

**[6450-01-P]**

**DEPARTMENT OF ENERGY**

**10 CFR Part 1021**

**[DOE-HQ-2023-0063]**

**RIN 1990-AA48**

**National Environmental Policy Act Implementing Procedures**

**AGENCY:** Office of the General Counsel, Department of Energy.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Department of Energy (DOE or the Department) is revising its National Environmental Policy Act (NEPA) implementing procedures (regulations) to add a categorical exclusion for certain energy storage systems and revise categorical exclusions for upgrading and rebuilding powerlines and for solar photovoltaic systems, as well as to make conforming changes to related sections of DOE’s NEPA regulations. These changes will help ensure that DOE conducts an appropriate and efficient environmental review of proposed projects that normally do not result in significant environmental impacts.

**DATES:** This rule is effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** Documents relevant to this rulemaking are posted at *www.regulations.gov* (*Docket: DOE-HQ-2023-0063*). These documents include: the notice of proposed rulemaking, public comments, this final rule, and DOE’s Technical Support Document, which provides additional information regarding the changes and a redline/strikeout version of affected sections of the DOE NEPA regulations indicating the changes made by this rule.

**FOR FURTHER INFORMATION CONTACT:** For information regarding DOE’s NEPA regulations, contact Ms. Carrie Abravanel, Deputy Director, Office of NEPA Policy and Compliance, at *carrie.abravanel@hq.doe.gov* or 202-586-4798.

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**I. Introduction and Background**

The National Environmental Policy Act, as amended, (42 U.S.C. 4321 *et seq.*) requires Federal agencies to provide a detailed statement regarding the environmental impacts of

proposals for major Federal actions significantly affecting the quality of the human environment. The Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR parts 1500–1508) require agencies to develop their own NEPA implementing procedures to apply the CEQ regulations to their specific programs and decision-making processes (40 CFR 1507.3). DOE promulgated its regulations entitled “National Environmental Policy Act Implementing Procedures” (10 CFR part 1021) on April 24, 1992 (57 FR 15122), revised these regulations on five subsequent occasions,<sup>1</sup> and now revises these regulations again with this rule.

NEPA establishes three types of environmental review for Federal proposed actions – environmental impact statement, environmental assessment, and categorical exclusion – each involving different levels of information and analysis. An environmental impact statement is a detailed analysis of reasonably foreseeable environmental effects prepared for a major Federal action significantly affecting the quality of the human environment (42 U.S.C. 4332(2)(C) and 40 CFR part 1502 and section 1508.1(j)). An environmental assessment is a concise public document prepared by a Federal agency to set forth the basis for its finding of no significant impact or its determination that an environmental impact statement is necessary (42 U.S.C. 4336(b)(2) and 40 CFR 1501.5, 1501.6, and 1508.1(h)). A categorical exclusion is a category of actions that the agency has determined, as established in its agency NEPA procedures, normally does not have a significant effect on the human environment and therefore does not require preparation of an environmental assessment or environmental impact statement (40 CFR 1501.4, 1507.3(e)(2)(ii), and 1508.1(d)). DOE’s procedures for applying categorical exclusions require the Department to consider several conditions (described in section II of this document),

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<sup>1</sup> July 9, 1996 (61 FR 36222), December 6, 1996 (61 FR 64603), August 27, 2003 (68 FR 51429), October 13, 2011 (76 FR 63764), and December 4, 2020 (85 FR 78197).

including whether extraordinary circumstances exist such that a normally excluded action may have a significant environmental effect.

## **II. Establishment and Use of Categorical Exclusions**

CEQ issued guidance in 2010 on establishing, applying, and revising categorical exclusions under NEPA (75 FR 75628; December 6, 2010). CEQ explained, “Categorical exclusions are not exemptions or waivers of NEPA review; they are simply one type of NEPA review. To establish a categorical exclusion, agencies determine whether a proposed activity is one that, on the basis of past experience, normally does not require further environmental review. Once established, categorical exclusions provide an efficient tool to complete the NEPA environmental review process for proposals that normally do not require more resource intensive [environmental assessments or environmental impact statements]. The use of categorical exclusions can reduce paperwork and delay, so that [environmental assessments or environmental impact statements] are targeted toward proposed actions that truly have the potential to cause significant environmental effects.”

DOE establishes and revises categorical exclusions pursuant to a rulemaking, such as this one, for defined classes of actions that the Department determines are supported by a record showing that the actions normally do not have significant environmental impacts, individually or cumulatively. To establish the record in this rulemaking, DOE evaluated environmental assessments prepared by DOE and by other Federal agencies, categorical exclusions established by DOE and by other Federal agencies, categorical exclusion determinations, technical reports, applicable requirements, industry practices, and other publicly available information. DOE summarized this information in the preamble to the notice of proposed rulemaking and in a Technical Support Document that was issued alongside the notice of proposed rulemaking (88

FR 78681; November 16, 2023). DOE provided the public with an opportunity to review and comment on DOE's proposed changes. DOE reviewed all comments received on the notice of proposed rulemaking, added information to the Technical Support Document, revised the categorical exclusions addressed in this rule (section III of this document), and prepared responses to public comments (section IV of this document).

In addition to developing a substantiation record to support the establishment or revision of a categorical exclusion, DOE also conducts a project-specific environmental review when determining whether one or more categorical exclusions applies to a proposed action. This entails evaluation of a proposed action against several requirements included in DOE's NEPA regulations. DOE must determine on a case-by-case basis, in accordance with 10 CFR 1021.410(b), that: (1) the proposed action fits within a categorical exclusion listed in appendix A or B to subpart D of part 1021, including (in the case of categorical exclusions listed in appendix B) the integral elements set forth in appendix B; (2) there are no extraordinary circumstances<sup>2</sup> related to the proposal that may affect the significance of the environmental impacts of the proposed action and require preparation of an environmental assessment or environmental impact statement, consistent with 40 CFR 1501.4(b)(1) and (b)(2); and (3) the proposal has not been improperly segmented<sup>3</sup> to meet the definition of a categorical exclusion, there are no connected or related actions with cumulatively significant impacts, and the proposed action is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 as an impermissible interim action.

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<sup>2</sup> DOE defines extraordinary circumstances as "unique situations presented by specific proposals, including, but not limited to, scientific controversy about the environmental effects of the proposal; uncertain effects or effects involving unique or unknown risks; and unresolved conflicts concerning alternative uses of available resources." (10 CFR 1021.410(b)(2))

<sup>3</sup> Segmentation can occur when a proposal is broken down into smaller parts in order to avoid the appearance of significance of the total action. (10 CFR 1021.410(b)(3))

As part of its determination of whether the proposed action fits within a categorical exclusion, DOE evaluates whether the proposed action satisfies conditions included within the text of the individual categorical exclusion. These conditions are discussed generally in this section and in more detail in section III of this document, which describes the changes that DOE is making in this final rule. For example, each of the categorical exclusions included in this rulemaking contains requirements that the proposed action incorporate applicable standards and follow best management practices. These standards and practices can vary by technology and location. Also, they change over time to reflect lessons learned and to address emerging technologies and practices. The Technical Support Document provides links to and summarizes information on some of the relevant standards and best management practices for the categorical exclusions that are included in this rulemaking. As another example, the changes included in this rulemaking specify conditions regarding siting proposed actions on previously disturbed or developed land. DOE defines previously disturbed or developed as “land that has been changed such that its functioning ecological processes have been and remain altered by human activity. The phrase encompasses areas that have been transformed from natural cover to non-native species or a managed state, including, but not limited to, utility and electric power transmission corridors and rights-of-way, and other areas where active utilities and currently used roads are readily available” (10 CFR 1021.410(g)(1)). As DOE explained in a 2011 notice of proposed rulemaking, “In DOE’s experience, the potential for certain types of actions to have significant impacts on the human environment is generally avoided when that action takes place within a previously disturbed or developed area, *i.e.*, land that has been changed such that the former state of the area and its functioning ecological processes have been altered” (76 FR 218; January 3, 2011). DOE’s experience reviewing proposed projects across the United States since 2011

supports this same conclusion. As another example, in categorical exclusion B4.14 for certain energy storage systems, DOE allows siting within a small area contiguous to a previously disturbed or developed area. DOE also has more than a decade of experience implementing categorical exclusions that allow construction on land that is contiguous to previously disturbed or developed areas. The area of contiguous land affected would be small as discussed in 10 CFR 1021.410(g)(2). Any proposed use of contiguous land is subject to review against all the conditions relevant to the categorical exclusion, including the integral elements that require consideration of effects on threatened and endangered species and their habitat, historic properties, and other environmentally sensitive resources. The Technical Support Document includes summaries of environmental assessments for projects proposed on previously disturbed or developed land and on contiguous land.

As previously noted, DOE's NEPA regulations also include "integral elements" that apply to all categorical exclusions listed in appendix B to subpart D of part 1021 (appendix B, paragraphs (1) through (5)). Although the integral elements are not repeated for each categorical exclusion, they are part of the definition of each categorical exclusion listed in appendix B, and DOE must consider them as part of its determination whether the proposed action fits within a categorical exclusion (10 CFR 1021.410(b)(1)). Integral elements require that, to fit within a categorical exclusion, the proposed action must not threaten a violation of applicable environment, safety, and health requirements; require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; disturb hazardous substances, pollutants, or contaminants that preexist in the environment such that there would be uncontrolled or unpermitted releases; have the potential to cause significant impacts on environmentally sensitive resources; or involve governmentally designated noxious weeds or

invasive species, unless certain conditions are met.<sup>4</sup> DOE defines “environmentally sensitive resource” as a resource that has typically been identified as needing protection through Executive order, statute, or regulation by Federal, state, or local government, or a federally recognized Indian tribe. Environmentally sensitive resources include historic properties, threatened and endangered species or their habitat, floodplains, and wetlands, among others (10 CFR part 1021, subpart D, appendix B).

In determining whether a proposed action fits within a categorical exclusion, DOE may review information provided by an applicant, in its application and during follow-up requests; information from systems maintained by DOE, another Federal agency, or external party (*e.g.*, geographic information systems); information from site visits; information from discussions or consultations with Federal, state, local, or tribal governments; and information from other sources as needed. At any point during this review, DOE can determine that additional information is needed to make a categorical exclusion determination or decide to prepare an environmental assessment or environmental impact statement.

Only if DOE determines that all the applicable requirements and conditions of the categorical exclusion (including the integral elements, as applicable) have been met will it proceed to review the proposed action for extraordinary circumstances, and potentially proceed to issue a categorical exclusion determination. DOE regularly posts its categorical exclusion determinations at [www.energy.gov/nepa/doe-categorical-exclusion-cx-determinations](http://www.energy.gov/nepa/doe-categorical-exclusion-cx-determinations).

### **III. Changes Made in this Final Rule**

#### **A. Overview**

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<sup>4</sup> This is a summary description of the integral elements. *See* 10 CFR part 1021, subpart D, appendix B for the full text.



In this final rule, DOE adds a categorical exclusion for certain energy storage systems and revises categorical exclusions for upgrading and rebuilding powerlines and for solar photovoltaic (PV) systems. DOE also makes conforming changes to other categorical exclusions, to a class of actions normally requiring an environmental assessment, and to a class of actions normally requiring an environmental impact statement (10 CFR part 1021, subpart D, appendices B, C, and D). DOE's process for developing the proposed changes is described in the notice of proposed rulemaking. The final changes, including differences from what was included in the notice of proposed rulemaking, are discussed in sections III.B through III.D of this final rule. These changes do not require any changes to or otherwise affect categorical exclusion determinations completed prior to the effective date of this final rule.

In addition, the notice of proposed rulemaking mistakenly included the text of paragraph (b) of categorical exclusion B5.1, Actions to conserve energy or water, and a new paragraph at B5.1(c). DOE did not intend to include that regulatory text in the notice of proposed rulemaking and has removed it from this final rule. DOE is not making changes to categorical exclusion B5.1 paragraph (b) or adding paragraph (c) at this time but may propose such changes in a future rulemaking.

## **B. Changes to Categorical Exclusion B4.13 for Upgrading and Rebuilding Existing Powerlines and Related Provisions**

Powerlines are a critical component of the electric grid that move electricity from facilities that generate electricity to our communities, businesses, and factories. Upgrading and rebuilding<sup>5</sup> powerlines extends their useful life. Upgrades and rebuilds also can help reduce the

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<sup>5</sup> A transmission line rebuild is typically a replacement of conductor and equipment without increasing capacity. Transmission line design and new materials and equipment would meet current standards and electrical clearance requirements. A transmission line upgrade is typically a replacement of conductor and equipment, or the addition of

need for new powerlines and can allow the replacement of components with newer, more efficient and resilient technology.

One example is reconductoring. Conductors are the wires that carry electricity. Most of the existing electric grid uses conductors with a steel core for strength surrounded by aluminum for the electrical current. More recently, conductor designs (referred to as advanced conductors) with composite or carbon cores, in place of steel, have come into use. Advanced conductors provide a variety of benefits including increased capacity. By increasing the capacity of powerlines it is possible to integrate renewable energy and other sources of electricity into the grid without the need to build new powerlines. Use of advanced conductors reduces line losses (*i.e.*, power lost during transmission and distribution of electricity) relative to traditional conductors, thereby improving efficiency.<sup>6</sup> Improvements to capacity and efficiency can help to ensure reliability, reduce costs to consumers, and reduce greenhouse gas (GHG) emissions associated with electricity generation, transmission, and distribution.

Upgrading and rebuilding powerlines also can avoid or reduce adverse environmental impacts, such as by relocating small<sup>7</sup> segments of the existing line to avoid a sensitive environmental resource. Upgrading and rebuilding powerlines also can enhance resilience. For example, an upgrade or rebuild project might convert segments of existing overhead powerlines to underground lines or replace old powerline poles to ensure continued safe operations.

