

Common Themes and Issues Seen in Concept Papers Submitted in § 48C(e) Round 1

The Department of Energy (DOE), on behalf of the Internal Revenue Service (IRS), received a large number of meritorious concept paper submissions for Round 1 of the § 48C(e) Qualifying Advanced Energy Property Credit Allocation Program (Program). While many concept papers described meritorious and eligible projects, and DOE encouraged many of the potential applicants submitting those concept papers to submit § 48C(e) applications, DOE observed common issues, areas frequently needing improvement, frequent eligibility issues, and other themes during its review of the Round 1 concept papers. This document does not address specific projects but highlights common themes and issues meant to assist potential applicants with understanding why DOE may have discouraged them from submitting § 48C(e) applications, and to enable all potential applicants to address common issues to ensure the best quality applications that are in compliance with § 48C requirements and applicable guidance.

This document is not meant as a comprehensive guide for the Program, and applicants are reminded to refer to [IRS Notice 2023-44](#) and [IRS Notice 2023-18](#) for guidance regarding the Program and its application process. Additionally, DOE and IRS published answers to applicants' questions, which can be found at [Qualifying Advanced Energy Project Credit \(48C\) Program](#) and [Frequently asked questions about the Qualifying Advanced Energy Project \(48C\) Credit](#). Applicants are also reminded to see [IRS Notice 2023-44 Appendix A](#) for a comprehensive list of qualifying advanced energy projects; [IRS Notice 2023-44 Appendix B\(III\)\(A\)](#) for a list of priority areas for the Clean Energy Manufacturing and Recycling category of the Program; and [U.S. Department of Energy Releases 2023 Critical Materials Assessment to Evaluate Supply Chain Security for Clean Energy Technologies](#) for the list of critical materials eligible under the Critical Materials project category in Round 1.

If your organization chooses to submit a § 48C(e) application, which you may do whether your organization received a letter of encouragement or discouragement, DOE and IRS recommend that you read through this document and IRS Notice 2023-44 (including Appendix A and portions of Appendix B relating to § 48C(e) applications) for issues that may apply to your submission. DOE and IRS highly recommend that applicants pay close attention to the sections below that correspond to the feedback bullet points provided in their letters of encouragement or discouragement, and that all applicants read through the "Other Topics" section. Potential applicants are encouraged to read through this entire document for themes relevant to your concept paper submissions.

Glossary of Terms:

Specified Advanced Energy Property: A specific category of property listed in 48C(c)(1)(A) and described in further detail in Appendix A(1). 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 Appendix A(1)(a). See IRS Notice 2023-44 Appendix B(I)(A)(iv).

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FEEDBACK AREA 1: Lack of sufficient detail in one or more of the following documents that were required by IRS Notice 2023-44: Concept Paper, Workforce and Community Engagement Plan, and/or Data Sheet provided by DOE.

- See IRS Notice 2023-44, Appendix B(II)(D)(i), Appendix B(III), and concept paper templates and data sheets available at [48C eXCHANGE](#) for documents and information required for the concept paper submission. Submissions that did not include sufficient information to review against the eligibility requirements and criteria described in IRS Notice 2023-44 were discouraged from submitting a § 48C application.

FEEDBACK AREA 2: Failure to meet the criteria for an eligible qualifying advanced energy project, as described in IRS Notice 2023-44 Appendix A, in the project category/topic selected by the applicant.

