

Manufacture of Advanced Key Energy Infrastructure Technologies (MAKE IT) Prize

Round 2

December 2024

Preface

The U.S. Department of Energy's (DOE's) Manufacture of Advanced Key Energy Infrastructure Technologies (MAKE IT) Prize Round 2 will be governed by 15 U.S.C. §3719 and these official rules. This is not a procurement under the Federal Acquisitions Regulation and will not result in a grant or cooperative agreement under 2 Code of Federal Regulations (CFR) 200. The Prize Administrator reserves the right to modify these official rules if necessary and will publicly post any such notifications as well as notify registered prize participants.

The following table describes changes that may be implemented on this rules document.

Date	Modification

Contents

- 1 Executive Summary..... 5**
 - 1.1 MAKE IT Prize Structure..... 5
 - 1.2 Key Dates..... 6
 - 1.3 Eligible Technology Components 6
 - 1.4 Eligibility and Competitors 7
- 2 Background..... 10**
 - 2.1 Prize Background and Objectives 10
 - 2.2 Competitor Support—American-Made Network..... 11
- 3 Statement of Intent to Compete 12**
 - 3.1 Goal 12
 - 3.2 How to Enter 12
 - 3.3 Important Dates 12
 - 3.4 Process Overview 12
 - 3.5 What to Submit..... 12
 - 3.5.1 Statement of Intent Document..... 12
 - 3.5.2 Summary Slide 13
 - 3.6 Notification of Eligibility 13
- 4 Phase 1: Scope 14**
 - 4.1 Goal..... 14
 - 4.2 Prizes..... 14
 - 4.3 How to Enter 14
 - 4.4 Important Dates 14
 - 4.5 Phase 1: Scope Process Overview 14
 - 4.6 What to Submit..... 14
 - 4.6.1 Cover Page..... 15
 - 4.6.2 Summary Slide (Will Be Made Public) 15
 - 4.6.3 Statement of Intent 15
 - 4.6.4 Narrative Document 15
 - 4.6.5 Permitting and Environmental Plan..... 18
 - 4.6.6 Working Financial Model and Identification of Resources 18
 - 4.6.7 Community and Labor Engagement Plan 19
 - 4.6.8 Supporting Documentation (Optional)..... 20
 - 4.7 Phase 1: Scope Assessment 20
 - 4.8 Interviews..... 22
 - 4.9 Final Determination 22
 - 4.10 Announcement 22
 - 4.11 Additional Terms and Conditions..... 23
- 5 Phase 2: Shovel-Ready..... 24**
 - 5.1 Goal..... 24
 - 5.2 Prizes..... 24
 - 5.3 How to Enter 24
 - 5.4 Important Dates 24
 - 5.5 Phase 2: Shovel-Ready Process..... 24
 - 5.6 What to Submit..... 24
 - 5.6.1 Cover Page..... 25
 - 5.6.2 Summary Slide, Updated (Will Be Made Public)..... 25
 - 5.6.3 Statement of Intent 25
 - 5.6.4 Narrative Document 25

5.6.5 Proof of Secured Site for Construction	26
5.6.6 Proof of Secured Permits and Finalization of Environmental Reviews.....	27
5.6.7 Working Financial Model and Identification of Resources	27
5.6.8 Engineering, Procurement, and Construction Contracts and Integrated Project Schedule	28
5.6.9 Sources of Financing.....	28
5.6.10 Community Benefits and Labor Commitment.....	28
5.6.11 Cybersecurity Plan.....	29
5.6.12 Supporting Documentation (Optional).....	29
5.7 Phase 2: Shovel-Ready Assessment.....	29
5.8 Interviews/Site Visits	31
5.9 Final Determination	32
5.10 Announcement.....	32
5.11 Additional Terms and Conditions.....	32
Appendix A: Additional Terms and Conditions.....	33
A.1 Requirements	33
A.2 Verification for Payments.....	33
A.3 Teams and Single-Entity Awards	34
A.4 Treatment of Submission Materials.....	34
A.5 Representation and Warranties	35
A.6 Contest Subject to Applicable Law.....	35
A.7 Resolution of Disputes.....	35
A.8 Publicity.....	35
A.9 Liability	36
A.10 Records Retention and Freedom of Information Act.....	36
A.11 Privacy.....	37
A.12 General Conditions	37
A.13 Program Policy Factors	37
A.14 National Environmental Policy Act Compliance	38
A.15 Bonus Prizes.....	38
A.16 Definitions	38
A.17 Return of Funds.....	38
Appendix B: Eligible Technology Components.....	39
B.1 Background	39
B.2 List of Eligible Technology Components	40
Manufacturing and/or recycling of components for production, processing, delivery, and storage of clean hydrogen and/or hydrogen fuel cells.....	40
Manufacturing of components related to the electric grid	40
Manufacturing and assembly of long duration energy storage (LDES) components and systems.....	41
Equipment and components for industrial decarbonization.....	42
Manufacturing of components related to carbon capture and storage (CCS)	43
Manufacturing of components related to direct air capture (DAC)	43
Manufacturing of materials, components, and systems related to advanced nuclear power applications.....	44

1 Executive Summary

The U.S. Department of Energy (DOE) aims to catalyze domestic manufacturing to enable replication and commercial liftoff of clean energy demonstration projects, moving manufacturing facilities of critical clean energy technology components from planning to shovel-ready. The Manufacture of Advanced Key Energy Infrastructure Technologies (MAKE IT) Prize Round 2 offers a total prize pool of approximately \$32 million in cash prizes. Winning teams may win up to \$5 million each across two phases.

MAKE IT Prize Round 2 seeks to award U.S.-based entities and teams that successfully complete the necessary work leading to shovel-ready facilities for manufacturing eligible components that will support clean energy infrastructure. The goal is to establish a robust and secure domestic supply chain for components deemed critical for the commercialization of clean energy technologies. By the end of the competition, participants will prove they are ready to begin construction of a manufacturing facility, including a secured location, permitting, financing, and completed community engagement. Facilities may be newly constructed, previously shuttered facilities that will be revitalized, brownfield development, or repurposed existing facilities. DOE is particularly interested in the latter three.

1.1 MAKE IT Prize Structure

MAKE IT Prize Round 2 is a two-phase prize. DOE anticipates offering approximately 19 prize awards of \$500,000¹ each in Phase 1: Scope and approximately 5 prize awards of \$4.5 million each in Phase 2: Shovel-Ready. The prize is designed to provide cash awards to organizations able to prove completion of the preparatory work needed to establish a manufacturing facility (e.g., site identification and access, permitting and approvals, financing, execution of community benefits and labor commitments). At the conclusion of the competition, the winning teams will have demonstrated proof of shovel-ready projects.

¹ At the end of the Phase 1 Assessment, the Judge may identify submissions that have met most of the assessment criteria but are not meritorious of winning the full prize amount because of a deficiency in the submission package. At DOE's sole discretion, considering the program policy factors in [Appendix A.13](#) and if DOE believes that such deficiency can be cured within the prize timeline, the Judge may award a reduced Phase 1 prize of \$100,000 to those competitors. These competitors will be eligible to compete in Phase 2 together with the competitors winning the full Phase 1 prize.

MAKE IT Prize Round 2 is open to any location in the United States²; however, submissions involving plans to repurpose shuttered facilities, redevelop brownfield³ or other previously developed and currently underutilized sites, and/or to reequip current production lines to manufacture clean energy technologies⁴ are of particular interest. Submissions related to incremental improvements or additions to existing permitted facilities are unlikely to be competitive.

Contest	Winners	Prizes
Phase 1: Scope	Approximately 19	\$500,000 each
Phase 2: Shovel-Ready	Approximately 5	\$4.5 million each

Competitors must submit an eligible statement of intent to be able to compete in Phase 1: Scope.

1.2 Key Dates

Visit [HeroX](#) for a list of deadlines and key dates.

1.3 Eligible Technology Components

MAKE IT Prize Round 2 invites U.S.-based entities with demonstrated capabilities and commitment to domestic manufacturing to submit plans for establishing clean energy manufacturing facilities for specific clean energy technology components and/or processes. Only components and processes relevant to the domestic production of the following critical technologies are eligible for the prize. Submissions related to other technology components or for other applications will not be deemed eligible to compete:

- Manufacturing and/or recycling of components for production, processing, delivery, and storage of clean hydrogen and/or hydrogen fuel cells
- Manufacturing of components related to the upgrade of the electric grid
- Manufacturing and assembly of long-duration energy storage (LDES) components and systems
- Manufacturing of equipment and components for industrial decarbonization

² Inclusive of territories.

