# 48C Application Round 1 Best Practices

## Background on the 48C Program and Context for this Document

The Qualifying Advanced Energy Project Credit (48C) program was established by the American Recovery and Reinvestment Act of 2009, and Section 13501 of the Inflation Reduction Act of 2022 (IRA) infused an additional $10 billion investment into this program and expanded its purposes to include recycling of clean energy technologies; critical materials processing, refining and recycling; and industrial greenhouse gas emissions reductions. The IRA also reserved at least 40% of the new 48C Program allocations for projects located in Energy Communities Census Tracts, as defined in Section 48C(e) and delineated by the Internal Revenue Service here.

The IRS made available $4 billion in Round 1 for 48C credit allocations and transmitted final decisions to applicants for allocation or denial of credits on March 29, 2024. The total value of the tax credits sought by applicants in Round 1 was over four times the available tax credits for the 48C program included in the IRA. Applicants must first submit concept papers describing the proposed project. Taxpayers whose concept papers receive a favorable review are encouraged to submit a full application. Applicants submitted concept papers seeking a total of nearly $42 billion in tax credits across all categories of potentially eligible projects, including nearly $11 billion for projects in designated Energy Communities Census Tracts. DOE ultimately received approximately 250 full applications from projects requesting a total of $13.5 billion in tax credits. The size and scope of projects reflected in the applications varied greatly, with applicants requesting tax credits ranging from under $1 million to over $100 million.

For Round 1 applicants who did not receive an allocation and requested feedback within 30 business days of receiving their Round 1 decision letter, DOE has provided written feedback indicating the areas in which their application could have been improved. As a competitive selection process allocating a limited amount of credits each round, the DOE's recommendation process for these allocations is a relative one: all applications that pass threshold eligibility criteria are scored against technical review criteria and ranked against each other. In this extremely competitive process, even highly qualified projects may lose out to others with slightly higher scores.

DOE's ability to provide additional feedback on how specific applications fared relative to stronger applications is restricted by the need to safeguard the confidential taxpayer information in competing applications, and because applications are selected based on their merits compared to other applications. For these reasons, it would not be possible to provide feedback that would assure prior applicants of success in Round 2, as there is always the possibility that other applications will present a stronger profile when assessed against the technical review criteria. The most valuable information DOE can provide to Round 1 applicants who were unsuccessful is to share learnings on best practices from DOE's evaluation of all Round 1 applications, as provided below in this document.

DOE wants to enable all Round 2 applicants, including those applicants who were unsuccessful in Round 1, to prepare concept papers and applications that will accurately highlight their projects' strengths. **Please note that Round 2 applicants should refer to IRS Notice 2024-36 (including the IRS Notice 2024-36 and Appendices A and B) for the latest guidance on eligibility, concept paper and application submission guidelines, technical review criteria, updated priority areas, and other application review factors**.

The best practices and common deficiencies provided below are intended to help all applicants strengthen their concept papers and applications. Many of the best practices outlined in this document are also useful to applicants as they prepare full applications. Concept papers must be submitted by 5:00 PM Eastern Time on June 21, 2024, in order for an applicant to submit a full application later in Round 2, and DOE therefore encourages interested applicants to submit concept papers by the deadline even if the information included in this document cannot be fully incorporated in their concept paper by the deadline.

**Best Practices for 48C Applications**

Following DOE's review of 48C Round 1 concept papers, IRS published a document, Common Themes and Issues Seen in Concept Papers Submitted in § 48C(e) Round 1, 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. DOE has also posted Frequently Asked Questions related to the 48C program on energy.gov, and IRS has posted Frequently Asked Questions on IRS.gov related to the 48C program.

DOE's review of the Round 1 applications similarly revealed many common themes. This document does not address specific projects but highlights below common areas for improvement and key attributes that highly competitive applications were likely to include. This document is meant to assist potential applicants with understanding why they may have been denied a credit in Round 1 and with addressing common issues to ensure high quality concept papers and applications that comply with § 48C requirements and applicable guidance, as described in IRS Notice 2024-36. All Round 1 best practices below reference the IRS guidance for Round 1, including IRS Notice 2023-18 and IRS Notice 2023-44.