- **Lack of clear description of proposed project:** Projects described in an application can only be deemed eligible under § 48C(e) if they clearly describe the project activities included in the qualified investment, including but not limited to:
 - The facility involved, and whether the project is re-equipping, expanding, or establishing it. (In the case of a Greenhouse Gas Emission Reduction project, the project may only re-equip an existing facility).
 - The specific activities supported by the project’s qualified investment, including procurements, installation of equipment, and other activities at the facility.
 - What the facility will produce, and what feedstocks serve as inputs.
 - See the “Section 48C(e) Applications” section for the appropriate project category in IRS Notice 2023-44 Appendix B(III) for detailed information on content requirements in the § 48C(e) application, including information describing the proposed project.
- **Choice of project category:** Submissions by applicants must be eligible in the § 48C category (the “topic” dropdown list in the 48C eXCHANGE applicant portal) selected by the applicant. A project would be considered ineligible if it is eligible under other § 48C categories but not in the category selected by the applicant. For example:
 - A project that retrofits an existing industrial facility to reduce greenhouse gas (GHG) emissions would be considered ineligible if submitted under the Clean Energy Manufacturing and Recycling category, but eligible if submitted under the Greenhouse Gas Emission Reduction project category.
 - A project that expands a facility’s manufacturing capacity for a qualifying clean energy product would be considered ineligible if submitted as a Greenhouse Gas Emission Reduction project, but eligible if submitted under the Clean Energy Manufacturing and Recycling category.
 - A project that refines or processes a critical material could be considered ineligible if submitted under the Clean Energy Manufacturing and Recycling project category but could be eligible if submitted under the Critical Materials project category.

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Applicants who believe their project was deemed ineligible because they submitted their concept paper in the wrong project category may select a more appropriate project category if they choose to submit a § 48C application.

- **Deployment of power generation facilities:** Projects that construct or expand power generation facilities are not eligible Clean Energy Manufacturing and Recycling projects under IRS Notice 2023-44 Appendix A(1)(a) (“Property designed to be used to produce energy from the sun, water, wind, geothermal deposits”) or A(1)(i) (“Other advanced energy property designed to reduce GHG emissions as may be determined by the Secretary”). Instead, eligible manufacturing projects related to power generation must re-equip, expand, or establish a facility that, after being placed in service, will manufacture products (e.g., equipment or components) that can be installed in power generation facilities. Eligible recycling projects must re-equip, expand, or establish a facility that recycles those power generation products. While projects building or expanding power generation facilities are not eligible under the Program, they may be eligible for other tax credits through the IRS or financial assistance programs at DOE, such as the Title 17 Clean Energy Financing Program through DOE’s Loan Programs Office.
- **Deployment of facilities that produce fuels (such as biofuels or hydrogen), chemicals, or other industrial feedstock products:** Projects that re-equip, expand, or establish facilities that produce fuels, chemicals, or other feedstock products are not eligible Clean Energy Manufacturing and Recycling Projects, per IRS Notice 2023-44 Appendix A(1)(e) (“Equipment designed to refine, electrolyze, or blend any fuel, chemical, or product which is renewable, or low-carbon and low-emission”). Instead, eligible projects in this area must re-equip, expand, or establish a facility that, after being placed in service, will manufacture or recycle equipment that can be installed to produce fuels, chemicals, or other feedstock products. For example:
 - A project that builds a biorefinery or hydrogen production facility, or that procures or installs equipment for a biorefinery or hydrogen production facility, is not eligible as a Clean Energy Manufacturing and Recycling project.
 - A project whose proposed qualified investment includes the cost to produce or procure biorefinery components or electrolyzers, whether mass-produced or first-of-a-kind, is not eligible as a Clean Energy Manufacturing and Recycling project.
 - A project that re-equips, establishes, or expands a facility which, after completion of the project, will produce components or other equipment of a biorefinery, hydrogen production facility, or other facility that produces qualifying fuels, chemicals, or other products under IRS Notice 2023-44 Appendix A(1)(e) is eligible as a Clean Energy Manufacturing and Recycling project.
 - A project that re-equips, expands, or establishes a facility that will manufacture low-carbon products is not eligible as a Clean Energy Manufacturing and Recycling project.
 - A project that re-equips, expands, or establishes a facility which, after completion of the project, will produce components or other equipment designed to be used in facilities that will design or blend low-carbon products is eligible as a Clean Energy Manufacturing and Recycling project.

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While projects that build or expand production facilities for fuels, chemicals, or other low-carbon products are not eligible under the Program, they may be eligible for other tax credits through the IRS or financial assistance programs at DOE, such as the Title 17 Clean Energy Financing Program through DOE's Loan Programs Office.