³ A brownfield is defined as “a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.” To locate a brownfield, see <https://www.epa.gov/brownfields>.

⁴ By using existing facilities, these projects may present benefits such as reduced costs and time to production resulting from the use of existing infrastructure, the ease of transition for the existing workforce, siting in connection with existing supply chain and community assets, and sustainability and environmental justice benefits arising from reuse rather than new builds. New facility builds, however, may offer advantages in the form of opportunities to resolve critical gaps in the establishment of secure, resilient domestic clean energy supply chains or to seize opportunities for emerging and projected market share. New facilities may also offer unique opportunities to incorporate advanced manufacturing practices that apply innovative technologies to produce new products and improve production of existing products; that train a highly skilled and diverse American workforce; that create products through economically sound processes that minimize negative environmental impacts while conserving energy and natural resources; and that reduce pollution and reduce carbon emissions to zero or near zero via industrial decarbonization practices and technologies. Even where such advantages are present in connection with the building of new facilities, brownfield siting should be considered, and projects should draw upon existing skills of or seek to retrain dislocated workers.

- Manufacturing of components related to carbon capture and storage (CCS)
- Manufacturing of components related to direct air capture (DAC)
- Manufacturing of materials, components, and systems related to advanced nuclear power applications.

Please see [Appendix B](#) for specific eligibility criteria within each of the above categories.

This prize will not support research, development, and/or demonstration activities for new technologies or new components. This prize is for establishing manufacturing facilities; the technology component being manufactured is expected to be completely de-risked. Market potential and the degree of any technology or adoption risk will be assessed as part of the Phase 1: Scope submission. Please see [Appendix B](#) for additional information on the list of eligible technologies.

Submissions for pilot manufacturing facilities are eligible, if they are related to one of the technology components listed in [Appendix B](#) of the prize rules and comply with the other prize requirements. Competitors should keep in mind that technologies are expected to be substantially de-risked and to not require further research and development. Note that the review criteria includes the technology's readiness level, any technology or adoption risks, and impact of the proposed facility (among other factors; see [Sections 4](#) and [5](#) for more information). Competitors should make clear how their proposed pilot manufacturing line meets these criteria. Competitors should make clear the difference in performance, throughput, and cost between the proposed pilot line and a manufacturing facility at scale for the same component.

Although only the technology components listed in this section and in [Appendix B](#) are eligible for the MAKE IT Prize at this time, DOE might run the MAKE IT Prize and/or similar opportunities in the future and is interested in learning about additional clean energy technology components not widely manufactured domestically that have the potential to have a significant positive impact on the domestic clean energy supply chain. DOE encourages entities to submit their feedback on potential future areas of interest for similar programs to makeitcomments@nrel.gov.

1.4 Eligibility and Competitors

All-Phase Eligibility

This competition is open only to individuals; private entities (for-profits and nonprofits); nonfederal government entities such as states, counties, Tribes, and municipalities; and academic institutions, subject to the following requirements:

- A group of individuals competing as one team may win, provided that the online account holder of the submission is a U.S. citizen or permanent resident. Individuals competing as part of a team are eligible to participate if they are legally authorized to work in the United States.
- Private entities must be incorporated in and maintain a primary place of business in the United States.
- Academic institutions must be based in the United States.
- DOE employees, employees of sponsoring organizations, members of their immediate families (e.g., spouses, children, siblings, or parents), and persons living in the same household as such persons, whether or not related, are not eligible to participate in the prize.
- Individuals who worked at DOE (federal employees or support service contractors) within 12 months prior to the submission deadline of any contest are not eligible to participate in any prize contests in this program.
- Federal entities and federal employees are not eligible to participate in any portion of the prize.

- DOE national laboratory employees cannot compete in the prize.
- Entities and individuals publicly banned from doing business with the U.S. government, such as entities and individuals debarred, suspended, or otherwise excluded from or ineligible for participating in federal programs, are not eligible to compete.
- Individuals participating in a foreign government talent recruitment program⁵ sponsored by a country of risk⁶ and teams that include such individuals are not eligible to compete.
- Entities owned by, controlled by, or subject to the jurisdiction or direction of a government of a country of risk are not eligible to compete.
- To be eligible, an individual authorized to represent the competitor must agree to and sign the following statement upon registration with HeroX:

I am providing this submission package as part of my participation in this prize. I understand that the information contained in this submission will be relied on by the federal government to determine whether to issue a prize to the named competitor. I certify under penalty of perjury that the named competitor meets the eligibility requirements for this prize competition and complies with all other rules contained in the official rules document. I further represent that the information contained in the submission is true and contains no misrepresentations. I understand false statements or misrepresentations to the federal government may result in civil and/or criminal penalties under 18 U.S.C. § 1001 and § 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812.

Project teams that include representation from minority-serving institutions, entities located in a disadvantaged community,⁷ and/or entities representing the interests of disadvantaged communities are encouraged to apply. The Judge may consider the inclusion of these types of entities as part of the selection decision (see [Section A.13 Program Policy Factors](#) for additional details).

Statement of Intent/Initial Eligibility

- A single competitor may submit only one statement of intent. See [Section 1.3](#) and [Appendix B](#) for a complete list of eligible technology components. Competitors must include the technology component in which they are interested in their statement of intent.
- Competitors must be U.S. persons (citizens or resident aliens) or entities incorporated in the United States and maintain a primary place of business in the United States. The Prize Administrator and DOE will review statements of intent for eligibility based on the list of allowable technology components and the type of entity submitting the statement of intent.

⁵ A foreign government-sponsored talent recruitment program is defined as an effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at U.S. research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to U.S. entities. Compensation could take many forms, including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

⁶ DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

⁷ Disadvantaged communities are defined according to the White House Climate and Economic Justice Screening Tool: <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>.

Phase 1: Scope Eligibility

- Competitors must be an entity that submitted a statement of intent deemed eligible by DOE.
- If an individual was indicated as the lead in the statement of intent, the individual must designate a private entity, consortium, or nonfederal government entity as the lead organization in Phase 1: Scope submission to be considered eligible.
- The lead organization can be modified between submission of the statement of intent and submission of Phase 1: Scope; however, the competitor who submitted the statement of intent must be represented on the team in some way, and the relationship between them must be clearly defined in the submission materials.

Phase 2: Shovel-Ready Eligibility

- Only winners of Phase 1: Scope are eligible to compete in Phase 2: Shovel-Ready.
- The project must remain substantially the same between Phase 1: Scope and Phase 2: Shovel-Ready.

Please read and comply with the additional requirements in [Appendix A](#).

COMPETITORS WHO DO NOT COMPLY WITH THESE REQUIREMENTS MAY BE DISQUALIFIED.

2 Background

2.1 Prize Background and Objectives

DOE's Technology Commercialization Fund (TCF), administered by the Office of Technology Transitions (OTT), was established by U.S. Congress through the Energy Policy Act of 2005 (EPAAct 2005)⁸ and reauthorized by the Energy Act of 2020 (EA 2020) to "promote promising energy technologies for commercial purposes."⁹ TCF is a primary component of DOE's ongoing effort to commercialize cutting-edge energy technologies.¹⁰

In November 2021, U.S. Congress passed into law the Infrastructure Investment and Jobs Act,¹¹ more commonly known as the Bipartisan Infrastructure Law (BIL). The BIL appropriates more than \$62 billion to DOE.¹² Under the BIL Technology Commercialization Fund, DOE pursues activities that broadly support the commercialization of promising energy technologies while simultaneously enhancing and improving American infrastructure, competitiveness, opportunity, and equity and addressing the climate crisis. Working collaboratively across relevant program offices, OTT seeks to cultivate a broader innovation network around the BIL provision activities to enable faster replication and scaling of demonstration projects.

The energy sector will evolve at an accelerated pace in the coming decades to reflect increasing demand for clean energy, in line with domestic and global climate goals. This creates an opportunity to invest in the domestic manufacturing base and strengthen our energy supply chains. Resilient, secure, and diverse supply chains and domestic manufacturing capabilities promote security and will be critical to maximizing the benefits of the energy transition and providing economic opportunity for all Americans.¹³ Previous DOE work and stakeholder engagement, including the Pathways to Commercial Liftoff¹⁴ and "America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition,"¹⁵ have identified several supply weaknesses and components whose manufacture presents risks or barriers to large-scale demonstration.

