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APPENDIX A – Eligibility

1. Qualifying Advanced Energy Projects

THIS APPENDIX A SUPERSEDES APPENDIX A OF NOTICE 2023-44.

For the purposes of determining eligibility for the § 48C credit, a "qualifying advanced energy project" means:

1.1 Clean Energy Manufacturing and Recycling Projects

A qualifying advanced energy project in this category involves re-equipping, expanding, or establishing an industrial or manufacturing facility. The facility must manufacture or recycle one or more of the specified advanced energy properties outlined below.

Note: If only a portion of a facility will be used to manufacture or recycle eligible property as described in this Appendix, then the qualified investment proposed in the § 48C application should only include costs for the portion of the facility that will be used to manufacture or recycle eligible property.

a. Property designed to be used to produce energy from the sun, water, wind, geothermal deposits (within the meaning of § 613(e)(2)), or other renewable resources.

(i) Examples of eligible property include solar panels and their components and sub-components (e.g., solar cells, solar glass, wafers, and polysilicon) and their specialized support structures; wind turbines, towers, floating offshore platforms, and related equipment; power electronics designed for use with eligible solar or wind property; equipment to concentrate sunlight to generate heat for industrial processes or to convert it to electricity; geothermal turbines and heat pumps; hydropower turbines; and other products directly used to generate electrical and/or thermal energy from renewable resources, as well as the specialized components, subcomponents, and materials incorporated into any such eligible property, including equipment for sensing, communication, and control.

(ii) Examples of ineligible property include equipment used for purposes other than converting energy from renewable resources into electricity, building heat, or industrial process heat. This includes gas turbine generator sets which burn natural gas, or boilers that heat water using fossil fuels. Also, clean energy development projects are ineligible. These include power generation projects that use solar panels, wind turbines, or hydropower turbines to generate electricity.

b. Fuel cells, microturbines, or energy storage systems and components.

(i) Examples of eligible property include stationary batteries; stationary hydrogen fuel cells; hydrogen storage vessels; microturbines for combined heat and power systems; pumps and turbines for pumped hydropower storage systems; and the specialized components of any such equipment, including equipment for sensing, communication, and control.

(ii) Examples of ineligible property include heavy-duty gas turbines.

(iii) **Note:** For electric vehicle batteries and fuel cells for vehicles see the "light-, medium-, or heavy-duty electric or fuel cell vehicles" project class.

c. Electric grid modernization equipment or components.

(i) Examples of eligible property include grid equipment for electricity delivery; power flow, control, and conversion, such as transformers, power electronics, advanced cables and conductors, advanced meters, breakers, switchgears, composite poles, converters, medium-voltage direct current (MVDC) and high-voltage direct current (HVDC) lines, grid-enhancing technologies, and electrical steel or alloys used in transformer cores. Examples of eligible property also include the specialized components of any such grid modernization equipment, including components for sensing communication, and control.

(ii) Electric vehicle supply equipment qualifies under the "light-, medium-, or heavy-duty electric or fuel cell vehicles" project class. Storage technologies for grid applications qualify under the "fuel cells, microturbines, or energy storage systems and components" project class.

d. Property designed to capture, remove, use, or sequester carbon oxide emissions.

(i) Examples of eligible property include carbon capture equipment or other property necessary to compress, treat, process, liquefy, pump or perform some other physical action to capture carbon oxide emissions, including solvents; membranes; sorbents; chemical processing equipment; compressors; monitoring equipment; and injection equipment; and well components such as packers, casing strings, CO_2-resistant concrete, steel tubulars, wellhead, valves, and sensors suitable for use in Underground Injection Control (UIC) Class VI wells. Eligible property also includes transportation equipment, as in a system of gathering and distribution infrastructure. These include pipelines, temporary or transportation-related carbon oxide storage tanks, valves, sensors, and control panels that serve in collecting carbon oxides captured from an industrial facility or multiple facilities for the purpose of transporting that carbon oxide. Additional examples include equipment to convert carbon oxides

through mineralization, thermochemical, electrochemical, photochemical, plasma-assisted, or other catalytic process approaches to carbon-based products such as synthetic fuels, chemicals, solid carbon products, and inorganic materials.

(ii) Examples of ineligible property include scrubbers for conventional air pollutants (except those that are required to remove pollutants upstream of carbon capture equipment for technical performance reasons), energy generation equipment (except as related to energy recovery at carbon capture systems), and refining equipment. Also, facilities that install equipment to capture, remove, use, or sequester carbon oxide emissions are not eligible under this category. These properties are considered deployments. The installation of CCUS equipment at existing facilities may be eligible under the Industrial decarbonization category (see Section 1.2, *Industrial Decarbonization Projects*).

e. Equipment designed to refine, electrolyze, or blend any fuel, chemical, or product which is renewable, or low-carbon and low-emission. For the purposes of Round 2 of the § 48C(e) program, a qualifying advanced energy project in this category must include projects that manufacture or recycle equipment used to produce the following:

(i) Renewable transportation fuel that is
(A) suitable for use as a fuel in a vehicle, marine vessel, or aircraft,
(B) derived from or co-processed with
(I) a biomass feedstock, or
(II) hydrogen produced from renewable energy and inputs, and
(C) not derived from palm fatty acid distillates or fossil fuels, including coal, natural gas, and petroleum.

(ii) Clean hydrogen produced with a well-to-gate lifecycle greenhouse gas (GHG) emissions rate of not greater than 4 kg CO_{2e} per kg H_2, in accordance with the definition of qualified clean hydrogen under § 45V, Credit for Production of Clean Hydrogen.

(iii) Other fuel that is
(A) derived from or co-processed with a renewable feedstock or achieves at least a 50 percent reduction in lifecycle GHG emissions in comparison with the conventional alternative,
(B) not a transportation fuel suitable for use in a vehicle, marine vessel, or aircraft, and
(C) not derived from palm fatty acid distillates or fossil fuels, including coal, natural gas, and petroleum.

(iv) Product or chemical that is
(A) derived from or co-processed with a renewable feedstock or achieves at least a 50 percent reduction in lifecycle GHG emissions in comparison with the conventional alternative,

(B) suitable for use as an industrial feedstock, and

(C) not derived from palm fatty acid distillates or fossil fuels, including coal, natural gas, and petroleum.

(v) Examples of eligible property include electrolyzers such as alkaline cells, proton-exchange membrane (PEM) cells, and solid-oxide electrolysis cells (SOECs). Other eligible equipment includes mixing devices, pumps, separation devices, bioprocessing equipment, biomass preprocessing equipment, and reactors. However, these pieces of equipment must be intended for use in the production of eligible fuels, chemicals, and products. Examples of these fuels, chemicals, and products include low-emissions ammonia, renewable biofuels, including sustainable aviation fuel, fuels designed to replace petroleum fuel in on-road and off-road applications. Equipment for the production of low-emissions chemicals, basic organic chemicals, polymers, and resins are also included, as long as their intended use is demonstrated through engineering specifications or offtake agreements.

(vi) Examples of ineligible property include those designed to produce fuels and chemicals derived solely from fossil resources produced through conventional petroleum and natural gas refining. Additionally, facilities that manufacture or produce fuels, chemicals, or other industrial feedstocks, such as renewable biofuels, hydrogen, and low-emission ammonia, are also ineligible. These facilities are considered deployment facilities. For exceptions pertaining to deployment facilities that produce low carbon chemicals and are eligible in Round 2 refer to Section 1.1(i)*, Other advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary*. Furthermore, it is important to note that a qualifying advanced energy project must exclude any portion of a project that involves the manufacturing or recycling of equipment used in the refining or blending of any fuel other than fuels described in this category.

f. Property designed to produce energy conservation technologies (including residential, commercial, and industrial applications).

(i) Examples of eligible energy conservation property include technologies and grid-interactive devices eligible for residential or commercial efficiency improvements for purposes of the § 25C credit or the § 179D tax deduction, as well as equipment that directly reduces net energy use in industrial applications, such as ultra-efficient heat pumps, insulation, ultra-efficient hot water systems, sensors, controls, and similar advanced efficiency technologies.

(ii) Examples of ineligible energy conservation property include those that reduce electricity usage by increasing the facility's natural gas or other fossil fuel usage and/or lead to increased system-level emissions.

g. Light-, medium-, or heavy-duty electric or fuel cell vehicles, as well as technologies, components, or materials for such vehicles, and associated charging or refueling infrastructure.

(i) Examples of eligible property include battery electric, plug-in hybrid electric, or fuel cell cars, trucks, buses, and other vehicles, as well as the specialized components of those vehicles, such as batteries, anode and cathode components and materials, electric drive systems, fuel cells, and other materials and subcomponents.

(ii) Examples of eligible charging or refueling infrastructure include electric vehicle supply equipment (EVSE), including EVSE with integrated energy storage, components from the grid connection to the vehicle, bidirectional charging equipment, and components used in hydrogen refueling stations (e.g., hydrogen compressors, pumps, storage vessels, and dispensing equipment).

(iii) Examples of ineligible property include internal combustion engine vehicles of all sizes, non-plug-in hybrid vehicles of less than 14,000 pounds gross vehicle weight rating, and their components, as well as associated refueling infrastructure, such as petroleum, liquefied or compressed natural gas, or ethanol refueling stations. Examples of ineligible charging infrastructure property also include electrical components upstream of the charging station's service connection to the grid and components of charging or refueling stations, such as signage, that are not directly involved in the transfer of fuel or power to the vehicle.

h. Hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds, as well as technologies, components, or materials for such vehicles.

(i) Examples of eligible property include traction batteries, converters, power electronics, and assembled hybrid vehicles of not less than 14,000 pounds themselves, but components and materials must be designed for large hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds, as demonstrated through engineering specifications and/or offtake agreements.

i. Other advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary.

(i) Examples of eligible advanced energy property include specialized components and equipment for nuclear power reactors or their fuels (e.g., including components and equipment for fabrication of fuels, and manufacturing of equipment for conversion, enrichment, and deconversion), and equipment used to reduce the emissions of industrial facilities, such as heat and process emissions. Property may be determined to be designed to reduce GHG emissions either through published guidance or in the letter notifying an applicant that the IRS has accepted the applicant's

application for § 48C(e) certification with respect to the property.

(ii) Examples of eligible advanced energy properties in this category include energy-intensive materials that have a substantially lower carbon intensity when compared to an appropriate industry-specific benchmark. These materials must not be derived from primary feedstocks such as palm fatty acid distillates or fossil fuels including coal, natural gas, and petroleum. Eligible projects include but are not limited to projects that expand, re-equip, or establish facilities for manufacturing or recycling of low carbon cement, concrete or components such as supplementary cementitious materials, low carbon iron and steel, low carbon aluminum, low carbon chemicals, low carbon pulp or paper, and low carbon glass. The proposed projects should reduce carbon intensity on a life cycle basis by at least 30% compared to an appropriate industry-specific benchmark. Existing facilities are only eligible if they re-equip or expand their production lines to produce these materials or increase capacity respectively; otherwise, they do not qualify under this category.

(iii) Advanced energy property that is designed to reduce greenhouse gas emissions by enabling the production of other greenhouse gas emission-reducing advanced energy property may be eligible under this category. For such "other advanced energy property," which is not designed to directly reduce GHG emissions, the applicant must demonstrate that the advanced energy property is highly specialized equipment necessary to strengthen U.S. resilience of critical domestic energy supply chains and the reduction of GHG emissions is a necessary ultimate outcome from the production of the advanced energy property. This can be demonstrated through the applicant's proposed business plan, including offtake agreements and any additional market analysis or other technical specialization, to show the advanced energy property that is produced or recycled by the applicant's industrial or manufacturing facility will primarily contribute toward reduction of GHG emissions. An example of such "other advanced energy property" that may be eligible is diamond wire saws necessary in the solar technology supply chain, so long as the applicant demonstrates the project's output will be used primarily for the purpose of manufacturing property designed to produce energy from the sun.

(iv) Examples of ineligible properties include projects that re-equip, expand, or establish facilities that would be used for enrichment, conversion, or deconversion of uranium. Similarly, projects that produce uranium or procure equipment that would be used in the enrichment, conversion, or deconversion of uranium are not eligible under this category.

1.2 Industrial Decarbonization Projects

An advanced energy project qualifies under this category if it involves retrofitting an industrial or manufacturing facility, particularly in energy-intensive sectors such as cement, iron and steel, aluminum, and chemicals. The retrofit must include the

installation of equipment specifically designed to reduce greenhouse gas emissions by at least 20 percent. It's important to note that this category is exclusively focused on projects that upgrade the existing facilities to lower greenhouse gas emissions through the installation of one or more specified technologies below.