Categorical exclusion B4.13 currently applies to upgrading or rebuilding “approximately 20 miles in length or less” of existing powerlines and allows for minor relocations of small

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sensors or other advanced technology, to increase the line’s capacity, such as by increasing the operating voltage or increasing the temperature rating.

<sup>6</sup> Grid Strategies, LLC, “Advanced Conductors on Existing Transmission Corridors to Accelerate Low Cost Decarbonization,” March 2022, available at: [https://acore.org/wp-content/uploads/2022/03/Advanced\\_Conductors\\_to\\_Accelerate\\_Grid\\_Decarbonization.pdf](https://acore.org/wp-content/uploads/2022/03/Advanced_Conductors_to_Accelerate_Grid_Decarbonization.pdf).

<sup>7</sup> See 10 CFR 1021.410(g)(2) for a discussion of “small” in the context of determining the applicability of a DOE categorical exclusion.

segments of powerlines. With this final rule, DOE removes the mileage limitation, adds options for relocating within an existing right-of-way or within otherwise previously disturbed or developed lands, specifies conditions for widening a right-of-way under this categorical exclusion to comply with applicable electrical standards, and adds new conditions.

The potential significance of environmental impacts from upgrading or rebuilding powerlines is more related to local environmental conditions than to the length of the powerlines. For example, the presence of environmentally sensitive resources along the existing right-of-way is more pertinent than the length of the existing powerlines to be upgraded or rebuilt. DOE reviewed environmental assessments for powerline upgrades and rebuilds of various lengths. (*See* Technical Support Document, p. 2.) The length of the projects is based on the endpoints, which are commonly substations (*e.g.*, rebuild the powerline from substation A to substation B). Environmental assessments and other information summarized in the Technical Support Document, as well as DOE’s experience with powerline upgrades and rebuilds, do not indicate a particular mileage limit that would mark a threshold for significant impacts. DOE’s experience comes from operating transmission systems for more than 50 years that currently include more than 25,000 miles of powerlines.

In this final rule, DOE clarifies options for relocating powerlines within the scope of categorical exclusion B4.13. Relocating segments of a powerline can improve resilience, avoid sensitive resources, or serve other purposes. (*See* Technical Support Document, p. 13, DOE/EA-1967 for an example of relocation to avoid a rock fall and landslide area, thereby moving the powerline to a more stable area.) The prior version of B4.13 encompassed “minor relocations of small segments of the powerlines.” This final rule makes the change included in the notice of proposed rulemaking to delete “minor” because it is unnecessary to qualify “relocations of small

segments” with “minor.” Also, DOE is revising B4.13 to specify that small segments of powerlines may be relocated “within an existing powerline right of way or within otherwise previously disturbed or developed lands.” The prior version of B4.13 did not include this limitation. In addition, DOE is making three clarifying changes in response to public comment on the notice of proposed rulemaking (discussed in section IV.B of this document). In this final rule, DOE adds “powerline” before “right-of-way” such that B4.13 now specifies that the categorical exclusion applies to projects “within an existing powerline right-of way.” The final rule also specifies that upgrading or rebuilding powerlines might include widening of an existing right-of-way to comply with electrical standards (*e.g.*, increasing voltage may require a wider clearance to either side of the powerline to avoid fires or other accidents).

Commenters sought clarification regarding whether and how B4.13 includes widening of a right-of-way. A right-of-way may need to be widened to meet electrical standards due to a variety of factors associated with powerline upgrades and rebuilds such as changes in voltage, type of conductor (wires carrying the electrical current), and span length (distance between poles or towers). This widening keeps the area around a powerline clear of vegetation and other potential hazards to reduce risk of fires, power outages, and other accidents. (*See* Technical Support Document, p. 36.) Widening a right-of-way was part of the scope of the version of categorical exclusion B4.13 in effect prior to this final rule. (*See*, Technical Support Document, p. 18, Categorical Exclusion Determination for the Palisades-Swan Valley Transmission Line Rebuild for a project requiring widening in some areas of the rebuild project.) In this final rule, DOE has added to categorical exclusion B4.13 that, “Upgrading or rebuilding existing electric powerlines also may involve widening an existing powerline right-of-way to meet current electrical standards if the widening remains within previously disturbed or developed lands and

only extends into a small area beyond such lands as needed to comply with applicable electrical standards.”

Finally, DOE clarifies that the “categorical exclusion does not apply to underwater powerlines.” These changes in the final rule better state DOE’s intention for the changes included in the notice of proposed rulemaking.

The revisions to categorical exclusion B4.13 included in this final rule provide additional flexibility for powerline upgrade and rebuild projects consistent with the requirements for a categorical exclusion. While DOE has removed the mileage limit, DOE will continue to apply the conditions, including integral elements, described in section II of this document when deciding whether a particular proposed action qualifies for categorical exclusion B4.13. This review includes consideration of extraordinary circumstances and integral elements, such as the potential for significant impacts on environmentally sensitive resources, amongst other considerations. At any point during the review of a proposed action, DOE may determine that it must prepare an environmental assessment or environmental impact statement, rather than apply categorical exclusion B4.13 to the proposed action. In other words, inclusion of the revised categorical exclusion B4.13 in DOE’s regulations does not bring all powerline upgrade or rebuild projects within the scope of the revised categorical exclusion.

DOE’s review of environmental assessments and other information in preparing this rulemaking revealed that proposals to upgrade or rebuild powerlines normally incorporate practices that avoid or reduce potential land disturbance, erosion, disturbance of environmentally sensitive resources, and take other measures to protect the environment in the project area. To account for this, DOE has added a condition requiring that, to qualify for the categorical exclusion, the proposed project be in accordance with applicable requirements and incorporate

appropriate design and construction standards, control technologies, and best management practices. This condition, together with the integral elements and consideration of extraordinary circumstances (described in section II of this document), will help to ensure that a proposed upgrade or rebuild of an existing powerline would be sited and designed appropriately.

DOE also is making a conforming change to its class of action, C4, that normally requires an environmental assessment for upgrading and rebuilding existing powerlines more than approximately 20 miles in length. That conforming change removes the reference to powerline length and, instead, clarifies that an environmental assessment normally would be prepared when the proposed action does not qualify for categorical exclusion B4.13.

#### **C. New Categorical Exclusion B4.14 for Certain Energy Storage Systems and Related Provisions**

For purposes of this rulemaking, an energy storage system is a device or group of devices assembled together, capable of storing energy in order to supply electrical energy at a later time. Energy storage can be used to integrate renewable energy (such as wind and solar energy) into the electric grid, help generation facilities operate at optimal levels to meet customer demand, and reduce the use of less efficient generating units that would otherwise run only at peak times. An energy storage system also provides protection from power interruptions and serves as reserve power in case of power outages or fluctuations. The most familiar type of energy storage system is a group of electrochemical batteries and associated equipment referred to as a battery energy storage system. Another form uses a flywheel, which converts excess electricity from the grid to kinetic energy in a fast-spinning rotor. As needed, the stored energy is converted back to electricity and returned to the grid or put to other use.

DOE and others have been developing large-scale energy storage systems for decades. Deployment of these systems has increased over the past decade. Today, energy storage systems support the operation of electric transmission facilities, microgrids, energy generation facilities, and commercial and industrial facilities.<sup>8</sup>

In this rule, DOE establishes a new categorical exclusion, B4.14, for the construction, operation, upgrade, or decommissioning of an electrochemical-battery or flywheel energy storage system within a previously disturbed or developed area or within a small area contiguous to a previously disturbed or developed area. Section II of this document includes discussion of DOE's definition of previously disturbed or developed area and DOE's experience referring to contiguous areas in its categorical exclusions. The total acreage used for an energy storage system will be defined by the needs of the proposed project. Based on past experience, DOE anticipates that energy storage systems typically require 15 acres or less and would be sited close to energy, transmission, or industrial facilities. (*See* Technical Support Document, p. 41.) Consistent with this expectation and because contiguous land might be undisturbed and undeveloped, DOE proposed that siting outside a previously disturbed or developed area be limited to a "small" contiguous area. DOE would determine whether a contiguous area is small, based on the criteria discussed in 10 CFR 1021.410(g)(2), "in the context of the particular proposal, including its proposed location. In assessing whether a proposed action is small, in addition to the actual magnitude of the proposal, DOE considers factors such as industry norms, the relationship of the proposed action to similar types of development in the vicinity of the

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<sup>8</sup> The U.S. Energy Information Administration published information about large-scale energy storage for electricity generation ([www.eia.gov/energyexplained/electricity/energy-storage-for-electricity-generation.php](http://www.eia.gov/energyexplained/electricity/energy-storage-for-electricity-generation.php)) and market trends for battery storage ([www.eia.gov/analysis/studies/electricity/batterystorage/](http://www.eia.gov/analysis/studies/electricity/batterystorage/)). Also, DOE published an energy storage market report in 2020 ([www.energy.gov/sites/prod/files/2020/12/f81/Energy%20Storage%20Market%20Report%202020\\_0.pdf](http://www.energy.gov/sites/prod/files/2020/12/f81/Energy%20Storage%20Market%20Report%202020_0.pdf))

proposed action, and expected outputs of emissions or waste. When considering the physical size of a proposed facility, for example, DOE would review the surrounding land uses, the scale of the proposed facility relative to existing development, and the capacity of existing roads and other infrastructure to support the proposed action.” In addition, the notice of proposed rulemaking included conditions that the proposed project be in accordance with applicable requirements (such as land use<sup>9</sup> and zoning requirements) and incorporate appropriate design and construction standards, control technologies, and best management practices. For this final rule, DOE includes those conditions and, in response to public comment, adds a condition that the proposed project also incorporate appropriate “safety standards (including the current National Fire Protection Association 855, Standard for the Installation of Stationary Energy Storage Systems).” (*See* section IV.C of this document and Technical Support Document, p. 56.) In addition, DOE would ensure that the proposed project satisfies the integral elements and review the proposal for extraordinary circumstances, as described in section II of this document. This review ensures that DOE considers the potential environmental effects of a proposed energy storage system prior to determining whether categorical exclusion B4.14 applies. In proposing this categorical exclusion, DOE evaluated environmental assessments and findings of no significant impact prepared by DOE and other Federal agencies, categorical exclusion determinations made by DOE, and other information. In response to public comment on the notice of proposed rulemaking, DOE also reviewed additional information on accidents, fires, and other safety considerations, including guidance to improve safety and minimize the risk of fires. (*See* Technical Support Document, p. 41.)

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<sup>9</sup> On DOE sites and in other locations, land use planning may be documented in a site land use plan, or be subject to siting processes or other comparable systems. Use of land use and zoning requirements is inclusive of these processes.



For consistency with the new categorical exclusion B4.14, DOE made changes to three related categorical exclusions. Based on its past experience with energy storage systems, in 2011, DOE added “power storage (such as flywheels and batteries, generally less than 10 MW)” as an example of conservation actions in categorical exclusion B5.1, Actions to conserve energy or water. DOE also added “load shaping projects (such as the installation and use of flywheels and battery arrays)” to the list of example actions in categorical exclusion B4.6, Additions and modifications to transmission facilities. In this final rule, DOE has deleted “power storage (such as flywheels and batteries, generally less than 10 MW)” from the examples in B5.1. DOE does not include the 10 MW (megawatt) limit in new categorical exclusion B4.14 because capacity, whether denominated in megawatts as a measure of instantaneous output or megawatt-hours as a measure of the total amount of energy capable of being stored, is not a reliable indicator of potential environmental impacts. Including a capacity limit within the categorical exclusion could mean that technology improvements resulting in more power storage within the same physical footprint may not qualify for the categorical exclusion even though the potential environmental impacts have not changed. DOE also deleted the example of flywheels and battery arrays from B4.6 but retained the reference to “load shaping projects” and added “reducing energy use during periods of peak demand” as a new example. DOE added a note to B4.6 that energy storage systems are addressed in B4.14. DOE also added this note to categorical exclusion B4.4, Power marketing services and activities, which was established in 1992 and lists storage and load shaping as examples. These conforming changes will avoid confusion over which categorical exclusion and associated conditions apply to energy storage systems.

#### **D. Changes to Categorical Exclusion B5.16 for Solar Photovoltaic Systems and Related Provisions**

Solar PV technology converts sunlight into electrical energy. Individual PV cells, which may produce only 1 or 2 watts of electricity, are connected together to form modules (otherwise known as panels). The modules are combined with other components (*e.g.*, to convert electricity from direct current (DC) to alternating current (AC)) to create a solar PV system. These systems can be located in a wide variety of locations and sized for an individual home or business up to utility-scale, generating hundreds of megawatts.<sup>10</sup>

Solar PV systems do not release GHGs while operating, though, as with any industrial activity, manufacturing and installing solar PV systems can release GHGs. The U.S. Energy Information Administration reports that, “Studies conducted by a number of organizations and researchers have concluded that PV systems can produce the equivalent amount of energy that was used to manufacture the systems within 1 to 4 years. Most PV systems have operating lives of up to 30 years or more.”<sup>11</sup> Thus, on a life-cycle basis, solar PV systems provide many years of electricity generation without GHG emissions.

DOE established categorical exclusion B5.16, Solar photovoltaic systems, in 2011 to include the installation, modification, operation, and removal of solar PV systems located on a building or other structure or, if located on land, within a previously disturbed or developed area generally comprising less than 10 acres. In this final rule, DOE changes “removal” of a solar PV system to “decommissioning.” Decommissioning encompasses recycling and other types of actions that occur when a facility is taken out of service. DOE also removes the acreage limitation for proposed projects. Based on DOE’s experience, acreage is not a reliable indicator of potential environmental impacts. As discussed in section II of this document, the potential

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<sup>10</sup> DOE’s Solar Energy Technologies Office has a website that describes solar PV technologies ([www.energy.gov/eere/solar/solar-photovoltaic-technology-basics](http://www.energy.gov/eere/solar/solar-photovoltaic-technology-basics)).