In July 2023, OTT, in partnership with the Offices of Clean Energy Demonstrations (OCED) and Energy Efficiency and Renewable Energy (EERE), launched the MAKE IT Prize to catalyze domestic manufacturing to enable replication and commercial liftoff of clean energy demonstration projects, moving manufacturing facilities of critical clean energy technology components from planning to shovel-ready and enabling communities to prepare strategies for vibrant manufacturing activity in their areas. This official rules document is a second iteration of the Facilities Track of that prize competition and includes a new list of eligible components.

⁸ Energy Policy Act of 2005, Public Law 109-58, 109th Cong. (August 8, 2005), Improved Technology Transfer of Energy Technologies, 42 U.S. Code § 16391 (a).

⁹ Consolidated Appropriations Act, 2021, Public Law 116-260, 116th Cong. (December 27, 2020), 134 Stat. 2597, § 9003. <https://www.congress.gov/116/plaws/publ260/PLAW-116publ260.pdf>.

¹⁰ Learn more about the TCF at <https://www.energy.gov/technologytransitions/technology-commercialization-fund>.

¹¹ Infrastructure Investment and Jobs Act, Public Law 117-58 (November 15, 2021).

¹² Learn more about the BIL and DOE: U.S. Department of Energy. 2021. "DOE Fact Sheet: The Bipartisan Infrastructure Deal Will Deliver for American Workers, Families and Usher in the Clean Energy Future." <https://www.energy.gov/articles/doe-fact-sheet-bipartisan-infrastructure-deal-will-deliver-american-workers-families-and-0>.

¹³ The White House. 2021. "Executive Order on America's Supply Chains." <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/02/24/executive-order-on-americas-supply-chains/>.

¹⁴ <https://liftoff.energy.gov>.

¹⁵ U.S. Department of Energy. 2022. "Securing America's Clean Energy Supply Chain." <https://www.energy.gov/policy/securing-americas-clean-energy-supply-chain>.

Activities rewarded under this prize will support the creation of quality jobs and the inclusion of underrepresented¹⁶ communities, and will work to ensure that at least 40% of the overall benefits of federal investments in climate and clean energy reach disadvantaged communities.¹⁷

2.2 Competitor Support—American-Made Network

The American-Made Network cultivates resources and builds connections that enhance, accelerate, and amplify competitors' efforts. The objective is to link participants with the people, resources, financing, perspectives, and industry expertise necessary for long-term success.

The network comprises the following elements:

- **Prize and Network Administrator (NREL):** DOE has partnered with the National Renewable Energy Laboratory (NREL) to administer the American-Made Challenges. NREL, as the administrator, helps competitors locate and leverage the vast array of national laboratory resources. NREL also connects elements of the network with the competitors, as described in this section.
- **Power Connectors:** [Power Connectors](#) are network members who play a substantial role in the competition and receive funds to expand and amplify DOE and NREL's efforts. Through the MAKE IT Prize, Power Connectors may support the prize and competitors. These organizations are contracted to perform a variety of tasks for specific prizes that advance program successes, extending the reach and improving the diversity and inclusivity of the network overall.

Competitors are encouraged to form multidisciplinary teams while developing their concept. The [HeroX](#) platform provides a space where parties interested in collaborating can post information about themselves and learn about others who are also interested in competing in this contest. The Prize Administrator will also support additional teaming events and opportunities, directly and/or through the American-Made Network. Follow the [HeroX](#) platform for more information about teaming events and opportunities.

¹⁶ "Underrepresented" refers to populations, as well as geographic communities, sharing a particular characteristic that are shown to have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by communities that have been denied fair, just, and impartial treatment, which may include women; persons with disabilities; persons who live in rural areas; persons otherwise adversely affected by persistent poverty or inequality; veterans; members of religious minorities; Black, Latino, Indigenous, and Native American persons; Asian Americans and Pacific Islanders; other persons of color; and lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons.

¹⁷ The White House. 2021. "The Path to Achieving Justice40." <https://www.whitehouse.gov/omb/briefing-room/2021/07/20/the-path-to-achieving-justice40/>.

3 Statement of Intent to Compete

3.1 Goal

The goal of the statement of intent is to determine whether proposed submissions are eligible to compete in this prize. There are no cash awards associated with the statement of intent.

3.2 How to Enter

Go to [HeroX](#) and follow the instructions to register and submit all required materials before the deadline.

3.3 Important Dates

Refer to the timeline on [HeroX](#) for relevant dates and deadlines.

3.4 Process Overview

The submission of a statement of intent consists of the following steps:

1. **Submission:** Competitors determine they are working to develop a domestic manufacturing facility for an eligible technology component. Competitors complete their statement and submit on HeroX before the deadline.
2. **Eligibility Assessment:** The Prize Administrator and DOE screen submissions for completion and eligibility as well as alignment with program and/or prize mission/objectives.
3. **Notification:** The Prize Administrator will notify competitors who submitted a statement of intent as to whether their statement was deemed eligible to compete for this prize.

3.5 What to Submit

A complete submission package for statement of intent should include the following items:

- Statement of intent document
- Summary slide.

3.5.1 Statement of Intent Document

The statement of intent document should be no longer than 1 page and include the following items:

- Project title and team name
- Submitter information and contact information (name of the submitter and, if applicable, name of additional team members and/or company/organization associated with the submission)
- Submitter city, state, and nine-digit zip code
- Key project members (names, contacts, organization/affiliation, and links to their professional online profiles)
- A one- to two-sentence description of the component to be manufactured
- A clear explanation of how the identified technology component relates to an eligible technology/component on the list in [Appendix B](#)
- A clear explanation of the relationship between the proposed manufacturing facility and the identified technology

- One- to two-paragraph description of the facility/project/team’s status. This includes any permits applied for or secured to date (including relevant dates); any engineering, procurement, and construction contracts in process or signed (including date of contract); and the status of any pending or secured funding for the facility construction (including dates).

An optional template¹⁸ is available for statement of intent submission in [HeroX](#).

3.5.2 Summary Slide

Submit a single slide summarizing the project. The slide should identify the submitter’s organization, key team members, and the technology component to be manufactured. There is no template, so competitors are free to present the information in any format. Any text must be readable in a standard printed page and a conference room projection and should be in at least 14-point font.

3.6 Notification of Eligibility

Approximately 30 days after the deadline, the Prize Administrator will let competitors know whether they are deemed eligible to compete in Phase 1: Scope.

¹⁸ To assist teams, DOE is providing an elective template to illustrate the types of information needed to evaluate whether teams meet requirements. Teams are not required to use this template and may submit using any form or format of their choosing. All submissions should address the substantive measures outlined in the template outline and described in this rules document.

4 Phase 1: Scope

4.1 Goal

Competitors who were deemed eligible to participate in the Phase 1: Scope will demonstrate that they have a credible plan to establish a manufacturing facility.

4.2 Prizes

Approximately 19 winners of \$500,000 each will be awarded.¹

4.3 How to Enter

Go to [HeroX](#) and follow the instructions to register and submit all required materials before the phase deadline.

4.4 Important Dates

Refer to the timeline on [HeroX](#) for relevant dates and deadlines.

4.5 Phase 1: Scope Process Overview

Phase 1: Scope consists of the following steps:

- 1. Submission:** Competitors develop a credible plan to establish a manufacturing facility for their identified clean energy technology, complete their submission packages, and submit online before the phase closes.
- 2. Assessment:** The Prize Administrator screens submissions for eligibility and completion and assigns subject matter expert reviewers to independently score the content of each submission. Submissions are assessed based on the review criteria listed in [Section 4.7](#). The prize Judge will review the scores and other relevant materials and determine the winners.
- 3. Announcement:** After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute the cash prizes. After winning Phase 1: Scope, competitors develop their solutions in accordance with their plan and are eligible to compete in Phase 2: Shovel-Ready.

4.6 What to Submit

A complete submission package for the Phase 1: Scope should include the following items:

- Cover page
- Summary slide (will be made public)
- Narrative document:
 - Technology validation
 - Business validation
 - Management capability and key staff
 - List of potential site(s) being considered for construction
- Permitting and environmental plan
- Working financial model and identification of resources
- Community and labor engagement plan
- Supporting documentation (optional).

4.6.1 Cover Page

List the basic information about your submission, including:

- Project title
- Team name
- Name, city, state, and nine-digit zip code of the competitor and proposed facility location(s)
- Key project members (names, contacts, links to their professional online profiles)
- Other partners (if any), including names, role, description, and locations, including nine-digit zip code
- Technology component the competitor intends to manufacture (must be included in the list of eligible components for this prize—see [Appendix B](#))
- One- to two-paragraph description of the facility/project/team's status. This includes any permits applied for or secured to date (including relevant dates); any engineering, procurement, and construction contracts in process or signed (including date of contract); and the status of any pending or secured funding for the facility construction (including dates).

4.6.2 Summary Slide (Will Be Made Public)

Make a public-facing, one-slide submission summary that introduces your team and your project, including the technology component to be manufactured and key details about the planned facility. There is no template, so competitors are free to present the information in any format. Any text must be readable in a standard printed page and a conference room projection and should be in at least 14-point font.

4.6.3 Statement of Intent

Competitors should resubmit their original statement of intent document (see [Section 3.5.1](#)), without updates or modifications.

4.6.4 Narrative Document

Submissions should discuss all the topics listed in this section. There is no word limit for the discussion related to each topic; however, **the aggregate document must not exceed 3,000 words**, excluding captions, figures/graphs, or references. A word count must be included at the end of your submission ([see template for details](#)).¹⁹ You may also include **up to five supporting images, figures, charts, tables, or graphs**. Suggested content for the narrative document is below.

¹⁹ To assist teams, DOE is providing an elective template to illustrate the types of information needed to evaluate whether teams meet minimum requirements in the associated critical success factors. Teams are not required to use this template and may submit using any form or format of their choosing. All submissions should address the substantive measures detailed in the template outline and described in this rules document.

Narrative Document

Maximum 3,000 words and five supporting images or figures (PDF)

Technology Validation

- Describe the technology component intended to be manufactured at scale and how it fits the overall needs of the clean energy industry infrastructure.
- Briefly discuss the current supply chain for the relevant technology or technologies. Clearly describe the relationship of the component to be manufactured to existing supply chain needs. For components in the industrial decarbonization sector: please note the end product and technology the component enables, the estimated emissions reduction the use of that technology will lead to, and the prevailing alternatives in use for that sector.
- Discuss any pilot or demonstration plant data supporting the manufacturing readiness of the component for manufacturing at scale. Clearly describe the scale at which the competitor has previously manufactured or is currently manufacturing the component.
- Describe any project-specific engineering report prepared/under development. Reports must be related to the specific technology being proposed to be manufactured in the planned facility. Reports related to general technology are not of interest.
- Demonstrate having secured/having the ability to secure any industry-relevant certifications needed to sell the components manufactured in the proposed plant in the United States.
- Describe any residual technology risks associated with this technology component and how to mitigate them.
- Demonstrate possession of the intellectual property (IP) rights necessary to manufacture and sell the proposed component.
- Describe the component's planned supply chain, highlighting potential challenges and vulnerabilities among primary, secondary, and tertiary supply needs and to what degree these have the potential to be based in the United States. Synergies with existing or announced facilities in the United States should be described and leveraged.

Business Validation

- Describe the technology advantage over existing competing technologies in the U.S. commercial marketplace today (if any) and its potential impact on overall cost and greenhouse gas emissions avoidance or reduction.
- Describe the potential market size and opportunity for the component being manufactured.
- Provide information on market and competition, including data to substantiate any claims. Useful information for consideration includes average selling prices, segmentation (to the extent it exists), and both historical and forward-looking market trends.
- Demonstrate that the facility will be able to manufacture the specific component while being cost-competitive in the market. Clarify the reasons for the business claims (technology advantage, cost advantage, impact of potential tax/regulatory incentives, etc.). Discuss opportunities for further cost reductions as the manufacturing effort scales up.
- Provide information on (potential or already signed) feedstock, and offtake agreements supporting revenue and cost projections.

- Describe customers (potential or confirmed), including anticipated number of customers or orders within 2 years of beginning operations, within 5 years of beginning operations, and maximum potential output at the scale proposed.
- Demonstrate a path for the proposed capability to remain in the United States.

Management Capability and Key Staff

- Describe the project team, including partners and experience or capabilities in clean energy manufacturing, equitable community development, and/or community and labor engagement.
- Describe management's experience, history, and organizational structure, as well as roles and responsibilities.
- Describe how the experience and skills of key employees will uniquely contribute to the success of the proposed construction plan. Include a description of the competitor's experience in and commitment to domestic manufacturing.
- Describe the project team's commitment to diversity, equity, inclusion, and accessibility (DEIA) both within the project team and in the communities in which projects are expected to be located.
- Describe the financial relationship of the lead competitor to the major project partners, including any foreign-owned entities. Include a breakdown of how all necessary funds are being contributed to ensure completion of the project.

Project Status

- Describe the project's status to date, including explanation of progress since Statement of Intent submission.
- Describe any potential or signed construction or equipment contracts, including relevant dates.
- Describe funding applied for/requested (government or private) for this project, status, and date of application.
- Describe the expected groundbreaking date and anticipated timeline for completion of and beginning operations.

Potential Site(s) Being Considered for Construction

- List potential site(s) for the future clean energy manufacturing facility, including address(es) that include nine-digit zip codes.
- Provide a description of each proposed site, including, if applicable, whether and how the proposal will repurpose shuttered facilities, reequip current production lines to produce emerging clean energy technologies, and/or whether facilities will be sited in brownfields (along with a brief description).
- As applicable, describe any strategies for reducing the lifetime greenhouse gas emissions and carbon intensity of the planned facility and any plans for implementation.
- Describe whether the proposed site(s) will positively and/or negatively impact disadvantaged communities.²⁰

²⁰ Competitors may use the Climate and Economic Justice Screening Tool (<https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>) to identify disadvantaged communities.

4.6.5 Permitting and Environmental Plan

Competitors should fully account for fulfilling permitting and environmental review requirements. Acquiring the various local, state, and federal permits that may be needed to implement a project is often a time-consuming process. As part of the Phase 1: Scope submission, competitors may use the [provided template²¹](#) to show a full understanding of all the permits to be obtained to begin construction in each potential site(s) being considered, a full understanding of the authorities having jurisdiction for each permit, and an expected timeline to secure required permits. Competitors should include the application dates for any pending or already secured permits.

4.6.6 Working Financial Model and Identification of Resources

A working financial model, a budget for construction, and the identification of necessary resources (including resources to fully implement the community and labor engagement plan) are necessary steps to evaluate and validate the prospects for the profitability of a construction project. DOE does not expect competitors to have a final financial model at this stage; however, DOE expects competitors to have developed a credible working financial model that can be used to assess the competitor's plan and ability to execute the planned construction effort. DOE expects the construction budget to be at an AACE International cost estimate maturity²² of at least Class 4—that is, meeting the following criteria:

- Maturity level of project definition: at least 15%
- Cost estimates adequate for a typical feasibility study
- Cost estimates factoring equipment costs and using parametric models
- Expected range of accuracy: -15% to +30%.

Suggested content for the working financial model is included below.

Working Financial Model
<p>The financial model should be provided in an MS Excel file that allows reviewers to access the model, test a range of assumptions, and understand the process through which the model is expected to achieve its results. The submission should provide a thorough explanation of the assumptions underlying the model, such as average production, costs, and selling prices as appropriate. The financial model should contain all relevant elements, including:</p> <ul style="list-style-type: none">• Construction budget: total project cost estimate that covers the entirety of the project, including construction, capital, labor, contingency, insurance, and financing costs.• Plan for how the project will be financed, including sources and uses of funding.• List of public grant programs and/or private financial institutions that will be contacted to secure the necessary funding for construction.• Reserve accounts for future expenses (e.g., major maintenance, decommissioning).• Balance sheet, income statement, and cash flows.

²¹ To assist teams, DOE is providing an elective template to illustrate the types of information needed to evaluate whether teams meet minimum requirements in the associated critical success factors. Teams are not required to use this template and may submit using any form or format of their choosing. All submissions should address the substantive measures outlined in the template outline and described in this Rules document.

²² <https://library.aacei.org/pgd01/pgd01.shtml>.

- Forward-looking financial projections for a period of 5 years, including expected revenue; cost of goods sold (COGS); earnings before interest, tax, depreciation and amortization (EBITDA); and net income.
- Sales pipeline with list of potential customers, stage of engagement, expected sale amount, and likelihood of sale.
- If applicable, discussion of the strategy for the monetization of state and federal tax incentives. Possible strategies could include a sales agreement for renewable energy certificates or the participation of an equity provider with the tax capacity to make use of tax incentives.

Identification of Resources

- Identify and account for all the necessary resources for a project to become fully operational, including capital goods, raw materials, operation-and-maintenance requirements, decommissioning, and resources to develop and realize a community and labor engagement plan.

