



U.S. Department of Energy

Categorical Exclusion Determination Form

Proposed Action Title:

Program or Field Office:

Location(s) (City/County/State):

Proposed Action Description:

Categorical Exclusion(s) Applied:

For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to [10 CFR Part 1021](#), and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of [DOE's National Environmental Policy Act Implementing Procedures](#) (June 30, 2025).

Requirements and guidance in 10 CFR 1021.102 and DOE's NEPA Implementing Procedures: (See full text in regulation and in Implementing Procedures)

The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025).

To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply.

The proposal has not been segmented to meet the definition of a categorical exclusion.

[Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on [DOE's Section 109 webpage](#).]

Based on my review of the proposed action, as NEPA Compliance Officer, I have determined that the proposed action fits within the specified class(es) of action, the other requirements and guidance set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer:

Date Determined:

Attachment A: Projects in the CATALCHEM-E (NOFO Nos. DE-FOA-0003505 and DE-FOA-0003506) Program

Prime Recipient (Control No.)	Project Title	Categorical Exclusion
National Laboratory of the Rockies (3505-1526)	SYNTH-ON: An Autonomous Synthetic Framework to Power the Refinery of Tomorrow	B3.6, B3.15
Argonne National Laboratory (3505-1526)	Accelerated Catalyst Design Foundry	B3.6, B3.15
Oxylus Energy (3505-1559)	Project SPRINT-EC: Syngas Production via Rapid Inverse-design Network for Tailored Electrochemical Catalysts	B3.6, B3.15
Idaho National Laboratory (3505-1514)	KINETIC: Knowledge Integration and Next-Generation Experiments to Transform Industrial Catalysis	B3.6
Ames National Laboratory (3505-1551)	Autonomous High Throughput Experimentation to Accelerate Chemical Manufacturing (A-TEAM)	B3.6, B3.15
Lawrence Berkeley National Laboratory (3505-1548)	PANDORA: Platform Acceleration for Novel-catalyst Discovery and Optimization with Reactor-arrays and AI/ML	B3.6
North Carolina State University (3005-1507)	Human-AI-Robot Teaming to Accelerate Heterogeneous Redox Catalyst Discovery with a Self-Driving Lab	B3.6, B3.15
Pacific Northwest National Laboratory (3505-1503)	Trinity AI Platform Integrating Digital, High Throughput, and Scale-Up for Inverse Catalyst Development	B3.6, B3.15
University of Connecticut (3505-1513)	REACT: Revolutionary Enhancements in AI-Guided Catalyst Transformations	B3.6, B3.15
University of Rochester (3505-1524)	Catalyst Acceleration and Testing via AI and Language to Yield Scalable Transformations (CATALYST)	B3.6, B3.15
University of Wisconsin – Madison (3505-1533)	AI-Driven Design of Industrial Fixed Bed Reactor Catalysts for Production of Renewable Fuels and Chemicals from Oxygenated Feedstocks (AI-FIXCAT)	B3.6
P2 Science, Inc. (3506-1504)	HEAT FACTORY: Highly Energetic Advanced Turpentine Fuels Accessed with Catalytic Transformations Optimized Robotically	B3.6, B3.15

Bold text indicates the one project included in the Second Amended CX.



U.S. Department of Energy

Categorical Exclusion Determination Form

Proposed Action Title: Catalytic Application Testing for Accelerated Learning Chemistries via High-throughput Experimentation and Modeling Efficiently -- CATALCHEM-E and CATALCHEM-E SBIR/STTR (NOFO Nos. DE-FOA-0003505 and DE-FOA-0003506)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): CA, CO, CT, DE, GA, IA, ID, IL, KY, MA, MD, MI, MO, NC, NJ, NY, OH, PA, TX, UT, VA, WA, WI

Proposed Action Description:

