U.S. Department of Energy
Categorical Exclusion Determination Form

Program or Field Office: Advanced Research Projects Agency - Energy (ARPA-E)

Project Title: 25A3503 - High Energy Density Lithium Batteries

Location: *- Multiple States - California, Illinois

Proposed Action or Project Description:

American Recovery and Reinvestment Act: ☒

Envia Systems, in partnership with Argonne National Laboratory, proposes to develop and scaleup high energy density lithium ion batteries using nano silicon-carbon composite anodes and high capacity manganese rich layered-layered composite cathodes. Silicon coated carbon nanotubes and fibers and silicon and porous silicon-carbon composite anodes will be developed. The novel anode composites will have a high specific capacity (>1000mAh/g), low irreversible capacity loss (<200mAh/g) and improved cycle life. Envia will also develop cathodes with high specific capacity (>250mAh/g) and an irreversible capacity loss that is tailored to match the irreversible capacity loss of the anodes. Integration of both novel anode and cathodes electrodes will take place in the form of ~40Ah capacity commercial format pouch cells. Energy density of the commercial pouch cells is expected to be over 400Wh/Kg which is almost 2x the energy density of what is available commercially in laptop batteries and 3x the energy density of automotive batteries, making widespread adoption of plug-in-hybrid electric vehicles (PHEVs) and electric vehicles (EVs) possible.

Categorical Exclusion(s) Applied:

X - B3.6 Siting/construction/operation/decommissioning of facilities for bench-scale research, conventional laboratory operations, small-scale research and development and pilot projects

*-For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, see Subpart D of 10 CFR10 21 Click Here

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.

NEPA Compliance Officer: /s/ William J. Bierbower Digitally signed by William J. Bierbower DN: cn=William J. Bierbower, o, ou, email=william.bierbower@hq.doe.gov, c=US Date: 2009.12.16 11:53:35 -05'00' Date Determined: Dec 16, 2009

Comments:

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