4.6.7 Community and Labor Engagement Plan

Competitors should provide a narrative that describes their approach to community and labor engagement and outlines a clear plan for how they will work with their local community and labor interests to ensure project alignment with community priorities and equitable distribution of outcomes (both positive and negative). The community and labor engagement plan should not exceed 2,500 words in length and may include up to five images or figures. Suggested content for the community and labor engagement plan is included below.

Community and Labor Engagement Plan Maximum 2,500 words and five supporting images or figures (PDF)

The community and labor engagement plan will help align project impacts, plans, and decisions with community and labor priorities, needs, and concerns. The plan should contain a description of the following:

- Proposed elements and execution plan for the community and labor engagement plan, including how engagement will impact project decisions and planning.
- Potential benefits and negative impacts to communities that could result from the project.
- Steps the competitor will take to mitigate negative outcomes, maximize positive outcomes, and ensure the equitable distribution of impacts.
- Metrics and measures the competitor will use to assess progress and outcomes and ensure accountability to impacted communities. Wherever possible, metrics and measures should be specific, measurable, achievable, relevant, and timely.
- DEIA goals and implementation strategies.
- Plans to promote economic opportunity around clean energy manufacturing, particularly within disadvantaged communities, including through workforce development and apprenticeship programs and opportunities for career advancement for underrepresented groups. The competitor should describe their commitment to Good Jobs Principles.²³
- Any assessment of potential impacts of the facility on the community (e.g., Health Impact Assessment, potential traffic impacts) planned or conducted.

²³ U.S. Department of Labor. "The Good Jobs Initiative." <https://www.dol.gov/general/good-jobs/principles>.

4.6.8 Supporting Documentation (Optional)

Competitors may attach a **maximum of 20 pages** (in a single PDF file) of supporting documentation that demonstrates a likelihood of ultimately establishing a domestic clean energy manufacturing facility. These may include (but are not limited to) one-page letters of support from local authorities; one-page letters of intent from potential location(s); one-page letters of support from partners, including those representing the impacted communities, planned clients or customers, etc.

4.7 Phase 1: Scope Assessment

The Prize Administrator screens all completed submissions and ensures that the teams are eligible. The Prize Administrator, in consultation with DOE, then assigns subject-matter-expert reviewers, who independently score the content of each submission. The reviewers will include federal and nonfederal subject-matter experts with expertise in areas relevant to the competition. They will review the competitor's submission package according to the following criteria. Each criterion will be assessed according to the statements listed within that criterion.

Criterion 1 (weight: 30%)—Manufacturing Readiness and Market Viability

The competitor has demonstrated:

- The technology component they intend to manufacture has a high readiness level²⁴ and described the domestic and international market opportunity.
- Strategies to retire any residual technology and address remaining adoption risks.
- The proposed technology has the potential to significantly enhance the domestic supply chain for this industry. The competitor has clearly described how the technology component addresses a critical gap/need in the domestic clean energy supply chain.
- Credible evidence of interest from a robust pipeline of customers (potential and/or actual).
- The component has a significant advantage over existing competing technologies in the commercial marketplace today.
- Winning the prize will have a significant impact on the project (e.g., that prize funds are likely to spur additional investment, inform key project decisions, etc.).

Criterion 2 (weight: 30%)—Project Management and Execution Strategy

The competitor has:

- Clearly identified an execution plan with a credible timeline. The execution plan should include the time and resources needed to finalize the project plan, obtain the necessary permits, secure financing, start construction, start operations, and become revenue positive.
- Shown clear support and commitment from the main decision makers within all partner organizations.
- Demonstrated previous relevant experience in developing manufacturing facilities or other infrastructure of similar size and with similar objectives.
- Demonstrated a history of manufacturing with a focus on domestic economic development or other evidence of credibility toward success of the plan to be implemented.
- Demonstrated the team's safety performance history.

Criterion 3 (weight: 20%)—Community and Labor Engagement Plan:

The competitor has:

²⁴ To learn more, visit <https://www.energy.gov/technologytransitions/adoption-readiness-levels-arl-framework>.

- Outlined a clear and robust plan to meaningfully engage local stakeholders (including community-based organizations, organizations that support or work with disadvantaged communities, and labor unions) and any impacted Tribes or Tribal entities in a manner that can impact project decisions, such as project site selection.
- Demonstrated they have the necessary resources or will obtain the necessary expertise to identify the communities or groups that could experience impacts from the project during construction, operation, and decommissioning and describes anticipated project impacts, including direct and indirect benefits and negative impacts.
- Demonstrated the support and partnership of community, labor, and/or Tribal stakeholders. The competitor has experience with community and labor engagement, as well as equitable and just development.
- Identified whether any potentially impacted communities are considered disadvantaged communities and describes how the project impacts could interact with existing burdens.²²
- Meaningfully addressed at least one of DOE’s eight policy priorities for Justice40 Initiative implementation.²⁵
- Included specific and high-quality actions to meet DEIA goals,²⁶ including but not limited to DEIA recruitment and hiring procedures; supplier diversity plans; partnership(s) with underrepresented²⁷ businesses, educational institutions, and training organizations that serve workers who face barriers to accessing good jobs; and other DEIA initiatives.
- Proposed a plan to reduce or eliminate waste production and mitigate any potential environmental impacts of the facility and its output.
- Demonstrated a commitment to and plan to align with Good Jobs Principles.

Criterion 4 (weight: 10%)—Project Financials

The competitor has:

- Demonstrated the proposed manufacturing facility would generate significant economic activity in the selected region. Economic activity is measured through a variety of metrics, including but not limited to number of good jobs created during construction and during operations (both temporary and permanent jobs); expected revenue from steady-state operations of the facility; and annual production or recycling capacity supported by the facility (units or mass per day). Economic activity also includes direct and indirect economic benefits generated in the surrounding community, such as

²⁵ DOE’s eight policy priorities to guide implementation of Justice40 are (1) decrease energy burden in disadvantaged communities (DACs); (2) decrease environmental exposure and burdens for DACs; (3) increase parity in clean energy technology access and adoption in DACs; (4) increase access to low-cost capital in DACs; (5) increase clean energy enterprise creation and contracting Minority Business Enterprise/Disadvantaged Business Enterprise (MBE/DBE) in DACs; (6) increase clean energy jobs, job pipeline, and job training for individuals from DACs; (7) increase energy resiliency in DACs; (8) increase energy democracy in DACs.

²⁶ According to the Executive Order on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce (EO 14035), **diversity** means the practice of including the many communities, identities, races, ethnicities, backgrounds, abilities, cultures, and beliefs of the American people, including underserved communities; **equity** means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment; **inclusion** means the recognition, appreciation, and use of the talents and skills of employees of all backgrounds; and **accessibility** means the design, construction, development, and maintenance of facilities, information and communication technology, programs, and services so that all people, including people with disabilities, can fully and independently use them.

²⁷ “Underrepresented” refers to populations sharing a particular characteristic, as well as geographic communities shown to have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by communities that have been denied fair, just, and impartial treatment, which may include women; persons with disabilities; persons who live in rural areas; persons otherwise adversely affected by persistent poverty or inequality; veterans; members of religious minorities; Black, Latino, Indigenous, and Native American persons; Asian Americans and Pacific Islanders; other persons of color; and lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons.

clean energy enterprise creation, contracting with minority business enterprises, and workforce development and training.

- Specified and proposed a credible plan for tracking and reporting the metrics to measure economic activity, including plans to track the distribution of economic benefits, particularly to disadvantaged communities.
- Developed an accurate and credible cost model consistent with at least a Class 4 Association for the Advancement of Cost Engineering (AACE) International cost estimate accuracy. The competitor has identified a short list of potential sites and conducted a rigorous preliminary vetting process to assess the pros and cons of each (including impacts to nearby communities and level of community support or concern).
- Submitted a comprehensive permitting plan for each proposed site, including identifying the authorities having jurisdiction to issue each permit or authorization and the expected timeline to obtain permits and authorizations.

Criterion 5 (weight: 10%)—Siting and Permitting:

The competitor has:

- Identified a short list of potential sites and conducted a rigorous preliminary vetting process to assess the pros and cons of each (including impacts to nearby communities and level of community support or concern).
- Submitted a comprehensive permitting plan for each proposed site, including identifying the authorities having jurisdiction to issue each permit or authorization and the expected timeline to obtain permits and authorizations.

As part of the Phase 1: Scope assessment, reviewers will assess the potential impact of the overall facility to address one or more significant barriers to full commercial liftoff of the relevant clean energy industry with domestically sourced components and/or materials. Reviewers will also assess the competitor's progress during the competition period.