<sup>11</sup> U.S. Energy Information Administration “Solar explained” available at [www.eia.gov/energyexplained/solar/solar-energy-and-the-environment.php](http://www.eia.gov/energyexplained/solar/solar-energy-and-the-environment.php); retrieved March 21, 2024.

significance of environmental impacts is more related to local environmental conditions than to acreage. DOE's review of various environmental assessments indicate that an acreage limit would not serve as an appropriate indicator of significant impacts. This conclusion is illustrated, for example, by environmental assessments for solar PV projects larger than 1,000 acres on previously disturbed or developed land that would not result in significant environmental impacts. (*See* Technical Support Document, p. 74.)

The nature and significance of environmental impacts is determined by a proposed project's proximity to and potential effects on environmentally sensitive resources and other conditions that are accounted for in categorical exclusion B5.16, including in the integral elements and in extraordinary circumstances, as described in section II of this document. DOE will consider the integral elements and the presence of any extraordinary circumstances when reviewing a proposed solar PV project's eligibility for this categorical exclusion. This review would ensure that DOE considers potential environmental impacts of a proposed solar PV system prior to determining whether categorical exclusion B5.16 applies. For example, in preparing the Technical Support Document, DOE observed that some large solar PV systems have been proposed for agricultural land. While integrating solar PV systems with farms may provide a variety of economic and environmental benefits to farmers,<sup>12</sup> doing so also raises questions about land use and the protection of important farmlands. One of the integral elements requires that the project must not be one that would have the potential to cause significant impacts on environmentally sensitive resources, including on prime or unique farmland, or other farmland of statewide or local importance (10 CFR part 1021, appendix B, paragraph (4)(v)). The requirement to consider extraordinary circumstances also will help ensure that DOE

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<sup>12</sup> U.S. Energy Information Administration "Solar explained" available at [www.eia.gov/energyexplained/solar/solar-energy-and-the-environment.php](http://www.eia.gov/energyexplained/solar/solar-energy-and-the-environment.php); retrieved March 21, 2024.

considers potential impacts on farmland and surrounding communities when deciding whether to apply the categorical exclusion.

Public comments raised concern about impacts of solar PV systems on wildlife and habitat. (*See* section IV.D.2 of this document.) In response to those concerns and to clarify DOE’s intent, DOE has added a condition that the proposed project be “consistent with applicable plans for the management of wildlife and habitat, including plans to maintain habitat connectivity.” Further, one of the integral elements applicable to categorical exclusion B5.16 requires that the project must not be one that would have the potential to cause significant impacts on environmentally sensitive resources, including threatened or endangered species or their habitat (10 CFR part 1021, appendix B, paragraph (4)(ii)). The conditions added to B5.16 better ensure that solar PV systems are installed and operated in a manner that is protective of all species and their habitat.

DOE also has made conforming changes in appendix C, Classes of Actions that Normally Require EAs but not Necessarily EISs, and in appendix D, Classes of Actions that Normally Require EISs. These appendices each include a class of actions, C7 and D7, that associates the level of NEPA review for interconnection requests and power acquisition with the power output of the electric generation resource. In 2011, DOE proposed for C7 that an environmental assessment normally would be required for the interconnection of, or acquisition of power from, new generation resources that are equal to or less than 50 average megawatts “and that would not be eligible for categorical exclusion under 10 CFR part 1021” (76 FR 233; January 3, 2011). DOE did not receive public comment on the proposed addition regarding categorical exclusion eligibility. In the 2011 final rule, DOE did not include the condition regarding eligibility for a categorical exclusion. DOE explained this decision by stating “to improve clarity, DOE is

removing the previously proposed condition that the new generation resource ‘would not be eligible for categorical exclusion under this part.’ DOE normally would not prepare an environmental assessment when a categorical exclusion would apply. Therefore, the condition is unnecessary and potentially confusing” (76 FR 63784; October 13, 2011). DOE’s practice continues to be that it “normally would not prepare an environmental assessment when a categorical exclusion would apply.” However, in light of the change to B5.16 – which removes the acreage restriction for solar PV systems, thereby allowing the categorical exclusion to apply to systems generating up to hundreds of megawatts – DOE believes that including a condition in C7 is appropriate and helpful. It will clarify DOE’s practice that an environmental assessment is normally required “unless the generation resource is eligible for a categorical exclusion.” DOE did not propose a similar condition in 2011 for D7, which applies to new generation resources greater than 50 average megawatts. DOE has added the same condition to both C7 and D7 for the reasons previously described. For D7, DOE also specifies that an environmental impact statement is not required when an environmental assessment was prepared that resulted in a finding of no significant impact. This is standard practice, and DOE added this text only to avoid any potential confusion.

#### **IV. Comments Received and DOE’s Responses**

DOE published a Request for Information (RFI) in the *Federal Register* on November 15, 2022 (87 FR 68385), to help DOE identify activities associated with clean energy projects and clean energy infrastructure that should be considered for new or revised categorical exclusions. Thirty-three individuals or entities responded to the Request for Information.<sup>13</sup> DOE responded

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<sup>13</sup> The Request for Information and public comments are available at [www.regulations.gov/docket/DOE-HQ-2023-0002/comments](http://www.regulations.gov/docket/DOE-HQ-2023-0002/comments).

to those comments relevant to this rulemaking in the notice of proposed rulemaking and does not repeat those responses here.

The notice of proposed rulemaking (88 FR 78681; November 16, 2023) announced a public review period ending on January 2, 2024. In response to public requests, DOE subsequently extended the public review period through January 16, 2024 (88 FR 88854; December 26, 2023). DOE received approximately 115 comment submittals from individuals, industry trade groups, environmental and community organizations, state, Tribal, and local governments, and other entities. DOE has considered the comments on the proposed rulemaking received during the public comment period as well as all late comments. DOE has incorporated some revisions suggested in these comments into the final rule. The following discussion describes the comments received, provides DOE's response to the comments, and describes changes to the rule resulting from public comments. Section IV.A of this document includes comment summaries and responses that address DOE's proposed revisions collectively or address related topics such as NEPA implementation. Sections IV.B, IV.C, and IV.D include comment summaries and DOE's responses regarding powerline upgrades and rebuilds, energy storage systems, and solar photovoltaic systems, respectively.

#### **A. General Comments on Proposed Amendments**

DOE received comments that expressed support for the rulemaking, as well as comments in opposition to the proposed rulemaking. DOE appreciates the commenters adding their perspectives to the rulemaking process. DOE responds to those comments that included detailed feedback on the proposed rulemaking.

#### **1. Comments Supporting an Expansion of the Rulemaking**

Some commenters requested that DOE expand this rulemaking to add additional categorical exclusions for clean energy technologies, electricity transmission, and related programs. These comments include suggestions to add categorical exclusions for carbon capture, utilization, and storage, including the installation of direct air capture technologies; geothermal exploration, permitting, and development; hydrogen pipelines, production, and combustion; adding capacity and making improvements to existing water power facilities; energy generation projects that qualify for investment or production tax credits under the Inflation Reduction Act; small-scale, renewable natural gas projects; small-scale nuclear power reactors (generally less than 350 megawatts); wind power; and other clean energy projects. Comments also suggested that DOE add categorical exclusions for interstate and interregional transmission lines; high-voltage direct current transmission lines; and microgrids. In addition, comments suggested that DOE add new categorical exclusions for vegetation management and expand the list of examples included in DOE's existing categorical exclusion for actions to conserve energy or water (B5.1).

DOE considered each of these comments and decided not to modify this rule to include these suggested new or revised categorical exclusions. DOE currently lacks sufficient technical support to determine whether the suggested activities normally do not result in significant environmental impact. Also, DOE noted that several of the suggestions overlap with DOE's existing categorical exclusions. For example, DOE has applied its existing categorical exclusions to microgrid projects and vegetation management, and DOE's existing categorical exclusions for powerline projects apply to high-voltage direct current lines and alternating current lines. DOE would need to evaluate whether changes to the scope of its existing categorical exclusions would be appropriate. DOE will retain the comments for further consideration in any future rulemaking regarding DOE's NEPA procedures.

## **2. Comments Regarding NEPA and Other Environmental Requirements**

Commenters noted that implementation of DOE's proposed changes may be affected by the pending Phase 2 revisions of the CEQ NEPA Implementing Regulations.<sup>14</sup> Some commenters recommended coordination with CEQ on this rulemaking to ensure consistency, while other commenters requested that this rulemaking not proceed until CEQ has promulgated its final rule. DOE consulted with CEQ while preparing this rule consistent with consultation requirements in the CEQ regulations (40 CFR 1507.3(b)). This consultation included consideration of whether DOE's changes are consistent with the CEQ regulations.

Other commenters stated that clear environmental regulations and guidelines for the different technologies are still needed and therefore this rulemaking is premature. DOE recognizes that environmental requirements and practices will continue to change as technology advances and awareness increases about potential impacts and ways to avoid or lessen those impacts. DOE's categorical exclusions, including the ones addressed in this rulemaking, require projects to incorporate the requirements and best practices applicable at the time that DOE is considering whether to apply the categorical exclusion to a particular proposed action. In addition, DOE regularly reviews its categorical exclusions to determine whether they continue to be appropriate in light of new information and requirements.

Commenters recommended that DOE evaluate whether the proposed rulemaking could affect coastal uses or resources in states or territories with a Coastal Zone Management Program pursuant to the Coastal Zone Management Act. Commenters recommended that DOE adopt internal procedures to ensure compliance with the Coastal Zone Management Act regardless of the level of NEPA review. DOE recognizes that compliance with the Coastal Zone Management

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<sup>14</sup> See CEQ's notice of proposed rulemaking published on July 31, 2023 (88 FR 49924).



Act is an independent responsibility regardless of the level of NEPA review. DOE will continue its practice of coordinating with the relevant state agency to ensure compliance with the Coastal Zone Management Act, when applicable.

### **3. Comments Regarding Public Engagement**

Some commenters expressed concern that the public comment periods on the Request for Information and notice of proposed rulemaking overlapped with the winter holiday season. DOE appreciates that there are competing schedule demands and that these may fall hardest on small organizations and community members. DOE provided an initial 45-day comment period for the Request for Information and reopened that public comment period for an additional 30 days, and DOE extended the 45-day comment period for the notice of proposed rulemaking by 14 days to provide interested individuals and organizations additional time to provide comments. DOE received comments from a broad range of organizations and individuals who raised many substantive issues.

Commenters emphasized the importance of public involvement in decision-making, expressing that under NEPA, affected communities must be able to voice their concerns about projects, especially on public lands. Some commenters stated that creating a categorical exclusion removes safeguards for communities and investigation of adverse impacts, including cumulative impacts. Other commenters stated that the applicability criteria of the proposed rule would require substantive review by DOE to identify a project's eligibility for a categorical exclusion followed by DOE's consideration of the individual conditions in the categorical exclusion, which would deprive DOE of anticipated efficiencies at the expense of public participation. Commenters requested that DOE provide public comment opportunities for categorical exclusion determinations. While DOE may choose to provide opportunities for public

comment at any time, DOE's normal practice is not to request public comment before making a categorical exclusion determination. This is consistent with CEQ and DOE NEPA regulations.

Commenters asked DOE to post categorical exclusion determinations (including sufficient information to demonstrate proper use) that rely on the proposed categorical exclusions on the DOE website in a timely fashion for public review. DOE's practice is to post categorical exclusion determinations for actions listed in appendix B of its NEPA regulations, which includes all of the categorical exclusions included in this rulemaking, on the DOE website generally within two weeks of the determination (10 CFR 1021.410(e) and [www.energy.gov/nepa/doe-categorical-exclusion-cx-determinations](http://www.energy.gov/nepa/doe-categorical-exclusion-cx-determinations)). A categorical exclusion determination includes a description of the proposed action, the categorical exclusion(s) applied, and confirmation that conditions associated with the categorical exclusion(s) were satisfied.

#### **4. Comments Regarding Tribal Resources**

A federally recognized Indian Tribe expressed concern about the potential impacts of DOE's proposed rule on its treaty reserved rights and cultural resources and practices. As explained in section II of this document, DOE conducts an environmental review at both the stage of establishing or revising a categorical exclusion and at the stage of determining whether one or more categorical exclusions applies to a proposed action. This final rule establishes and revises categorical exclusions in DOE's NEPA procedures; this final rule will not result in environmental impacts and is not a proposal to apply any categorical exclusion to particular proposed actions. When determining whether one or more categorical exclusions applies to a proposed action, DOE conducts a project-specific environmental review. This review includes consideration of extraordinary circumstances and integral elements, including the potential for significant impacts on environmentally sensitive resources, amongst other considerations. "An

environmentally sensitive resource is typically a resource that has been identified as needing protection through Executive order, statute, or regulation by Federal, state, or local government, or a federally recognized Indian Tribe” (10 CFR part 1021, appendix B, paragraph (4)).

Environmentally sensitive resources include “(i) Property (such as sites, buildings, structures, and objects) of historic, archeological, or architectural significance designated by a Federal, state, or local government, Federally recognized Indian tribe, or Native Hawaiian organization, or property determined to be eligible for listing on the National Register of Historic Places”, among others (10 CFR part 1021, subpart D, appendix B).

