



# U.S. Department of Energy Categorical Exclusion Determination Form



Program or Field Office: Office of Energy Efficiency and Renewable Energy:  
Phase III Xlerator Program

Funding Opportunity Number DE-FOA-0000397

Applicant Name: Underground Systems, Inc.

Location: Armonk, NY

Project Title Low Cost Real Time Monitoring System for Overhead  
Transmission - multi utility multi conductor field  
demonstrations for operations use

Proposed Action or Project Description American Recovery and Reinvestment Act:

Underground Systems, Inc., (USi) proposes to bring to commercial readiness a robust intelligent transmission and distribution (T&D) sensor called the PowerDonut3™ (PD3). PD3 has the capability to improve the power delivery capability of existing power transmission systems, especially where green, distributed generation is available. The plan includes a large scale demonstration evaluation of the PD3 system in a T&D environment that integrates wind, hydro and thermal renewables. The system would be refined using actual field results and packaging for commercial applications. A visualization system and performance dash board for system operators would be developed. In 2005 2008, USi was awarded Small Business Innovation Research (SBIR) Phase I/ II funding to field test the PD2. The projects included: (a) demonstrated the feasibility of using the PD2 to measure sag, clearance and tension monitoring (b) explored the feasibility of using PD2 for Dynamic Line Ratings in an economical package (c) established that Global System for Mobile Communications/General Pocket Radio Service wireless data communications is reliable for utility applications, (d) designed waveform processing hardware and firmware, (e) designed global positioning system time stamping of data, (e) extended the PD2 capability to monitor transmission line overhead splice temperatures, (f) expanded the temperature measurement range to be used with advanced composite core conductors, (g) developed an external weather data sensor for ambient temperature and solar incidence, (h) developed the manufacturing database for the PD2 and established processes for the next generation PD3. USi proposes that wide scale deployment of PD3 systems would release additional T&D capacity and improve the reliability and economic efficiency of the nation's T&D corridors. The technical benefit to the U.S. includes establishing a leadership role in the development of next generation smart grid systems, obtaining more throughput by reducing congestion, and improving system reliability. The economic benefit to the U.S. is the potential sale of U.S. developed technology to domestic and international utilities, as well as substantial economic benefits to domestic electric transmission utilities through better asset utilization. The availability of PD3 advanced sensors, software and systems would enhance the U.S.'s competitive position in a market that is becoming increasingly dominated by foreign based technologies.

Conditions: None

Categorical Exclusion(s) Applied: B3.6, B5.1



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\*-For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, see Subpart D of 10 CFR 10.21

This action would not: threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including DOE and/or Executive Orders; require siting, construction, or major expansion of waste storage, disposal, recovery, or treatment facilities, but may include such categorically excluded facilities; disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; or adversely affect environmentally sensitive resources (including but not limited to those listed in paragraph B.(4)) of Appendix B to Subpart D of 10 CFR 1021). Furthermore, there are no extraordinary circumstances related to this action that may affect the significance of the environmental effects of the action; this action is not "connected" to other actions with potentially significant impacts, is not related to other proposed actions with cumulatively significant impacts, and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

Based on my review of information conveyed to me and in my possession (or attached) concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

ORO NEPA Compliance Officer

**James L. Elmore**

Date Determined:

9/17/2010