- **Deployment of carbon capture, removal, use, or sequestration (CCUS) technologies submitted under the Clean Energy Manufacturing and Recycling category:** For projects submitted under the Clean Energy Manufacturing and Recycling category, projects that procure, produce, or install property (equipment or components) designed to capture, remove, use, or sequester carbon oxide emissions are not eligible. Instead, eligible manufacturing projects in this category must re-equip, expand, or establish a facility that, after being placed in service, will manufacture or recycle equipment designed to capture, remove, use, or sequester capture oxide emissions. The installation of CCUS equipment at existing facilities may be eligible under the Greenhouse Gas Emission Reduction category (see IRS Notice 2023-44 Appendix A(2)).
- **GHG Emission Reduction projects that build new or expand existing facilities:** Projects proposed under the Greenhouse Gas Emission Reduction category must re-equip an existing industrial or manufacturing facility with equipment designed to reduce GHG emissions, as described in IRS Notice 2023-44 Appendix A(2). Projects that include in their qualified investment the cost of building a new facility or expanding a facility's production capacity are not eligible in the Greenhouse Gas Emission Reduction category. Similarly, projects that propose changes to the design of a new facility are also not eligible.
- **GHG Emission Reduction projects that incorporate GHG emission reduction equipment in a new facility:** Projects proposed under Greenhouse Gas Emission Reduction category must re-equip existing facilities. Projects that enhance the design of a new facility that has not been built, or that equip a facility that is not yet operational, are not eligible under the Greenhouse Gas Emission Reduction category.
- **Uranium enrichment, conversion, and deconversion:** Projects re-equipping, expanding, or establishing facilities that, once placed in service, would manufacture equipment that could be used in facilities to enrich, convert, or deconvert uranium are eligible under the Clean Energy Manufacturing and Recycling category. However, projects re-equipping, expanding, or establishing facilities that would themselves be used in the enrichment, conversion, or deconversion of uranium are not eligible. Similarly, projects that procure or manufacture equipment that would be used in the enrichment, conversion, or deconversion of uranium are not eligible. See IRS Notice 2023-44 Appendix A(1)(i).
 - If applicants who submitted concept papers with uranium enrichment, conversion, or deconversion projects described as ineligible above choose to submit § 48C(e) applications, they are highly encouraged to limit the proposed activities to eligible activities described above.

FEEDBACK AREA 3: Proposed qualified investment appears to include costs not eligible for inclusion in a qualified investment.

- See IRS Notice 2023-18 section 5.04, and discussion of qualified investment in IRS Notice 2023-44, including section 3.01 (“Section 48C Facility”) and Appendix A (“Qualifying Advanced Energy Projects”).
- **Construction or expansion of a building:** The qualified investment proposed by an applicant, which may be a portion of an overall project carried out by the applicant, cannot include the construction or expansion of a building or its structural components. Applicants that included expenses for constructing or expanding buildings in their qualified investment should remove such costs from the qualified investment in their § 48C(e) application. See IRS Notice 2023-44, section 3.01(2) for more information.
- **Portion of facility used to produce or recycle eligible property (specified advanced energy property):** If only a portion of a facility will be used to produce or recycle eligible property as described in IRS Notice 2023-44 Appendix A, then the qualified investment proposed in the § 48C application should only include costs for the portion of the facility that will be used to produce or recycle eligible property.
- **Portion of a proposed facility’s time will be used to produce specified advanced energy property:** If a facility established with a § 48C tax credit will produce or recycle eligible property (as described in IRS Notice 2023-44 Appendix A) but will also operate for a portion of its time producing property that is not considered a specified advanced energy property under the Program, the applicant should expect the application to score lower in DOE’s evaluation of the project against the “Greenhouse Gas Emissions Impacts” and “Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy” criteria.
- **Multiple facilities/projects in one concept paper submission:** Each application must include only one project for each § 48C facility. If an applicant submitted a single concept paper for multiple § 48C facilities and wishes to submit a § 48C(e) application, the applicant must submit a separate § 48C(e) application for each § 48C(e) facility. See Q3 at [Frequently asked questions about the Qualifying Advanced Energy Project \(48C\) Credit | Internal Revenue Service \(irs.gov\)](#) for more information.
- **GHG Emission Reduction projects that build new or expand existing facilities:** Projects proposed under the Greenhouse Gas Emission Reduction category must re-equip an existing industrial or manufacturing facility with equipment designed to reduce GHG emissions, as described in IRS Notice 2023-44 Appendix A(2). The qualified investment proposed by a project must therefore re-equip the industrial or manufacturing facility to reduce GHG emissions, and investments to expand that facility (e.g., with additional manufacturing capacity), other than to reduce GHG emissions, are not eligible costs to include in the qualified investment. For concept papers that included such ineligible costs, those ineligible costs must be removed from the qualified investment in the Round 1 § 48C(e) application.