Note: Investments aimed at expanding a facility such as those intended to increase manufacturing capacity are not considered eligible costs to be included as part of qualified investment under this category. Therefore, any such ineligible costs must be excluded from the qualified investment requested for projects within this category. However, these type projects may qualify under the section 1.1 Clean Energy Manufacturing and Recycling project category.

In Round 1, this project category was referred to as "Greenhouse Gas Emissions Reduction Projects" (as described and defined in Appendix A of Notice 2023-44). The updated project category name "Industrial Decarbonization Projects" in Round 2 is a change in terminology only; eligibility under this project category remains unchanged between Round 1 and Round 2, although additional clarifications are provided below.

a. Low- or zero-carbon process heat systems.

Examples of eligible equipment include electric heat pumps, combined heat and power (CHP) systems, thermal storage technologies, and other heating systems based on electricity, clean hydrogen, biomass, or waste heat recovery.

b. Carbon capture, transport, utilization, and storage systems.

(i) Examples of eligible equipment include carbon capture equipment necessary to compress, treat, process, liquefy, pump, or perform some other physical action to capture carbon oxides, and specialized equipment and materials needed for the transport and storage of carbon oxides, including carbon dioxide pipelines, monitoring equipment, and injection equipment and well components such as packers, casing strings, CO_2-resistant cement, steel tubulars, well heads, valves, and sensors suitable for use in Underground Injection Control Class VI wells. Additional examples include equipment to convert carbon oxides through mineralization, thermochemical, electrochemical, photochemical, plasma-assisted, or other catalytic process approaches to carbon-based products such as synthetic fuels, chemicals, solid carbon products, and inorganic materials.

(ii) Examples of ineligible property include scrubbers for conventional air pollutants, except those that are required to remove pollutants upstream of carbon capture equipment to enhance the performance of the capture equipment; energy generation equipment, except as related to energy recovery at carbon capture systems; and refining equipment.

c. Energy efficiency and reduction in waste from industrial processes.

Examples of eligible equipment include technologies that reduce direct fuel use, electricity use, or waste in industrial applications, such as industrial heat pumps, CHP systems, insulation, sensors, controls, advanced recycling approaches, smart energy management, and similar advanced efficiency technologies.

d. Any other industrial technology designed to reduce greenhouse gas emissions, as determined by the Secretary.

(i) Examples of other eligible industrial technologies include electrification of direct fuel use processes, adoption of renewable or low-emissions fuels and feedstocks, and other equipment replacement or process redesigns that reduce process- or fuel-related emissions or otherwise contribute to reducing GHG emissions by at least 20 percent.

(ii) Projects in this category may qualify by installing equipment designed to achieve a minimum of a 20 percent reduction in GHG emissions in one or more of the following ways:

(A) Achieve a direct (Scope 1) GHG emissions reduction of 20 percent facility-wide;
(B) Achieve an indirect fuel- or energy-related (Scope 2) GHG emissions reduction of 20 percent facility-wide; or
(C) Achieve a direct or indirect fuel- or energy-related GHG emissions reduction of 20 percent at a facility subunit, such as a particular process step or fuel combustion unit.

(iii) While facilities may be eligible under this project category by achieving a 20 percent reduction threshold within a particular element of their process or emissions profile, overall combined Scope 1 and Scope 2 GHG emissions impacts for the full qualifying facility will be taken into account when evaluating each project for the purposes of application scoring. Scope 1 and Scope 2 GHG emissions are further defined in section 2.2 of Appendix B, *Glossary of Terms*.

Instructions for calculating and demonstrating an emissions reduction of 20 percent is provided in section 2.6.1 of Appendix B, *Data Sheet*.

1.3 Critical Material Projects

A qualifying advanced energy project in this category re-equips, expands, or establishes an industrial facility for the processing, refining, or recycling of critical materials (as defined in § 7002(a) of the Energy Act of 2020 (30 U.S.C. § 1606(a)). For purposes of this Round 2, critical materials consist of:

a. The currently effective final list of critical minerals as determined by the U.S. Geological Survey (see 2022 Final List of Critical Minerals for the list published in 2022 available at: https://www.energy.gov/cmm/what-are-critical-materials-and-critical-minerals); and

b. Any additional critical materials as determined by the Secretary of Energy and for which a final determination is posted on the DOE's critical materials page on or before July 31, 2023, available at: ***http://www.energy.gov/criticalmaterials***. A proposed determination was posted at this web address prior to the publication of this notice. **Note:** DOE reserves the right to extend the deadline for concept paper submissions based on any changes included in the final determination.

Examples of eligible projects in this project category include the processing of raw ore, brines, mine tailings, end-of-life products, waste streams, and other source materials into critical materials. **Note:** These examples have been updated with additional clarifying language since the publication of Notice 2023-18.

Examples of ineligible projects under this project category include the subsequent physical or chemical transformation of critical materials into derivative products, including metals manufacturing such as aluminum extrusion and chemical manufacturing such as anode and cathode materials production. However, projects involving such derivative products may be eligible under the Clean Energy Manufacturing and Recycling Projects category. **Note:** These examples have been updated with additional clarifying language since the publication of Notice 2023-18.

2 APPENDIX B – DOE Application Process

DOE Application Process

THIS APPENDIX B SUPERSEDES APPENDIX B OF NOTICE 2023-44.

2.1 Executive Summary

Appendix B provides guidance on the DOE application process. The Appendix is organized as follows:

- **Section 2.2 Glossary of Terms** defines key terms used throughout the guidance.
- **Section 2.3 DOE Review Process** summarizes application process and program priorities.
- **Section 2.4 Stage 1, Concept Paper Guidance** summarizes the concept paper submission requirements, the concept paper template, and the review process.
- **Section 2.5 Stage 2, 48C(e) Application Guidance** summarizes the application submission requirements, application submission guidelines, and the review process.
- **Section 2.6 Additional Application Materials** summarizes the data sheet and appendix files guidelines.
- **Section 2.7 Technical Review Criteria** summarizes the criteria that DOE will use to evaluate applications.
- **Section 2.8 Submission and Registration Information and Requirements** summarizes the logistics and requirements for submitting application materials.
- **Section 2.9 DOE Recommendation Process** describes program policy factors DOE will use to evaluate applications.
- **Section 2.10 Post Allocation** describes requirements for certification for successful applications after allocations have been made.
- **Section 2.11 Questions/Comments and Informational Webinar** summarizes how to learn more about the 48C program.

Below are the key dates for Round 2 of the 48C Program.

Table 1: Program Key Dates

Guidance Issue Date	04/30/2024
DOE 48C Portal Opens for registration and concept paper submission	May 2024, and no later than 05/28/2024
Informational Webinar	No later than 05/31/2024

Submission Deadline for Concept Papers	30 calendar days after the 48C Portal Opens for registration and concept paper submissions at 5:00 PM Eastern
48C Portal Opens for full application submission	Summer 2024
Submission Deadline for § 48C(e) Applications	Summer / Fall 2024; 50 calendar days after the 48C Portal Opens to accept full application submissions at 11:59 PM Eastern
IRS Allocation Decision Notifications	No later than 01/15/2025

2.2 Glossary of Terms

The following terms may be used throughout this appendix describing the DOE application process.

Disadvantaged Community	A disadvantaged community is overburdened or underserved and may be either (1) a group of individuals living in geographic proximity (e.g., such as a census tract identified using the Climate and Economic Justice Screening Tool), or (2) a geographically dispersed set of individuals, where either type of group experiences common conditions.
Scope 1 Emissions	Direct greenhouse gas emissions that occur from sources at the facility associated with the proposed project (e.g., emissions from fuel combustion or chemical processes).
Scope 2 Emissions	Indirect greenhouse gas emissions that are associated with the use of energy or fuel at the facility, but do not occur at the facility (e.g., emissions from a power plant that generates electricity for the facility).
Scope 3 Emissions	Indirect greenhouse gas emissions that are associated with the facility's activities and products but are not covered in Scope 1 or 2, including emissions from the products themselves in their ultimate use, transportation, or other aspects of the value chain upstream or downstream from the facility.
Specified Advanced Energy Property	A specific category of property listed in 48C(c)(1)(A) and described in further detail in section 1.1 of Appendix A, *Clean Energy Manufacturing and Recycling Projects*. Clean Energy Manufacturing and Recycling Projects under § 48C(e) must either produce or recycle one or more specified advanced energy properties. For example, solar glass would be considered a specified advanced energy property covered under section 1.1(a) of Appendix A.
Facility Product	The equipment, materials, or other products produced in the facility associated with the proposed project and typically sold or leased after production. Facilities may have more than one facility product. Under the Clean Energy Manufacturing and Recycling Project category,

	the specified advanced energy property of a clean energy **manufacturing** project is likely to be the facility's primary product/output. In contrast, the specified advanced energy property of a clean energy **recycling** project is an input to the proposed facility, while the facility product/output is typically one or more materials extracted in the recycling process. In a **Critical Materials Recycling Project** the qualified critical material is the input to the proposed facility while facility product/output is the project's specified advanced energy property. Facility products from Industrial Decarbonization Projects do not need to be specified advanced energy property.
Registered Apprenticeship Program	A Registered Apprenticeship Program (RAP) is an apprenticeship that has been validated by the Department of Labor or State Apprenticeship Agency.
Collective Bargaining Agreement	A legally enforceable, written contract between a union representing a group of employees and an employer in a workplace.
Project Labor Agreement	A Project Labor Agreement (PLA) is a pre-hire collective bargaining agreement negotiated between one or more construction unions and one or more construction employers (contractors/project owners) that establish the terms and conditions of employment for a specific construction project.
Community Benefits Agreement	Community Benefits Agreements are contracts between employers/developers/contractors/project owners and community organizations (including but not limited to unions). These agreements, which can be in the manufacturing sector, the construction sector, or other industries, may include provisions related to affordable housing, pollution reduction, or other community priorities. Community Benefits Agreements are unique to each community and their terms will reflect the varied interest of their signatories. Some Community Benefits Agreements are Collective Bargaining Agreements between the contractor/employer and one or more unions setting terms and conditions of employment—others are not. If a Community Benefits Agreement is not a Collective Bargaining Agreement, it cannot set out terms related to wages, rates of pay, hours of

	employment, or conditions of work.

2.3 DOE Review Process

2.3.1 Program Process

A two-stage technical evaluation process will be used for submissions:

- Stage 1: Concept Paper.
- Stage 2: § 48C(e) Application.

In Stage 1, concept paper submission application materials will be available for applicants to download from the 48C portal and concept paper submissions will be accepted in the 48C portal beginning no later than May 28, 2024. **DOE will only consider concept papers that are submitted by 5:00 PM Eastern Time, 30 days after the 48C portal opens.** Section 48C(e) applications for Round 2 allocations will not be considered by DOE unless a Round 2 concept paper submission is received from an applicant by the specified deadline. Potential applicants will not be able to begin concept papers or submit concept papers for Round 2 after the deadline.

In Stage 2, following DOE's review of concept papers and transmission of letters encouraging or discouraging the applicant to continue in the process, the 48C portal will reopen to receive § 48C(e) application submissions for subsequent evaluation by DOE. The date on which DOE will begin accepting § 48C(e) applications and the deadline by which they must be submitted will be conveyed to applicants through the 48C portal at a later date.

In each stage, DOE will review the submitted materials for compliance and eligibility, and perform a thorough, consistent, and objective examination based on technical review criteria and other factors, as described below.

After Stage 2 evaluations of § 48C(e) applications are complete, DOE will transmit allocation recommendations to the IRS for final consideration. **The IRS will notify applicants of final allocation decisions for Round 2 no later than January 15, 2025.**

In conducting its review, DOE may utilize assistance and advice from qualified personnel from other federal agencies and/or contractors. DOE will obtain conflict of interest/non-disclosure acknowledgements from and administer required trainings in advance for all reviewers to assure that application information will be kept confidential and shall be used only for reviewing purposes, in accordance with applicable requirements. Reviewers will be required to report all personal and organizational conflicts of interest.

DOE reserves the right to request clarifications and/or supplemental information from some or all applicants submitting applications through written submissions.

DOE may determine whether to recommend or not recommend an application to the IRS at any time after the § 48C(e) application has been received, without further exchanges or discussions with the applicant.