## **B. Comments Regarding Upgrading and Rebuilding Powerlines**

### **1. Comments Requesting Clarifications Regarding Categorical Exclusion B4.13**

Commenters asked DOE to clarify that categorical exclusion B4.13 would apply to projects that receive Federal loans or grants and not only to transmission lines that impact Federal land. Other commenters requested clarification that categorical exclusion B4.13 covers all types of powerlines, including powerlines that feed into a Federal electric transmission system. DOE clarifies here that categorical exclusion B4.13 could apply to proposals for DOE financial assistance, including loans and grants, as well as any other DOE action subject to NEPA, so long as the proposed action satisfies all conditions of the categorical exclusion.

Commenters asked DOE to clarify whether the scope of categorical exclusion B4.13 includes improvements to existing maintenance and repair access roads that are not used for powerline upgrades or rebuilds. Commenters noted that existing access roads may not be suitable for the types of heavy construction equipment associated with rebuilding powerlines and that use of large construction equipment for rebuild projects may require improving existing access roads, such as widening roads, clearing surrounding trees, and adding gravel for stability to allow

work under varying weather conditions. DOE responds that categorical exclusion B4.13 could include improvements to, and reconstruction of, access roads, laydown areas, and related work that are part of the proposed action and would take place within the existing right-of-way or relocation area. DOE also could consider whether categorical exclusion B1.13, Pathways, short access roads, and rail lines, would be appropriate for certain needed access roads. Consistent with DOE's NEPA regulations, the full scope of the proposed action must satisfy all conditions of DOE's categorical exclusions, including the integral elements (10 CFR part 1021, subpart D, appendix B) and consideration of extraordinary circumstances, segmentation, and cumulative impacts (10 CFR 1021.410(b)). DOE also notes that where access roads are not suitable for heavy equipment, replacement poles and other equipment sometimes are delivered to the project site by helicopter.

Commenters requested that categorical exclusion B4.13 include use of existing transportation rights-of-way, including those owned by railroads and highways managed on the public's behalf. DOE recognizes that highway and railroad rights-of-way may be appropriate locations for new powerlines. However, different criteria were used to establish highway and railroad rights-of-way than would be used for new powerlines, and DOE does not have sufficient information at this time to support a categorical exclusion for such projects. DOE will retain the comment for potential consideration in a future NEPA rulemaking. Commenters also requested that DOE designate existing transportation rights-of-way as National Interest Electric Transmission Corridors (NIETCs) pursuant to Section 216 of the Federal Power Act. DOE appreciates this suggestion, but designating NIETCs is beyond the scope of this rulemaking.

Commenters asked that DOE ensure that use of categorical exclusion B4.13 be as transparent and clear as possible. Commenters requested that DOE clarify definitions of the

applicable conditions, parameter language, and extraordinary circumstances that would determine applicability of the categorical exclusion. DOE responds that to provide transparency in the use of categorical exclusions, DOE began posting categorical exclusion determinations online in 2009. DOE will continue to regularly post categorical exclusion determinations for B4.13 and other categorical exclusions listed in appendix B of DOE's NEPA regulations (10 CFR part 1021, subpart D) at [www.energy.gov/nepa/doe-categorical-exclusion-ex-determinations](http://www.energy.gov/nepa/doe-categorical-exclusion-ex-determinations). DOE has added discussion of the conditions that apply to categorical exclusions in sections II, III, and IV of this final rule.

The proposed changes to categorical exclusion B4.13 included relocation of small segments of powerlines within an existing right-of-way or within otherwise previously disturbed or developed lands. Commenters requested that DOE narrow the categorical exclusion, such as by including only actions within the powerline's existing right-of-way, within a minor widening of the existing right-of-way within otherwise previously disturbed or developed lands, or within another existing utility or electric power transmission corridor or right-of-way where active utilities and currently used roads are readily available. DOE appreciates these suggestions but finds that they would limit flexibility to relocate small sections of powerlines to previously disturbed or developed lands that are outside an existing powerline right-of-way and to widen a right-of-way as needed to meet electrical standards, including when the widening extends to a small area beyond previously disturbed or developed lands. Such relocation consistent with the conditions placed on the use of categorical exclusion B4.13 normally would not pose a potential for significant environmental impacts. (*See* Technical Support Document, p. 2.) Moreover, such relocation may allow improvements to environmental protection by moving small sections of a powerline around a sensitive resource.

Commenters requested clarification on whether the limitation that small segments of powerlines may be relocated within an existing right-of-way or within previously disturbed land encompasses rights-of-way other than that of the powerline being relocated. DOE intends this language to encompass other powerline rights-of-way so long as safety, reliability and other conditions are met. To help clarify this point, DOE added “powerline” so that the wording in this final rule is “within an existing powerline right-of-way.” Commenters asked that DOE clarify what is considered to be a right-of-way and pointed, as an example, to the Department of Transportation’s definition of existing right-of-way for highway projects (23 CFR 771.117(c)(22)). The meaning of right-of-way varies by context. The right-of-way for a powerline may be defined through an agreement, such as an easement, with a private landowner, permit from a land management agency, or other mechanism conveying rights to construct and maintain the powerline and associated facilities. For purposes of this rulemaking, DOE is referring to the cleared right-of-way, *i.e.*, the right-of-way where vegetation management and other practices are necessary for safety reasons (*e.g.*, to avoid the potential to cause fire). The width of that cleared right-of-way is based on design criteria (*e.g.*, line voltage). (*See* Technical Support Document, p. 36.)

Commenters explained that when upgrading powerlines to a higher voltage, current electrical standards may require wider rights-of-way than were established when powerlines were built. Commenters recommended that categorical exclusion B4.13 include expansion of an existing right-of-way to meet current electrical standards and that DOE revise the categorical exclusion to state that small segments of powerlines may be relocated “within or adjacent to” an existing right-of-way. Commenters also expressed concern about the risk of fire being started by overhead powerlines. DOE includes in this final rule that categorical exclusion B4.13

encompasses widening of the cleared right-of-way to meet current electrical standards. As discussed in section III of this document, the categorical exclusion may only apply when such widening “remains within previously disturbed or developed lands and only extends into a small area beyond such lands as needed to comply with applicable electrical standards.” There are existing rights-of-way that are not bounded entirely by previously disturbed or developed lands. In such locations, it may be necessary to extend part of the right-of-way into undisturbed land in order to meet the applicable electrical code for the entire length of the powerline upgrade or rebuild project. It is common for the widening to be only about 40 feet or less (*i.e.*, 20 feet or less on each side of the right-of-way). Before deciding whether to apply categorical exclusion B4.13 for such widening, DOE would review the proposed action against all the conditions applicable to categorical exclusion B4.13, including integral elements and the consideration of extraordinary circumstances.

## **2. Comments Regarding Effects on Wildlife and Habitat**

Some commenters stated that powerline projects may fragment or reduce habitat or otherwise adversely affect wildlife by removing trees, widening the right-of-way, creating greater barriers to animal movement, and in other ways. Commenters stated that some of the environmental assessments included in DOE’s Technical Support Document involved projects that would remove hundreds of trees. These commenters suggested that DOE had overlooked the potential for significant environmental impacts from these effects on habitat and that an environmental assessment may be better able to account for these impacts. They referred to research linking habitat loss with declines in wildlife populations and to the deaths of birds by collision with powerlines and from electrocution.

Commenters recommended that relocating powerlines avoid bird travel routes and consider alternative designs and structures, visual cues, and other methods to avoid or reduce impacts to birds and other species and their habitats. DOE responds that these are common considerations in planning upgrades and rebuilds of existing powerlines, including relocating or widening rights-of way. DOE's integral elements require that the project must not be one that would have the potential to cause significant impacts on environmentally sensitive resources, including threatened or endangered species or their habitat or species protected under the Migratory Bird Treaty Act (10 CFR part 1021, appendix B, paragraph (4)(ii)). Categorical exclusion B4.13 also requires projects to incorporate appropriate design and construction standards, control technologies, and best management practices, which may include measures to reduce effects on birds. In addition, applicants must comply with all applicable state and Federal laws, including applicable requirements imposed by state wildlife agencies or Federal land management agencies, including to identify potential high-risk bird strike areas, identify shifts in bird flight patterns, and develop marking plans and design features to reduce associated risks. These requirements ensure that projects covered by categorical exclusion B4.13 will not have significant effects on birds.

Other commenters stated that managed lands in forested areas, including transmission line corridors, can provide early successional habitat for native bees and other pollinators, substantially improving species richness and abundance of bees relative to adjacent forest areas. Commenters also stated that transmission corridors can benefit some species of birds, deer, and plants. The ability of these corridors to provide areas for food, nesting, and shelter are enhanced with habitat management practices (such as leaving habitat trees, planting low-growing native



vegetation, and removing invasive plant species), which typically accompany transmission development.

DOE recognizes that a combination of adverse and beneficial impacts can accompany upgrades and rebuilds of existing electric powerlines. As described in section II of this document, the terms of categorical exclusion B4.13, including the integral elements, ensure that projects would not have a significant effect on species and habitat. If a project does not satisfy these elements, or extraordinary circumstances exist that make significant effects likely, DOE must prepare an environmental assessment or environmental impact statement, rather than apply a categorical exclusion.

### **3. Comments Regarding Sulfur Hexafluoride**

Commenters stated that transmission lines leak sulfur hexafluoride, a greenhouse gas 26,000 more times potent than carbon dioxide. For this final rule, DOE supplemented the Technical Support Document with information regarding sulfur hexafluoride, a potent greenhouse gas that has a high global warming potential. Sulfur hexafluoride is used in gas-insulated switchgears, breakers, and lines in the transmission sector. Transmission operators follow manufacturer guidelines, state requirements, and federal handling and reporting requirements, including the Greenhouse Gas Reporting Program under the Clean Air Act, as applicable, for use and handling of sulfur hexafluoride. Improved engineering and equipment design, advances in leak detection and repair, and alternative insulating gases with lower global warming potentials have resulted in the reduction of sulfur hexafluoride emissions from the electric power sector over time. Further, upgrading and rebuilding powerlines with newer equipment that requires less or no sulfur hexafluoride or has reduced leakage rates and improved

monitoring further contribute to a reduction in sulfur hexafluoride emissions across the electric transmission sector. (*See* Technical Support Document, p. 40.)

#### **4. Comments Regarding Endangered Species Act Section 7 Consultations**

Commenters stated the DOE could encourage programmatic Endangered Species Act Section 7 consultations for specific regions and cited the programmatic biological assessment prepared by DOE's Western Area Power Administration for wind energy development and interconnection requests in the Upper Great Plains Region as a relevant example. DOE responds that the referenced programmatic biological assessment analyzed information and identified a list of conservation measures for 28 species of concern. Western Area Power Administration and the U.S. Fish and Wildlife Service developed a review and approval system based on consistency forms and checklists of conservation measures for each species. If a wind project developer commits to implement the applicable conservation measures, Western Area Power Administration's consultation responsibilities under Section 7 of the Endangered Species Act are concluded when Western Area Power Administration and the U.S. Fish and Wildlife Service review and sign the consistency forms; no separate Section 7 consultation is required unless the particular project involves a listed species, critical habitat, or an effect that was not addressed in the programmatic biological assessment. DOE supports using programmatic consultations and similar approaches to improve the efficiency of implementing the Endangered Species Act, the National Historic Preservation Act, and other laws. These requirements are separate from the requirements of NEPA, and reliance on a categorical exclusion for NEPA compliance does not affect DOE's obligations under other laws.

#### **5. Comments Regarding Effects on Communities**

Commenters stated that, by affecting land previously unused as transmission line right-of-way, rerouting transmission lines may affect local land use, affect people's relation with their environment, and impact neighborhoods and communities. DOE recognizes that these are considerations in developing a proposal to reroute powerlines and relies on the terms of categorical exclusion B4.13, including the integral elements, and the consideration of extraordinary circumstances to ensure that projects would not have a significant effect on communities.

#### **6. Comments Regarding Technical Support for Revisions to Categorical Exclusion B4.13**

Commenters stated that the environmental assessments included in the Technical Support Document for the notice of proposed rulemaking were prepared for projects in the Bonneville Power Administration and Western Area Power Administration systems. However, the categorical exclusion could be applied to projects in any region of the United States. In response to this comment, DOE reviewed seven additional environmental assessments and findings of no significant impact prepared by other Federal agencies for powerline upgrade or rebuild projects in Kentucky, Minnesota, Mississippi, Missouri, North Dakota, and Wisconsin. These NEPA documents support DOE's determination that powerline upgrade and rebuild projects normally do not pose a potential for significant environmental impacts. DOE added these seven environmental assessments to the Technical Support Document for this final rule.

Commenters also pointed to the environmental assessment for Midway Benton No. 1 Rebuild Project as an example of where project changes were needed to lower potential environmental impacts. DOE included a wide and diverse range of environmental assessments in the Technical Support Document. These environmental assessments and findings of no significant impact demonstrate that, in the aggregate, these types of projects normally do not

pose a potential for significant environmental impact and, thus, are appropriate for a categorical exclusion. DOE stated in the Technical Support Document for the notice of proposed rulemaking that, “Inclusion of these environmental assessments does not mean that the proposed projects would have qualified for any categorical exclusion as proposed in this rulemaking. That determination would be made on a case-by-case basis.” (*See* Technical Support Document, p. 1.) DOE did not intend to indicate that it had determined that a categorical exclusion would have been appropriate for that project. Rather, DOE found that consideration of the environmental assessment for the Midway Benton No. 1 Rebuild Project, along with other information in the Technical Support Document, helped DOE understand whether the proposed revisions to categorical exclusion B4.13 are appropriate. DOE will continue to consider each proposed project on its own merits in deciding whether to apply a categorical exclusion or prepare an environmental assessment or environmental impact statement.

