



# U.S. Department of Energy

## Categorical Exclusion Determination Form

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Proposed Action Title:

Program or Field Office:

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

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Proposed Action Description:

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Categorical Exclusion(s) Applied:

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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:

Date Determined:

**Attachment A: Projects in the CIRCULAR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)  
Program**

<b>Prime Recipient (Control No.)</b>	<b>Project Title</b>	<b>Categorical Exclusion</b>
<b>Toyota Engineering and Manufacturing North America, Inc. (3303-1639)</b>	<b>Development of an Autonomous Robotic Disassembly Process for Applications in Battery Pack Circularity</b>	<b>A9, B3.6, B3.15</b>
University of California, San Diego (3303-1633)	Regenerable Lithium-Ion Batteries with High Energy and Long Life	A9, B3.6, B3.15
Iontra Inc. (3303-1634)	Sensing Platform for Fast Cell-Agnostic Battery State Diagnostics	A9, B3.6, B3.15
University of Colorado, Boulder (3303-1517)	Robust Robotic Disassembly of EV Battery Packs using Open- World Vision Language Models and Symbolic Replanning	A9, B3.6
HighT-Tech, Inc. (3303-1509)	Rapid Surface Graphitization of Carbon Anode for In Situ Regeneration of Batteries	A9, B3.6
Purdue University (3303-1621)	Integrated Technoeconomic, Lifecycle, and Circularity Analyses Tool for EV Batteries	A9, B3.6
SeaLion Energy, Inc. (3324-1519)	TARDIS-J: Tunable Activation and Regeneration in Devices using In-Situ Jamming	A9, B3.6, B3.15
University of Michigan (3303-1609)	Rapid State of Health Diagnosis by Model-Enabled Pulse Form Sequence	A9, B3.6
Saint-Gobain Ceramics and Plastics, Inc. (3303-1523)	EV battERY lifetiMe extensiOn with mateRial intelligencE (EVERMORE)	A9, B3.6

**Bold text indicates the one project included in the Third Amended CX.**



# U.S. Department of Energy

## Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Catalyzing Innovative Research for Circular Use of Long-lived Advanced Rechargeables -- CIRCULAR and CIRCULAR SBIR/STTR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): CA, CO, CT, IA, ID, IN, MA, MD, MI, NJ, PA, VA

Proposed Action Description:

SECOND AMENDED PROGRAMMATIC NEPA DETERMINATION (See attached original and First Amended Determinations, dated November 26, 2024 and January 15, 2025, respectively). The Catalyzing Innovative Research for Circular Use of Long-lived Advanced Rechargeables (CIRCULAR) program seeks to develop solutions that extend battery life and facilitate repair and reuse to reduce waste and create a sustainable electric vehicle (EV) battery supply chain. Specifically, the projects aim to develop strategies and diagnostics to prolong battery life, create sustainable designs, identify innovative materials, and design systems to enable safe and efficient disassembly for regeneration, repair, and reuse. If successful, CIRCULAR projects will decrease the domestic energy burden, landfill waste, and carbon footprint of EVs through regeneration, repair, reuse, and remanufacture of batteries and battery materials.

The CIRCULAR Program is composed of 13 small-scale research and development projects that will be conducted by universities, large businesses, and small businesses. This Second Amended Determination adds one project (University of California, San Diego) to the Amended Determination signed on January 15, 2025 (see Attachment A for all 8). This project fits 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:

A9 - Information gathering, analysis, and dissemination

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 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: 2025.02.26 13:02:54 -05'00'

Date Determined:

**Attachment A: Projects in the CIRCULAR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)  
Program**

<b>Prime Recipient (Control No.)</b>	<b>Project Title</b>	<b>Categorical Exclusion</b>
<b>University of California, San Diego (3303-1633)</b>	<b>Regenerable Lithium-Ion Batteries with High Energy and Long Life</b>	<b>A9, B3.6, B3.15</b>
Iontra Inc. (3303-1634)	Sensing Platform for Fast Cell-Agnostic Battery State Diagnostics	A9, B3.6, B3.15
University of Colorado, Boulder (3303-1517)	Robust Robotic Disassembly of EV Battery Packs using Open-World Vision Language Models and Symbolic Replanning	A9, B3.6
HighT-Tech, Inc. (3303-1509)	Rapid Surface Graphitization of Carbon Anode for In Situ Regeneration of Batteries	A9, B3.6
Purdue University (3303-1621)	Integrated Technoeconomic, Lifecycle, and Circularity Analyses Tool for EV Batteries	A9, B3.6
SeaLion Energy, Inc. (3324-1519)	TARDIS-J: Tunable Activation and Regeneration in Devices using In-Situ Jamming	A9, B3.6, B3.15
University of Michigan (3303-1609)	Rapid State of Health Diagnosis by Model-Enabled Pulse Form Sequence	A9, B3.6
Saint-Gobain Ceramics and Plastics, Inc. (3303-1523)	EV battERY lifetiMe extensiOn with mateRial intelligencE (EVERMORE)	A9, B3.6

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



# U.S. Department of Energy

## Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Catalyzing Innovative Research for Circular Use of Long-lived Advanced Rechargeables -- CIRCULAR and CIRCULAR SBIR/STTR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): CA, CO, CT, IA, ID, IN, MA, MD, MI, NJ, PA, VA