**Project Eligibility**

*Common Challenge:*

- Many applications that were denied a credit did not meet the criteria for an eligible qualifying advanced energy project, as described in the Round 1 guidance (specifically, IRS Notice 2023-44 Appendix A), in the project category/topic selected by the applicant.

*Competitive applications are likely to exhibit the following characteristics:*

- Include a specific, detailed, and clear description of the facility being re-equipped, expanded, or established to justify the facility's classification as an industrial or

manufacturing facility (for Clean Energy Manufacturing and Recycling Projects and Greenhouse Gas Emission Reduction Projects) or an industrial facility (Critical Materials Projects).

- Include specific and comprehensive descriptions of the investments proposed at the new or existing facility (i.e., the planned expenditures eligible for inclusion in the qualified investment that contribute to the total project cost and requested credit amount).
- For **Clean Energy Manufacturing and Recycling Projects**, applications:
    - Include a clear description of the product that the facility will produce, and if there are multiple use cases for the end product, specifies which use cases are intended for facility offtake.
    - Include how the product fits into one of the advanced energy property categories described in the IRS Notice 2023-44 Appendix A section 1 (Clean Energy Manufacturing and Recycling Projects).
- For **Greenhouse Gas Emission Reduction Projects**, applications:
    - Include a clear description of the activities that will be performed at the facility.
    - Include their anticipated emissions reductions.
    - Include how the equipment and technologies installed fit clearly within the categories described under the IRS Notice 2023-44 Appendix A section 2 (Greenhouse Gas Emission Reduction Projects).
- For **Critical Materials Projects**, applications:
    - Include a clear description of the material(s) the facility will produce.
    - Crosscheck that the project is on the list of critical materials described in the IRS Notice 2023-44 Appendix A section 3 (Critical Materials Projects).
    - Include a clear description of the industrial processes the facility will perform once operational.
    - Include how the industrial processes named in the application fit into the processes described in the IRS Notice 2023-44 Appendix A section 3 ("processing, refining, or recycling of critical materials").

Reference Documents: *See IRS Notice 2023-44, Appendix A. For Round 2 applications, see IRS Notice 2024-36 Appendix A.*

**<u>Time Frame for being Placed in Service</u>**

*Common Challenge:*

- Many applications denied a credit described projects that would not be permitted or placed in service within the required timeframes.

*Competitive applications adhere to project timelines outlined in the statute and IRS Notice 2023-44, such as:*

- Demonstrate clearly that they will be able to meet the required deadline to request certification within 2 years of receiving an allocation, which requires completion of

permits necessary to commence the construction and other certification requirements prior to that date.
- Demonstrate clearly that the facility will be placed in service within 2 years of receiving certification (i.e., within 4 years of receiving an allocation).
- Please note that projects **cannot be** placed in service *before* being awarded an allocation of § 48C credits. However, other activities, such as project planning and construction, can have started before submitting an application or receiving an allocation.

Reference Documents: *See IRS Notice 2023-44 section 5.03 and Appendix B(I)(C)(v).*

**Commercial Viability**

*Common Challenge:*
- Many applications denied a credit did not adequately demonstrate the likelihood of commercial viability of the project.