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- **GHG Emission Reduction Projects building new or expanding existing facilities:** Greenhouse Gas Emission Reduction projects are limited to activities that re-equip an existing industrial or manufacturing facility with equipment designed to reduce GHG emissions, as described in IRS Notice 2023-44 Appendix A(2). The qualified investment for projects proposed under the Greenhouse Gas Emission Reduction category cannot include the cost of building a new facility or expanding an existing facility (other than to reduce GHG emissions of the existing facility).

FEEDBACK AREA 4: Not permitted or placed in service within the required timeframes.

- See IRS Notice 2023-44, section 5.03 and Appendix B(I)(e)(v).
- As described in IRS Notice 2023-44, section 5.03 and Appendix B(I)(e)(v), applicants who receive an Allocation Letter for a credit must provide documentation to DOE within 2 years of receiving the allocation demonstrating that they have received necessary permits and met other requirements of the Program. After receiving a subsequent certification letter from the IRS, applicants will have no more than 2 years to place the proposed facility in service and notify DOE that the facility has been placed in service within the 2-year period. Applications demonstrating evidence of timelines that would not meet these timeframe requirements are highly unlikely to receive an allocation.

FEEDBACK AREA 5: Likelihood of commercial viability of a proposed project. (Criterion 1: Commercial Viability).

- See “Criterion 1: Commercial Viability” in IRS Notice 2023-44 under Appendix B(III)(A)(i)(b) for Clean Energy Manufacturing and Recycling projects; Appendix B(III)(B)(i)(b) for Greenhouse Gas Emission Reduction projects; and Appendix B(III)(C)(i)(b) for Critical Materials projects.

FEEDBACK AREA 6: Net impact on avoiding or reducing anthropogenic emissions of greenhouse gases of a proposed project. (Criterion 2: Greenhouse Gas Emissions Impacts).

- See “Criterion 2: Greenhouse Gas Emissions Impacts” in IRS Notice 2023-44 under Appendix B(III)(A)(i)(b) for Clean Energy Manufacturing and Recycling projects; Appendix B(III)(B)(i)(b) for Greenhouse Gas Emission Reduction projects; and Appendix B(III)(C)(i)(b) for Critical Materials projects.

FEEDBACK AREA 7: Ability to strengthen U.S. supply chains and domestic manufacturing needed for a net-zero economy. (Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy).

- See “Criterion 3: Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy” in IRS Notice 2023-44 under Appendix B(III)(A)(i)(b) for Clean Energy Manufacturing and Recycling projects; Appendix B(III)(B)(i)(b) for Greenhouse Gas Emission Reduction projects; and Appendix B(III)(C)(i)(b) for Critical Materials projects.

