



U.S. Department of Energy

Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Argonne National Laboratory -- GREET Analysis for TERRA/ROOTS Success Scenarios

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): State College, Pennsylvania

Proposed Action Description:

THIRD AMENDED NEPA DETERMINATION: (See attached original Determination, dated September 4, 2018, First Amended Determination dated May 11, 2021, and Second Amended Determination dated March 1, 2022). This Amended Determination follows the approval of additional milestones and an extended period of performance to support the project team's small-scale, research and development activities to expand upon improvements made to the project team's Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Feedstock Carbon Intensity Calculator (FD-CIC) tool. Specifically, the project team will apply additional wheat crops to the analysis tool. If successful, the project team will develop a simplified GREET worksheet that covers soybean, sorghum, corn, and wheat production and multiple end-product pathways, including biofuels, which will be used for analysis of real-world scenarios and connect feedstock production practices to established carbon markets, thereby reducing greenhouse gas emissions.

The proposed project activities under this award are limited exclusively to intellectual, academic, or analytical activities. The project team will not conduct physical experiments, prototype fabrication, demonstration projects, or similar activities under this award. Project tasks continue to fit within the class of actions identified under the DOE Categorical Exclusion identified below and do not involve any extraordinary circumstances that may affect the significance of the environmental effects of the project.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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: 2023.03.17 16:10:15 -04'00'

Date Determined:



U.S. Department of Energy

Categorical Exclusion Determination Form

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Proposed Action Title: Argonne National Laboratory - GREET Analysis for TERRA/ROOTS Success Scenarios

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Lemont, IL

Proposed Action Description:

SECOND AMENDED NEPA DETERMINATION: (See attached original Determination, dated September 4, 2018, as amended by the First Amended NEPA Determination, dated May 11, 2021)

This Second Amended Determination follows the approval of additional funds and an extended period of performance to support the project team's small-scale, research and development activities to improve the team's tool enabling the connection of feedstock production practices to established carbon markets - a key SMARTFARM program goal. Specifically, the project team will (1) update their Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Feedstock Carbon Intensity Calculator (FD-CIC) tool with default values for common farm rotations based on USDA data; (2) expand and update FD-CIC; (3) engage stakeholders on the use of GREET FD-CIC; (4) expand the tool's capability to perform land-based LCA; and (5) issue LCA results and report. If successful, the project team will create a new FD-CIC with detailed multi-year crop rotations, a GREET version with updated soybean-based biofuel LCA, and a report to document quantified GHG reductions of multi-year crop rotation cycles.

The proposed project activities under this award are limited exclusively to intellectual, academic, or analytical activities. The project team will not conduct physical experiments, prototype fabrication, demonstration projects, or similar activities under this award.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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: 2022.03.01 11:23:53 -05'00'

Date Determined:



U.S. Department of Energy Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Argonne National Laboratory -- GREET Analysis for TERRA/ROOTS Success Scenarios

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Lemont, IL

Proposed Action Description:

AMENDED NEPA DETERMINATION: (See attached original Determination, dated September 4, 2018)

This Amended Determination follows the approval of additional funds and milestones to support the project team's small-scale, research and development activities to extend improvements made to project team's carbon intensity (CI) calculator (FD-CIC) tool for soy-based biodiesel (BD) and renewable diesel (RD) by updating processing technology inputs and introducing the capacity to generate different ratios of oil and meal from a soybean crusher. Specifically, the project team will enable more accurate allocation of greenhouse gas (GHG) burdens between fuels and other outputs of the BD/RD supply chain. If successful, the project team will develop a simplified GREET worksheet that covers soybean production and multiple end-product pathways, which will be used for an analysis of real-world scenarios. These efforts will continue the SMARTFARM program's goals of connecting feedstock production practices to established carbon markets.

The proposed project activities under this award are limited exclusively to intellectual, academic, or analytical activities. The project team will not conduct physical experiments, prototype fabrication, demonstration projects, or similar activities under this award.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination



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: Signed via email

Date Determined: May 11, 2021



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Proposed Action Title: Argonne National Laboratory -- GREET Analysis for TERRA/ROOTS Success Scenarios

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Lemont, IL

Proposed Action Description:

Funding will support the project team's information gathering and analysis efforts to incorporate local practices of feedstock production in Carbon Intensity / Life Cycle calculations for biofuel production. Specifically, the project team will: (1) develop life cycle analysis tools that account for crop management decisions (e. g. inclusion of cover crops, crop genetics, tillage) in selected regions for their impacts on biofuels; (2) develop life cycle accounting methods for crop rotations that include multi-year / multi-product allocations; and (3) develop real-time farm monitoring data collection protocols for individual field bounding analysis. If successful, the project team's efforts will create a new paradigm for verification of life cycle for new biofuels.

The proposed project activities under this award are limited exclusively to intellectual, academic, or analytical activities. The project team will not conduct physical experiments, prototype fabrication, demonstration projects, or similar activities under this award.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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* for *William Bierbauer* Date Determined: 09/04/2018

Geoffrey Goode (This form will be locked for editing upon signature)