Proposed Action Description:

FIRST AMENDED PROGRAMMATIC NEPA DETERMINATION (See attached original Determination, dated November 26, 2024). The Catalyzing Innovative Research for Circular Use of Long-lived Advanced Rechargeables (CIRCULAR) program seeks to develop solutions that extend battery life and facilitate repair and reuse to reduce waste and create a sustainable electric vehicle (EV) battery supply chain. Specifically, the projects aim to develop strategies and diagnostics to prolong battery life, create sustainable designs, identify innovative materials, and design systems to enable safe and efficient disassembly for regeneration, repair, and reuse. If successful, CIRCULAR projects will decrease the domestic energy burden, landfill waste, and carbon footprint of EVs through regeneration, repair, reuse, and remanufacture of batteries and battery materials. The CIRCULAR Program is composed of 13 small-scale research and development projects that will be conducted by universities, large businesses, and small businesses. This First Amended Determination adds one project (Iontra Inc.) to the Determination signed on November 26, 2024 (see Attachment A for all 7). This project fits 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. Iontra has not determined if permits and approvals are applicable to their proposed actions, and is prohibited from commencing applicable project work until such permits and approvals 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

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

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: 2025.01.15 13:04:56 -05'00'

Date Determined:

**Attachment A: Projects in the CIRCULAR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)  
Program**

<b>Prime Recipient (Control No.)</b>	<b>Project Title</b>	<b>Categorical Exclusion</b>
<b>Iontra Inc. (3303-1634)</b>	<b>Sensing Platform for Fast Cell-Agnostic Battery State Diagnostics</b>	<b>A9, B3.6, B3.15</b>
University of Colorado, Boulder (3303-1517)	Robust Robotic Disassembly of EV Battery Packs using Open-World Vision Language Models and Symbolic Replanning	A9, B3.6
HighT-Tech, Inc. (3303-1509)	Rapid Surface Graphitization of Carbon Anode for In Situ Regeneration of Batteries	A9, B3.6
Purdue University (3303-1621)	Integrated Technoeconomic, Lifecycle, and Circularity Analyses Tool for EV Batteries	A9, B3.6
SeaLion Energy, Inc. (3324-1519)	TARDIS-J: Tunable Activation and Regeneration in Devices using In-Situ Jamming	A9, B3.6, B3.15
University of Michigan (3303-1609)	Rapid State of Health Diagnosis by Model-Enabled Pulse Form Sequence	A9, B3.6
Saint-Gobain Ceramics and Plastics, Inc. (3303-1523)	EV battERY lifetiMe extensiOn with mateRial intelligencE (EVERMORE)	A9, B3.6

**Bold text indicates the one project included in the First Amended CX.**





# U.S. Department of Energy

## Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Catalyzing Innovative Research for Circular Use of Long-lived Advanced Rechargeables -- CIRCULAR and CIRCULAR SBIR/STTR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): CA, CO, CT, IA, IN, MA, MD, MI, NJ, PA, VA

Proposed Action Description:

The Catalyzing Innovative Research for Circular Use of Long-lived Advanced Rechargeables (CIRCULAR) program seeks to develop solutions that extend battery life and facilitate repair and reuse to reduce waste and create a sustainable electric vehicle (EV) battery supply chain. Specifically, the projects aim to develop strategies and diagnostics to prolong battery life, create sustainable designs, identify innovative materials, and design systems to enable safe and efficient disassembly for regeneration, repair, and reuse. If successful, CIRCULAR projects will decrease the domestic energy burden, landfill waste, and carbon footprint of EVs through regeneration, repair, reuse, and remanufacture of batteries and battery materials.

The CIRCULAR Program is composed of 13 small-scale research and development projects that will be conducted by universities, large businesses, and small businesses. This Determination covers 6 of the 13 projects (listed in Attachment A). All 6 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:

A9 - Information gathering, analysis, and dissemination

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 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: 2024.11.26 15:44:58 -05'00'

Date Determined:

**Attachment A: Projects in the CIRCULAR (FOA Nos. DE-FOA-0003303 and DE-FOA-0003324)  
Program**

<b>Prime Recipient (Control No.)</b>	<b>Project Title</b>	<b>Categorical Exclusion</b>
University of Colorado, Boulder (3303-1517)	Robust Robotic Disassembly of EV Battery Packs using Open-World Vision Language Models and Symbolic Replanning	A9, B3.6
HighT-Tech, Inc. (3303-1509)	Rapid Surface Graphitization of Carbon Anode for In Situ Regeneration of Batteries	A9, B3.6
Purdue University (3303-1621)	Integrated Technoeconomic, Lifecycle, and Circularity Analyses Tool for EV Batteries	A9, B3.6
SeaLion Energy, Inc. (3324-1519)	TARDIS-J: Tunable Activation and Regeneration in Devices using In-Situ Jamming	A9, B3.6, B3.15
University of Michigan (3303-1609)	Rapid State of Health Diagnosis by Model-Enabled Pulse Form Sequence	A9, B3.6
Saint-Gobain Ceramics and Plastics, Inc. (3303-1523)	EV battERY lifetiMe extensiOn with mateRial intelligencE (EVERMORE)	A9, B3.6