2.3.2 Program Key Dates

Table 2: Program Key Dates

Guidance Issue Date	04/30/2024
DOE 48C Portal Opens for registration and concept paper submission	May 2024, and no later than 05/28/2024
Informational Webinar	No later than 05/31/2024
Submission Deadline for Concept Papers	30 calendar days after the 48C Portal Opens for registration and concept paper submissions at 11:59 PM Eastern
48C Portal Opens for full application submission	Summer 2024
Submission Deadline for § 48C(e) Applications	Summer / Fall 2024; 50 calendar days after the 48C Portal Opens to accept full application submissions at 11:59 PM Eastern
IRS Allocation Decision Notifications	No later than 01/15/2025

2.3.3 Program Priorities

There are three qualifying advanced energy project categories (defined in Appendix A): Clean Energy Manufacturing and Recycling Projects, Industrial Decarbonization Projects, and Critical Material Projects. Note that in Round 1, the Industrial Decarbonization Project category was referred to as "Greenhouse Gas Emissions Reduction Projects"; the updated project category name in Round 2 is a change in terminology only, and it is designed to avoid confusion with the second technical review criterion (detailed below).

It is the applicant's responsibility to determine the most applicable qualifying advanced energy project category, according to the guidance in Section 2.8.2, *Determining an Application's Project Category*. For all three project categories, eligible applications will be evaluated by DOE against the four technical review criteria reflecting overall program objectives:

- Criterion 1: Commercial Viability
- Criterion 2: Greenhouse Gas Emissions Impacts

- Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy
- Criterion 4: Workforce and Community Engagement

A taxpayer with a qualified investment in any of the projects described as eligible in Appendix A of this guidance may apply for a § 48C(e) allocation. In determining whether to recommend a project for an allocation, DOE will consider whether the proposed project is located in § 48C(e) Energy Communities Census Tracts, as defined in section 5.06 of Notice 2023-18. In Round 2, DOE anticipates recommending approximately $2.5 billion in § 48C credits to projects located in these communities.

DOE has identified the following priority areas for Round 2. Guidance for future rounds under § 48C(e) may include different priority areas.

When evaluating Clean Energy Manufacturing and Recycling Projects, DOE will take into consideration whether the project addresses the following energy supply chain and manufacturing priority areas. These priority areas have been identified based on analytical criteria including an assessment of current and anticipated supply chain gaps in areas eligible under § 48C(e):

Round 2 Priority Areas *(in alphabetical order):*

- Clean Hydrogen: Manufacturing of electrolyzers, fuel cells, and associated components (including gas diffusion layers, bipolar plates, power electronics, membrane electrode assemblies and stacks, and catalysts).
- Electric Grid: Manufacturing of distribution and large power transformers and associated subcomponents, materials (including grain-oriented electrical steel, amorphous steel), power electronics, HVDC cables, HV circuit breakers, and other grid components and equipment (including MVDC/HVDC converter station components and switchgears).
- Electric Heat Pumps: Manufacturing of air-source or geothermal (ground-source) heat pump components and systems, particularly heat pumps for industrial or networked applications and/or those utilizing low-GWP refrigerants (such as natural refrigerants).
- Electric Vehicles**: Manufacturing of power electronics (including semiconductors, modules, and circuits for EV motor traction drives, on-board EV chargers, DC/DC converters, and EV charging stations), permanent magnets, and specific battery components (separators, electrolyte salts and solvents, cathode and anode active materials and precursors). Manufacturing of capital equipment for battery manufacturing. Manufacturing of sub-components and components specific to medium- and/or heavy-duty (MDV/HDV) electric vehicles and final assembly of MDV/HDV electric vehicles.
- Energy-intensive materials that have a substantially lower carbon intensity when compared to an appropriate industry-specific benchmark: Manufacturing or recycling of low carbon cement, concrete or components such as supplementary cementitious materials, low carbon iron and steel, and low carbon aluminum
- Nuclear Energy: Manufacturing of specialized components and equipment for

nuclear power reactors or their fuels (including fabrication of fuels, and manufacturing of equipment for conversion, enrichment, and deconversion), for both existing reactors and new reactor deployments.

- Solar Energy**: Polysilicon, wafer production facilities, ingot and wafer production tools, and solar rolled glass production facilities.
- Sustainable Aviation Fuels: Manufacturing of equipment needed for low-carbon aviation fuel production (including feedstock handling equipment and pre-treatment reactors).
- Wind Energy**: Component production facilities and specialized steel production, particularly for offshore wind, such as monopile-grade steel and towers; recycling of wind components, particularly blades; offshore wind electrical balance of system component manufacturing, including submarine cables (AC and DC), large power transformers, and HVDC converter stations and converter station components.

Federal Register : Section 45X Advanced Manufacturing Production Credit ** *The production of some products under this section may be eligible for tax credits under § 45X and receiving an allocation under § 48C(e) may preclude an applicant from receiving tax credits under that program. Applicants are encouraged to evaluate which program may be most beneficial to their project before submitting a concept paper for consideration under § 48C(e).*

When evaluating Critical Material Manufacturing and Recycling Projects, DOE will take into consideration whether the project processes, refines, or recycles critical materials as determined by the Secretary of Energy, as described in section 1.3(b) of Appendix A.

When evaluating Industrial Decarbonization Projects, DOE will give priority to projects that deeply reduce emissions to levels significantly below a reasonable domestic industry average (on a sector-specific basis) and the 20% reduction eligibility requirement stated in section 1.2 of Appendix A, *Industrial Decarbonization Projects*. DOE will give priority to Industrial Decarbonization Projects that advance the commercial viability and uptake of replicable decarbonization efforts in major industrial applications (e.g., cement, iron and steel, aluminum, chemicals, and other energy-intensive manufacturing sectors), including innovative solutions, and to projects that align with one or more cross-cutting industrial decarbonization techniques, such as energy efficiency, electrification, low-carbon fuels, feedstocks, and energy sources (LCFFES), material efficiency or substitution, and carbon capture utilization and storage (CCUS).

2.4 Stage 1, Concept Paper Guidance

The first stage of DOE review requires applicants to submit concept papers describing the proposed project. This section describes the information applicants must include in concept papers and the format of the submission. Concept papers will undergo a multi-step evaluation by DOE. Applicants who applied in Round 1 and were not selected for an allocation are eligible to submit a concept paper in Round 2.

2.4.1 Concept Paper Submission Requirements

This section outlines the format of the concept paper submission. See Appendix A for a description of the eligibility requirements for the § 48C credit under this notice. See Section 2.7, *Technical Review Criteria,* for a description of the technical review criteria that will be used to evaluate submitted concept papers.

The purpose of the concept paper stage is to save applicants the considerable time and expense of preparing § 48C(e) applications for proposed projects that are unlikely to be selected for recommendation. The concept paper must conform to the following requirements:

- Concept paper must be written in English.
- Use Times New Roman typeface, a black font, and a font size of 11 points or larger (except in figures and tables). A symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.
- The control number must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.
- Each must be submitted in Adobe PDF format unless stated otherwise.

Each concept paper should be limited to unique property within a distinct qualifying advanced energy project that does not overlap with a qualifying advanced energy project in any other application submitted by the same applicant:

- For applicants applying under the Clean Energy Manufacturing and Recycling Project category, or the Critical Materials Project category, the applicant may submit more than one application involving the same facility. However, the qualified investment for each project at the same facility may not overlap in Round 2.
- For applicants applying under the Industrial Decarbonization Project category, the applicant may submit only <u>one</u> application at the same facility in Round 2.

If projects involve more than one qualifying advanced energy project listed in Appendix A, then applicants must choose a <u>primary</u> specified advanced energy property for their project. The entire concept paper submission includes two components: a template (there are unique forms for Clean Energy Manufacturing and Recycling Projects/Critical Materials Projects and Industrial Decarbonization Projects) and a data sheet.

Note: The maximum file size that can be uploaded to the 48C portal is 25 MB. Files in excess of 25 MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 25 MB but is still within the maximum page limit, it must be broken into parts and denoted to that effect in the naming convention of the file. For example: "[ControlNumber]-ConceptPaper_Part_1.pdf", "[ControlNumber]-ConceptPaper_Part_2.pdf.

The full list of required files for concept paper submission is illustrated in the following table.

Table 3: Files Required for Concept Paper Submission

Component	File Format	Maximum Pages	File Name
Concept Paper Template (*either the Clean Energy Manufacturing and Recycling Projects/Critical Materials Projects Template or the Industrial Decarbonization Projects Template*)	PDF	5	[ControlNumber]-ConceptPaper.pdf
Concept Paper Data Sheet	MS Excel	N/A	[ControlNumber]-CP-DataSheet.xlsx

For all files, "[ControlNumber]" should be replaced by the application's control number. For example, for a control number of 1234, the file would be named, "1234-ConceptPaper.pdf".

2.4.2 Concept Paper Template

At the Concept Paper stage, applicants may be asked to respond to the following questions in their submission. Additional questions may be added to this list when Concept Paper submissions open. In addition, applicants will be asked to submit an Excel data sheet.

2.4.2.1 Clean Energy Manufacturing and Recycling and Critical Materials Projects Concept Paper Template

- Project Overview and Schedule
    - Describe your company and project team, including key personnel and any subcontractors on the project.
    - Describe whether the project will establish, re-equip, or expand a facility; whether the facility will support the manufacturing, processing, refining, or recycling of specified advanced energy property; and the extent to which innovative equipment and/or processes will be employed.
    - Describe the status of the project and provide any additional details that are helpful to understand the project schedule.
    - List local, state, and/or federal permits that are required for this project and specify which of these permits you already possess. For any permits you have yet to obtain, describe the remaining steps and provide an estimated timeline for their acquisition.
- Commercial Viability
    - Describe the specified primary advanced energy property that will be produced by the facility, including how many units of specified advanced energy property will be produced annually and any technological or cost advantages over product competitors.

  - Provide an estimate of annual market demand for the facility's product over the next 5 to 10 years.
  - Describe the primary or target customers for your facility's product and the details of any existing offtake agreements or other demand commitments (e.g., with whom, for how many units, and for how long).
  - Describe the different sources of financing for this project, differentiating between secured financing and planned or expected financing. Describe the capital structure (e.g., debt/equity ratio) if multiple sources of capital will be used. If financing using the company's own funds, specify the amount of cash available to support this project.
  - Describe anticipated legal, financial, engineering, procurement, construction, and operational risk(s) that the project may experience. Explain what actions the project team will implement to mitigate these risks and achieve execution and commercial success.
- Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy
  - Describe the supply chain segment that your project's specified advanced energy property will contribute to. Explain whether your project will mitigate current challenges that the U.S. is experiencing in maintaining a secure domestic supply chain, based on where the product is manufactured today and a comparison between the proposed manufacturing capacity and current and projected market demand.
- Greenhouse Gas Emissions Impacts
  - Describe the impact of your facility's product and/or the technologies the product will enable on greenhouse gas emissions.
- Workforce and Community Engagement
  - Provide the anticipated geographical location of the eligible manufacturing, processing, refining, or recycling facility, including the census tract the project is located in. Explain why you selected the project site.
  - Does the location qualify as a 48C energy community? (see Appendix C for the full list of 48C energy community Census tracts)
  - Does the location or community qualify as a disadvantaged community according to the Climate and Economic Justice Screening Tool (CEJST)?
  - Does the location or community qualify as a disadvantaged community according to a different federal, state, or local data tool? If yes, indicate which one(s).
  - If located in an energy community, describe the extent to which the project will (1) support transition opportunities for workers in the coal, automotive, and other energy sectors, and (2) use existing infrastructure in energy transition communities.
  - Describe the extent to which the project will secure job quality (e.g., wages, benefits, health and safety at the workplace, affirmative support of collective bargaining).
  - Describe what labor and community engagement has been completed and/or is planned. Summarize any formal agreements that are planned or have been executed (e.g., Project Labor Agreements, Community Benefits

Agreements, Collective Bargaining Agreements).
- Describe any pollutants that the project will introduce to the local community, and explain what specific, measurable steps the project is taking beyond compliance with environmental law to mitigate local environmental impact.