Reviewers' scores and comments, assessment of impact of the project on commercial liftoff of the technology, and the degree of progress made during the competitor will inform the Judge's decisions on prize awards.

4.8 Interviews

DOE may decide to interview a subset of competitors. The interviews would be held prior to the announcement of the winners and would serve to help answer questions the reviewers may have. Participating in interviews is not required, and interviews are not an indication of a competitor's likelihood of winning.

4.9 Final Determination

DOE will designate a federal employee as the Judge before the final determination of the winners. The final determination of the winners by the Judge will consider the submission materials, the reviewers' feedback and scores, the application of the program policy factors, and the interview findings (if applicable).

4.10 Announcement

Approximately 60 days after the contest closes, the Prize Administrator will notify the winners and request the necessary information to distribute the prizes. The Prize Administrator will then publicly announce the winners.

4.11 Additional Terms and Conditions

See [Appendix A](#) and [Appendix B](#) for additional requirements.

COMPETITORS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN APPENDIX A AND APPENDIX B MAY BE DISQUALIFIED.

5 Phase 2: Shovel-Ready

5.1 Goal

Competitors demonstrate that they are “shovel ready” to build or repurpose a manufacturing facility, including control of a site, permits obtained, financing secured, and proof of meaningful local community and labor engagement.

5.2 Prizes

Approximately five winners will receive \$4.5 million each.

5.3 How to Enter

Competitors should go to [HeroX](#) and follow the instructions to register and submit all required materials before the phase deadline.

5.4 Important Dates

Refer to the timeline on [HeroX](#) for relevant dates and deadlines. There are three different Phase 2: Shovel-Ready submission deadlines. Prizes will be awarded on a first-come, first-served basis, so once five awards are made, Phase 2: Shovel-Ready will close, even if that happens before all submission deadlines occur. Teams may enter updated submissions if they are unsuccessful in previous submission periods, but they are strongly encouraged to submit only after all components of the final submission are complete and construction of the proposed facility is ready to proceed.

5.5 Phase 2: Shovel-Ready Process

Phase 2: Shovel-Ready consists of the following steps:

- 1. Submission:** Competitors reach the point of being “shovel ready” to start construction of their manufacturing facility. Competitors complete their submission packages and submit online before the phase closes.
- 2. Assessment:** The Prize Administrator screens submissions for eligibility and completion and assigns subject matter expert reviewers to independently score the content of each submission. Submissions are assessed based on the review criteria listed in [Section 5.7](#).
- 3. Announcement:** After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute the cash prizes.

5.6 What to Submit

A complete submission package for Phase 2: Shovel-Ready should include the following items:

- Cover page
- Summary slide, updated (may be made public)
- Narrative document
 - Business validation, updated
 - Management capability and key staff, updated
- Proof of secured site for construction
- Proof of secured permits and finalization of environmental reviews

- Working financial model and identification of resources
- Engineering, procurement, and construction contracts and integrated project schedule
- Proof of committed sources of financing
- Community benefits and labor commitment
- Cybersecurity plan
- Supporting documentation (optional).

5.6.1 Cover Page

List the basic information about your submission, including:

- Project title
- Team name
- Name, city, state, and nine-digit zip code of the competitor
- Key project members (names, contacts, links to their professional online profiles)
- Other partners (if any), including names, role, and locations, including nine-digit zip code
- One- to two-paragraph description of the facility/project/team's status. This includes any permits applied for or secured to date (including relevant dates); any engineering, procurement, and construction contracts in process or signed (including date of contract); and the status of any pending or secured funding for the facility construction (including dates).

5.6.2 Summary Slide, Updated (Will Be Made Public)

Make a public-facing, one-slide submission summary that introduces your team and your project, including the technology component to be manufactured, updated details about the planned facility, and anticipated project outcomes. There is no template, so competitors are free to present the information in any format. Any text must be readable in a standard printed page and a conference room projection and should be in at least 14-point font.

5.6.3 Statement of Intent

Competitors should resubmit their original statement of intent document (see [Section 3.5.1](#)), without updates or modification.

5.6.4 Narrative Document

You should discuss all the topics listed in this section. There is no word limit for the discussion related to each topic; however, **the aggregate document must not exceed 2,000 words**, excluding captions, figures/graphs, or references. A word count must be included at the end of your submission ([see template²⁸ for details](#)). You may also include **up to five supporting images, figures, charts, tables, or graphs**. Suggested content for the narrative document is included in the following box.

²⁸ To assist teams, DOE is providing an elective template to illustrate the types of information needed to evaluate whether teams meet minimum requirements in the associated critical success factors. Teams are not required to use this template and may submit using any form or format of their choosing. All submissions should address the substantive measures outlined in the template outline and described in this rules document.

Narrative Document
Maximum 2,000 words and five supporting images or figures (PDF)

Business Validation, Updated

This section of the narrative document should include:

- Updated information on the potential market size and opportunity for the component being manufactured.
- For components in the industrial decarbonization sector: any updated information about the end product and technology the component enables, the resulting estimated emissions reduction from the use of that technology, and prevailing alternatives in use for that sector.
- Updated information on the market and competition, including data to substantiate any claims. Useful information for such consideration includes average selling prices, segmentation (to the extent it exists), and both historical and forward-looking market trends.
- Updated information on customers, including anticipated number of customers or orders within 2 to 5 years of beginning operations.
- Demonstrated proof that the facility will be able to manufacture the specific component while being cost competitive in the market. Clarify the reasons for the business claims (e.g., technology advantage, cost advantage, impact of potential tax/regulatory incentives, etc.). Discuss opportunities for further cost reductions as the manufacturing effort scales up.
- Updated information about the component’s planned supply chain and potential challenges. Provide information about (potential or already signed) supply and offtake agreements supporting revenue and cost projections.
- Demonstrated path for the proposed capability to remain in the United States.

Management Capability and Key Staff, Updated

This section of the narrative document should include descriptions of:

- The project team, including partners and experience or capabilities in clean energy manufacturing, equitable community development, and/or community and labor engagement.
- Management’s experience, history, and organizational structure, as well as roles and responsibilities.
- The type and nature of any financial relationship, technology partnership, or any type of partnership of the prime recipient to the major project partners, including any foreign-owned entities.
- How the experience and skills of key employees will uniquely contribute to the success of the proposed construction plan. Include a description of the competitor’s experience in and commitment to domestic manufacturing.
- The project team’s commitment to DEIA both within the project team and in the community in which the projects are expected to be located.

5.6.5 Proof of Secured Site for Construction

Competitors demonstrate proof of legal control of the site selected for construction (ownership or rental) and submit a plot plan showing the complete layout of the entire facility, submitted to HeroX in PDF, PNG, or JPEG format.

5.6.6 Proof of Secured Permits and Finalization of Environmental Reviews

Competitors should fully account for fulfilling permitting and environmental review requirements. As part of Phase 2: Shovel-Ready submission, competitors demonstrate that they have secured all the necessary permits to begin construction at the selected site. In addition, competitors may be asked to complete a National Environmental Policy Act form (see [Section A.14](#) for additional information).

5.6.7 Working Financial Model and Identification of Resources

A working financial model, a budget for construction, and the identification of necessary resources are necessary steps to evaluate and validate the prospects for the profitability of a construction project. As part of Phase 2: Shovel-Ready submission, DOE expects competitors to have developed a credible working financial model that can be used to assess the competitor's plan and ability to execute the planned construction effort. DOE expects the construction budget to be at an ACE International cost estimate maturity²⁹ of at least Class 2—that is, meeting the following criteria:

- Maturity level of project definition: at least 75%
- Cost estimates adequate for a bid or tender
- Cost estimates factoring detailed unit cost with forced detailed take-off
- Expected range of accuracy: -5% to +20%.

Suggested content for the working financial model is provided below:

Working Financial Model
<p>The financial model should be provided in MS Excel and have a structure that allows reviewers to access the model, test a range of assumptions, and understand the process through which the model is expected to achieve its results. Competitors should provide a thorough explanation of the assumptions underlying the model, such as average production, costs, and selling prices as appropriate. The financial model should include all relevant elements, including:</p> <ul style="list-style-type: none">• Construction budget: total project cost estimate that covers the entirety of the project, including preconstruction, site preparation, construction, site work, equipment, capital, labor, contingency, insurance, and financing costs. Competitors should provide detailed cost estimates based on quotes, bids, or tenders.• Plan for how the project will be financed, including sources and uses of funding.• List of public grant programs and/or private financial institutions providing the necessary funding for construction.• Reserve accounts for future expenses (e.g., major maintenance, decommissioning).• A balance sheet, income statement, and statement of cash flows.• Forward-looking financial projections for a period of at least 5 years, including a detailed breakdown of expected revenue, expenses, EBITDA, and net income.• Sales pipeline with list of potential customers, stage of engagement, expected sale amount, and likelihood of sale.