## **7. Comments Regarding Underwater Powerlines**

Commenters stated that the scope of categorical exclusion B4.13 should not include upgrading and rebuilding existing offshore, underwater powerlines. These commenters referred to potential adverse environmental impacts resulting from the propellers on boats used during upgrade and rebuild projects, trenching, turbidity, boulder relocation, and electric fields. DOE did not intend that categorical exclusion B4.13 would include underwater powerlines. DOE has added a statement in this final rule specifying that the categorical exclusion does not apply to underwater powerlines.

## **8. Comments Regarding NEPA Implementation**

One commenter recommended that DOE consider NEPA efficiencies, such as utilizing programmatic regional reviews for transmission projects. The commenter also recommended that

DOE streamline NEPA processes to support designation of transmission corridors and financial assistance for transmission projects. DOE supports taking steps to improve the efficiency of NEPA and other environmental review requirements, without undermining the purposes of these processes, to support timely and effective decision making.

Some commenters stated that a categorical exclusion is inappropriate for transmission line upgrade or rebuild projects. DOE responds that these comments express a misunderstanding of the purpose of categorical exclusions and how categorical exclusions are applied to particular proposed actions. For example, some commenters stated that a categorical exclusion determination does not require any environmental documentation beyond that a proposed action belongs in a specific category. As explained in section II of this document, to qualify for the categorical exclusion, a proposed action must satisfy all the conditions in the categorical exclusion, including integral elements, and DOE must evaluate for any extraordinary circumstances. Some commenters pointed to one environmental assessment included in the Technical Support Document that considered impacts on cultural resources and suggested that such analysis would not have been required under a categorical exclusion. In fact, for all categorical exclusions listed in appendix B of its NEPA regulations (10 CFR part 1021), DOE requires consideration of whether the proposed action would violate any applicable environmental requirements and whether the proposed action would have the potential to cause significant impacts on environmentally sensitive resources, including “Property (such as sites, buildings, structures, and objects) of historic, archeological, or architectural significance designated by a Federal, state, or local government, Federally recognized Indian tribe, or Native Hawaiian organization, or property determined to be eligible for listing on the National Register of Historic Places” (10 CFR part 1021, subpart D, appendix B, paragraph (4)(i)). In addition,

DOE's responsibility to comply with the National Historic Preservation Act is independent of its NEPA responsibilities. With the revised categorical exclusion B4.13, DOE would have considered the potential impacts on cultural resources before making a decision and could determine that an environmental assessment is more appropriate than applying a categorical exclusion.

Some commenters described the purpose of a categorical exclusion in an overly limiting way, for example, as for actions that are benign or have no adverse effect whatsoever. CEQ, however, defines a categorical exclusion as "a category of actions that the agency has determined, in its agency NEPA procedures (§ 1507.3 of this chapter), normally do not have a significant effect on the human environment" (40 CFR 1508.1(d)). The categorical exclusions included in this rulemaking are consistent with CEQ's regulations.

Some commenters questioned whether additional NEPA review would be necessary for powerlines that already have been reviewed under NEPA. In general, a proposed project in which DOE is financing, undertaking, or providing other support for the upgrade or rebuild of a powerline has the potential to cause environmental effects. The NEPA review process provides methods for DOE to evaluate the potential significance of those impacts. Any documentation from past NEPA or other environmental reviews can inform, and potentially simplify, the required environmental review of the currently proposed project.

## **C. Comments Regarding Energy Storage Systems**

### **1. Comments Regarding Accidents at Battery Energy Storage Systems**

Commenters expressed concern regarding the safety of lithium-ion battery energy storage systems, including risks associated with a thermal runaway event. Commenters stated that DOE's Technical Support Document did not address risks from thermal runaway.

A thermal runaway event is when lithium-ion batteries become unstable, potentially resulting in high temperatures, battery failure, venting of gas or particulates, smoke, or fire. As one way to help control the impacts of such an event, a battery energy storage system is comprised of modules that physically isolate and control thermal runaway events from the larger battery energy storage system. Government agencies, including DOE, and standard setting organizations such as the National Fire Protection Association conduct research on thermal runaway events and other accident scenarios involving lithium-ion and other battery technologies. These organizations recommend practices and develop standards to lessen the likelihood and consequence of such events, and to respond to thermal runaway events and other accidents if they occur. For example, to stay current with best practices and knowledge, the National Fire Protection Association updates its standards every three to five years.

Commenters stated that fires at battery energy storage systems are challenging to extinguish and must be allowed to burn out for days. Commenters also stated that fires can emit large volumes of toxic gases, such as hydrogen fluoride, hydrogen cyanide, and hydrogen chloride. Commenters stated that these releases of toxic fumes can result in large plumes that necessitate evacuations of nearby populations and that there is insufficient time to implement a shelter-in-place approach because there is no mechanism to communicate quickly enough to surrounding communities. Commenters further stated that safety standards in the Technical Support Document for the notice of proposed rulemaking did not consider the public health risk of toxic gas released during a battery energy storage system fire.

DOE has supplemented the Technical Support Document in response to these comments. DOE reviewed and added information on hazard consequences analyses that address toxic gas plume dispersion modeling in the event of a battery energy storage system fire or thermal

runaway event, including characterization of those toxic gases and potential health effects. These analyses evaluated toxic gas dispersion, including hydrogen fluoride, hydrogen cyanide, and carbon monoxide, using site-specific factors to determine the maximum distance that may result in a level of concern for nearby residents or first responders. These analyses identified the endpoint distances as 30, 51, and 210 feet from the release point. The maximum airborne concentration estimated at these distances is such that nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action. The analyses indicated that assumptions were chosen that tended to overstate the expected consequences. A hazard consequence analysis is a site-specific analysis, and the examples provided in the Technical Support Document indicate that a safety incident at a battery energy storage facility would generally not result in adverse health impacts beyond the facility's property line. (*See* Technical Support Document, p. 63.) Further, DOE notes that battery energy storage facilities that qualify for the new categorical exclusion would be required to incorporate appropriate safety standards including the current National Fire Protection Association 855 Standard. National Fire Protection Association Standard 855 requires the development of emergency response plans.

Commenters also stated that toxic chemicals could be used to put out battery energy storage system fires. Commenters expressed concern about runoff from fire suppression water or fire retardant, the lack of containment systems for this runoff, the resulting risk of soil and groundwater pollution, and potential impacts to water resources. Commenters stated that fire-extinguishing water used at the East Hampton Energy Storage Center in East Hampton, NY, contaminated a sole-source aquifer used for drinking water with toxic chemicals. Commenters stated that fighting battery energy storage system fires could require up to 2 million gallons of



water over a three-day period and that there are no spill containment systems in place at battery energy storage systems to catch fire water suppression runoff.

DOE has supplemented the Technical Support Document to include best management practices regarding spill control plans from individual projects as well as requirements from National Fire Protection Association Standard 855 to minimize spill risk during normal operation and in the event of a fire. (*See* Technical Support Document, p. 41.) Site-specific spill prevention plans are typically developed for individual projects as a standard best practice. DOE further notes that the emerging consensus in the firefighting community is that water should be used sparingly in responding to battery energy storage system fires to minimize potential risk of contamination to water resources.

Commenters stated that there is a lack of appropriate training for emergency responders in the event of an incident at a battery energy storage system and that available training and resources are limited. National Fire Protection Association Standard 855 requires the development of emergency response plans, mandates initial and annual training, and recommends inclusion of emergency response personnel in these trainings. The Technical Support Document also includes recommendations from the American Clean Power Association and the New York Battery and Energy Storage Technology Consortium and Fire and Risk Alliance for the development of emergency response plans and pre-incident planning and incident response.

Commenters stated that the chance of fire at a utility-scale battery energy storage system is 1 in 30 to 1 in 50 and that the average age of a battery that catches fire is 18 months. Several commenters pointed to past battery energy storage system fires including those in Surprise, AZ, Chandler, AZ, Moss Landing, CA, and in New York State. DOE responds that a recent Pacific

Northwest National Laboratory report<sup>15</sup> noted that the Electric Power Research Institute’s (EPRI’s) database identifies 14 fires involving large, grid-connected battery energy storage systems in the U.S. “To place that number in context, there were 491 large, utility-scale projects in the U.S. as of April 2023, for a fire incidence rate of about 2.9 percent. No [battery energy storage system] fire in the U.S. has resulted in loss of life, and many of the affected facilities were able to resume operation.” DOE acknowledges that battery energy storage facilities present safety risks if not managed properly and have resulted in past safety incidents. DOE reviewed the U.S. fires reported in the EPRI database and confirmed that few if any injuries occurred, apart from the 2019 Surprise, AZ, incident that involved multiple severe injuries. Lessons learned from that 2019 event have since led to improvements in safety standards and first responder training. The battery energy storage systems that qualify for categorical exclusion B4.14 would be built and operated using the most current safety standards, including those identified in the National Fire Protection Association 855 Standard.

Commenters stated that DOE’s Technical Support Document included small-scale projects (less than 10 megawatts) and mobile facilities and thus did not consider that the risk of thermal runaway increases with the number of battery cells and facility size. DOE notes that the Technical Support Document for the notice of proposed rulemaking also included environmental assessments for battery energy storage systems ranging from approximately 20 megawatts up to 225 megawatts storage capacity. For this final rule, DOE supplemented the Technical Support Document with information to clarify that appropriate battery energy storage system designs can prevent fire risk from increasing with facility size. Energy storage system failures are designed to be contained to the unit of origin, for example, by providing sufficient spacing between modules

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<sup>15</sup> Energy Storage in Local Zoning Ordinances (Pacific Northwest National Laboratory, 2023): [www.pnnl.gov/main/publications/external/technical\\_reports/PNNL-34462.pdf](http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-34462.pdf).

or enclosures to avoid a fire from spreading. Systems also may include fire suppression, smoke detectors, sprinkler systems, and fire barriers, as applicable to the design. Because of these safety features, the risk of a fire incident at a battery energy storage project does not increase with project size; the two are decoupled in a well-designed system that prevents a fire in one unit from spreading to neighboring units. (*See* Technical Support Document, p. 56.)

Commenters stated that DOE's Technical Support Document was inadequate because the battery energy storage systems included have not been built, and operational safety has not yet been proven. Commenters also asserted that design standards and best management practices cited in the Technical Support Document, such as UL 9540A, are not sufficient to mitigate the risk of thermal runaway. DOE notes that battery energy storage systems have experienced rapid growth in recent years. According to the U.S. Energy Information Administration, currently planned and operational U.S. utility-scale battery capacity totaled around 16 gigawatts at the end of 2023. (*See* Technical Support Document, p. 41.) This growth in deployment of battery energy storage systems provides real-world information on design and operation that feeds into efforts to continuously improve the safety of these facilities, such as through the ongoing development and revision of applicable safety standards.

DOE is aware that battery energy storage facilities present a risk of safety incidents, including the risk of a thermal runaway event that may result in fire. To ensure that battery energy storage systems are designed and operated using layers of protection, current best practices, and the most up-to-date standards, categorical exclusion B4.14 may only be used for proposed battery energy storage systems that comply with appropriate safety standards, including the current National Fire Protection Association Standard 855. The requirements and depth of National Fire Protection Association Standard 855 would ensure that battery energy storage

systems are designed using current best practices to minimize the potential for a safety incident that could result in a thermal runaway. Also, the National Fire Protection Association Standard 855 requires the development of a hazard mitigation analysis, which is a method to evaluate potential failure modes and their cause and effects, in order to develop methods to prevent failure during system operation. Further, the National Fire Protection Association updates its standards every 3 to 5 years, ensuring that its standards continue to reflect current best practices.

Commenters stated that meeting the including UL 9540A standard cited in DOE's Technical Support Document would not prevent a thermal runaway event once started. DOE notes that in a UL 9540A test a thermal runaway event is intentionally created to better understand how the cell performs under failure, which helps to design fire safety features to limit the propagation of fire from one cell to another, in the event of a failure. Systems that meet UL 9540A, in addition to all the other requirements included in the National Fire Protection Association Standard 855 would ensure layers of protection to prevent accidents and mitigate safety risk. (*See* Technical Support Document, p. 56.)

Commenters also stated that DOE's Technical Support Document should not include information from the American Clean Power Association because a lobbyist organization is not an appropriate source for safety standards. DOE includes three reference documents from the American Clean Power Association in the Technical Support Document: a compilation of relevant codes and standards for battery energy storage systems prepared by other organizations, guidelines for first responders in the event of an accident, and a summary of information related to battery energy storage systems. DOE has reviewed these documents and finds them helpful in explaining useful information about the safe operation of battery energy storage systems.

Commenters also requested that DOE issue a new policy that addresses how the public safety risks posed by lithium-based battery energy storage systems should be accounted for in future NEPA actions. DOE will consider whether there is a need for guidance on the consideration of battery energy storage systems in NEPA reviews. However, that is outside the scope of this rulemaking.

Commenters also stated that battery energy storage systems should have sensors that provide information on the presence of flammable gases onsite and that information should be available to emergency responders. DOE has supplemented the Technical Support Document to include information that battery energy storage systems contain fire and gas detection systems. Further, DOE notes that the current National Fire Protection Association Standard 855 contains a variety of provisions related to gas detection; fire control and suppression, measures to prevent explosions and safely contain fires, hazard mitigation analysis, emergency response plans, and requirements for initial and annual training. (*See* Technical Support Document, p. 56.)

Commenters requested that DOE investigate whether these energy storage systems emit toxins or carcinogens during normal operation. DOE has supplemented the Technical Support Document with additional information explaining that energy storage systems do not leak chemicals or emit toxic or carcinogenic gases during normal operation. (*See* Technical Support Document, p. 41.)