2.4.2.2 Industrial Decarbonization Projects Concept Paper Template

- Project Overview and Schedule
  - Describe your company and project team, including key personnel and any subcontractors on the project.
  - Describe the retrofit project, including the equipment, technologies, or approaches the project will use to reduce greenhouse gas emissions from the industrial or manufacturing facility (e.g., low- or zero-carbon process heat systems, energy efficiency equipment, etc.). Explain the extent to which innovative equipment and/or processes will be employed.
  - Describe the status of the project and provide any additional details that are helpful to understand the project schedule.
  - List local, state, and/or federal permits that are required for this project. Specify which of these permits you already possess. For any permits you have yet to obtain, provide an estimated timeline for their acquisition.
- Greenhouse Gas Emissions Impacts
  - Describe the impacts of the project on the facility's Scope 1 greenhouse gas emissions.
  - Describe the impacts of the project on the facility's Scope 2 greenhouse gas emissions.
  - Explain how the project will achieve a 20% reduction in greenhouse gas emissions, including interactions between Scope 1 and Scope 2 emissions (e.g., due to electrification). Estimate the greenhouse gas emissions reductions that will be achieved by the project in both absolute (e.g., million metric tons per year) and percentage terms.
  - Provide an estimate of the levelized cost of measured reduction in GHG emissions, based on total project costs.
- Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy
  - Describe the extent to which the employed equipment, technologies, or approaches could be applied to reduce greenhouse gas emissions beyond the specific project location, within or across sectors.
- Commercial Viability
  - Describe the facility's outputs, including how many units are produced annually today. Explain any anticipated impacts of the retrofit project on annual production from the facility.
  - Describe the primary or target customers for your facility's products and the details of any existing offtake agreements or other demand commitments for the lower-carbon product (e.g., with whom, for how many units, and for how long).
  - Describe how the retrofit project will impact the price of your product and

provide an estimated price of your facility's products after the project is completed. Describe how the price of your lower-carbon product will compare to similar technologies or materials in the same market segment, including conventional and lower-carbon products.
    - Describe the different sources of financing for this project, differentiating between secured financing and planned or expected financing. Describe the capital structure (e.g. debt/equity ratio) if multiple sources of capital will be used. If financing using the company's own funds, specify the amount of cash available to support this project.
    - Describe anticipated legal, financial, engineering, procurement, construction, and operational risk(s) that the project may experience. Explain what actions the project team will implement to mitigate these risks and achieve execution and commercial success.
- Workforce and Community Engagement
    - Provide the anticipated geographical location of the project, including the census tract (see Appendix C) the project is located in.
    - Does the location or community qualify as a disadvantaged community according to the Climate and Economic Justice Screening Tool (CEJST)?
    - Does the location or community qualify as a disadvantaged community according to a different federal, state, or local data tool? If yes, indicate which one(s).
    - Does the location qualify as a 48C energy community?
    - If located in an energy community, describe the extent to which the project will (1) support transition opportunities for workers in the coal, automotive, and other energy sectors, and (2) use existing infrastructure in energy transition communities.
    - Describe the impact of the project on jobs at the facility, including jobs associated with the retrofit and the extent to which the retrofit will retain or create jobs in manufacturing.
    - Describe the extent to which the project will secure job quality (e.g., wages, benefits, health and safety at the workplace, affirmative support of collective bargaining).
    - Describe what labor and community engagement has been completed and/or is planned. Summarize any formal agreements that are planned or have been executed (e.g., Project Labor Agreements, Community Benefits Agreements, Collective Bargaining Agreements).
    - Describe any pollutants that the project will introduce to the local community, and explain what specific, measurable steps the project is taking beyond compliance with environmental law to mitigate local environmental impact.

2.4.3 Concept Paper Review Process Overview

2.4.3.1 Compliance and Eligibility Review

DOE will carry out an initial compliance review for concept papers to determine that (1) eligibility requirements have been met, (2) the required information has been submitted, (3) the proposed project is technically valid, and (4) all mandatory

requirements of this notice are satisfied. As part of this review, DOE will determine whether the proposed project meets the definition of a qualifying advanced energy project, as described in Appendix A.

If a concept paper fails to meet compliance or eligibility requirements or fails to provide sufficient information for evaluation, DOE reserves the right to request clarifications and/or missing information from some or all applicants through written submissions provided to DOE in a timely manner. Concept papers that fail to meet the compliance or eligibility requirements or do not provide sufficient information for evaluation will be considered non-responsive and will receive a discouragement letter.

2.4.3.2 Technical Review

After the concept paper compliance and eligibility review, DOE will perform a technical review process based on four technical review criteria:

- Criterion 1: Commercial Viability.
- Criterion 2: Greenhouse Gas Emissions Impacts.
- Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy.
- Criterion 4: Workforce and Community Engagement.

See complete details of the technical review criteria in Section 2.7, *Technical Review Criteria*. All technical review criteria will be used in a thorough, consistent, and objective examination to develop scores for ranking applications and determining merit of each proposed project. The review of the Commercial Viability criterion will additionally inform eligibility by determining whether the project has a reasonable expectation of commercial viability, as described in § 48C(d)(3)(A). The information requested for each criterion will vary based on the qualifying advanced energy project category, as detailed in Section 2.7, *Technical Review Criteria*.

2.4.3.3 Final Outcome for Concept Papers

Following the compliance, eligibility, and technical reviews, DOE may also consider program policy factors when determining the final portfolio of recommendations (see Section 2.9, *DOE Recommendation Process*).

After this review, DOE will issue a letter to applicants either encouraging them to submit a § 48C(e) application or discouraging them from submitting a § 48C(e) application.

An applicant that receives a discouragement letter may still submit a § 48C(e) application in accordance with the § 48C(e) program and additional guidance. Receiving a discouragement letter in response to a submitted concept paper does not disqualify a taxpayer from submitting a § 48C(e) application but represents DOE's feedback that the project, as proposed, is unlikely to receive a recommendation based on the information provided in the concept paper. DOE expects to transmit encouragement and discouragement letters to applicants in the summer of 2024.

Following the encouragement and discouragement notifications, DOE will publish a summary of general feedback based on the concept paper review process.

2.5 Stage 2, 48C(e) Application Guidance

The second evaluation stage will consist of a review of § 48C(e) applications submitted after the concept paper stage. Sections 2.6, *Additional Application Materials*, 2.8, *Submission and Registration Information and Requirements*, and 2.9, *DOE Recommendation Process* describe the information about the submission process and additional instructions for applicants. Applicants may not submit a § 48C(e) application unless they submitted a concept paper by the specified deadline.

The deadline for § 48C(e) applications will be communicated to applicants in the encouragement and discouragement letters and posted on the 48C portal.

2.5.1 Application Submission Requirements

This section outlines the format of the § 48C(e) application submission. Section 48C(e) applications should be formatted and arranged as described in this section. Strict adherence is required. Content requirements for § 48C(e) applications and the technical review criteria used by DOE to evaluate them are listed in Section 2.7, *Technical Review Criteria*.

The applicant's Control Number is used throughout the submitted files. The control number is a unique identifier generated by the 48C portal for your application and will be determined by the system when the applicant first begins your application process.

Section 48C(e) applications must conform to the following requirements:

1. All § 48C(e) applications must be written in English.
2. All pages must be formatted to fit on 8-1/2 by 11-inch paper with margins not less than one inch on every side. Use Times New Roman typeface, a black font, and a font size of 11 points or larger (except in figures and tables). A symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.
3. References must be included as footnotes or endnotes in a font size of 10 or larger. Footnotes and endnotes are counted toward the maximum page requirement.
4. The Control Number, which is the same number used for the concept paper, must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.
5. Cash flow models should be submitted as a Microsoft Excel spreadsheet and must include calculation formulas and assumptions.
6. All § 48C(e) applications must be submitted in Adobe PDF format unless stated otherwise.

Each § 48C(e) application should be limited to a unique project with a distinct qualified investment. If projects involve more than one specified advanced energy property listed in Appendix A, then applicants must choose a primary specified advanced energy property for their project. The entire § 48C(e) application submission includes five components: a narrative, a workforce and community engagement plan, a business entity certification, a data sheet, and appendices.

The § 48C(e) application narrative must not exceed 30 pages when printed using the formatting requirements set forth above and single spaced. Pages in excess of the page limitation will not be considered for review. No material may be incorporated by reference as a means to circumvent the page limitation. Section 48C(e) application narratives should be submitted in Adobe PDF format with the file name ***[ControlNumber]*-48CApplication.pdf**.

The workforce and community engagement portion of the § 48C(e) application will be submitted in a separate file and must not exceed 5 pages when printed using the formatting requirements set forth above and single spaced. Pages in excess of the page limitation will not be considered for review. No material may be incorporated by reference as a means to circumvent the page limitation. The § 48C(e) application workforce and community engagement plan should be submitted as a separate file in Adobe PDF format with the file name ***[ControlNumber]*-App-WCE.pdf**.

The 48C Business Entity Certification, which supports DOE's Due Diligence Review, should be completed and submitted as a separate file using the provided template or a comparable format including the same substantive information. Applicants must submit the file as a PDF with the file name ***[ControlNumber]*-BusinessEntityCertification.pdf**.

The 48C Application Data Sheet should be completed and submitted as a separate Excel document with the file name ***[ControlNumber]*-App-DataSheet.xlsx**. Additional instructions for completing the 48C Application Data Sheet are included in Section 2.6, *Additional Application Materials*.

Any supporting documents should be uploaded as separate, individual files, preferably in Adobe PDF format. Content provided as appendices do not count towards any page limits described above.

Note: The maximum file size that can be uploaded to the 48C portal is 25 MB. Files in excess of 25 MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 25 MB but is still within the maximum page limit, it must be broken into parts and denoted to that effect. For example: "48CApplication _Part_1.pdf", "48CApplication_Part_2.pdf".

The full list of required files for § 48C(e) application submission is illustrated in the following table.

Table 4: Files Required for § 48C(e) Application Submission

Component	File Format	Maximum Pages	File Name
Section 48C(e) Application	PDF	30	[ControlNumber]-48CApplication.pdf
Section 48C(e) Application Workforce and Community Engagement Plan	PDF	5	[ControlNumber]-App-WCE.pdf
Business Entity Certification	PDF	N/A	[ControlNumber]-BusinessEntityCertification.pdf
48C Application Data Sheet	MS Excel	N/A	[ControlNumber]-App-DataSheet.xlsx
Appendix Files	Various	N/A	[ControlNumber]-Appendix-[FileTitle].[format] (e.g. 1234-Appendix-1.pdf)

For all files, "[ControlNumber]" should be replaced by the application's control number. For example, for a control number of 1234, the file would be named, "1234-ConceptPaper.pdf".

See Sections 2.6, *Additional Application Materials* and 2.8, *Submission and Registration Information and Requirements* for information on which supporting documents should be submitted as appendix materials.

2.5.2 Application Submission Material Guidelines

The following subsections contain detailed guidance for content requirements for each project category—Clean Energy Manufacturing and Recycling Projects, Industrial Decarbonization Projects, and Critical Material Projects—for the § 48C(e) application stage. Applicants should complete their application package using only the guidance in this section for their application's project category. **The Workforce and Community Engagement application guidelines apply to and are consistent across all project types.**

2.5.2.1 Clean Energy and Critical Materials Manufacturing and Recycling Projects

Company Overview

Describe your company, your team on the project, and prior experience producing proposed product(s).

Project Summary

- Describe the proposed facility, including anticipated number of employees, and geographic location.
- Indicate the objectives of the investment or project, including:
  - Whether the project will establish, re-equip, or expand a facility.
  - The specified advanced energy property or project, and whether the

facility will manufacture, process, refine, or recycle the specified advanced energy property. If the project involves more than one specified advanced energy property, indicate the project's primary advanced energy property, and any additional advanced energy properties the project will produce or recycle.
    - In the case of a recycling project, describe the facility's products and the clean energy supply chains they will support.
- Describe the equipment and processes employed at the proposed facility to manufacture or recycle the proposed advanced energy property.
    - If the proposed project re-equips or expands an existing facility, describe clearly what the proposed project will add or change in the existing facility.
    - Provide a list of the anticipated eligible property that will make up the qualified investment of the qualifying advanced energy project.
- Describe any significant changes to the project that have occurred since the concept paper stage.

Project Management and Timeline

- Provide a project schedule from construction through operation and achieving full production capacity, which demonstrates how certification requirements will be met within two (2) years of receiving an allocation decision from the IRS, and how the project will be placed in service within two (2) years of such certification.
- Describe plans or strategies in place to ensure sufficient provision of crucial resources required for the project's successful execution.
- Summarize status of the Engineering, Procurement, Construction Agreements, and Operations and Maintenance Agreements.

Siting and Permitting

- Explain the rationale for selecting the project site and illustrate the site can fully meet all environmental, water supply, transmission interconnection, and other necessary requirements.
- Summarize the status and plans, including timeline to secure all required permits such as all federal, state, and local permits, including environmental authorizations (if applicable) or reviews necessary to commence construction of the project.

Risk Management Plan

- Identify project risks or challenges—including legal, financial, engineering, procurement, construction, and operational risks—and any relevant mitigation strategies.
- Include a discussion of natural disasters (e.g., earthquakes), climate impacts and extreme weather patterns (e.g., tornadoes, hurricanes, heat and freezing temperatures, drought, wildfire, and floods) that may impact the resilience/sustainability of the project.

