstances, could be killed by cars and construction equipment. The Indiana bat, a federally threatened species, occurs in Luzerne County, but it is unlikely they are present at the proposed project site because it is in an existing industrial park and lacks much of the requisite habitat. If Beacon Power encountered Indiana bats during the construction of the proposed project, all work would cease until wildlife

biologists consulted with the U.S. Fish and Wildlife Service (FWS) about conservation and avoidance measures for protection of the species. Beacon Power would avoid activities that could disturb the bats (for example, tree removal) during the summer months when bats, if they were present, would reside at the site.

Bald eagles, protected under the Bald and Golden Eagle Protection Act, have been observed in the general area, but there are no known nests within one mile of the site. If a bald eagle nest was discovered near the site, Beacon Power would cease construction activities and notify the appropriate authorities. Beacon Power would not conduct activities that could affect the eagles during nesting season.

Construction activities could affect the extent of scrub oak shrubland on the site. Beacon Power would be mindful of the affected shrubland and would minimize impacts to the extent practicable. However, construction activities could affect some wildlife species in the short term that inhabit the shrubland. The Pennsylvania Department of Conservation and Natural Resources responded to DOE's consultation letter with the determination that the proposed project is not likely to affect Pennsylvania species and resources of concern (Appendix B).

Operation of the flywheel frequency regulation plant is not likely to affect the Indiana bat or have any continuing effect on scrub oak shrubland. However, there could be some effect on bald eagle populations due to electrical equipment. For new aboveground electrical line construction, Beacon Power would include appropriate protections in the design of the proposed project to minimize potential impacts on bald eagles.

The proposed project would create a small number of direct jobs during construction, which would last less than a year, so there would be no significant changes to population, infrastructure, or the level of social services in the area. There would be minor indirect positive economic consequences as vendors and equipment suppliers would benefit from capital orders for equipment and support systems. DOE determined there would be no high and adverse impacts to any member of the community, including socioeconomic impacts, so there would be no high and adverse impacts to any minority or low-income population.

The work force for site preparation and installation would be limited and employed for a short term. DOE expects work-related incidents would be within industry incidence rates. Beacon Power would operate the facility almost entirely by remote control with limited onsite personnel. Therefore, there would be limited exposure of workers to hazardous situations at the facility. The installed equipment would have monitors and sensors to alert responders to any accident that might occur, and Beacon Power would brief and train local first responders.

The other environmental resource areas DOE evaluated for potential impacts were geology and soils; land use; water resources; historic and cultural resources; aesthetics and visual resources; noise; waste; utilities, energy, and materials; and transportation. DOE determined that there would be no adverse impacts for these resource areas, or that the impacts would be small, temporary, or both. The EA provides more detail on the reasons DOE did not conduct more detailed evaluations of these areas.

Under the no-action alternative, DOE assumed the project would not proceed without the financial assistance from the grant. If abandoned, the potential environmental consequences would not occur. Furthermore, the potential beneficial impacts would not occur.

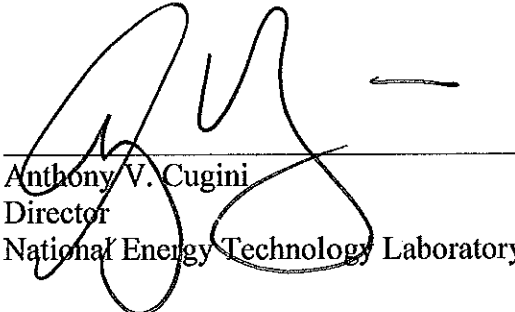
PUBLIC AVAILABILITY: For Site 1 in Illinois, DOE issued the initial Draft EA on October 7, 2010, and advertised its availability in *The Southtown Star* on October 7, 8, and 9, 2011. In addition, DOE sent copies of the draft EA for public review to the Chicago Heights Public Library. DOE established a 21-day public comment period that began October 7, 2010, and ended October 22, and announced it would accept comments by mail, email, or facsimile. The draft EA was also sent to the applicable federal, state, and local agencies. DOE did not receive comments.

Beacon Power added the second location in Pennsylvania after issuance of the initial draft EA. DOE revised the draft EA to include the Pennsylvania site, issued it on March 13, 2011, and advertised its availability in *The Standard-Speaker* on March 13, 14, and 15, 2011. In addition, DOE sent copies of the revised draft EA for public review to the Hazleton Area Public Library. DOE established a 15-day public comment period that began October 13, 2010, and ended March 27, and announced it would accept comments by mail, email, or facsimile. The revised draft EA was also sent to the applicable federal, state, and local agencies. DOE received one letter about the Pennsylvania site after issuance of the revised draft EA from the Seneca Nation of Indians that indicated the tribe had no concerns about the proposed project.

Copies of the Final EA and this FONSI are available at DOE's NETL website at www.netl.doe.gov/publications/others/nepa/ea.html and on the DOE National Environmental Policy Act website at http://nepa.energy.gov/DOE_NEPA_documents.htm.

DETERMINATION: On the basis of the evaluations in the Final EA, DOE determined that its proposed action, to provide a financial assistance grant of approximately \$24 million, and Beacon Power's proposed project, the installation and operation of a flywheel frequency regulation plant, would have no significant impact on the human environment at either location under consideration by the recipient. The plant would comply with and operate within all permit requirements. Therefore, preparation of an environmental impact statement is not required, and DOE is issuing this FONSI.

Issued in Pittsburgh, Pennsylvania, this 01 day of April 2011.



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