## **2. Comments Regarding Siting of Battery Energy Storage Systems**

Commenters stated that battery energy storage systems should not be sited near earthquake fault zones, sole-source aquifers, residential areas, densely populated areas, schools, daycare facilities, hospitals, nursing homes, threatened and endangered species, recreational areas, or transportation corridors. Commenters stated that battery energy storage systems should

be sited only in desolate areas. Commenters expressed concern that battery energy storage systems would be sited in fire-prone landscapes and that sparks from a fire originating at a battery energy storage system would spread to nearby areas. Commenters stated that disruption to nearby communities should be mitigated, and expressed concern that without adequate planning and siting, important emergency routes, such as to and from hospitals and between nursing homes and hospitals, could be disrupted. Commenters requested that DOE include measures to ensure energy storage systems are not sited on areas of prime or sensitive habitat. DOE incorporates siting considerations into its decision whether to apply categorical exclusion B4.14 to any proposed action. This includes conditions within the categorical exclusion regarding the type of land on which the proposed project may be located, the requirement to be in accordance with land use and zoning requirements, and the integral elements that include the requirement not to pose a significant impact to environmentally sensitive resources. Categorical exclusion B4.14 also requires that, to apply it to a particular proposed project, the proposed action must incorporate safety standards and other specified conditions that reduce the risk of accidents. As noted in the Pacific Northwest National Laboratory's October 2023 report, *Energy Storage in Local Zoning Ordinances*, there is variation in local siting and zoning considerations for energy storage systems. This report notes that safety is frequently the most important concern expressed in local zoning proceedings for energy storage projects and identifies several case studies for how local planners have mitigated impacts from various jurisdictions. (See Technical Support Document, p. 59.) At any point during DOE's review of whether categorical exclusion B4.14 applies, DOE can determine that additional information is needed to make a categorical exclusion determination or decide to prepare an environmental assessment or environmental impact statement.

Commenters stated that a battery energy storage system should never be sited in an undeveloped area. Other commenters expressed concern that siting battery energy storage systems on undisturbed land could significantly impact the environment and surrounding communities and requested additional support for DOE's inclusion of undisturbed areas contiguous to previously disturbed or developed areas. Commenters stated that DOE's supporting information relied on an environmental assessment for the Vonore Project that included mitigation measures to reach a finding of no significant impact. DOE responds that, as explained in section III.C of this document, based on past experience, DOE anticipates that energy storage systems typically require 15 acres or less and would be sited close to energy, transmission, or industrial facilities. Consistent with this expectation and because contiguous land might be undisturbed and undeveloped, siting outside a previously disturbed or developed in the new categorical exclusion would be limited to a "small" contiguous area. DOE would consider whether a contiguous area is small, based on the criteria discussed in 10 CFR 1021.410(g)(2)). DOE has revised its Technical Support Document to clarify that there are three EAs and FONSIIs that evaluate battery energy storage systems ranging in size up to 225 megawatts located on sites contiguous to previously disturbed and developed areas. (*See* Technical Support Document, p. 42.) Further, DOE reviewed the Vonore Project that the commenter suggested relied on mitigation measures in an environmental assessment to reach a finding of no significant impact and notes that the Tennessee Valley Authority indicated that two "non-routine measures would be applied during the construction, operation, and maintenance of the proposed Vonore [battery energy storage system], transmission lines, and access roads to reduce the potential for adverse environmental effects", not that those measures were necessary to reach a finding of no significant impact. (*See* Technical Support Document, p. 50.)

Commenters stated that DOE's supporting information included an environmental assessment tiered from a programmatic environmental impact statement. DOE removed this environmental assessment from the Technical Support Document.

## **5. Comments Regarding Siting Contiguous to a Previously Disturbed or Developed Area**

Commenters stated that DOE should not limit the categorical exclusion to a "small" or 15-acre area contiguous to previously disturbed or developed areas and that DOE should clarify that there would be no acreage limitation. Commenters stated that DOE's supporting information did not accurately reflect the acreage required and that 25 MW per acre is a more accurate assumption for battery energy storage systems. Commenters also stated that an acreage limitation could result in more densely packed battery energy storage systems with greater risk of thermal runaway. Similarly, other commenters recommended that DOE remove reference to specific acreages that were included in the preamble to DOE's Notice of Proposed Rulemaking and instead use the definition of "small" in 10 CFR 1021.410(g)(2). DOE responds that section II of this document includes discussion of DOE's definition of previously disturbed or developed area and DOE's experience referring to contiguous areas in its categorical exclusions. The total acreage used for an energy storage system will be defined by the needs of the proposed project. Based on past experience, DOE anticipates that energy storage systems typically require 15 acres or less and would be sited close to energy, transmission, or industrial facilities. However, this recognition of that past experience does not indicate an acreage limit on the scope of categorical exclusion B4.14. (*See* Technical Support Document, p. 41.) As previously explained, DOE would consider whether a contiguous area is small, based on the criteria discussed in 10 CFR 1021.410(g)(2).



Other commenters stated that 15 acres or less should be added as a numeric limit in the categorical exclusion. DOE considered this suggestion but has concluded that an acreage limit is not an appropriate method for determining whether a project normally would result in significant environmental effects. Rather, the terms of categorical exclusion B4.14, including the integral elements and need to consider extraordinary circumstances, provide a reasoned basis for the categorical exclusion.

Commenters stated that areas contiguous to previously disturbed or developed land may have particular conservation values or be more likely to be located in communities that have historically experienced disproportionate impacts. Commenters requested that DOE require that contiguous areas be evaluated separately under a land use plan, a programmatic environmental impact statement or environmental analysis, or other equivalent decisions that provide detailed analysis and opportunity for public engagement. Similarly, another commenter requested that DOE revise the categorical exclusion conditions to include limitations regarding site dimensions, land use history, and proximate uses and resources to indicate a preference for siting locations where fewer impacts would be expected to occur. Commenters requested that DOE include measures to ensure energy storage systems are not sited on areas of prime or sensitive habitat. Because contiguous land might be undisturbed and undeveloped, DOE proposes that siting outside a previously disturbed or developed area be limited to a “small” contiguous area. DOE would consider whether a contiguous area is small, based on the criteria discussed in 10 CFR 1021.410(g)(2)), “in the context of the particular proposal, including its proposed location. In assessing whether a proposed action is small, in addition to the actual magnitude of the proposal, DOE considers factors such as industry norms, the relationship of the proposed action to similar types of development in the vicinity of the proposed action, and expected outputs of emissions or

waste. When considering the physical size of a proposed facility, for example, DOE would review the surrounding land uses, the scale of the proposed facility relative to existing development, and the capacity of existing roads and other infrastructure to support the proposed action.” In addition, the proposed project must be “in accordance with applicable requirements (such as land use and zoning requirements) in the proposed project area and the integral elements listed at the start of appendix B of this part, and would incorporate appropriate safety standards (including the current National Fire Protection Association 855, Standard for the Installation of Stationary Energy Storage Systems), design and construction standards, control technologies, and best management practices.”

#### **4. Comments Regarding Other Potential Impacts of Energy Storage Systems**

Commenters stated battery energy storage systems would result in noise and light pollution and visual impacts for nearby residents. Commenters expressed concern about adverse socioeconomic impacts of battery energy storage systems, stating that the risk of fire, toxic chemical releases, and emergency lockdowns would negatively affect home values, quality of life, and the local economy. DOE has supplemented the Technical Support Document to include additional information regarding potential noise and light pollution impacts from proposed projects. (*See* Technical Support Document, p. 41).

Commenters expressed concern regarding disposal of batteries at the end of their useful life and questioned if the batteries would be recycled or taken to hazardous waste landfills. Commenters stated that battery energy storage systems should not be categorically excluded due to the associated environmental impact of rare earth mining for battery materials, as well as the transport of hazardous materials to and from the facility upon decommissioning. Commenters stated that battery energy storage systems are waste-generating facilities with large quantities of

hazardous, flammable materials stored onsite. DOE has supplemented the Technical Support Document to include additional information regarding waste management and decommissioning plans for proposed projects. For example, a decommissioning plan should be prepared during project planning that details what will happen when a battery energy storage system reaches its end of life. Decommissioning plans generally should include removal of all structures; recycling of equipment to the greatest extent possible; the proper disposal of non-recyclable equipment in accordance with manufacturer specifications and applicable local, state, and Federal requirements; and re-establishment of vegetation and restoration of the project site. (*See* Technical Support Document, p. 41.) In addition, National Fire Protection Association Standard 855 mandates a decommissioning plan for removing and disposing of the system at the end of its useful life.

Commenters stated that a battery energy storage system operating as a new entrant to the electrical grid introduces security vulnerabilities that could adversely affect the electrical grid. DOE has supplemented the Technical Support Document to include additional information regarding the North American Electric Reliability Corporation Critical Infrastructure Protection security requirements for system integrators of certain battery energy storage equipment, including cyber systems, asset categorization, and security system management. DOE also notes that the use of energy storage systems has increased substantially in recent years. This has demonstrated through real world experience that energy storage systems can be safely integrated into the electrical grid and provides experience that is used to improve related guidance and practices. (*See* Technical Support Document, p. 56.)

Commenters recommended that if categorical exclusion B4.14 is applied to a proposed project that is within or would affect a state's coastal zone, DOE continue to comply with

relevant requirements of the Coastal Zone Management Act. DOE recognizes its responsibility to comply with the Coastal Zone Management Act and will continue to do so. DOE also notes that one of the conditions, or integral elements, for applying categorical exclusion B4.14 to a proposed action is that the proposed action would not “Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders” (10 CFR part 1021, subpart D, appendix B). This condition includes compliance with relevant requirements of the Coastal Zone Management Act.

## **5. Comments Regarding Public Scoping and Alternatives Analysis**

Commenters explained that DOE’s categorical exclusion for battery energy storage systems removes transparency for communities and explained that there is a lack of public outreach for proposed battery energy storage systems when applying a categorical exclusion. Some commenters specified that communities should have public review and comment for proposed battery energy storage systems, including for example, potential environmental and safety risks, evacuation plans, and mitigation strategies. DOE responds that to provide transparency in the use of categorical exclusions, DOE began posting categorical exclusion determinations online in 2009. DOE will continue to regularly post categorical exclusion determinations for B4.14 and other categorical exclusions listed in appendix B of DOE’s NEPA regulations (10 CFR part 1021, subpart D) at [www.energy.gov/nepa/doe-categorical-exclusion-cx-determinations](http://www.energy.gov/nepa/doe-categorical-exclusion-cx-determinations).

Commenters further stated that an alternatives analysis should be required to compare alternatives to battery energy storage system technology, as well as alternative siting locations. DOE considers alternatives, as appropriate, in NEPA reviews and in its decision making. Whether DOE evaluates alternatives for a particular proposed action, and the nature of those

alternatives, depends on several factors including the potential for significant impacts and the purpose and need for DOE's action.

## **6. Comments Requesting that DOE Expand Categorical Exclusion B4.14**

In explaining why categorical exclusion B4.14 is limited to electrochemical-battery and flywheel energy storage systems, DOE stated in the notice of proposed rulemaking that, "At this time, DOE has not identified sufficient information to conclude that compressed air energy storage, thermal energy storage (*e.g.*, molten salt storage), or other technologies normally do not present the potential for significant environmental impacts. DOE welcomes comments that provide analytic support for whether these other energy storage technologies meet the requirements for a categorical exclusion." Commenters recommended that DOE expand categorical exclusion B4.14 to include any energy storage system that is technologically feasible or was developed either by a DOE laboratory or with financial support from the Federal Government. Commenters also recommended expansion of categorical exclusion B4.14 to include specific energy storage technologies, including above-ground compressed air energy storage; thermal energy storage, including molten salt storage; solid-state thermal batteries; pumped storage hydropower; gravity storage; underground hydrogen storage. DOE appreciates these suggestions, including the rationale provided by the commenters. DOE has determined, however, that it does not currently have sufficient information to determine that these technologies normally do not pose a potential for significant impacts. DOE will retain the comments for consideration in a future rulemaking.

Commenters recommended that categorical exclusion B4.14 include the use of iron-air batteries. Iron-air batteries are a type of electrochemical battery and, therefore, included within the scope of categorical exclusion B4.14.

Commenters suggested that DOE add a new categorical exclusion for combined battery and solar projects. DOE may apply more than one categorical exclusion to a proposed action so long as the potential effects of the total project are analyzed and the proposed action fulfills all the conditions, including integral elements, of each categorical exclusion applied. For example, it could be appropriate to apply categorical exclusions B4.14, Construction and operation of electrochemical-battery or flywheel energy storage systems, and B5.16, Solar photovoltaic systems, to the same proposed action, depending on project- and site-specific conditions. Given this practice, the commenters' suggested addition is unnecessary.

## **7. Comments Regarding Specific Energy Storage System Projects**

Commenters expressed opposition to specific battery energy storage system projects including those in Morro Bay, CA, East Hampton, NY, Warwick, NY, Holtsville, NY, Covington, WA, and in Eldorado near Santa Fe, NM. Commenters requested to be informed of all future battery energy storage systems. This rulemaking does not involve decisions or actions related to any particular proposed battery energy storage system. As described in section II of this document, before DOE may apply categorical exclusion B4.14 to a particular proposed action, DOE must conduct a project-specific environmental review to determine whether all conditions applicable to the categorical exclusion are met. DOE does not review or have a decision-making role regarding all battery energy storage systems and has no mechanism to inform local residents of all future battery energy storage systems.

## **D. Comments Regarding Solar Photovoltaic Systems**

### **1. Comments Regarding the Lake Effect Hypothesis (LEH)**

There is a potential that birds, particularly waterfowl, perceive large solar PV facilities as water bodies. Underlying this lake effect hypothesis is the possibility that solar panels and water

polarize light in a similar way. This might cause birds to try to land or feed on solar PV panels, which could cause bird fatalities and other harms. Some commenters raised this concern and stated that birds may mistake solar panels for water bodies and be stranded, injured, or killed. Commenters requested that best management practices, such as non-reflective coating, increased panel spacing, and vertical positioning of the panels at night for panels on rotating axes, be incorporated into solar facilities to minimize this risk. Other commenters added that certain mitigation measures may depend on the species of bird and other animal being affected, and that mitigation is best addressed in an environmental impact statement. DOE is aware of this potential impact and is one of the Federal agencies sponsoring research to better understand whether birds mistake solar panels for water, whether that might affect behavior, and what effective mitigation is available. (See Technical Support Document, p. 103.) Categorical exclusion B5.16 includes conditions that require that the proposed project not have significant effects on protected species. At any point in its environmental review of a particular project, DOE can decide to prepare an environmental assessment or environmental impact statement rather than relying on a categorical exclusion.

## **2. Comments Regarding Wildlife and Habitat**

Commenters stated that insect populations may be at risk from solar PV facilities and that PV panels produce polarized light that may confuse insects seeking water for feeding or breeding purposes, potentially leading to reproductive failure and possible ecosystem effects. DOE has supplemented the Technical Support Document to include research that summarizes the potential for negative impacts, including potential light pollution that may adversely impact aquatic insect breeding, as well as the positive impacts of solar PV systems on insect populations. (See Technical Support Document, p. 103). The Technical Support Document summarizes research

regarding siting considerations that demonstrate that use of previously disturbed or developed lands, such as former agricultural fields, is preferable to siting on undisturbed land. In addition, use of native mixes of flowering plants and grasses during revegetation can improve the biodiversity of both plant and insect populations, including pollinators, as the habitat matures post-construction. Proper siting of proposed solar PV systems and revegetation plans that use diverse, pollinator-friendly seed mixes would ensure that adverse impacts to insect populations are not significant. Categorical exclusion B5.16 includes conditions that require that the proposed project not have significant effects on protected species. At any point in its environmental review of a particular project, DOE can decide to prepare an environmental assessment or environmental impact statement rather than relying on a categorical exclusion.

Commenters stated that habitat fragmentation and the spread of non-native, invasive species could result from building solar projects along linear corridors such as utility rights-of-way, particularly in cases where the projects are fully fenced. These commenters further stated that land and wildlife managers must assess current wildlife habitat connectivity in the proposed project area, as well as future connectivity needs in light of climate change. DOE appreciates commenters raising concerns about habitat connectivity. DOE's integral elements and consideration of extraordinary circumstances would ensure consideration of these impacts. Nonetheless, to better highlight potential effects on habitat, in this final rule, DOE added conditions to categorical exclusion B5.16 to ensure that proposed solar PV projects would be consistent with applicable plans for management of wildlife and habitat, including plans to maintain habitat connectivity.

Commenters stated that the Wild Springs Solar Project included in the Technical Support Document is not a typical design because the fencing encloses blocks of panels, rather than



surrounding the entire project. These commenters stated that the project was designed and sited to avoid prairie dog colony areas. These commenters asserted that if a categorical exclusion had been applied to this project, these protective measures are unlikely to have been taken.

Categorical exclusion B5.16 requires that the proposed project not have significant effects on species, habitat, and other local environmental conditions, as well as the use of best management practices. DOE disagrees with the assertion that the protective design elements would not have been included in the project if a categorical exclusion would have been used for NEPA review.

### **3. Comments Regarding Various Environmental Effects**

Commenters expressed concerns regarding impacts from toxic dust during construction, visual impacts, lower property values, harm to tourism economies, and a heat island effect.

Commenters expressed concern over water use during construction and for dust control and the cumulative impact of dust emissions, both during construction and operation. Commenters stated that categorical exclusion B5.16 must include provisions for effective dust control in desert and dry, wind-prone areas. DOE is aware of these concerns. Dust control and limitations on other effects are encompassed in the requirement that the proposed project be in “accordance with applicable requirements (such as land use and zoning requirements) in the proposed project area and the integral elements listed at the start of appendix B of this part, and would be consistent with applicable plans for the management of wildlife and habitat, including plans to maintain habitat connectivity, and incorporate appropriate control technologies and best management practices.”

One individual expressed concern about fire risk due to electrical lines associated with solar energy systems. DOE responds that any electrical lines associated with a solar PV system

would be required to meet all applicable standards for vegetation management, system design, and other conditions to prevent the lines from causing fires.

#### **4. Comments Regarding Cumulative Effects**

Commenters expressed concern over the cumulative effects of removing the 10-acre size limit for solar PV systems in categorical exclusion B5.16, suggesting that the impacts could extend to tens of thousands of acres in a concentrated area. Commenters also stated that the categorical exclusion must not apply to utility-scale solar developments larger than 500 acres because of cumulative impacts. DOE considers cumulative impacts in determining whether to apply a categorical exclusion to a proposed action. DOE's regulations list conditions that must be met before making a categorical exclusion determination. Among these conditions is a requirement to consider "connected and cumulative actions, that is, the proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), [and] is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7))." DOE might also consider cumulative impacts in the context of extraordinary circumstances, integral elements, or other conditions such as consistency with applicable plans for the management of wildlife and habitat, including plans to maintain habitat connectivity. In regard to the suggested 500-acre limit for the categorical exclusion, as explained in section II of this document, DOE does not have a basis for identifying a particular acreage limit for categorical exclusion B5.16. Local conditions are the appropriate basis for assessing the significance of environmental impacts for a particular proposed project.

#### **5. Comments Regarding the Need for Additional Guidance and Regulation**

Commenters identified a need for further guidance on responsible solar buildout, particularly regarding critical wildlife habitats and productive agricultural lands. DOE

appreciates this recommendation and expects that guidance and best practices will continue to improve as the technology advances. Categorical exclusion B5.16 includes flexibility to accommodate these changes (*e.g.*, by providing for consideration of the best practices relevant at the time the proposed action is reviewed).

Other commenters stated that categorical exclusion B5.16 requires that actions “would be in accordance with applicable requirements (such as land use and zoning requirements)” but noted that not all jurisdictions have current planning and zoning that expressly addresses siting of large-scale solar PV projects. Commenters asserted that a large-scale PV solar project, therefore, could be permitted in a corridor or right-of-way without meaningful NEPA review simply because it is not prohibited in those areas under the current zoning and planning requirements. DOE disagrees with this characterization. As explained in section II of this document and in response to comments, DOE must consider several conditions related to environmental impacts before deciding whether to apply categorical exclusion B5.16 to a particular proposed action. In an area without applicable land use and zoning requirements, DOE still would consider whether the proposed project location is on previously disturbed or developed land, applicable requirements and plans for the management of wildlife and habitat, including plans to maintain habitat connectivity, whether the proposed project incorporates appropriate control technologies and best management practices, the integral elements listed in DOE’s regulations, and other conditions required of every categorical exclusion, such as consideration of any extraordinary circumstances.

## **6. Comments Regarding the Definition of Previously Disturbed or Developed Lands**

Some commenters proposed edits to narrow DOE’s definition of “previously disturbed or developed lands.” DOE considered these suggestions and concluded that the changes are

unnecessary. DOE has successfully applied the current definition over more than a decade for a variety of projects involving several DOE categorical exclusions that use the phrase “previously disturbed or developed.” This phrase and definition are only part of the criteria that must be met to use categorical exclusion B5.16. As described in section II of this document and in response to other comments, the use of the categorical exclusion is dependent upon successfully satisfying several conditions related to environmental effects.

## **7. Comments Regarding Scope**

Commenters suggested that DOE extend categorical exclusion B5.16 to include agricultural lands, especially where the project developers agree to follow certain practices to protect native habitats and manage stormwater. DOE considers agricultural land potentially within the scope of categorical exclusion B5.16 so long as the proposed action meets all applicable conditions. Those conditions include avoiding significant impacts on habitat and following applicable plans for the management of wildlife and habitat, including plans to maintain habitat connectivity, among others.

Commenters stated that large, solar PV power plants built on water decrease photosynthesis and primary productivity and may have adverse ecosystem effects. Categorical exclusion B5.16 does not apply to solar PV projects proposed to be located on water. In DOE’s NEPA regulations, the term “‘previously disturbed or developed’ refers to land” (10 CFR 1021.410(g)(1)).

## **8. Comments Regarding Solar Panel Production and Decommissioning**

Commenters expressed concern about environmental impacts of solar panel production, citing the environmental effects and carbon emissions of raw material sourcing, mining, smelting, and refining. The effects of solar panel production are not within DOE’s control or

responsibility and are therefore outside the scope of DOE's NEPA review for solar PV systems. The scope of categorical exclusion B5.16 includes of installation, modification, and decommissioning of solar PV systems, and the related environmental effects are within the scope of DOE's NEPA review.

Commenters stated that use of the categorical exclusion would prevent public review of materials used in solar panels with potential to leach into landfills and impact water quality. Commenters stated that potential carcinogens such as PFAS (per- and polyfluoroalkyl substances) and metals such as silver, cadmium, and tellurium may be used in solar PV panels. DOE has supplemented the Technical Support Document regarding the safe operation and maintenance of solar PV panels. PV panels are sealed and do not leach chemicals during normal operation. Maintenance and repair of PV panels ensures that broken or cracked PV panels do not leach metals or other potentially hazardous contaminants. Recycling PV panels keeps PV panels out of landfills. (*See* Technical Support Document, p. 52.)

Commenters stated that consideration has not been given to the safe decommissioning and recycling of PV panels. DOE conducts research on the safe decommissioning and recycling of PV panels. Categorical exclusion B5.16 includes decommissioning of a solar PV system, and the environmental effects of decommissioning are considered as part of this rulemaking. (*See* Technical Support Document, p. 74.) DOE has supplemented the Technical Support Document to include additional information regarding waste management and decommissioning plans for proposed projects. For example, a decommissioning plan should be prepared during project planning and best practices for what will happen when the solar PV project reaches its end of life. Decommissioning plans generally should include removal of all structures, including solar panels and all related equipment; recycling of PV panels and related equipment to the greatest

extent possible; the proper disposal of non-recyclable equipment in accordance with manufacturer specifications and applicable local, state, and Federal requirements; and re-establishment of vegetation and restoration of the project site. (*See* Technical Support Document, p. 74.) In addition, National Fire Protection Association Standard 855 mandates a decommissioning plan for removing and disposing of the system at the end of its useful life.

## **V. Procedural Issues and Regulatory Review**

### **A. Review under Executive Orders 12866, 13563, and 14094**

Executive Order (“E.O.”) 12866, “Regulatory Planning and Review,” as supplemented and reaffirmed by E.O. 13563, “Improving Regulation and Regulatory Review,” 76 FR 3821 (Jan. 21, 2011) and amended by E.O. 14094, “Modernizing Regulatory Review,” 88 FR 21879 (April 11, 2023), requires agencies, to the extent permitted by law, to (1) propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); (2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; (3) select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); (4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and (5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public. DOE emphasizes as well that E.O. 13563 requires agencies to use the best available techniques to quantify anticipated

present and future benefits and costs as accurately as possible. In its guidance, the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) has emphasized that such techniques may include identifying changing future compliance costs that might result from technological innovation or anticipated behavioral changes. Many benefits and costs associated with this final rule are not quantifiable. The direct benefits include reduced cost and time for environmental analysis incurred by DOE, project proponents, and the public. Indirect benefits are expected to include deployment of technologies that improve the reliability and resilience of the Nation's electric grid and that expand electricity generation capacity while reducing emissions of GHGs. For the reasons stated in this preamble, this regulatory action is consistent with these principles.

This regulatory action has been determined not to be “a significant regulatory action” under E.O. 12866, “Regulatory Planning and Review,” 58 FR 51735 (October 4, 1993). Accordingly, this action is not subject to review under that Executive Order by OIRA of OMB.

## **B. Review under Executive Orders 12898 and 14096**

E.O. 12898, “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations,” as supplemented and amended by E.O. 14096, “Revitalizing Our Nation's Commitment to Environmental Justice for All,” requires each Federal agency, consistent with its statutory authority, to make achieving environmental justice part of its mission. E.O. 14096 directs Federal agencies to carry out environmental reviews under NEPA in a manner that “(A) analyzes direct, indirect, and cumulative effects of Federal actions on communities with environmental justice concerns; (B) considers best available science and information on any disparate health effects (including risks) arising from exposure to pollution and other environmental hazards, such as information related to the race, national origin,

socioeconomic status, age, disability, and sex of the individuals exposed; and (C) provides opportunities for early and meaningful involvement in the environmental review process by communities with environmental justice concerns potentially affected by a proposed action, including when establishing or revising agency procedures under NEPA.” DOE provided opportunities for public engagement in this rulemaking, including opportunities for communities with environmental justice concerns, and DOE considered and responded to comments raising environmental justice concerns (section IV of this document). Also, in determining whether the categorical exclusions apply to a future proposed action, DOE will consider whether the proposed action threatens a violation of these Executive Orders, consistent with the first integral element listed in appendix B of DOE’s NEPA procedures.

### **C. Review under National Environmental Policy Act**

The Department’s NEPA procedures assist the Department in fulfilling its responsibilities under NEPA and the CEQ regulations but are not themselves final determinations of the level of environmental review required for any proposed action. The CEQ regulations do not direct agencies to prepare an environmental assessment or environmental impact statement before establishing agency procedures that supplement the CEQ regulations to implement NEPA (40 CFR 1507.3). In establishing a new categorical exclusion and making other changes as described in this final rule, DOE followed the requirements of CEQ’s procedural regulations, which include publishing the notice of proposed rulemaking in the *Federal Register* for public review and comment, considering public comments, and consulting with CEQ regarding conformity with NEPA and the CEQ regulations (40 CFR 1507.3(b)).

