



U.S. Department of Energy Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Circe Bioscience, Inc. -- Circularizing Industries by Raising Carbon Efficiency

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Cambridge and Waltham, Massachusetts

Proposed Action Description:

AMENDED NEPA DETERMINATION: (See attached original Determination, dated September 20, 2022). This Amended Determination follows the approval of additional funds and period of performance to support the project's small-scale, research and development activities of new technologies to decarbonize biorefining processes by producing carbon-neutral fuels and related chemicals by integrating externally derived reducing power with precision fermentation. Specifically, the project team will continue testing and improving their fermentation process to develop triacylglycerol (TAG) for large-scale production. If successful, this project will generate compounds for fuels, materials, and food while preventing the loss of carbon dioxide (CO2), resulting in greatly reduced CO2 emissions in the production process.

Project activities will be conducted at existing facilities at Circe Bioscience, Inc. (Cambridge and Waltham, MA). Project tasks continue to fit within the class of actions identified under the DOE Categorical Exclusion identified below. This assessment was based on a review of the proposed scope of work and the potential environmental impact of the project. Project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. Circe Bioscience, Inc. has not obtained all necessary permits and approvals for their proposed actions, and is prohibited from commencing applicable project work until those permits are obtained. Per the terms of the award, a permits certification and, if necessary, an amended NEPA Determination, are required prior to the conduct of applicable project work.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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: **GEOFFREY GOODE** Digitally signed by GEOFFREY GOODE
Date: 2023.11.13 15:02:50 -05'00'

Date Determined:



U.S. Department of Energy

Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Circe Bioscience, Inc. - CIRCE: Circularizing Industries by Raising Carbon Efficiency

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Somerville, Massachusetts

Proposed Action Description:

Funding will support the project's small-scale, research and development of new technologies to decarbonize biorefining processes by producing carbon-neutral fuels and related chemicals by integrating externally derived reducing power with precision fermentation. Specifically, the project team will (1) use genetic engineering to produce feedstock compounds, (2) identify and test feedstock compounds for use in fermentation process, (3) establish and test fermentation process, and (4) scale-up for pilot production and final product. If successful, this project will generate highly reduced carbon compounds from simple, inexpensive feedstocks so that the U.S. bioeconomy can move beyond niche, high value products and into the high impact commodity space.

Project activities will be conducted at an existing facility at Circe Bioscience, Inc. (Somerville, MA) designed for the applicable activities. Project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. Circe Bioscience, Inc. has not obtained all necessary permits and approvals applicable to proposed actions and is prohibited from commencing project work under Milestones 3.1-3.4 until those permits are obtained. Per the terms of the award, a permits certification and, if necessary, an amended NEPA Determination, are required prior to the conduct of applicable project work.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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: **GEOFFREY GOODE** Digitally signed by GEOFFREY GOODE
Date: 2022.09.20 10:46:52 -04'00'

Date Determined: