

PMC-EF2a

(2.0402)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: Novomer

STATE: MA

**PROJECT TITLE :** Conversion of Waste CO2 and Shale Gas to High Value Chemicals

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000560	DE-EE0005766	GFO-0005766-001	GO5766

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:

**A9 Information gathering, analysis, and dissemination**

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.)

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

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.

**Rational for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Novomer to develop, build, operate and validate a semi-integrated laboratory scale continuous process to make CO<sub>2</sub>-based chemical intermediates with significantly lower energy content, carbon footprint, and cost than today's petrochemical versions. A solid oxide electrolyzer (SOE) would be developed to convert CO<sub>2</sub> to CO. The CO would be used as the feedstock for the chemical intermediates synthesized using Novomer's process. DOE funding would be used for information gathering and research and development in a laboratory setting.

Work would be completed at the Praxair Technology Center, located at 175 E Park Dr., Tonawanda, New York 14150 and two Novomer facilities located at 950 Danby Rd., Ithaca, New York 14850 and 1669 Lake Ave., Rochester, New York 14652. All three laboratories completed an R&D questionnaire addressing the protocols for laboratory and facility safety, risk management and waste disposal. The laboratories comply with standard safety procedures and all processes and procedures are monitored by Environmental Health and Safety (EHS) staff. The laboratories have all applicable permits in place, and would not need additional permits for the proposed activities. All handling and disposal of gases, chemicals, wastes and liquid effluents comply with appropriate regulations. Hazardous waste would be transferred to a satellite collection point in the lab and removed by a certified hazardous waste disposal company.

At the Praxair facility, activities would involve the testing of electrolysis cells for electrochemical reduction of CO<sub>2</sub> to CO. The flow rate of CO<sub>2</sub> to the reactor during the course of the project would not exceed 0.7 liter per minute and the production of CO would not exceed 0.7 liter per minute. The CO would be combusted to CO<sub>2</sub> prior to emission to the atmosphere. Hydrogen (H<sub>2</sub>) would also be supplied to the reactor at a rate not to exceed 0.2 liter per minute and would be combusted to water vapor (H<sub>2</sub>O). Tonawanda is located in Erie County, NY and is a non-attainment area for 8-Hour Ozone (2008). The minimal CO emissions would not adversely impact air quality and exceed 8-Hour Ozone standards in the nonattainment area.

Based on review of the project information and the above analysis, DOE has determined the proposed research and development activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and dissemination," B3.6 "small-scale research and development projects" and is categorically excluded from further NEPA review.

**NEPA PROVISION**



DOE has made a final NEPA determination for this award

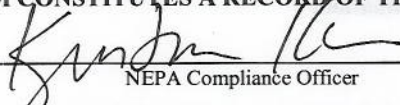
Insert the following language in the award:

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 :

Kelly Daigle 6/25/2013

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

NEPA Compliance Officer Signature:  Date: ~~6/25~~ 7/1/2013  
NEPA Compliance Officer

**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: \_\_\_\_\_ Date: \_\_\_\_\_  
Field Office Manager