In this final rule, DOE finalizes amendments that establish, modify, and clarify procedures for considering the environmental effects of DOE actions within DOE’s



decisionmaking process, thereby enhancing compliance with the letter and spirit of NEPA. DOE has determined that this final rule qualifies for categorical exclusion under 10 CFR part 1021, subpart D, appendix A6, because it is a strictly procedural rulemaking, and no extraordinary circumstances exist that require further environmental analysis. Therefore, DOE has determined that promulgation of these amendments is not a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA, and does not require an environmental assessment or an environmental impact statement.

#### **D. Review under Regulatory Flexibility Act**

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by E.O. 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (Aug. 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the rulemaking process (68 FR 7990). DOE has made its procedures and policies available on the Office of the General Counsel’s website: <https://energy.gov/gc> under Resources.

DOE has reviewed this rule under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. The revisions to 10 CFR part 1021 streamline the environmental review for proposed actions, resulting in a decrease in burdens associated with carrying out such reviews. For example, the revisions to DOE’s categorical exclusions are expected to reduce the number of environmental assessments that applicants would need to pay to have prepared for DOE’s consideration. Applicants may sometimes incur

costs in providing environmental information that DOE requires when making a categorical exclusion determination. The Government Accountability Office found in 2014 that there is little data available on the costs for preparing NEPA reviews and that agencies “generally do not reports costs that are ‘paid by the applicant’ because these costs reflect business transactions between applicants and their contractors and are not available to agency officials.”<sup>16</sup> In 2011, DOE estimated the cost of preparing environmental assessments over the prior decade at an average of \$100,000 and a median of \$65,000.<sup>17</sup> DOE does not have more current cost data. The costs of making a categorical exclusion determination are less than those to prepare an EA. Although DOE does not have data on what percentage of EAs were funded by applicants that qualified as small entities, a beneficial cost impact is expected to accrue to entities of all sizes.

Based on the foregoing, DOE certifies that this final rule will not have a significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking. DOE’s certification and supporting statement of factual basis will be provided to the Chief Counsel for Advocacy of the Small Business Administration pursuant to 5 U.S.C. 605(b).

#### **E. Review under Paperwork Reduction Act**

This rulemaking imposes no new information or record-keeping requirements. Accordingly, OMB clearance is not required under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*) and the procedures implementing that Act (5 CFR 1320.1 *et seq.*).

#### **F. Review under Unfunded Mandates Reform Act of 1995**

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<sup>16</sup> GAO-14-369, NATIONAL ENVIRONMENTAL POLICY ACT: Little Information Exists on NEPA Analyses, April 2014, available at [www.gao.gov/assets/gao-14-369.pdf](http://www.gao.gov/assets/gao-14-369.pdf).

<sup>17</sup> 76 FR 237, January 3, 2011.

Title II of the Unfunded Mandates Reform Act (UMRA) of 1995 (Pub. L. 104-4) requires each Federal agency to assess the effects of Federal regulatory actions on state, local, and tribal governments, in the aggregate, or to the private sector, other than to the extent such actions merely incorporate requirements specifically set forth in a statute. Section 202 of UMRA requires a Federal agency to perform a detailed assessment of the anticipated costs and benefits of any rule that includes a Federal mandate which may result in costs to State, local, or Tribal governments, or to the private sector, of \$100 million or more in any one year (adjusted annually for inflation) (2 U.S.C. 1532(a) and (b)). Section 204 of UMRA requires each agency that proposes a rule containing a significant Federal intergovernmental mandate to develop an effective process for obtaining meaningful and timely input from elected officers of State, local, and Tribal governments (2 U.S.C. 1534).

This final rule amends DOE's existing regulations governing compliance with NEPA to better align DOE's regulations, including its categorical exclusions, with its current activities and recent experiences. This final rule will not result in the expenditure by State, local, and Tribal governments in the aggregate, or by the private sector, of \$100 million or more in any one year. Accordingly, no assessment or analysis is required under the UMRA.

#### **G. Review under Treasury and General Government Appropriations Act, 1999**

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any proposed rule that may affect family well-being. This final rule will not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

#### **H. Review under Executive Order 13132**

E.O. 13132, “Federalism,” 64 FR 43255 (Aug. 4, 1999), imposes certain requirements on agencies formulating and implementing policies or regulations that preempt state law or that have federalism implications. Agencies are required to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the states and carefully assess the necessity for such actions. DOE has examined this final rule and has determined that it will not preempt state law and will not have a substantial direct effect on the states, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. No further action is required by E.O. 13132.

## **I. Review under Executive Order 12988**

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of E.O. 12988, “Civil Justice Reform,” 61 FR 4729 (Feb. 7, 1996), imposes on Executive agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; and (3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. With regard to the review required by section 3(a), section 3(b) of E.O. 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of E.O. 12988 requires Executive agencies to review regulations in light of applicable

standards in section 3(a) and section 3(b) to determine whether they are met, or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this final rule meets the relevant standards of E.O. 12988.

#### **J. Review under Treasury and General Government Appropriations Act, 2001**

The Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under information quality guidelines established by each agency pursuant to general guidelines issued by OMB.

OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed this final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

#### **K. Review under Executive Order 13211**

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1)(i) is a significant regulatory action under E.O. 12866, or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits

on energy supply, distribution, and use. This regulatory action does not have a significant adverse effect on the supply, distribution, or use of energy, and is therefore not a significant energy action. Accordingly, DOE has not prepared a Statement of Energy Effects.

#### **L. Review under Executive Order 12630**

DOE has determined pursuant to E.O. 12630, “Governmental Actions and Interference with Constitutionally Protected Property Rights,” 53 FR 8859 (Mar. 18, 1988), that this final rule would not result in any takings that might require compensation under the Fifth Amendment to the United States Constitution.

#### **M. Congressional Notification**

As required by 5 U.S.C. 801, DOE will report to Congress on the promulgation of this rule prior to its effective date. The report will state that the Office of Information and Regulatory Affairs has determined that this action meets the criteria set forth in 5 U.S.C. 804(2).

#### **VI. Approval of the Office of the Secretary**

The Secretary of Energy has approved publication of this notice of final rulemaking.

#### **List of Subjects in 10 CFR Part 1021**

Environmental impact statements.

### **Signing Authority**

This document of the Department of Energy was signed on April 24, 2024, by Samuel T. Walsh, General Counsel, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on April 24, 2024.

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Samuel T. Walsh  
General Counsel  
U.S. Department of Energy

For the reasons stated in the preamble, DOE amends part 1021 of chapter X of title 10, Code of Federal Regulations, as set forth below:

## **PART 1021—NATIONAL ENVIRONMENTAL POLICY ACT IMPLEMENTING PROCEDURES**

1. The authority citation for part 1021 continues to read as follows:

**Authority:** 42 U.S.C. 7101 *et seq.*; 42 U.S.C. 4321 *et seq.*; 50 U.S.C. *et seq.*

2. Appendix B of subpart D of part 1021 is amended by:

- a. Revising B4.4, B4.6, and B4.13;
- b. Adding B4.14; and
- c. Revising B5.1 and B5.16.

The revisions and addition read as follows:

### **Appendix B to Subpart D of Part 1021—Categorical Exclusions Applicable to Specific Agency Actions**

\* \* \* \* \*

#### **B4. \* \* \***

\* \* \* \* \*

#### **B4.4 Power marketing services and activities**

Power marketing services and power management activities (including, but not limited to, storage, load shaping and balancing, seasonal exchanges, and other similar activities), provided that the operations of generating projects would remain within normal operating limits. (*See* B4.14 of this appendix for energy storage systems.)

\* \* \* \* \*



#### **B4.6 Additions and modifications to transmission facilities**

Additions or modifications to electric power transmission facilities within a previously disturbed or developed facility area. Covered activities include, but are not limited to, switchyard rock grounding upgrades, secondary containment projects, paving projects, seismic upgrading, tower modifications, load shaping projects (such as reducing energy use during periods of peak demand), changing insulators, and replacement of poles, circuit breakers, conductors, transformers, and crossarms. (See B4.14 of this appendix for energy storage systems.)

\* \* \* \* \*

#### **B4.13 Upgrading and rebuilding existing powerlines**

Upgrading or rebuilding existing electric powerlines, which may involve relocations of small segments of the powerlines within an existing powerline right-of-way or within otherwise previously disturbed or developed lands (as discussed at 10 CFR 1021.410(g)(1)). Upgrading or rebuilding existing electric powerlines also may involve widening an existing powerline right-of-way to meet current electrical standards if the widening remains within previously disturbed or developed lands and only extends into a small area beyond such lands as needed to comply with applicable electrical standards. Covered actions would be in accordance with applicable requirements, including the integral elements listed at the start of appendix B of this part; and would incorporate appropriate design and construction standards, control technologies, and best management practices. This categorical exclusion does not apply to underwater powerlines. As used in this categorical exclusion, “small” has the meaning discussed at 10 CFR 1021.410(g)(2).

#### **B4.14 Construction and operation of electrochemical-battery or flywheel energy storage systems**

Construction, operation, upgrade, or decommissioning of an electrochemical-battery or flywheel energy storage system within a previously disturbed or developed area or within a small (as discussed at 10 CFR 1021.410(g)(2)) area contiguous to a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as land use and zoning requirements) in the proposed project area and the integral elements listed at the start of appendix B of this part, and would incorporate appropriate safety standards (including the current National Fire Protection Association 855, Standard for the Installation of Stationary Energy Storage Systems), design and construction standards, control technologies, and best management practices.

\* \* \* \* \*

## **B5. \* \* \***

### **B5.1 Actions to conserve energy or water**

(a) Actions to conserve energy or water, demonstrate potential energy or water conservation, and promote energy efficiency that would not have the potential to cause significant changes in the indoor or outdoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, manufacturers, and designers), organizations (such as utilities), and governments (such as state, local, and tribal). Covered actions include, but are not limited to weatherization (such as insulation and replacing windows and doors); programmed lowering of thermostat settings; placement of timers on hot water heaters; installation or replacement of energy efficient lighting, low-flow plumbing fixtures (such as faucets, toilets, and showerheads), heating, ventilation, and air conditioning systems, and appliances; installation of drip-irrigation systems; improvements in generator efficiency and appliance efficiency ratings; efficiency improvements for vehicles and

transportation (such as fleet changeout); transportation management systems (such as traffic signal control systems, car navigation, speed cameras, and automatic plate number recognition); development of energy-efficient manufacturing, industrial, or building practices; and small-scale energy efficiency and conservation research and development and small-scale pilot projects. Covered actions include building renovations or new structures, provided that they occur in a previously disturbed or developed area. Covered actions could involve commercial, residential, agricultural, academic, institutional, or industrial sectors. Covered actions do not include rulemakings, standard-settings, or proposed DOE legislation, except for those actions listed in B5.1(b) of this appendix.

\* \* \* \* \*

#### **B5.16 Solar photovoltaic systems**

(a) The installation, modification, operation, or decommissioning of commercially available solar photovoltaic systems:

- (1) Located on a building or other structure (such as rooftop, parking lot or facility, or mounted to signage, lighting, gates, or fences); or
- (2) Located within a previously disturbed or developed area.

(b) Covered actions would be in accordance with applicable requirements (such as land use and zoning requirements) in the proposed project area and the integral elements listed at the start of appendix B of this part, and would be consistent with applicable plans for the management of wildlife and habitat, including plans to maintain habitat connectivity, and incorporate appropriate control technologies and best management practices.

3. Amend Appendix C of subpart D of part 1021 by revising C4 and C7 to read as follows:

**Appendix C to Subpart D of Part 1021—Classes of Actions That Normally Require EAs  
But Not Necessarily EISs**

\* \* \* \* \*

**C4 Upgrading, Rebuilding, or Construction of Powerlines**

(a) Upgrading or rebuilding existing powerlines when the action does not qualify for categorical exclusion B4.13; or construction of powerlines:

(1) More than approximately 10 miles in length outside previously disturbed or developed powerline or pipeline rights-of-way; or

(2) more than approximately 20 miles in length within previously disturbed or developed powerline or pipeline rights-of-way.

\* \* \* \* \*

**C7 Contracts, Policies, and Marketing and Allocation Plans for Electric Power**

(a) Establishment and implementation of contracts, policies, and marketing and allocation plans related to electric power acquisition that involve:

(1) The interconnection of, or acquisition of power from, new generation resources that are equal to or less than 50 average megawatts, unless the generation resource is eligible for a categorical exclusion;

(2) Changes in the normal operating limits of generation resources equal to or less than 50 average megawatts; or

(3) Service to discrete new loads of less than 10 average megawatts over a 12-month period.

\* \* \* \* \*

4. Amend Appendix D to subpart D of part 1021 by revising D7 to read as follows:

**Appendix D to Subpart D of Part 1021—Classes of Actions That Normally Require EISs**

\* \* \* \* \*

**D7 Contracts, Policies, and Marketing and Allocation Plans for Electric Power**

(a) Establishment and implementation of contracts, policies, and marketing and allocation plans related to electric power acquisition that involve:

- (1) The interconnection of, or acquisition of power from, new generation resources greater than 50 average megawatts, unless the generation resource is eligible for a categorical exclusion or was evaluated in an environmental assessment resulting in a finding of no significant impact;
- (2) Changes in the normal operating limits of generation resources greater than 50 average megawatts; or
- (3) Service to discrete new loads of 10 average megawatts or more over a 12-month period.

\* \* \* \* \*