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:	Ultrasonic Technologies
Location:	Tampa, FL
Project Title	Resonance Ultrasonic Vibration (RUV) Technology as an Industrial Tool for Silicon Solar Manufacturing

Proposed Action or Project Description

American Recovery and Reinvestment Act: ☑

This SBIR project addresses a critical need of the solar cell industry to reduce in-line breakage of crystalline silicon wafers and solar cells and improve production yield and product quality. Resonance Ultrasonic Vibrations systems represent state-of-the-art production tools for fast in-line detection of cracked silicon wafers and solar cells. Ultrasonic Technologies is a small manufacturing company that designs and produces precision tools and systems for quality control, diagnostics and detection of cracks and stress in silicon (Si) based wafers and solar cells for the Photovoltaic (PV) manufacturing industry using a proprietary Resonance Ultrasonic Vibrations (RUV) technology. The PV industry has a critical need for a high precision, in-line crack detection system that will detect and eliminate cracked silicon wafers and solar cells in real-time, before their introduction into solar modules. This inline quality control system will improve PV production yield, reduce manufacturing cost, improve PV module efficiency, and allow PV to reach grid parity with traditional fossil fuel energy generating methods. Ultimately, the introduction of a highly anticipated in-line RUV system will have a tremendous impact on the PV manufacturing industry and job creation, due to both rapid increase of RUV system production and elevated demand for cheaper PV energy. The principal objective of the entire SBIR program is to deliver to the PV industry a new, highly demanded RUV system, which will be used as a real-time, in-line quality control and process control tool for identification and removal from production mechanically unstable Si wafers and finished solar cells from the cell and module production lines. The primary goal of this SBIR/DOE Phase III project is to define a comprehensive plan that will allow quick deployment of an RUV in-line crack detection system for silicon wafers and solar cells into the commercial marketplace and customers hands. This SBIR/DOE Phase III proposal aims to finalize two previous consecutive steps, Phase I and Phase II, by entering into a commercialization program based on a new patented methodology for in-line crack detection in silicon-based solar cells used for PV modules. The program will define and execute a commercialization plan that will lead to high-volume manufacturing and serial production of an innovative in-line RUV diagnostic system. Successfully completed Phase I and Phase II projects provided a solid background of RUV technology fundamentals and laboratory testing of the RUV system prototype. In Phase III, the Technology Readiness Level (TRL) of the RUV technology will move from the current TRL5 to TRL8. The specific objectives of the program include: (i) transition of in-line crack detection technology from the laboratory level to a prototype demonstration in a relevant and operational environment; (ii) completion of actual RUV system testing in the field; and (iii) definition and execution of a detailed plan for full product deployment with the goal of completing at least 3 commercial sales by the end of the program.

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 CFR10 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: 9/14/2010

Record ID: 12