FIRST AMENDED PROGRAMMATIC NEPA DETERMINATION (See attached original Determination, dated July 13, 2026). The Catalytic Application Testing for Accelerated Learning Chemistries via High-throughput Experimentation and Modeling Efficiently (CATALCHEM-E) program supports the small-scale research and development of heterogeneous catalysts, solid materials that reduce the inherent energy needed to drive industrial-scale chemical reactions responsible for making everyday products and commodities. Specifically, projects will focus on using artificial intelligence and machine learning (AI/ML) to expedite the discovery of new materials for catalysis, train AI/ML algorithms from existing or new high-throughput experimentation data, and design, create, test, analyze, and validate their models using rapid automated workflows and iterating quickly on the knowledge learned. If successful, CATALCHEM-E projects would accelerate discovery of new, profitable catalysts for energy and chemical applications such as converting waste plastics or syngas, unlocking new process technology like reactive carbon capture, and enable the production of industrial chemicals and next generation fuels, ultimately reducing dependence on foreign energy, thereby increasing U.S. energy security.

The CATALCHEM-E Program is composed of 13 small-scale research and development projects that will be conducted by universities, large and small businesses, and national laboratories. This First Amended Determination adds 3 projects to the original Determination (see Attachment A for all 11). All 11 projects fit within the class of actions identified under the DOE Categorical Exclusions identified below. This assessment was based on a review of the proposed scope of work and the potential environmental impacts of each project. All 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.

Categorical Exclusion(s) Applied:

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

B3.15 – Small-scale indoor research and development projects using nanoscale materials

For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to [10 CFR Part 1021](#), and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of [DOE's National Environmental Policy Act Implementing Procedures](#) (June 30, 2025).

Requirements and guidance in 10 CFR 1021.102 and DOE's NEPA Implementing Procedures: (See full text in regulation and in Implementing Procedures)

- ☒ The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025).
To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.
- ☒ There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply.
- ☒ The proposal has not been segmented to meet the definition of a categorical exclusion.

[Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on [DOE's Section 109 webpage](#).]

Based on my review of the proposed action, as NEPA Compliance Officer, I have determined that the proposed action fits within the specified class(es) of action, the other requirements and guidance 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: 2026.07.23 09:44:31 -04'00'

Date Determined:

Attachment A: Projects in the CATALCHEM-E (NOFO Nos. DE-FOA-0003505 and DE-FOA-0003506) Program

Prime Recipient (Control No.)	Project Title	Categorical Exclusion
Argonne National Laboratory (3505-1526)	Accelerated Catalyst Design Foundry	B3.6, B3.15
Oxylus Energy (3505-1559)	Project SPRINT-EC: Syngas Production via Rapid Inverse-design Network for Tailored Electrochemical Catalysts	B3.6, B3.15
Idaho National Laboratory (3505-1514)	KINETIC: Knowledge Integration and Next-Generation Experiments to Transform Industrial Catalysis	B3.6
Ames National Laboratory (3505-1551)	Autonomous High Throughput Experimentation to Accelerate Chemical Manufacturing (A-TEAM)	B3.6, B3.15
Lawrence Berkeley National Laboratory (3505-1548)	PANDORA: Platform Acceleration for Novel-catalyst Discovery and Optimization with Reactor-arrays and AI/ML	B3.6
North Carolina State University (3005-1507)	Human-AI-Robot Teaming to Accelerate Heterogeneous Redox Catalyst Discovery with a Self-Driving Lab	B3.6, B3.15
Pacific Northwest National Laboratory (3505-1503)	Trinity AI Platform Integrating Digital, High Throughput, and Scale-Up for Inverse Catalyst Development	B3.6, B3.15
University of Connecticut (3505-1513)	REACT: Revolutionary Enhancements in AI-Guided Catalyst Transformations	B3.6, B3.15
University of Rochester (3505-1524)	Catalyst Acceleration and Testing via AI and Language to Yield Scalable Transformations (CATALYST)	B3.6, B3.15
University of Wisconsin – Madison (3505-1533)	AI-Driven Design of Industrial Fixed Bed Reactor Catalysts for Production of Renewable Fuels and Chemicals from Oxygenated Feedstocks (AI-FIXCAT)	B3.6
P2 Science, Inc. (3506-1504)	HEAT FACTORY: Highly Energetic Advanced Turpentine Fuels Accessed with Catalytic Transformations Optimized Robotically	B3.6, B3.15

Bold text indicates the 3 projects included in the First Amended CX.