*Competitive applications are likely to exhibit the following characteristics, including:*
- Demonstrate a readiness to proceed with the proposed project by describing the site selected for the project and progress towards required permits, contracts, or other agreements. The discussion of site selection should include whether or not the project is placed in an 48C(e) energy community as outlined in section 5.06 of IRS Notice 2023-18.
- Describe a reasonable timeframe for completing the project, including construction and commissioning to place the project in service with reasonable interim milestones.
- For very large projects, commercial viability in the market and availability of financing is rigorously justified, due to the risks associated with securing offtake for large quantities of product and with securing large quantities of financing. For reference, with over 100 projects selected in Round 1 for $4 billion in credit allocations, the average credit size awarded in Round 1 was approximately $40 million. *See the "Very Large Projects" section in this document.*
- Describe a management team with a strong track record of success in areas relevant to the project and demonstrates strong corporate health of the applicant.
- Demonstrate a strong likelihood the project has or will be able to secure all necessary capital, including descriptions of plans for financing (e.g., private financing, cash on hand, DOE or other government funding, and/or other sources). Clearly indicates the status of financing, including differentiating between secured financing and prospective financing.
- *For **Clean Energy Manufacturing and Recycling** and **Critical Materials** projects, applications:*
    - Demonstrate that the facility would be commercially viable in the market, including a clear description of estimates of market share, market growth potential, projected market demand for the product, price competitiveness, and likely or secured offtake.

    - Include a discussion of any relevant upstream supply chain challenges that may affect the facility's construction or operations, if any, as well as solutions for those challenges.
- For ***Greenhouse Gas Emission Reduction*** *projects, applications:*
    - Demonstrate the strength of key arrangements, including acquisition/supply strategy, power purchase agreements, or offtake (sales) arrangements for the facility's product.
    - Clearly describe a levelized cost of measured reduction in GHG emissions that is low compared to other 48C(e) applications.
    - Demonstrate anticipated demand for the facility's product, including cost premiums for lower-carbon industrial or manufacturing products.

Reference Documents:

- *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.*

**<u>Greenhouse Gas Emissions Impact</u>**

*Common Challenge:*

- Many applications that were denied a credit did not adequately demonstrate that the proposed project would have a high net impact on avoiding or reducing anthropogenic emissions of greenhouse gases.

*Competitive applications in the* ***Clean Energy Manufacturing and Recycling*** *and* ***Critical Material*** *categories are likely to exhibit the following characteristics, including:*

- Propose a new facility, or increase capacity at an existing facility, whose product will facilitate a reduction in greenhouse gas (GHG) emissions, or will enable other products to facilitate a reduction in GHG emissions, by displacing higher-emitting incumbent technologies, fuels, or materials, or capturing carbon dioxide that would otherwise enter or remain in the atmosphere.
- Clearly describe a product whose reductions in GHG emissions are based on:
    - The product's (or the product(s) it enables) high potential to reduce GHG emissions compared to higher-emitting incumbent technology(ies) or system(s); and/or,
    - The product's (or the product(s) it enables) high potential to indirectly reduce or avoid emissions by enabling a reduction in energy or fuel use by other incumbent technologies or by enabling the adoption of low-emissions technologies (such as electric vehicle charging infrastructure); and/or,
- Note that applications are scored under this criterion in relation to other eligible products, technologies, or materials in the same topic area. An application proposing to manufacture a product that lowers emissions, but that does not lower emissions as much as other products in the same topic, may receive a lower score than other such products would receive.

- For recycling projects, describe the project's ability to lower emissions by avoiding the energy used to extract and process raw materials or by avoiding the emissions associated with end-of-life disposition of the product if it was not recycled.
- Include additional factors that point to innovative manufacturing processes that limit emissions at the facility itself, such as demonstrating that the facility uses current best-in-class manufacturing or recycling approaches, including the use of innovative equipment, processes, and low-carbon fuels; demonstrated alignment with the national target of net-zero emissions by 2050 through efforts to reduce both direct (Scope 1) and indirect, upstream fuel- and energy-related (Scope 2) emissions; or demonstration of efforts to reduce emissions in the upstream supply chain.