Financial Information

- Submit a cash flow model detailing investments in and cash flows anticipated

over the facility's expected lifetime, including a description of the methodology and all assumptions used.

- Describe the payback period, net present value (NPV), adjusted present value (APV) and break-even analysis for the project and other financial metrics including return on investment and return on assets.
- Estimate the project's amount that will be treated as a qualified investment (as determined under § 48C) if the project is certified to receive a credit. The applicant may use any reasonable methodology and assumptions in estimating this amount.
- Describe the amount of equity that will be invested in the project, including the sources of such equity and their strengths.
- Describe the amount of total debt obligations that will be incurred and the funding sources of all such debt.
- Describe any local, state, or other federal incentives or funds that are being pursued or have been awarded for the proposed project, such as grants, loan guarantees, or tax credits.
    - Include a description of any instances where any federal agencies or non-federal governmental entities have entered into an arrangement as a customer or offtaker of the project's products or services, or other federal contracts, including acquisitions, leases, and other arrangements, that may indirectly support the applicant's proposed project.

Market Information

- Describe the markets your products will serve, including the existing product market size and company market share in dollars and volume, and growth potential for the next 5 to 10 years.
- Discuss the current and anticipated competitiveness of your product in the next 5 to 10 years, including competing products and competitors. Provide the estimated cost of your facility's product and how it compares to similar technologies or materials in the same market segment, including new and recycled products. This should be expressed in the same units as annual production (e.g., $/watt, $/kilowatt-hour, and $/ton), and applicants should include the absolute difference and percentage change from a reasonable domestic industry average.
- Discuss your sales forecast, including details of any offtake agreements you may have to support your project. Identify confirmed or potential customers who will purchase, lease, or otherwise use the facility's product.

Levelized Cost Information

- For the facility's product, discuss the levelized cost of generated or stored energy (LCOE), or of GHG emissions abatement (LCEA), based on costs of the full supply chain. The reported LCOE/LCEA should assume that the facility's products are part of a final clean energy installation and, where appropriate, be based on the financial and resource assumptions provided in the 48C Application Data Sheet. LCOE should be expressed in nominal terms and should not include any federal, state, or other financial incentives. The following information should

be provided as documentation:

- Brief description of the methodology used as the basis for the calculation.
- Identification and brief rationale for the source of key values used in the calculation, including capital or first costs, operating and maintenance costs, prices of commodity fuels or feedstocks, and carbon emissions associated with the operation of the end-use energy product.
- Justification for any use of a resource-related parameter (e.g., capacity factor) different than the national averages provided in the data sheet.
- In the case of LCEA, identification and brief rationale for the key values associated with the baseline energy mix, including the cost of generation and carbon emissions.
- Explanation of any factors impacting the levelized cost that could not be quantified and included in the calculation, and their potential directional effect on the resulting cost (i.e., increase or decrease).

Explanation of any relationship between the cost of the manufactured property and the performance of the end use energy product.

Management Plan

Provide the following information for the company and key management team members:

- Describe the ownership structure of the company, including all beneficiaries.
- List key management and senior personnel for the project, including the names, positions or titles, qualifications, and relevant experience.
- Describe the unique capabilities and expertise of the applicant and any major project partners.
- Include debt or equity sponsors, contractors/vendors (if known), and any other counterparty that the applicant believes will enable the project to be successful, as well as the prior experience of the applicant and any major project partners in similar undertakings to the proposed project.
- Summarize any pending or threatened action, suit, proceeding, or investigation, including any action or proceeding by or before any governmental authority, that relates to the senior/key personnel, and the status of any appeals.
- Describe any corporate health indicators, including legal claims or liabilities, planned debt restructuring, planned corporate actions, and other factors that could negatively affect the likelihood of project completion.

End Product GHG Emissions Impacts

- Describe the end-use application of the facility's products and how their use will avoid or reduce GHG emissions. Provide any details about the innovation and performance of the end product (e.g., efficiency, range, and economic life) that indicate its ability to facilitate deeper GHG emissions reductions than leading competitors or incumbents. Quantitative information regarding GHG emissions reductions enabled by the facility's product in typical use should be provided in the Data Sheet.
    - **Note:** For applicants applying for other advanced energy projects under section 1.1.i.(ii) of Appendix A, *Other advanced energy property designed*

to reduce greenhouse gas emissions as may be determined by the Secretary, applicants must demonstrate a reduction of GHG emissions is an outcome of the manufacture of the advanced energy property.

- Depending on the nature and application of the advanced energy property, applicants may choose to include the following information:
    - For facilities that produce critical materials, components of a large specified advanced energy product (e.g., blade in a wind tower), or technologies that provide indirect GHG emissions reductions (e.g., grid components, storage, or charging infrastructure), applicants should qualitatively describe the emissions impacts of the clean energy technologies that are enabled by the facility's products. Applicants should include internal or external analysis to substantiate indirect emissions benefits.
    - In the case of advanced energy property that reduces GHG emissions relative to incumbent technologies (e.g., clean vehicle technologies compared to conventional vehicle technologies), applicants should describe the assumptions associated with their estimated emissions impacts, including anticipated market shares, relative emissions intensities, etc.
    - In the case of recycling projects, applicants should qualitatively describe how the facility's products are expected to reduce emissions through their use and by reducing raw material needs or emissions associated with end-of-life.
    - In the case of advanced energy projects under section 1.1i of Appendix A, *Other advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary*, "low carbon energy intensive materials," applicants should report emissions and carbon intensity levels using facility-specific, material/product-specific cradle-to-gate Type III (third-party verified) Environmental Product Declarations (EPDs), in line with the specifications found in EPA's interim determination for the Buy Clean initiative for those relevant products.[1] The projects should reduce carbon intensity on a life cycle basis by at least 30% compared to an appropriate industry-specific benchmark.

GHG Emissions from the Facility

- Qualitatively and quantitatively characterize the anticipated sources of Scope 1 or Scope 2 GHG emissions (defined in Section 2.2, *Glossary of Terms*) in the manufacturing, processing, refining, or recycling process. Emissions estimates should be provided in the 48C Application Data Sheet using the methodology described in Section 2.6, *Additional Application Materials* where available, input assumptions should be justified with publicly available data and engineering studies. Explain any significant differences between direct emissions from the facility and industry averages.

[1] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf

- Provide any details about the manufacturing, processing, refining, or recycling process (e.g., efficiency, lifetime, electrification, low-carbon fuels, etc.) that indicate its potential to result in lower emissions than leading competitors or incumbents. Wherever possible, the applicant should substantiate assessments of process improvements with descriptions of recent analysis or engineering studies.

Describe any planned efforts to mitigate GHG emissions of the proposed facility.

Impact on U.S. Supply Chains and Domestic Manufacturing

- Indicate whether production from the facility covers multiple supply chain segments—processed material, subcomponents, components, systems/end products—and how those segments interact.
- Indicate whether the facility's products will be used in multiple specified advanced energy technologies (e.g., wind, solar, and electric grid) or multiple sectors (e.g., transportation, industry, and electricity). Reference any offtake or sales arrangements provided in the Commercial Viability section to justify the end-use applications.
- For Critical Material projects, describe whether the facility's products align with U.S. federal, state, or local domestic content requirements, such as those in the § 30D tax credit. Reference any offtake or sales arrangements provided in the Commercial Viability Criterion section to justify the end-use applications.
- In the 48C Application Data Sheet, submit the relevant production capacity information for the facility's outputs and justify each in the § 48C(e) Application narrative.
    - **Annual production capacity** includes yield loss and throughput data wherever applicable and possible.
    - **Manufacturing Contribution** identifies the value added in the production of the facility's output, as a fraction. Applicants should transparently state and justify current and future pricing assumptions for all significant value chain segments, including the product produced at the proposed facility.
    - **Share of Facility Output** represents the portion of the facility output that was used in the production of eligible clean energy products as opposed to other applications. Where possible, applicants manufacturing multiple products (or products with multiple applications) should utilize offtake or sales agreements to demonstrate the portion that will go to eligible applications.
    - **Deployed product lifetime** represents the service lifetime of the facility's output (not the lifetime of the facility itself). The applicant should provide and substantiate assumptions with market reports and/or field data, where relevant.

Supply Chain Resilience

- Describe how your facility's products will help build resilience of domestic supply chains that are critical for energy products that facilitate progress towards a net-zero economy, from raw materials to end-of-life. For instance, critical materials producers intending to serve the battery market should indicate the extent to

which their project supports the electric vehicle or stationary energy storage supply chains, as opposed to consumer electronics.
- Describe key inputs needed for your manufacturing or recycling process. Describe any known sources for your inputs, including indicating domestic sources and any current or anticipated supply chain vulnerabilities.

Workforce and Community Engagement (as a separate PDF document)

In a separate PDF document, describe your plan for contributing to job creation and ensuring project viability, timely completion, and ultimate success by fostering a stable and supportive workforce and host community. The following sub-sections outline specific content to be included in the separate PDF document, **all of which apply to all project types**. Applicants are encouraged to use Specific, Measurable, Achievable, Relevant, and Timely (SMART) milestones wherever possible and where relevant.

Job Creation and Workforce Continuity

- Describe the applicant's approach to creating and maintaining high-quality jobs for both new and incumbent workers. Characterize and estimate the number and quality of jobs your project will create (e.g., mechanics and construction workers).
    - Include both direct and indirect jobs both during completion of the project (the credit period) and during operation of the facility after it is placed in service and any indicators of job quality.
- Describe partnerships with apprenticeship readiness programs, registered apprenticeship programs, or community-based workforce training and support organizations serving displaced industrial workers.
    - Include the coal, other energy, and automotive sectors, and others facing systematic barriers to employment to facilitate participation in the project's construction and operations.
- Summarize the applicant's plan to attract, train, and retain a skilled and well-qualified workforce both during construction/completion of the project (the credit period) and during operations/production activities of the facility after it is placed in service.
    - A collective bargaining agreement, labor-management partnership, or other similar agreement would provide evidence of such a plan. Alternatively, or additionally, applicants may describe:
        - Wages, benefits, and other worker supports to be provided as benchmarked at or above prevailing wages for construction and the upper quartile of wages for the occupation and industry for operations/production[2];
        - Commitments to invest in workforce education and training, including measures to reduce attrition, increase productivity from a committed and engaged workforce, and support the development of a resilient, skilled, and stable workforce for the project, including specific efforts to recruit, train, and retain workers underrepresented in the sector, local workers, and others facing

[2] See BLS data on these wage rates here: List of SOC Occupations (bls.gov)

systematic barriers to employment with measurable goals to achieve these outcomes; and
    - Efforts to engage employees in the design and execution of workplace safety and health plans.
- Describe employer commitments to support employees' ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in decisions that affect them. This could include remaining neutral during any union organizing campaigns, permitting union recognition through card check (as opposed to requiring union elections), willingness to enter into binding arbitration to settle first contracts, refraining from holding captive audience meetings, or other supportive measures.

Ensuring Timely Project Completion Through Workforce and Community Engagement

Describe current and planned agreements, partnerships or other efforts to engage with community and labor stakeholders, including as it relates to strengthening support of the community, workforce recruitment and retention, and the ability to execute the project on schedule and with adequate workforce.

- Provide a comprehensive list of stakeholders that the project has engaged or plans to engage from local governments, Tribal governments, labor unions, and community-based organizations.
- Describe current and planned efforts to engage with listed stakeholders, including as it relates to the ability to complete the project in a timely and effective manner and with adequate workforce.
- Describe current and planned efforts to ensure availability of the workforce needed to successfully complete the project and place it in service in a timely manner, including through training programs that serve workers currently underrepresented in the sector.
- Describe any activities to strengthen support of the community such as through benefit-sharing agreements, consideration of environmental impact, and use of local resources. Discussions should reference any existing or draft agreements, commitments or plans to develop agreements such as Good Neighbor Agreements/Community Benefits Agreements, Collective Bargaining Agreements, Project Labor Agreements or Community Workforce Agreements. Existing agreements must be provided in the submission package as appendix files.

Energy Community Transition

Describe the extent to which the project will support energy communities.

- Describe specific actions to support energy communities, including transition opportunities for workers in the coal, other energy, and automotive sectors. Discussion should reference engagement with unions, workforce boards, and/or community-based workforce training and support organizations serving displaced industrial workers.
- If applicable, include discussion on plans to repurpose existing infrastructure/assets that have been abandoned due to the closing of a coal mine

or coal plant.

Local Environmental Impacts

Describe the impact of your project on local air, water, and/or land quality, as well as any efforts to mitigate local pollution and waste.

