



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

Submit by E-mail

Proposed Action Title: University of California, Los Angeles (UCLA) - Electro-autotrophic Synthesis of Higher Alcohols

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Los Angeles, CA; Chapel Hill, NC; Research Triangle Park, NC

Proposed Action Description:

This award is a continuation and expansion of research being performed by UCLA under DE-AR0000140 to engineer microorganisms that produce higher alcohols using formate as a feedstock. UCLA, in conjunction with UNC and RTI, will conduct research to develop a process and device (electrochemical bioreactor) to generate formate through the electrochemical reduction of carbon dioxide (CO<sub>2</sub>) and to convert the resulting formate into higher alcohols using engineered microorganisms.

Proposed work will consist of: (1) development and testing of CO<sub>2</sub>-reducing electrodes and a separator electrode assembly (SEA) and (2) design, fabrication, and testing of a lab-scale electrochemical bioreactor prototype, integrated with the SEA and engineered microorganisms developed by UCLA under the original award.

Development and testing of the CO<sub>2</sub>-reducing electrodes and the SEA will take place at the University of North Carolina's laboratory facility in Chapel Hill, NC. All other project activities will take place at Research Triangle Institute's laboratory facilities in Research Triangle Park, NC.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of 10 CFR Part 1021.

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

Based on my review of 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:

Date Determined: 09/27/2012



# U.S. Department of Energy

## Categorical Exclusion Determination Form



**Program or Field Office:** Advanced Research Projects Agency - Energy

**Project Title:** (0206-1553) Regents of the Univ. of California - Electro-Autotrophic Synthesis of Higher Alcohols

**Location:** California

**Proposed Action or Project Description:**

American Recovery and Reinvestment Act:

Funding will support laboratory and bench scale research and development on electro-autotrophic synthesis for use in the production of energy dense, liquid transportation fuels from biological-based non-photosynthetic systems.

**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:

*Matthew [Signature]*

Date Determined: Jun 2, 2010

Comments:

Webmaster:

