

PMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY**  
**OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**  
**NEPA DETERMINATION**



RECIPIENT: Research Triangle Institute

STATE: NC

**PROJECT TITLE :** Improved Hydrogen Utilization and Carbon Recovery for Higher Efficiency Thermochemical Bio-oil Pathways

|                                                |                                      |                            |                   |
|------------------------------------------------|--------------------------------------|----------------------------|-------------------|
| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
| DE-FOA-0000812                                 | DE-EE0006636                         | GFO-0006636-001            |                   |

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

|                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A9 Information gathering, analysis, and dissemination</b>                                | Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)                                                                                                                                                                           |
| <b>B3.6 Small-scale research and development, laboratory operations, and pilot projects</b> | Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment. |

## Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the Research Triangle Institute (RTI) to produce hydrocarbon transportation fuels in the gasoline, diesel, and jet range at less than \$3/gallon.

The Research Triangle Institute proposes to improve hydrogen utilization and carbon efficiency in an integrated, in-situ catalytic biomass pyrolysis process with aqueous phase carbon recovery. This endeavor would be achieved through a series of tasks including: synthesis, characterization and screening of new and novel catalysts; proofing out and demonstrating the feasibility of biologically converting carbon in the aqueous phase to methane; and finally, production of biofuels.

All lab work would take place at the Johnson Science and Engineering Building on RTI's Main Campus which is designed for this type of research; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary. Lab facilities are outfitted with toxic gas (CO, H<sub>2</sub>S, SO<sub>2</sub>) and hydrocarbon detectors that are connected to building safety and fire alarm systems. Chemical exposure is minimized by using glove boxes or fume hoods as needed in addition to the toxic gas sensors and high air changes in the lab. Personal protective equipment is required of all lab employees including safety glasses, gloves, lab coats and face shields, as needed. Off-gases would be vented through a thermal oxidizer, waste water is accumulated in storage tanks for disposal. Solids would be collected in drums for disposal. Bio-crude would be collected in barrels for analysis and future upgrading. All facilities meet or exceed federal safety and hazardous materials standards and no siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Based on review of the project information and the above analysis, DOE has determined the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this project is consistent with actions outlined in DOE categorical exclusions A9 "Information gathering, analysis, and dissemination" and B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and is therefore categorically excluded from further NEPA review.

**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

This NEPA determination does not require a tailored NEPA provision.  
Review completed by Rebecca McCord 08/29/2014.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: \_\_\_\_\_

NEPA Compliance Officer

Date: \_\_\_\_\_

9/3/2014

**FIELD OFFICE MANAGER DETERMINATION**

☐ Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

- ☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- ☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_