- Discuss any anticipated negative and cumulative environmental impacts of the project, including impacts on local air, water, and/or land quality. Describe any efforts to mitigate local pollution and waste.
- Determine whether the location or community qualifies as a disadvantaged community according to the Climate and Economic Justice Screening Tool (CEJST).
- Within the context of cumulative environmental impacts, applicants should use the U.S. Environmental Protection Agency's Environmental Justice Screening and Mapping (EJSCREEN) tool (*https://www.epa.gov/ejscreen*) to quantitatively discuss existing environmental impacts in the project area.
- If anticipated project benefits will flow to an applicable disadvantaged community, identify applicable benefits that are quantifiable, measurable, and trackable, such as:
    1. A decrease in energy burden;
    2. A decrease in environmental exposure and burdens;
    3. An increase in access to low-cost capital;
    4. An increase in high-quality job creation, the clean energy job pipeline, and job training for individuals;
    5. Increases in clean energy enterprise creation and contracting (e.g., through investment in underserved and underrepresented businesses);
    6. Increases in energy democracy, including community ownership;
    7. Increased parity in clean energy technology access and adoption; and
    8. An increase in energy resilience.
- Discuss how the project will maximize all the benefits listed above.
- Describe how and when anticipated benefits are expected to flow to the disadvantaged community. For example, will the benefits be provided directly within the disadvantaged communities identified, or are the benefits expected to flow in another way? Further, will the benefits flow during project development or after project completion, and how will applicant track benefits delivered?

2.5.2.2 Industrial Decarbonization Projects

Company Overview

Describe your company, your team on the project, prior experience retrofitting technologies to reduce GHG emission, and any company commitments related to reducing GHG emissions from manufacturing, industrial, or recycling facilities.

Project Summary

- Describe the eligible industrial or manufacturing facility to be retrofitted, including,

anticipated number of employees, geographical location, baseline emissions compared to peers in your industry.
- Include a detailed description of the equipment and processes employed at the proposed facility.
- Indicate which technologies or processes will be pursued to reduce the facility's GHG emissions by at least 20%, including low- or zero-carbon process heating systems; carbon capture, transport, utilization, or storage systems; energy efficiency and reduction in waste; or other industrial technology.
- Estimate the project's anticipated emissions reductions in both absolute and percentage terms (relative to your facility's baseline emissions). Indicate whether the retrofit project will achieve the required 20% reduction in (a) Scope 1 emissions (defined in Section 2.2, *Glossary of Terms*), Scope 2 emissions (defined in Section 2.2, *Glossary of Terms*), or total (Scope 1 and Scope 2) emissions, and (b) subunit emissions or facility wide emissions.
- Describe any significant changes to the project scope that have occurred since the concept paper stage.

Project Management and Timeline

- Provide a project schedule from construction through operation and achieving full production capacity, which demonstrates how certification requirements will be met within two (2) years of receiving an allocation decision from the IRS, and how the project will be placed in service within two (2) years of such certification.
- Describe plans or strategies in place to ensure sufficient provision of crucial resources required for the project's successful execution.
- Summarize status, ~~e~~ngineering, procurement, ~~c~~onstruction agreements, and Operations and Maintenance Agreements.

Siting and Permitting

- Explain the rationale for selecting the project site and illustrate that the site can fully meet all environmental, water supply, transmission interconnection, and other necessary requirements.
- Summarize the status and plans to secure all required permits such as all federal, state, and local permits, including environmental authorizations (if applicable) or reviews necessary to commence construction of the project.

Risk Management Plan

- Identify project risks or challenges and any relevant mitigation strategies.
- Include a discussion of natural disasters (e.g., earthquakes), climate impacts and extreme weather patterns (e.g., tornadoes, hurricanes, heat and freezing temperatures, drought, wildfire, and floods) that may impact the resilience/sustainability of the project.

Financial Information

- Describe the financial viability of the project and provide supporting metrics such as payback period, net present value (NPV), or return on investment and return on assets.

- Estimate the project's qualified investment (as determined under § 48C) if the project is certified to receive a credit. The applicant may use any reasonable methodology and assumptions in estimating this amount.
- Calculate the levelized cost of measured reduction in GHG emissions (based on costs of the full supply chain) that will be enabled by the project. Instructions for calculating levelized cost metrics are provided in Section 2.6, *Additional Application Materials*.
- Explain the methodology and assumptions used in the § 48C(e) application narrative.

Market Information

- Discuss the current and anticipated competitiveness of your product in the next 5 to 10 years, after retrofitting and how it compares to similar technologies or materials in the same market segment, including conventional and lower-carbon products. This should be expressed in the same units as annual production (e.g., $/watt, $/kilowatt-hour, and $/ton) per the instructions in the 48C Application Data Sheet. Applicants should include the absolute difference and percentage change from a reasonable domestic industry average.

Management Plan

Provide the following information for the company and key management team members:

- Describe the ownership structure of the company, including all beneficiaries.
- List key management and senior personnel for the project, including the names, positions or titles, qualifications, and relevant experience.
- Describe the unique capabilities and expertise of the applicant and any major project partners.
- Include debt or equity sponsors, contractors/vendors (if known), and any other counterparty that the applicant believes will enable the project to be successful, as well as the prior experience of the applicant and any major project partners in similar undertakings to the proposed project.
- Summarize any pending or threatened action, suit, proceeding, or investigation, including any action or proceeding by or before any governmental authority, that relates to the senior/key personnel, and the status of any appeals.
- Describe any corporate health indicators, including legal claims or liabilities, planned debt restructuring, planned corporate actions, and other factors that could negatively affect the likelihood of project completion.

GHG Emissions from the Facility

- Describe the portions of the industrial or manufacturing process that will be re-equipped by the project, the nature of the improvements, and how the improvements drive emissions reductions. Include a description of the extent to which best-in-class technologies are deployed.
- Describe and quantify the Scope 1 and Scope 2 GHG emissions (defined in Section 2.2, *Glossary of Terms*) of the facility immediately before and after the

retrofit project, including interactions between Scope 1 and Scope 2 emissions (e.g., electrification projects may reduce Scope 1 emissions but increase Scope 2 emissions). Express post-retrofit emissions reductions in both absolute and relative (% reduction) terms, where the latter must be at least 20%.

- Applicants should report emissions levels using facility-specific, material/product-specific cradle-to-gate Type III (third-party verified) Environmental Product Declarations (EPDs), in line with the specifications found in EPA's interim determination for the Buy Clean initiative for those relevant products.[3]
- Emissions should be calculated and submitted in the 48C Application Data Sheet, which is based on the EPA Greenhouse Gas Reporting Protocol and EPA's Simplified GHG Emissions Calculator (*https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator*). Large industrial facilities with existing GHGRP reports should also submit their GHG emissions figures from the most recent calendar year, expressed in metric tons of CO_2 equivalent. Explain any significant differences between direct emissions from the facility and a reasonable domestic industry average.

Supply Chain Resilience

- Describe the extent to which the equipment used to facilitate the GHG emissions reductions at your facility is produced domestically. For instance, a project utilizing carbon capture equipment should explain whether they are sourcing from domestic CCUS companies or manufacturers.
- Describe how your project will help strengthen resilience of critical domestic supply chains that facilitate progress towards a net-zero economy, including by spurring or fulfilling the growing demand for low-carbon construction materials, such as those covered in the Buy Clean Initiative.
- Describe the extent to which the retrofit project employs innovative solutions that can enhance U.S. leadership and industrial competitiveness. Include the use of advanced industrial or manufacturing approaches.

Workforce and Community Engagement (as a separate PDF document)

See the application material requirements in Section 2.5.2.1, *Clean Energy and Critical Materials Manufacturing and Recycling Projects* above.

2.5.3 Application Review Process Overview

2.5.3.1 Compliance and Eligibility Review

DOE will carry out an initial compliance review for § 48C(e) applications to determine that (1) the eligibility requirements have been met, (2) the required information has been submitted, (3) the proposed project is technically valid, and (4) all mandatory requirements of this notice are satisfied. As part of this review, DOE will determine whether the proposed project meets the definition of a qualifying advanced energy

[3] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf

project, as described in Appendix A.

If a § 48C(e) application fails to meet compliance or eligibility requirements or fails to provide sufficient information for evaluation, DOE reserves the right to request clarifications and/or missing information from some or all applicants through written submissions provided to DOE in a timely manner. Section 48C(e) applications that fail to meet the compliance and eligibility requirements or do not provide sufficient information for evaluation will be considered non-responsive, and DOE will recommend a denial of allocation without proceeding to technical review.

2.5.3.2 Technical Review

After the § 48C(e) application compliance and eligibility review, DOE will perform a technical review process based on four technical review criteria:

- Criterion 1: Commercial Viability
- Criterion 2: Greenhouse Gas Emissions Impacts
- Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy
- Criterion 4: Workforce and Community Engagement

See complete details of the technical review criteria for § 48C(e) applications in Section 2.7, *Technical Review Criteria* of this appendix. All technical review criteria will be used in a thorough, consistent, and objective examination to develop scores for ranking applications and determining merit of each proposed project. The review of the Commercial Viability criterion will additionally inform eligibility by determining whether the project has a reasonable expectation of commercial viability, as required by § 48C(d)(3)(A). The information requested for each criterion will vary based on the qualifying advanced energy project category, as detailed in Section 2.7, *Technical Review Criteria*.

2.5.3.3 Due Diligence Review

To ensure the § 48C(e) program supports strengthening and securing U.S. supply chains and domestic manufacturing to the greatest extent possible, DOE may conduct a due diligence review to determine if an applicant has a connection with an entity that could put these goals at risk.

2.5.3.4 Final Recommendation for § 48C(e) Applications

Following the compliance, eligibility, and technical reviews, DOE may also consider program policy factors and the results of the due diligence review when determining the final portfolio of recommendations (see Section 2.9.1, *Program Policy Factors*).

2.6 Additional Application Materials

2.6.1 Data Sheet

To capture and process information submitted in the concept paper and § 48C(e) application, applicants are required to fill out and submit the supplementary Concept

Paper Data Sheet and 48C Application Data Sheet, respectively. The above sections on content and form of concept papers and § 48C(e) applications indicate which categories of information will be captured in the data sheet. This section provides explanations and examples on select terms for which the applicant may benefit from additional information. This list is not exhaustive, and there will be unique questions for each project category within the Data Sheet template for the concept paper and § 48C(e) application stages. **Refer to the Data Sheet for specific information requested relevant to your project.**

Applicants should substantiate in their narrative any data which is inputted into either Data Sheet. It is essential that applicants conform to this process in order to ensure a competitive review of all applications.

2.6.1.1 Levelized Cost

The 48C Application Data Sheet for Clean Energy Manufacturing and Recycling projects requires applicants to identify their levelized cost of energy (LCOE) and/or emissions abatement (LCEA). The 48C Application Data Sheet will provide stock information, such as inflation rates, taxes and insurance, and depreciation. LCOE should be expressed in nominal terms and should not include any federal, state, or other financial incentives. Further, plant and related cost values and prices of commodity fuels or feedstocks used in the calculation should reflect current national wholesale averages where possible.

The following information should be provided as documentation:

- Brief description of the methodology used as the basis for the calculation. This methodology should be a commonly accepted industry standard.
- Identification and brief rationale for the source of key values used in the calculation, including capital or first costs, operating and maintenance costs, prices of commodity fuels or feedstocks, and carbon emissions associated with the operation of the end-use energy product.
- Justification for any use of a resource-related parameter (e.g., capacity factor) different than the national averages provided.
- In the case of LCEA, identification and brief rationale for the key values associated with the baseline energy mix, including the cost of generation and carbon emissions.
- Explanation of any factors impacting the levelized cost that could not be quantified and included in the calculation, and their potential directional effect on the resulting cost (i.e., increase or decrease).
- Explanation of any relationship between the cost of the manufactured property and the performance of the end use energy product.
- If possible, an “unimproved” levelized cost calculation that does not reflect the input of the manufactured property (e.g., relies on the competitive standard of the day), based on the same financial and resource assumptions used in the “improved” calculation.

If the applicant chooses to provide an LCOE or LCEA value for the closest comparable end use energy product from a published study, the following information should be provided as documentation:

- Explanation of why a value either could not be calculated or was not appropriate to calculate for the end-use energy product.
- Brief description of the methodology used in the cited study.
- Identification of key assumptions used in the study, including the year basis for which the cost is reported (if the cost is reported in real terms; e.g., $2011), the year of costs and prices of fuel commodities, the year to which the end cost value is referenced (e.g., could be a future year), the extent of technology improvement assumed for the comparable end use energy product, the regional extent of the baseline assumed (e.g., global, the United States, or a region of United States), the carbon emissions associated with the baseline energy mix and the end-use energy product, the key financial assumptions (e.g., interest rates, taxes, and incentives included), and the resource-related parameters (e.g., capacity factors).
- Explanation of how the above assumptions differ from those provided above for guiding the calculation of the cost of abatement, and the potential directional effect of these differences on the study's cost value (i.e., if the aforementioned assumptions required for cost of abatement calculation had been used, explain whether the study's cost value likely have increased or decreased).

