



U.S. Department of Energy

Categorical Exclusion Determination Form

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Proposed Action Title: Electric Vehicles for American Low-carbon Living (EVs4ALL) Program (FOA No. DE-FOA-0002760 and DE-FOA-0002761)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): AZ, CA, CO, IL, IN, LA, MA, MD, MI, NM, OH, PA, TX, VA, WA

Proposed Action Description:

SECOND AMENDED PROGRAMMATIC NEPA DETERMINATION (See attached original Programmatic Determination, dated March 20, 2023 and First Amended Programmatic Determination, dated March 30, 2023). The EVs4ALL Program seeks to increase domestic new and used EV adoption through developing batteries that are fast-charging, effective at low temperatures, and more durable. Specifically, the EVs4ALL Program objectives for batteries include: 1) achieving a charge rate equivalent to 5-15 minutes to restore 80% of cell capacity, 2) reducing low-temperature battery performance losses by at least 50%, 3) retaining a minimum of 90% capacity after the battery has delivered 200,000 miles of equivalent and cumulative range, 4) identifying a compelling pathway to a cost of < \$75/kWh at commercial scale, and 5) implementing new and existing protocols to verify safety of new battery chemistries and cell designs. If successful, EVs4ALL projects will reduce dependence of critical metals in battery design, reduce up to 800 million tons of CO2 a year, and significantly reduce energy consumption in the U.S. The EVs4ALL Program is composed of 12 small-scale research and development projects that will be conducted by universities, for-profit entities, and federal laboratories. This Second Amended Determination adds 2 projects (see Attachment A for projects covered by this and the prior Determinations, with the 2 additional projects highlighted in bold). These projects are covered by and 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: 2023.04.11 10:37:38 -04'00'

Date Determined:



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Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): AZ, CA, CO, IL, IN, LA, MA, MD, MI, OH, PA, TX, VA, WA

Proposed Action Description:

FIRST AMENDED PROGRAMMATIC NEPA DETERMINATION (See attached original Programmatic Determination, dated March 20, 2023). The EVs4ALL Program seeks to increase domestic new and used EV adoption through developing batteries that are fast-charging, effective at low temperatures, and more durable. Specifically, the EVs4ALL Program objectives for batteries include: 1) achieving a charge rate equivalent to 5-15 minutes to restore 80% of cell capacity, 2) reducing low-temperature battery performance losses by at least 50%, 3) retaining a minimum of 90% capacity after the battery has delivered 200,000 miles of equivalent and cumulative range, 4) identifying a compelling pathway to a cost of < \$75/kWh at commercial scale, and 5) implementing new and existing protocols to verify safety of new battery chemistries and cell designs. If successful, EVs4ALL projects will reduce dependence of critical metals in battery design, reduce up to 800 million tons of CO2 a year, and significantly reduce energy consumption in the U.S.

The EVs4ALL Program is composed of 12 small-scale research and development projects that will be conducted by universities, for-profit entities, and federal laboratories. This First Amended Determination adds 1 project (see Attachment A for projects covered by this and the prior Determination, with the 1 additional project highlighted in bold). This project is covered by and 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: 2023.03.30 13:10:17 -04'00'

Date Determined:



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Proposed Action Title: Electric Vehicles for American Low-carbon Living (EVs4ALL) Program (FOA No. DE-FOA-0002760 and DE-FOA-0002761)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): AZ, CA, CO, IL, LA, MA, MD, MI, PA, TX, VA, WA

Proposed Action Description:

The EVs4ALL Program seeks to increase domestic new and used electric vehicle (EV) adoption through developing batteries that are fast-charging, effective at low temperatures, and more durable. Specifically, the EVs4ALL Program objectives for batteries include: 1) achieving a charge rate equivalent to 5-15 minutes to restore 80% of cell capacity, 2) reducing low-temperature battery performance losses by at least 50%, 3) retaining a minimum of 90% capacity after the battery has delivered 200,000 miles of equivalent and cumulative range, 4) identifying a compelling pathway to a cost of < \$75/kWh at commercial scale, and 5) implementing new and existing protocols to verify safety of new battery chemistries and cell designs. If successful, EVs4ALL projects will enable wide-scale adoption of EVs, including in colder climates and in sectors where charge time has been an otherwise limiting factor.

The EVs4ALL Program is composed of 12 small-scale research and development projects that will be conducted by universities, for-profit entities, and federal laboratories. This Determination covers 9 of the 12 projects (listed in Attachment A). All 9 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

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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: **GEOFFREY GOODE** Digitally signed by GEOFFREY GOODE
Date: 2023.03.20 11:22:25 -04'00'

Date Determined:

**Attachment A: Projects in the EVs4ALL (FOA No. DE-FOA-0002760 and DE-FOA-0002761)
Program**

Prime Recipient (Control No.)	Project Title	Categorical Exclusion
National Renewable Energy Laboratory (2760-1532)	Evaluating the Safety of Next-generation Energy Storage Cells	A9, B3.6, B3.15
Sandia National Laboratory (2760-1503)	Framework for Safety Evaluation of EVs4ALL Batteries	A9, B3.6
The Ohio State University	Extreme Fast Charging Batteries with Extended Cycle Life for EVs	A9, B3.6, B3.15
Zeta Energy (2760-1549)	Enabling Fast Charging Batteries with 3D Lithium Metal Architectures and Sulfurized Carbon Cathodes	A9, B3.6, B3.15
Virginia Polytechnic Institute and State University (2760-1554)	Fast-Charging, Wide-Temperature, Low-Cost, Durable Batteries Enabled by Cobalt- and Nickel-Free Cathodes and Cell Engineering	A9, B3.6, B3.15
Solid Power Operating, Inc. (2760-1567)	High Energy Fast Charging All-Solid-State Batteries	A9, B3.6, B3.15
24M Technologies, Inc. (2760-1592)	Low-Cost, High Areal Capacity, Anode-Free Sodium-Metal Batteries Enabled by Solid Electrolytes	A9, B3.6
University of Maryland, College Park (2760-1595)	Fast-Charge, High-Energy-Density, Solid-State Battery	A9, B3.6, B3.15
South 8 Technologies (2761-1516)	Liquefied Gas Electrolytes for Next-Gen EV Batteries	A9, B3.6
Ampcera, Inc. (2761-1529)	Thermally Modulated Solid-State Batteries for Ultra-Safe Fast-Charging Electric Vehicles	A9, B3.6, B3.15
Tyfast Energy Corporation (2761-1539)	High SYmmetric Power (HYPER) Battery	A9, B3.6, B3.15
Project K (2761-1557)	Optimizing a Potassium-ion Electrolyte for Revolutionary Automotive Batteries	A9, B3.6

Bold text indicates the two projects added in the Second Amended CX.