²⁹ <https://library.aacei.org/pgd01/pgd01.shtml>.

- If applicable, discussion on the strategy for the monetization of state and federal tax incentives. Possible strategies could include sales agreements for renewable energy certificates or the participation of an equity provider with the tax capacity to make use of tax incentives.

Identification of Resources

- Identify and account for all the necessary resources for a project to become fully operational, including capital goods, raw materials, equipment, operation-and-maintenance requirements, decommissioning, and resources to realize the community benefits and labor commitments.

5.6.8 Engineering, Procurement, and Construction Contracts and Integrated Project Schedule

The competitor demonstrates they are ready to proceed with construction work by submitting engineering, procurement, and construction contracts with creditworthy firms. In addition, the competitor submits an integrated project schedule for the construction work (including expected groundbreaking date and anticipated timeline for completion and beginning of operations). As part of this element of the submission package, competitors include basic layout drawings of the facility and the process flow diagram for construction, submitted as a single PDF file.

5.6.9 Sources of Financing

The competitor clearly substantiates all sources of financing secured to begin construction. The competitor demonstrates access to all funding necessary through internal funding or through a single, committed, creditworthy financing firm. Financing can be in the form of equity, debt, or public grants.

5.6.10 Community Benefits and Labor Commitment

Competitors should provide the results of the community and labor engagement they have conducted and document their community benefits and labor commitment(s), developed collaboratively with community, labor, and Tribal stakeholders to help maximize benefits, minimize burdens, and equitably distribute impacts within and across nearby communities. The Community Benefits and Labor Commitment should not exceed 3,000 words and may include up to five images or figures. Suggested content for the Community Benefits and Labor Commitment is provided below.

Community Benefits and Labor Commitment

Maximum 3,000 words and five supporting images or figures (PDF)

Competitors should include:

- A description of how the community and labor engagement plan submitted in the Phase 1: Scope was implemented, including the number of stakeholders engaged, the mechanisms and strategies for engagement, and how the results were incorporated into the project and operation plans, including a description of any negotiated or planned workforce and community agreements and how the competitor will support Good Jobs Principles.³⁰

³⁰ <https://www.dol.gov/general/good-jobs/principles>.

- Plans, strategies, and timelines for ongoing and future community and labor engagement that incorporate lessons learned from earlier engagement and continue to align project impacts, plans, and decisions with evolving community and labor priorities, needs, and concerns.
- A description of how DEIA strategies submitted in Phase 1: Scope were implemented, an assessment of progress toward DEIA goals, and plans for continued activities and commitments to support DEIA.
- A description of completed and planned actions to support worker health and safety, worker rights, and workforce training.
- A description of actions taken to date to minimize and/or mitigate potential negative outcomes, ensure or amplify potential benefits, ensure the equitable distribution of impacts, and monitor and transparently report these impacts.
- A system for tracking success and progress metrics and measures proposed in Phase 1: Scope, any metrics/measures tracked to date, and a system for incorporating lessons learned from metrics tracking into future plans.
- A description of any measurable community impact to date and anticipated community impact, including a description of how impacts are distributed (permanent jobs created, training and workforce development provided, funds injected into local economy, changes in local air and water quality, impacts on public health, etc.).

5.6.11 Cybersecurity Plan

Competitors should submit a cybersecurity plan that includes all essential elements needed to protect the security of computer networks and systems and of the entire infrastructure. **Competitors should use the [template](#)**³¹ to ensure that nothing is forgotten and that the project cybersecurity runs smoothly.

5.6.12 Supporting Documentation (Optional)

Competitors must attach supporting documentation (in a single PDF document) that demonstrates a likelihood of ultimately establishing a domestic clean energy manufacturing facility. These may include (but are not limited to) letters of support from local authorities; letters of support from partners, including from those representing the impacted community, labor unions, workforce development organizations, and clients or customers; submitted applications, and so on.

5.7 Phase 2: Shovel-Ready Assessment

The Prize Administrator screens all completed submissions and ensures that the teams are eligible. The Prize Administrator, in consultation with DOE, then assigns subject-matter-expert reviewers, who independently score the content of each submission. The reviewers will include federal and nonfederal subject-matter experts with expertise in areas relevant to the competition. They will review the competitor's submission package according to the following criteria. Each criterion will be assessed according to the statements listed within that criterion.

³¹ To assist teams, DOE is providing an elective template to illustrate the types of information needed to evaluate whether teams meet minimum requirements in the associated critical success factors. Teams are not required to use this template and may submit using any form or format of their choosing. All submissions should address the substantive measures outlined in the template outline and described in this rules document.

Criterion 1 (weight: 30%)—Project Management and Execution Plan

The competitor has:

- Finalized the timeline for the construction of the facility and developed a convincing execution plan. The execution plan should include the time and resources (including financing) needed to start construction, start operations, and become revenue positive.
- Identified major risks that could hinder the execution of their plan and delay construction of the proposed facility, including risks related to a lack of community acceptance. The competitor has identified possible risk mitigation plans.
- Identified and established formal relationships with all the project members needed to begin construction.
- Demonstrated a history of manufacturing with a focus on domestic economic development or other evidence of credibility toward success of the plan to be implemented.
- Demonstrated clear support and commitment from the main decision makers within all partner organizations.

Criterion 2 (weight: 30%)—Project Financials and Commercial Traction

The competitor has:

- Demonstrated that the proposed manufacturing facility would generate significant economic activity in the selected region. Economic activity is measured through a variety of metrics, including, but not limited to, the number of good jobs created during construction and during operations (both temporary and permanent jobs); the expected revenue from steady-state operations of the facility; and annual production or recycling capacity supported by the facility (units or mass per day). Economic activity also includes direct and indirect economic benefits generated in the surrounding community, such as clean energy enterprise creation, contracting with minority business enterprises, and workforce development and training.
- Specified and proposed a credible plan for tracking and reporting the metrics to measure economic activity, including plans to track the distribution of economic benefits, particularly to disadvantaged communities.
- Demonstrated a viable business strategy, including a credible supply chain for their materials and facilities operations and a path to secure signed contracts with customers, suppliers, and off-takers.
- Provided a detailed breakdown of estimated capital expenses (CapEx) and operating expenses (OpEx) required for the construction and ongoing management of the facility, including projected revenue, cost of goods sold, labor, insurance, and any community benefits expenditures. Revenue projections are supported by a sales pipeline with list of potential customers, stage of engagement, expected sale amount, and likelihood of sale along with any supporting documentation (signed offtake agreements, memoranda of understanding, and so on).
- Developed an accurate and credible cost model consistent with at least a Class 2 AACEI cost estimate accuracy.

Criterion 3 (weight: 20%)—Siting and Permitting

The competitor has:

- Secured access to the construction site.
- Obtained all necessary permits and approvals to start construction.
- Demonstrated an understanding of and plan to obtain all permits required to complete construction and operate the facility on an ongoing basis.

Criterion 4 (weight: 20%)—Community Benefits and Labor Commitment

The competitor has:

- Shown how they have meaningfully engaged local stakeholders (including community-based organizations, organizations that support or work with disadvantaged communities, and labor unions) and any impacted Tribes or Tribal entities, and how this engagement impacted project decisions.
- Identified and described the communities or groups that could experience impacts from the project during construction, operation, and decommissioning, has identified whether they are considered disadvantaged communities, and has described anticipated project impacts, including direct and indirect benefits and negative impacts, while also considering existing burdens.
- Provided community benefits and labor commitments and has clearly demonstrated buy-in from all relevant community, labor, and Tribal stakeholders.
- Demonstrated that the jobs supported by the proposed project will be good jobs³² and the competitor has provided a robust and credible plan to attract skilled local workers. This could include a description of plans to create legally binding and enforceable workforce and community agreements.³³
- Included specific and high-quality actions to meet DEIA goals,²⁸ including but not limited to DEIA recruitment and hiring procedures; supplier diversity plans; partnerships with underrepresented businesses, educational institutions, and training organizations that serve workers who face barriers to accessing good jobs; and other DEIA initiatives.
- Developed a plan to recruit, train, hire, support, and retain a diverse local workforce for the construction and ongoing operations of the facility. This plan supports worker organizing and the negotiation of enforceable workforce agreements.
- Provided a proposal that meaningfully addresses at least one of DOE's eight policy priorities for Justice40 Initiative implementation.