2.6.2 Section 48C(e) Application Appendix Files

In the § 48C(e) application stage, the applicant is required to include the following appendix materials and may include others at their discretion:

- Cashflow model for project economic evaluation
- **If the project involves process improvement:** Copy of internal or external analysis or engineering studies to substantiate assessments of process improvements. An example would be a front-end engineering and design (FEED) study for an industrial retrofit project.
- Operations and Maintenance Agreements
- A letter of approval for the project from the controlling shareholders or board of directors explicitly indicated their commitment to financing the project supported by an attachment of a certified project Engineering, Procurement and Construction (EPC) contract.
- Copy of site plan, together with evidence that applicant owns or controls a site. Examples of evidence would include a deed, or an executed contract to purchase or lease the site.
- Copy of audited financial statements for the applicant and other projected funding sources for the most recently ended three (3) fiscal years, and the unaudited quarterly interim financial statements for the current fiscal year. If all three years of audited statements are not available, provide all available statements and any

additional documents that provide similar evidence of corporate health.

- Lists of all federal, state, and local permits, including environmental authorizations or reviews, necessary to commence construction.
- Any existing equity or debt funding commitments or expressions of interest from equity or debt financing sources for the project.
- Expressions of interest or commitment letters from potential customers.
- Offtake agreements (optional).
- Diagrams, schematics, and/or images (e.g., process flow diagrams) to clearly illustrate the proposed facility or proposed changes to an existing facility.
- Workforce and Community Engagement Agreements, such as Good Neighbor Agreements/Community Benefits Agreements, Collective Bargaining Agreements, Project Labor Agreements or Community Workforce Agreements.
- Resumes for key management and senior personnel for the project, preferably submitted as a single Adobe PDF document labeled Resumes.pdf.
- **For energy-intensive materials that have a substantially lower carbon intensity projects:** A life cycle assessment showing at least a 30% reduction in the carbon intensity of the product compared to the industry standard, using facility-specific, material/product-specific cradle-to-gate Type III (third-party verified) Environmental Product Declarations (EPDs), in line with the specifications found in EPA's interim determination for the Buy Clean initiative for those relevant products.[4]

2.7 Technical Review Criteria

2.7.1 Clean Energy Manufacturing and Critical Materials Projects

This section describes the technical review criteria that DOE will use to evaluate Clean Energy Manufacturing and Critical Materials Projects. The criteria below will apply for both concept papers and applications. **Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.**

2.7.1.1 Criterion 1: Commercial Viability

Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.

[4] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf

- Project schedule and time from certification to completion:
    - Readiness to proceed with the proposed project and reasonableness of the timeframe required for construction and commissioning of the project;
    - The extent to which tasks are well described and important risks and mitigation strategies are identified and addressed; and
    - *Readiness to proceed with the proposed project as evidenced by firmness of site selection and progress towards securing required permits, contracts, reviews, agreements, and milestones for each identified task.*

- Strength of the proposed business plan, including:
    - The potential for commercial deployment, based on estimates of market share, market growth potential, and price competitiveness of the product.
    - The source and certainty of funding for the equity that will be invested in the project, including private financing, DOE funding, state and local incentives, and other sources.
    - The degree to which proposed budget is realistic based on spending plan and contingencies.
    - *The degree to which the investment is profitable, based on the project economics as described in cash flow analysis of the project.*
    - *The strength of key arrangements, such as financing, acquisition/supply strategy, and power purchase agreements for the proposed project, as well as offtake (sales) arrangements for the facility's products.*
    - *The levelized cost of generated or stored energy, or of measured reduction in energy consumption or GHG emission (or similar metric) for the facility's products, compared to similar technologies or materials within the same market segment.*

- *Strength of the proposed management plan, including the management team's track record of success in areas relevant to the project and corporate health of the applicant.*

In assessing each item above, the following will be considered: (a) the comprehensiveness, specificity, and accuracy of the information and plans provided, (b) the reasonableness of assumptions used in making estimations and projections, and (c) the extent to which the applicant demonstrates an understanding of relevant risks and the quality of the strategies put forward to mitigate and manage those risks.

2.7.1.2 Criterion 2: Greenhouse Gas Emissions Impacts

Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.

- **End Product**: The extent to which the end product will help avoid or reduce

anthropogenic GHG emission and contribute to reaching the national target of net-zero emissions by 2050. For Critical Materials Projects, this includes the extent to which there is clear evidence that the produced critical material(s) will be used in the manufacturing of clean energy technologies that are needed in a net-zero economy. For low carbon energy-intensive materials, this includes the extent to which the technologies used to reduce production emissions contribute to reaching the national target of net-zero emissions. Preference will be given to projects that result in products in the lowest 20 percent of embodied greenhouse gas emissions when compared to similar products, in line with EPA's interim determination for what constitutes "substantially lower" embodied emissions for the Buy Clean initiative for those relevant materials.[5]

- ***Facility:*** *The extent to which the project plan minimizes GHG emissions from the facility itself through best-in-class technologies or approaches that exceed those of incumbents or competitors, including activities to monitor facility emissions and energy use.*
- ***Upstream Supply Chain:*** *The extent that the project plan includes strategies to reduce emissions in the upstream supply chain (e.g., through contracts with low-emissions suppliers).*

2.7.1.3 Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy

Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.

- **Filling supply chain gap:** The degree to which a project's product addresses a critical gap in the supply chain of technologies needed to achieve net-zero emissions. (For projects involving critical materials, evaluation will also consider the extent to which the project proposes to produce materials listed in the USGS/DOE Critical Materials assessment or demonstrates cost competitiveness through the production of a combination of critical and non-critical materials).

- ***Federal tax credit efficiency:*** *the extent to which federal tax credit support for the project will effectively enhance the development of the domestic supply chain and manufacturing and expedite the deployment of clean energy products. This includes:*
    - ***48C credit impact:*** *The extent to which project demonstrates the need for 48C program support, describing how the resources will be leveraged,*

[5] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf

potentially including but not limited to increased output (as represented by added capacity per tax credit requested), minimized waste, optimized manufacturing processes, decreased product price, or improved product project economics; and

- ***Support expansion of domestic supply chains:*** *The extent to which the project expands manufacturing and accelerates deployment of clean energy products, as demonstrated by whether the proposed product will be used in the production of one or more clean energy products or technologies, domestic versus international production today, and capacity added compared to market gap.*

In the case of recycling projects, these technical review criteria will be evaluated based on which materials are produced at the recycling facility and evidence that those produced materials will serve as inputs to clean energy supply chains.

2.7.1.4 Criterion 4: Workforce and Community Engagement

Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.

- Job Creation and Workforce Continuity:
  - The number of domestic jobs created (both direct and indirect) (a) during completion of the project (the credit period) and (b) during operations of the facility after it is placed in service, including jobs within energy communities (if applicable) attained by locals or individuals previously employed by the local or regional coal industry.
  - The quality of new and/or retained jobs in construction and in operations/production (both hired directly and by third parties) including wages and employer-sponsored benefits for all classifications, employment statuses (i.e. full-time, part-time, contractor), health and safety programs and standards, and phases of work.
  - The extent to which the applicant engaged key stakeholders to develop partnerships to better serve local and underrepresented workers through training and support that may include a collective bargaining agreement, labor-management partnership, registered apprenticeship or pre-apprenticeship programs, or detailed workforce development and continuity plans.
  - *The extent to which the project guarantees employees the ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in decisions that affect them and that contribute to the effective conduct of business and facilitates amicable settlements of any potential disputes between employees and employers, providing assurances of project efficiency, continuity, and multiple public benefits.*

  - *The extent to which job quality and workforce continuity commitments are formalized in agreements for each phase of the project that may include Project Labor Agreements, Community Workforce Agreements, Collective Bargaining Agreements, or Community Benefits Agreements that include conditions of employment.*
  - *The extent to which applicant demonstrates sufficient supply of appropriately skilled labor, and an effective plan to minimize the risk of labor disputes or disruptions.*

- Ensuring Timely Project Completion Through Workforce and Community Engagement:
  - The extent of current and planned efforts to engage community and labor stakeholders and degree to which these engagements have led to or are likely to lead to formal agreements (e.g., project labor agreements, collective bargaining agreements, community benefits agreements).
  - *The extent to which the applicant demonstrates community and labor engagement to date that results in support of the community for the proposed project and availability and continuity of the necessary workforce.*
  - *The extent to which the applicant has a clear and appropriately robust plan to engage with labor unions, Tribal entities, and community-based organizations that support or work with disadvantaged communities and other affected stakeholders and the degree to which these engagements have led to or are likely to lead to formal agreements.*
  - *The extent to which the applicant has considered accountability to affected workers and community stakeholders, including those most vulnerable to project activities with a plan to publicly share Workforce and Community Engagement commitments.*
- Energy Community Transition:
  - The extent to which the application includes specific actions to support energy communities, including transition opportunities for workers in the coal, other energy, and automotive sectors into clean energy sectors.
  - The extent to which a project will utilize existing local and regional resources that previously supported the local or regional coal industry or repurpose existing infrastructure/assets that have been abandoned due to closing of a coal mines or coal plant.
- Local Environmental Impacts:
  - The extent to which the proposed project accounts for its environmental impact to the surrounding community by having clear plans to avoid or reduce local air pollution, land contamination, and/or water contamination.
  - *The extent to which the application identifies specific, measurable benefits for disadvantaged communities, including energy communities, and how negative environmental impacts affecting disadvantaged communities would be mitigated.*

2.7.2 Industrial Decarbonization Projects

This section describes the technical review criteria that DOE will use to evaluate Industrial Decarbonization Projects. The criteria below will apply for both concept papers and applications. **Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.**

2.7.2.1 Criterion 1: Commercial Viability

See the description of the Commercial Viability criterion in Section 2.7.1.1, *Criterion 1: Commercial Viability*.

2.7.2.2 Criterion 2: Greenhouse Gas Emissions Impacts

Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.

- **Avoided Emissions**: The extent to which the described emissions reductions are comprehensive, specific, reasonable, and significant (based on combined Scope 1 and Scope 2 emissions) and correspond to at least a 20% reduction in GHG emissions, accounting for any anticipated changes to the facility's production volumes. Preference will be given to projects that result in products in the lowest 20 percent of embodied greenhouse gas emissions when compared to similar products, in line with EPA's interim determination for what constitutes "substantially lower" embodied emissions for the Buy Clean initiative for those relevant materials.[6]
- **Cost of Avoided Emissions:** The extent to which the project achieves a low levelized cost of measured reduction in GHG emissions (based on capital expenditures and/or tax credit dollars requested).
- ***Technology Innovation:*** *The extent to which the project uses current best-in-class industrial or manufacturing approaches and innovative, low-emissions equipment, fuels, feedstocks, or processes.*
- ***Scalability:*** *The extent to which the project will contribute to the achievement of net-zero emissions in the U.S. by 2050, including the potential for the approach to be applied beyond the specific project location.*

2.7.2.3 Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy

[6] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf

Applicants should ONLY extend their materials to address italicized criteria during the § 48C(e) application, consistent with the application materials requested. Italicized criteria will not be considered during the concept paper stage.

- The extent to which the proposed project enhances U.S. leadership in low emissions manufacturing as demonstrated by implementing innovative technologies such as installing energy efficient equipment that improve the U.S. competitive edge in low carbon manufacturing processes.

- The extent to which the project will advance the commercial viability and uptake of replicable, cross-cutting decarbonization approaches in major industrial applications such as energy efficiency, electrification, LCFFES, material efficiency or substitution, and CCUS.

2.7.2.4 Criterion 4: Workforce and Community Engagement

See the description of the Workforce and Community Engagement criterion in Section 2.7.1.4, *Criterion 4: Workforce and Community Engagement*.

2.8 Submission and Registration Information and Requirements

2.8.1 General Application Requirements

Applicants must submit a concept paper at Stage 1 and a § 48C(e) application at Stage 2. All submitted materials must be prepared in accordance with the guidance in this notice to provide a standard basis for review and to ensure that each application will be uniform as to format and sequence.