*Competitive applications in the **Greenhouse Gas Emission Reduction** category are likely to exhibit the following characteristics, such as:*

- Include a comprehensive, specific, and reasonable description of facility emissions before and after the proposed project.
- Include a clear presentation of the tons of carbon dioxide equivalent reduction and percentage reduction in direct (Scope 1) emissions and indirect fuel- and energy-related (Scope 2) emissions due to the proposed project, and include the cost of these reduced emissions expressed in 48C credit dollars per ton of absolute carbon dioxide equivalent reduced.
    - High proposed emissions reductions that can be verified through data submitted in the application (both absolute CO2 equivalent and percentage) compared to other 48C(e) applications.
    - Low demonstrated cost of emissions per ton of GHG reductions compared to other 48C(e) applications.
- Describe a project that uses current best-in-class industrial or manufacturing approaches and innovative, low-emissions equipment, fuels, materials, or processes.
- Describe a project that demonstrates alignment with the long-term strategy of the United States to reach net-zero emissions by 2050.

Reference Documents:

- *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.*

**<u>Supply Chain Impact</u>**

*Common Challenge:*

- Many applications that were denied a credit did not adequately demonstrate how the proposed project strengthens U.S. supply chains and domestic manufacturing needed for a net-zero economy.

*Competitive applications in the **Clean Energy Manufacturing and Recycling** and **Critical Materials** categories are likely to exhibit the following characteristics, such as:*

- Describe the specific supply chain segment (e.g., product, component, or materials) that the facility's product will contribute to, and how the 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.
    - This goes beyond broad categories (like "solar module components" or "grid components") by describing the specific components that the project is proposing to manufacture.
    - If the facility's production will include multiple different components or span multiple supply chain segments—e.g., processed material, subcomponents, components, systems/end products, the application should clearly describe each component and describe how those segments interact.
    - The application demonstrates that the product is either a 48C advanced energy property, specialized for use in a 48C advanced energy property described in IRS 2023-44 Appendix A, or is needed in a 48C advanced energy property, and that the facility would primarily benefit those market applications.
- Propose a facility that will produce a product, component, or material that addresses current and anticipated supply chain vulnerabilities for clean energy products that facilitate progress towards a net-zero economy.
    - Applications are likely to receive a higher score and be more competitive if their product is listed under *Priority Areas for Clean Energy Manufacturing and Recycling Projects* in the Round 1 guidance, IRS Notice 2023-44 Appendix B(III)(A). Priority areas for Round 2 can be found under *Round 2 Priority Areas* in IRS Notice 2024-36 Appendix B section 2.3.3. (Products not listed may still score highly, if supply chain need and impact are deemed significant.)
    - The application discusses the existing supply chain challenges and the specific gaps or issues that the applicant's project will address. This analysis includes where the product is currently being manufactured globally, potential impact of expanding U.S. manufacturing, and current and projected market demand for the product.
    - If relevant, the application should 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).
    - The application should describe key inputs needed for the manufacturing or recycling process, as well as any known sources of inputs, including domestic sources, and any current or anticipated supply chain vulnerabilities.
- If relevant, demonstrate an alignment of the facility's products with U.S. federal, state, or local domestic content requirements, such as Buy America programs or requirements in the IRA 30D tax credit for vehicle-related or critical mineral projects or, for clean electricity-related projects, the IRA domestic content bonus.

*Competitive applications in the **Greenhouse Gas Emission Reduction** category are likely to exhibit the following characteristics, such as:*

- Demonstrate that the employed equipment, technologies, or approaches to reduce greenhouse gas emissions (GHGs) could be replicated in other manufacturing facilities beyond the location for the facility in the specific application, within or across sectors.
- Propose a project that enhances U.S. leadership in low-emissions industry or manufacturing by advancing the commercial viability and uptake of replicable decarbonization approaches in major industrial applications.
- Propose a project that aligns 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), such as by aligning with the DOE Industrial Decarbonization Roadmap.
- If relevant, demonstrate an alignment of the facility's products with U.S. federal, state, or local domestic content requirements, such as Buy America programs or requirements in the IRA 30D tax credit for vehicle-related or critical mineral projects or, for clean electricity-related projects, the IRA domestic content bonus.

Reference Documents:

- *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.*

**Workforce and Community Engagement**

*Common Challenge:*

- Many applications that were denied a credit did not adequately demonstrate the workforce benefits of the proposed project and/or describe the completed or proposed community engagement.