U.S. Department of Energy

Categorical Exclusion Determination Form

Proposed Action Title: Catalytic Application Testing for Accelerated Learning Chemistries via High-throughput Experimentation and Modeling Efficiently -- CATALCHEM-E and CATALCHEM-E SBIR/STTR (NOFO Nos. DE-FOA-0003505 and DE-FOA-0003506)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): CA, CO, CT, DE, IA, IL, MA, MO, NC, NJ, NY, OH, PA, TX, UT, VA, WA, WI

Proposed Action Description:

The Catalytic Application Testing for Accelerated Learning Chemistries via High-throughput Experimentation and Modeling Efficiently (CATALCHEM-E) program supports the small-scale research and development of heterogeneous catalysts, solid materials that reduce the inherent energy needed to drive industrial-scale chemical reactions responsible for making everyday products and commodities. Specifically, projects will focus on using artificial intelligence and machine learning (AI/ML) to expedite the discovery of new materials for catalysis, train AI/ML algorithms from existing or new high-throughput experimentation data, and design, create, test, analyze, and validate their models using rapid automated workflows and iterating quickly on the knowledge learned. If successful, CATALCHEM-E projects would accelerate discovery of new, profitable catalysts for energy and chemical applications such as converting waste plastics or syngas, unlocking new process technology like reactive carbon capture, and enable the production of industrial chemicals and next generation fuels, ultimately reducing dependence on foreign energy, thereby increasing U.S. energy security.

The CATALCHEM-E Program is composed of 12 small-scale research and development projects that will be conducted by universities, large and small businesses, and national laboratories. This Determination covers 8 of the 12 projects (listed in Attachment A). These projects fit within the class of actions identified under the DOE Categorical Exclusions identified below. This assessment was based on a review of the proposed scope of work and the potential environmental impacts of each project. All 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.

Categorical Exclusion(s) Applied:

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

B3.15 – Small-scale indoor research and development projects using nanoscale materials

For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to [10 CFR Part 1021](#), and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of [DOE's National Environmental Policy Act Implementing Procedures](#) (June 30, 2025).

Requirements and guidance in 10 CFR 1021.102 and DOE's NEPA Implementing Procedures: (See full text in regulation and in Implementing Procedures)

- ☒ The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025).
To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.
- ☒ There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply.
- ☒ The proposal has not been segmented to meet the definition of a categorical exclusion.

[Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on [DOE's Section 109 webpage](#).]

Based on my review of the proposed action, as NEPA Compliance Officer, I have determined that the proposed action fits within the specified class(es) of action, the other requirements and guidance 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: 2026.07.13 14:25:07 -04'00'

Date Determined:

Attachment A: Projects in the CATALCHEM-E (NOFO Nos. DE-FOA-0003505 and DE-FOA-0003506) Program

Prime Recipient (Control No.)	Project Title	Categorical Exclusion
Ames National Laboratory (3505-1551)	Autonomous High Throughput Experimentation to Accelerate Chemical Manufacturing (A-TEAM)	B3.6, B3.15
Lawrence Berkeley National Laboratory (3505-1548)	PANDORA: Platform Acceleration for Novel-catalyst Discovery and Optimization with Reactor-arrays and AI/ML	B3.6
North Carolina State University (3005-1507)	Human-AI-Robot Teaming to Accelerate Heterogeneous Redox Catalyst Discovery with a Self-Driving Lab	B3.6, B3.15
Pacific Northwest National Laboratory (3505-1503)	Trinity AI Platform Integrating Digital, High Throughput, and Scale-Up for Inverse Catalyst Development	B3.6, B3.15
University of Connecticut (3505-1513)	REACT: Revolutionary Enhancements in AI-Guided Catalyst Transformations	B3.6, B3.15
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University of Wisconsin – Madison (3505-1533)	AI-Driven Design of Industrial Fixed Bed Reactor Catalysts for Production of Renewable Fuels and Chemicals from Oxygenated Feedstocks (AI-FIXCAT)	B3.6
P2 Science, Inc. (3506-1504)	HEAT FACTORY: Highly Energetic Advanced Turpentine Fuels Accessed with Catalytic Transformations Optimized Robotically	B3.6, B3.15