

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



**RECIPIENT:** Southern Company Services, Inc.

**STATE:** AL

**PROJECT TITLE :** Novel Microbial Electrolysis System for Conversion of Biowastes into Low-Cost Renewable Hydrogen

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002446	DE-EE0009624	GFO-0009624-001	G09624

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Southern Company Services, Inc. for the laboratory-scale development and performance validation of microbial electrolysis cells (MECs) at successively larger scales. In the final year, the proposed project would include microbial electrolyzer testing at potential partner sites which generate waste organics that would be used as feedstock. Project management and design activities would occur at Alabama Power Company in Birmingham, AL with assembly and testing of MECs and microbial electrolyzers occurring at ElectroActive Technologies in Knoxville, TN. Project partner sites for testing of the microbial electrolyzer for pilot-scale hydrogen production have yet to be determined.

Laboratory activities would occur within an existing laboratory designed for this type of work that would utilize standard laboratory equipment; therefore, no modifications, new permits, additional licenses and/or authorizations would be necessary. The MEC module developed for use at project partner sites would be integrated with a pre- and post-treatment hydrogen storage system and mounted inside a 20-foot trailer for mobilization. Locations for testing have yet to be determined but are expected to be existing agricultural or industrial sites where the system would utilize existing waste streams as feedstock. Testing at each site is expected to last two months. No ground disturbance beyond what is necessary to integrate the trailer mounted system with existing infrastructure and utilities is expected. No new feedstocks would be used in the project. Small amounts of hydrogen could be produced during testing. Existing environmental health and safety guidelines would be followed, supplemented by additional mitigation for hydrogen as needed. During testing of the microbial electrolyzer, small amounts of bacterial sludge could be generated which would be sterilized and disposed according to laboratory procedures. DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

**NEPA PROVISION**

DOE has made a final NEPA determination.

Notes:

**FOR CATEGORICAL EXCLUSION DETERMINATIONS**

The proposed action (or the part of the proposal defined in the Rationale above) 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 proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action 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.

The proposed action is categorically excluded from further NEPA review.

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

NEPA Compliance Officer Signature:  **Electronically Signed By: Casey Strickland** Date: **12/14/2021**  
NEPA Compliance Officer

**FIELD OFFICE MANAGER DETERMINATION**

- Field Office Manager review not required
- Field Office Manager review required

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

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