*Competitive applications are likely to exhibit the following characteristics, such as:*

- Propose a project and facility that creates high quality domestic jobs (both direct and indirect) during the completion of the project and during operation of the facility after it is placed in service.
- Describe a specific, measurable plan to create and/or retain high-quality, good-paying jobs (both direct and indirect) with employer-sponsored benefits for all classifications and phases of work.
- Demonstrate that employees will have with the ability to organize, bargain collectively, and participate in decisions that affect them through labor organizations of their choosing.
- Describe a plan to attract, train, and retain a skilled and well-qualified workforce both during completion of the project and during operation of the facility after it is placed in service. This includes documenting any existing collective bargaining agreements or planned commitments to negotiate with workers (i.e. project labor agreements, labor peace or neutrality agreements, community benefit agreements).

- Create local jobs within energy communities (if applicable), including for individuals previously employed by the local or regional coal industry; and generates additional economic prosperity in the local community.
- Describe how the applicant has or will engage key stakeholders to provide training and support throughout partnerships to serve a local and diverse workforce, including specific steps taken rather than general statements of company practices.
- Demonstrate that the applicant is a responsible employer with access to appropriately skilled labor sufficient to support the proposed project and facility and a plan to minimize labor disputes or disruptions.
- Demonstrate that the applicant has and/or will engage community and labor stakeholders to improve its ability to complete the project and bring on an adequate workforce (including specific steps taken rather than general statements of company practices).
- Use benefit-sharing agreements, local resource, and improved access to employment opportunities for the local workforce to strengthen workforce recruitment and community support.
- Demonstrate that the community and labor organizations support the proposed project, as well as engagement with those organizations to develop or maintain that support.
- Describe a plan for community engagement, including with labor unions, Tribal entities, and community-based organizations working with disadvantaged communities and other stakeholders.
- Describe a plan to support energy community transition, including through opportunities for workers in the coal, other energy, and automotive sectors, and through the use of existing local and regional resources or infrastructure/assets that previously supported the coal industry.
- Mitigate environmental impact to the surrounding community, including mitigating impact to local air and water.
- Provide benefits for disadvantaged communities, including a clear description of how the benefits will flow to those communities and how any potential risks for negative environmental impacts will be mitigated.

Reference Documents:

- *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.*

**<u>Very Large Projects:</u>**

- Due to the limited amount of § 48C credits available in Round 1 compared to the total credits requested by applicants, applications proposing projects with a very large qualified investment were unlikely to receive an allocation in Round 1.
- For reference, with over 100 projects in Round 1 receiving $4 billion in credit allocations, the average credit size allocated in Round 1 was approximately $40 million. Applications

received credit allocations in Round 1 ranging from less than $2 million to over $200 million.
- Applicants with very large projects in any category could consider reducing the proposed qualified investment to improve their chances of receiving a § 48C allocation.
- Applicants with Clean Energy Manufacturing and Recycling or Critical Materials projects may also submit multiple applications each covering a smaller, discrete, and severable portion of a larger facility (*See pages 11–12 of IRS Notice 2023-44, Appendix B for rules around multiple applications involving the same facility)*.

**Other Topics:**

*Competitive applications are also likely to exhibit the following characteristics:*

- Provide consistent information throughout the application, datasheets, portal submissions, and other documents.
- Pay careful attention to the 48C Energy Community definition, which can be found at IRS Notice 2024-36 Appendix C and Section 48C Tax Credits – Designated Energy Communities (doe.gov)
- Describe proposed costs that are eligible for inclusion in a qualified investment:
    - Include a complete list of all investments proposed in the project, identifying those which are included in the proposed qualified investment.
    - Include a line-by-line cost estimate for all qualified investments.
    - For **Greenhouse Gas Emission Reduction** projects, does not include in an application's proposed qualified investment the cost of building a new facility, of expanding an existing facility's production capacity, or of changing the design of a new facility that is not yet in service.
    - For projects submitted in any category, does not include in the proposed qualified investment costs for the construction or expansion of a building or its structural components.