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- **Multiple products produced by a facility in one application:** DOE encourages applicants in the Clean Energy Manufacturing and Recycling category to submit applications proposing projects that focus on manufacturing of a single eligible clean energy product or component. If an application proposes to re-equip, expand, or establish a facility to produce or recycle multiple eligible clean energy products, DOE will evaluate the application by averaging the scores of each product. For example, combining a component or product that scores highly against the § 48C supply chain and domestic manufacturing criterion (such as those listed as a supply chain priority area in the IRS guidance) with a component that is a lower priority in the same application may significantly lower the merit of the entire application. Removing the lower-priority portion of the project from the application may significantly increase the likelihood that DOE recommends a project to receive a § 48C credit allocation.
- **Components not specialized for an eligible clean energy product:** Eligible components proposed for manufacturing under the Clean Energy Manufacturing and Recycling category should generally be specialized components required for eligible clean energy products. Non-specialized components that are used broadly for products beyond end products eligible under § 48C are likely to score low when evaluated against the § 48C evaluation criteria in IRS Notice 2023-44 and DOE is unlikely to recommend such projects for a § 48C credit allocation. For example, projects establishing facilities that can carry out a manufacturing process applicable to all types of vehicles – in a manner that is not specialized for the types of vehicles eligible under § 48C – are unlikely to be recommended to receive a § 48C credit allocation.
- **Lack of need for § 48C credit:** A concept paper may have scored low on the review criterion, “Strengthening U.S. Supply Chains and Domestic Manufacturing for a Net-Zero Economy”, if the concept paper did not demonstrate that a § 48C tax credit is needed for the project to move forward or would significantly expand domestic manufacturing beyond what would occur without the credit. Applicants might consider other programs that may provide support tailored to their projects, such as loans and loan guarantees offered by DOE’s Loan Programs Office. If a § 48C tax credit is needed to move a project forward in its proposed form, the applicant should work to demonstrate the need and to explain the differential impact to manufacturing capacity that would be enabled by a § 48C tax credit.

FEEDBACK AREA 8: Workforce benefits of and completed/proposed community engagement of the proposed project. (Criterion 4: Workforce and Community Engagement).

- See “Criterion 4: Workforce and Community Engagement” in IRS Notice 2023-44 under Appendix B(III)(A)(i)(b) for Clean Energy Manufacturing and Recycling projects; Appendix B(III)(B)(i)(b) for Greenhouse Gas Emission Reduction projects; and Appendix B(III)(C)(i)(b) for Critical Materials projects.
- As described in IRS Notice 2023-44, the Workforce and Community Engagement portion of the submission should be specific to the applicant’s proposed project.

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Other Topics:

- **Large Projects:** Due to the limited amount of § 48C credits available compared to the total credits requested by applicants, DOE is unlikely to recommend to the IRS projects with a very large, qualified investment. Applicants with very large projects may consider reducing the proposed qualified investment in their Round 1 § 48C(e) application to improve their chances of receiving a § 48C allocation.
- **Projects Located in a § 48C(e) Energy Community Census Tract:** Applicants that indicated in their concept paper submission that their project is located in a § 48C(e) Energy Community Census Tract must confirm that their proposed project is located in such a § 48C(e) Energy Community Census Tract using the resources described in Q5 at [Frequently asked questions about the Qualifying Advanced Energy Project \(48C\) Credit | Internal Revenue Service \(irs.gov\)](#). For a concept paper submission that indicated its proposed project is located in a § 48C(e) Energy Community Census Tract, the project location in the § 48C(e) application must be located in a confirmed § 48C(e) Energy Community Census Tract to be considered for a Round 1 allocation.
- **Critical Materials Processing, Refining, and Recycling projects:** Any activities equipping a facility to drill, pump, or use other means to extract resources would be ineligible for inclusion in such a § 48C project's qualified investment, as these activities occur upstream of processing and refining. Subsequent steps in the process of producing the critical material, such as physical refining (e.g., filtration, separation, and other techniques) and chemical or thermal treatment, would be eligible for inclusion in the project's qualified investment.
- **Research and Development Facilities:** Facilities or portions of facilities that conduct research and development are not eligible under § 48C. Facilities that manufacture eligible property and, in doing so, are also used for research and development purposes, may be eligible for 48C but the application must demonstrate that the facility built, re-equipped, or expanded is a § 48C Facility as defined under IRS Notice 2023-44. However, applicants should note that applications will be scored according to the criteria in IRS Notice 2023-44 Appendix B(III)(A), which are intended for facilities that produce or recycle specified advanced energy property under the Clean Energy Manufacturing and Recycling project category.