



U.S. Department of Energy

Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: (0470-1535) University of Illinois Urbana-Champaign - Engineering Hydrocarbon Biosynthesis and Storage Together with Increased Photosynthetic Efficiency into the Saccharinae

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Urbana-Champaign, IL; Gainesville, FL; Lincoln, NE; Upton, NY

Proposed Action Description:

Funding will support development of genetically modified (GM) sugarcane and GM sorghum that have improved cold tolerance and photosynthetic efficiency (via lighter leaves) compared to their natural counterparts and that produce and store triacylglycerol (oil) in their stems in place of sugar.

Proposed work will consist of (1) development and validation of a computer model for predicting photosynthetic rates in various experimental plant lines; (2) laboratory-based hybridization of Miscanthus with sugarcane and sorghum; (3) laboratory-based genetic modification of Arabidopsis, sugarcane, and sorghum; (4) indoor growth of GM Arabidopsis, GM sugarcane, and GM sorghum in contained growth chambers and indoor growth of GM sugarcane and GM sorghum in greenhouses; and (5) laboratory-based analysis of GM Arabidopsis, GM sugarcane, and GM sorghum plants using standard techniques. This project will not include field testing with GM plants.

Proposed development and validation of the computer model and hybridization of Miscanthus with sugarcane and sorghum will take place at the University of Illinois Urbana-Champaign (UIUC) campus in Urbana-Champaign, IL. Proposed genetic modification, indoor growth, and analysis of GM plants will take place at the UIUC campus in Urbana-Champaign, IL, the University of Florida campus in Gainesville, FL, the University of Nebraska campus in Lincoln, NE, and the Brookhaven National Laboratory in Upton, NY. Participants will receive authorization for all work involving recombinant DNA molecules and GM plants prior to or concurrent with beginning work with these materials.

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:

Matthew Dunne

Date Determined: 12/01/2011