Concept papers and § 48C(e) applications should clearly address each of the eligibility requirements and applicable technical review criteria to demonstrate the applicant's capability, knowledge, and experience regarding the requirements described herein.

Applicants should fully address the requirements of Notice 2023-18, Notice 2023-44 and this notice and not rely on any presumed background knowledge. DOE will discourage a concept paper or recommend the rejection of a § 48C(e) application that does not follow the instructions regarding the organization and content when the nature of the deviation and/or omission precludes meaningful review of the project.

All concept papers and § 48C(e) applications must be submitted through the 48C portal to be considered for DOE recommendation under this notice.

Concept papers and § 48C(e) applications received after the stated deadlines will not be reviewed or considered for DOE recommendation.

2.8.2 Determining an Application's Project Category

Eligible projects under the § 48C(e) program, as described in Appendix A, are classified

into three overarching project categories: Clean Energy Manufacturing and Recycling Projects, Industrial Decarbonization Projects, and Critical Material Projects. Before developing application materials, an applicant must determine which qualifying advanced energy project category is most applicable to their project.

Section 2.5, *Stage 2, 48C(e) Application Guidance*, of this guidance contains instructions for content requirements for all project categories. Section 2.7, *Technical Review Criteria* of this guidance contains instructions for technical review criteria specific to each project category. Applicants should only complete their application package using the appropriate guidance in Section 2.5, *Stage 2, 48C(e) Application Guidance,* corresponding to the applicant's self-determined qualifying advanced energy project category. It is incumbent upon the applicant to adequately justify their determination of project category through application narratives.

The following table may assist applicants in determining the qualifying advanced energy project category most appropriate for their proposed project.

Table 5: Determining the qualifying advanced energy project category.

Project Category	**This Category Includes…**	**Application Materials**	**Technical Review Criteria**
Clean Energy Manufacturing and Recycling	• Facilities that **produce** one or more specified advanced energy properties, or its components or materials, described in Appendix A, Section 1.1, *Clean Energy Manufacturing and Recycling Projects*; or • Facilities that **recycle** one or more specified advanced energy properties described in Appendix A, Section 1.1, *Clean Energy Manufacturing and Recycling Projects*.	Section 2.5	Section 2.7.1

Project Category	This Category Includes…	Application Materials	Technical Review Criteria
Industrial Decarbonization	• Projects at existing industrial or manufacturing facilities that reduce GHG emissions by at least 20%. • *Note:* Facilities are not required to produce products or materials with energy applications or those described in Appendix A, Section 1.1, *Clean Energy Manufacturing and Recycling Projects* and Appendix A, Section 1.3, *Critical Material Projects*.	Section 2.5	Section 2.7.2
Critical Materials	• Facilities that process, refine, or recycle one or more **critical materials described in Appendix A, Section 1.3, *Critical Material Projects*.**	Section 2.5	Section 2.7.1

2.8.3 48C Portal for Submission of Application

The 48C portal will provide a single interface for applicants through all steps of the § 48C(e) application process, including concept paper submission, receipt of concept paper feedback, § 48C(e) application submission, receipt of an allocation or denial letter from the IRS, submission of evidence documents to DOE for certification, receipt of a certification letter from the IRS, submission of notification to DOE that the project has been placed in service or otherwise disposed, and receipt of notification from the IRS that the applicant may claim the credit.

Files required for submission of concept papers, including concept paper templates and data sheets, are available for applicants at https://eco.energy.gov/48C/ **on the date of this notice. DOE cannot accept any application materials outside of the formal 48C portal, including via email. The 48C portal will be open for registration and submission of concept papers no later than May 28, 2024.**

2.8.3.1 Submission of Application

All § 48C(e) application materials must be submitted through the 48C portal at https://eco.energy.gov/48C/ to be considered by DOE. Section 48C(e) applications

submitted by any other means will not be accepted. **Note:** The 48C portal website address has been modified since Notice 2023-44 was published, and the address specified in this guidance must be used.

The applicant will receive an automated response when the concept paper or § 48C(e) application is received. This will serve as confirmation of receipt. Do not reply to the automated response. It is the responsibility of the applicant to verify successful transmission prior to the concept paper and § 48C(e) application deadlines.

In order to submit concept papers and § 48C(e) applications, all applicants must register an account in the 48C portal at *https://eco.energy.gov/48C/* . It is recommended that each applicant organization designate a primary contact point responsible for each submission. The primary user may specify an additional contact within their organization who may register in the portal as a backup user.

Potential applicants will be required to have an ID.me account to access the 48C portal. As part of the 48C portal registration process, new users will be directed to create an account in ID.me. **Note:** The email address associated with ID.me must match the email address associated with the 48C portal account. For more information, refer to the 48C Login Guide, which will be available in the Manuals section of the 48C portal at https://eco.energy.gov/48C/ *no later than May 28, 2024*.

2.8.3.2 Help with 48C Portal

Applicants may email 48CQuestions@hq.doe.gov for questions regarding the registration process or submitting your application on the 48C portal.

For questions regarding other non-tax aspects of the § 48C(e) program unrelated to the 48C portal, see Section 2.11, *Questions/Comments and Informational Webinar*.

2.8.4 Application Forms and Format of Submissions

Applicants must log in to the 48C portal to download all required forms and submit concept papers and § 48C(e) applications to be considered for a § 48C(e) credit allocation. The applicant will have the opportunity to re-submit revised application materials for any reason as long as the revision is submitted by the specified deadline.

2.8.5 Electronic Authorization of Applications

Submission of § 48C(e) application materials through electronic systems used by DOE, including the 48C portal or its successor, will constitute the authorized representative's approval and electronic signature.

2.8.6 Markings of Confidential Information

If elements of a § 48C(e) application contain information the taxpayer considers to be trade secrets, confidential, privileged, or otherwise exempt from disclosure under the Freedom of Information Act (FOIA, 5 U.S.C. § 552), the taxpayer may assert a claim of exemption at the time of application by placing the following text on the first page of the

§ 48C(e) application, and specifying the page or pages of the § 48C(e) application to be restricted:

> "Pages [list applicable pages] of this document may contain trade secrets, confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source. [End of Notice]"

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: "Contains Trade Secrets, Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure." In addition, each line or paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting.

2.9 DOE Recommendation Process

The final outcome of each stage of the DOE review process is to develop a recommendation and ranking (DOE recommendation) of projects. DOE will provide a recommendation and ranking for a project only if it determines that the application meets all requirements described in this guidance, and that the project is eligible, has a reasonable expectation of commercial viability, merits a recommendation, and supports program policy factors when considering the full portfolio of recommended projects.

2.9.1 Program Policy Factors

In addition to the criteria described in Section 2.7, *Technical Review Criteria* DOE may also consider the following program policy factors when determining the DOE recommendation.

- The degree to which the proposed project contributes to a portfolio that optimizes the use of available credit amounts to address existing or anticipated gaps, vulnerabilities, or opportunities and to expand domestic manufacturing capacity in priority supply chains in a timely manner.
- The degree to which the proposed project contributes to a portfolio that efficiently uses available credit amounts to enable significant additional reductions in industrial GHG emissions, such as projects with low levelized cost of abatement of GHG emissions and those that are close to the margins of being cost effective but would not be without support of the 48C program.
- The degree to which the proposed project contributes to a portfolio that enhances American industrial and manufacturing competitiveness in a global net-zero economy.
- The degree to which the proposed project exhibits technological and product diversity when compared to other projects recommended for allocation.
- The degree to which the proposed project contributes to portfolio diversity within

a project category and across project categories.

- The degree to which the proposed project contributes to a portfolio that supports a diversity of organizational sizes, including small- and medium-sized manufacturers.
- The degree to which the proposed project is likely to contribute to a long-term, place-based, coordinated, and collaborative regional economic development strategy.
- The degree to which the project will contribute to follow-on supply chain investments in the region.
- The degree to which the proposed project, or group of projects, represent a desired geographic distribution, when compared to other projects recommended for allocation.
- The degree to which the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of financial uncertainty.
- The degree to which the proposed project contributes to a portfolio of recommended projects with at least 40% of credits allocated to projects in energy communities, as described in § 48C(e)(2).
- The degree to which the proposed project, and other projects recommended for allocation, contributes to the total portfolio meeting the goals reflected in the Workforce and Community Engagement technical review criterion.
- The degree to which the proposed project has broad public support from the communities most directly impacted by the project.
- The degree to which the project contributes to a portfolio that meets the goals reflected in the Workforce and Community Engagement technical review criterion by producing additional benefits to communities, particularly disadvantaged communities, such as reducing co-pollutants and other environmental (e.g., air and water) burdens.

2.9.2 DOE Recommendations

2.9.2.1 Concept Paper Recommendations

For the concept paper stage, the DOE recommendation will include all projects that are encouraged to submit a § 48C(e) application. Projects that are not included in the DOE recommendation will receive a letter of discouragement. An applicant that receives a letter of discouragement in response to a submitted concept paper may still submit a § 48C(e) application in accordance with this guidance. Receiving such a letter does not disqualify an applicant from submitting a § 48C(e) application but represents DOE's feedback that the project is unlikely to receive a recommendation based on the information provided in the concept paper.

2.9.2.2 Section 48C(e) Application Recommendations

For the § 48C(e) application stage, the DOE recommendation will include the portfolio of projects that help to achieve the goals of the program. This recommendation will be

based on a combination of the numeric score from the technical review process, as well as the application of the above program policy factors.

2.10 Post Allocation

2.10.1 Requirements for Certification

As described in this notice, applications receiving allocation letters must provide evidence that they have met the requirements for certification, such as all permits necessary to commence construction and any other documents that support metrics on production capacity, job creation, GHG emissions reduction, and overall commercial viability of the project. Applicants will upload documents providing this evidence to the 48C portal not later than 2 years from the date the IRS notified the applicant that they have received an allocation.

DOE's recommendation is based in part on commitments and other claims stated by the applicant in the § 48C(e) application. The evidence provided by the applicant for certification must therefore also include documents demonstrating that any commitments or other claims in the § 48C(e) application have been met. These documents could include Community Benefits Agreements, collective bargaining agreements, contracts, offtake agreements, or any other commitments or arrangements claimed in the § 48C(e) applications that may have had an impact on the evaluation of the application. Documents already provided as appendices in the § 48C(e) application do not need to be submitted again for certification. Additional documents may be required, which will be shared at or after the time of allocation.

2.10.2 Request for Debriefing

Upon receiving a denial letter from the IRS, applicants can request a debriefing with DOE on its review of the § 48C(e) application. The denial letter will include instructions for requesting a debriefing.

Upon request, DOE will offer a debriefing to an applicant that submitted a § 48C(e) application (after submitting a concept paper and being encouraged to submit such § 48C(e) application) and subsequently, was not allocated a credit in Round 2 of the § 48C(e) program. Debriefings will not be available to applicants that receive a letter of discouragement. Debriefings will be held by DOE after the application period ends. Requests for a debriefing must be received by DOE no later than 30 business days from the date of the Denial Letter issued to the applicant. The sole purpose of the debriefing is to provide DOE's impression of the strengths and weaknesses of the rejected § 48C(e) application to enable applicants to improve § 48C(e) applications for future rounds of the § 48C(e) program or § 48C credit allocation programs.

2.11 Questions/Comments and Informational Webinar

2.11.1 Questions and Comments

Any questions or comments regarding the non-tax aspects of this notice can be submitted to the Department of Energy at ***48CQuestions@hq.doe.gov***. DOE may post questions and answers related to this notice in the Frequently Asked Questions (FAQs) section at https://www.energy.gov/infrastructure/48C. Any questions or comments received under this notice are subject to public release pursuant to the Freedom of Information Act. DOE is under no obligation to respond to, or acknowledge receipt of, any questions or comments submitted under this notice and any responses provided do not constitute legal advice provided by either DOE or the IRS.

Questions related to the 48C portal should be directed to 48CQuestions@hq.doe.gov. This includes questions about account registration or using the portal. Questions regarding application materials, eligibility, the DOE review process, or other programmatic questions not about the portal should not be sent to this email address.

2.11.2 Informational Webinar

DOE will conduct one or more informational webinars during the application process. They will be held before the due date for the § 48C(e) application.

Attendance is not mandatory and will not positively or negatively impact the review of any applicant submissions. As the webinar will be open to all applicants who wish to participate, applicants should refrain from asking questions or communicating information that would reveal confidential and/or proprietary information specific to their project.

The informational webinar will be held no later than May 31, 2024. Additional information including a link for registration can be found at *https://www.energy.gov/infrastructure/48C* .

3 APPENDIX C – 48C(e) Energy Communities

Section 48C(e) Energy Communities Census Tracts