As part of the Phase 2: Shovel-Ready assessment, reviewers will assess the potential impact of the overall facility to address one or more significant barriers to full commercial liftoff of the relevant clean energy industry with domestically sourced components and/or materials. Reviewers will also assess the competitor's progress during the competition period.

Reviewers' scores and comments, assessment of impact of the project on commercial liftoff of the technology, and the degree of progress made during the competition will inform the Judge's decisions on prize awards.

5.8 Interviews/Site Visits

DOE may decide to interview or conduct a site visit with a subset of competitors. The interviews/site visits would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have. Participating in interviews is not required, and interviews are not an indication of a competitor's likelihood of winning.

³² See "What is a 'good job'?" <https://www.energy.gov/infrastructure/community-benefits-plan-faqs>. See also Good Jobs Principles (<https://www.dol.gov/general/good-jobs/principles>).

³³ The term "workforce and community agreement" includes a range of formal agreements between a project developer/owner, impacted community groups, and relevant labor unions. Workforce and community agreements are tools used in project development and/or execution to ensure that benefits promised to communities and workers are realized. This could be an agreement specifying a project's commitments to the community; it could also be a collective-bargaining agreement specifying wages, benefits, health and safety standards, workforce education and training, and other terms of employment with a labor union; or it could include both community and workforce provisions. This term as used here is inclusive of community benefits agreements, community workforce agreements, good neighbor agreements, project labor agreements, collective-bargaining agreements, and other similar contractual tools.

5.9 Final Determination

DOE will designate a federal employee as the Judge before the final determination of the winners. Final determination of the winners by the Judge will consider the reviewers' feedback and scores, the application of program policy factors, and the interview findings (if applicable).

5.10 Announcement

Approximately 60 days after the contest closes, the Prize Administrator will notify the winners and request the necessary information to distribute the prizes. The Prize Administrator will then publicly announce the winners.

5.11 Additional Terms and Conditions

See [Appendix A](#) and [Appendix B](#) for additional requirements.

COMPETITORS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN APPENDIX A AND APPENDIX B MAY BE DISQUALIFIED.

Appendix A: Additional Terms and Conditions

A.1 Requirements

Your submission for the prize is subject to the following terms and conditions:

- You must post the final content of your submission or upload the submission form online by 5 p.m. ET on the prize deadline date, before the prize's phase submission period closes. Late submissions or any other form of submission may be rejected.
- You must include all the required elements in your submission. The Prize Administrator may disqualify your submission after an initial screening if you fail to provide all required submission elements. Competitors may be given an opportunity to rectify submission errors due to technical challenges.
- Your submission must be in English and in a format readable by Microsoft Word or Adobe PDF. Scanned handwritten submissions will be disqualified.
- Submissions will be disqualified if they contain any matter that, in the sole discretion of the U.S. Department of Energy (DOE) or the National Renewable Energy Laboratory (NREL), is indecent, obscene, defamatory, libelous, and/or lacking in professionalism, or demonstrates a lack of respect for people or life on this planet.
- If you click "Accept" on the HeroX platform and proceed to register for any of the prizes described in this document, these rules will form a valid and binding agreement between you and DOE and are in addition to the existing HeroX Terms of Use for all purposes relating to these contests. You should print and keep a copy of these rules. These provisions only apply to the prize described here and no other prize on the HeroX platform or anywhere else.
- The Prize Administrator, when feasible, may give competitors an opportunity to fix nonsubstantive mistakes or errors in their submission packages.
- As part of your submission to this prize, you will be required to sign the following statement:

I am providing this submission package as part of my participation in this prize. I understand that the information contained in this submission will be relied on by the federal government to determine whether to issue a prize to the named competitor. I certify under penalty of perjury that the named competitor meets the eligibility requirements for this prize competition and complies with all other rules contained in the official rules document. I further represent that the information contained in the submission is true and contains no misrepresentations. I understand false statements or misrepresentations to the federal government may result in civil and/or criminal penalties under 18 U.S.C. § 1001 and § 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812.

A.2 Verification for Payments

The Prize Administrator will verify the identity and role of all competitors before distributing any prizes. Receiving a prize payment is contingent upon fulfilling all requirements contained herein. The Prize Administrator will notify winning competitors using provided email contact information for the individual or entity that was responsible for the submission. Each competitor will be required to sign and return to the Prize Administrator, within 30 days of the date on the notice, a completed NREL Request for ACH Banking Information form and a completed W-9 form (<https://www.irs.gov/pub/irs-pdf/fw9.pdf>). In the sole discretion of the Prize Administrator, a winning competitor will be disqualified from the competition and receive no prize funds if: (i) the person/entity does not respond to notifications, (ii) the person/entity fails

to sign and return the required documentation within the required time period, (iii) the notification is returned as undeliverable, (iv) the submission or person/entity is disqualified for any other reason.

In the event of a dispute as to any registration, the authorized account holder of the email address used to register will be deemed to be the competitor. The “authorized account holder” is the natural person or legal entity assigned an email address by an internet access provider, online service provider, or other organization responsible for assigning email addresses for the domain associated with the submitted address. All competitors may be required to show proof of being the authorized account holder.

A.3 Teams and Single-Entity Awards

The Prize Administrator will award a single dollar amount to the designated primary submitter, whether consisting of a single entity or multiple entities. The primary submitter is solely responsible for allocating any prize funds among its member competitors or teammates as they deem appropriate. The Prize Administrator will not arbitrate, intervene, advise on, or resolve any matters or disputes between team members or competitors.

A.4 Treatment of Submission Materials

The elements of the submission that are designated as public will become publicly available as part of this prize. Therefore, these elements must not include trade secrets or business-sensitive, proprietary, or otherwise confidential information.

If it is necessary to share trade secrets or business-sensitive, proprietary, or otherwise confidential information, it should only be done in an element that is NOT designated as public. Any confidential, proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise.

The submission must be marked as follows and identify the specific pages containing trade secrets or confidential, proprietary, or privileged information: “Notice of Restriction on Disclosure and Use of Data: Pages [list applicable pages] of this document may contain trade secrets or confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes. [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 or 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.

DOE, the Prize Administrator, and any other third-party supporting DOE in the contest assume no liability for the public disclosure of any information in the elements designated public and for any unmarked information any element NOT designated as public.

Furthermore, by making a submission and consenting to the rules of the prize, the competitor is granting to DOE, the Prize Administrator, and any other third parties supporting DOE in the contest a license to display publicly and use the elements of the submission that are designated as public and any unmarked information in the elements of the submission that are NOT designated as public for government purposes, including posting or linking elements on websites or publicizing the submissions and competitors in the media and other announcements. The competitor is granting to DOE, the Prize Administrator, and other third parties a limited license to use or disclose any properly marked information for evaluation purposes only.

A.5 Representation and Warranties

By entering, the competitor represents and warrants that:

1. The competitor's entire submission is an original work by the competitor and the competitor has not included third-party content (such as writing, text, graphics, artwork, logos, photographs, likeness of any third party, musical recordings, clips of videos, television programs, or motion pictures) in or in connection with the submission, unless (i) otherwise requested by the Prize Administrator or disclosed by the competitor in the submission, and (ii) the competitor has acquired the necessary rights to use and to authorize others, including DOE, to use the submission, as specified throughout the rules.
2. To the best of the competitor's knowledge, the use of the submission in the prize, including any use by DOE or the Prize Administrator, does not and will not infringe upon or violate any rights of any third party or entity, including, without limitation, patent, copyright, trademark, trade secret, defamation, privacy, publicity, false light, misappropriation, intentional or negligent infliction of emotional distress, confidentiality, or any contractual or other rights.
3. All persons who were engaged by the competitor to work on the submission or who appear in the submission in any manner have:
 - a. Given the competitor their express written consent to submit the submission for exhibition and other exploitation in any manner and in any and all media, whether now existing or hereafter discovered, throughout the world;
 - b. Provided written permission to include their name, image, or pictures in or with the submission (or, if a minor who is not the competitor's child, the competitor must have the permission of the minor's parent or legal guardian) and the competitor may be asked by the Prize Administrator to provide permission in writing; and
 - c. Not been and are not currently under any union or guild agreement that results in any ongoing obligations resulting from the use, exhibition, or other exploitation of the submission.
4. The submission is free of malware.

A.6 Contest Subject to Applicable Law

All contests are subject to all applicable federal laws and regulations. Participation constitutes each participant's full and unconditional agreement to these official rules and administrative decisions, which are final and binding in all matters related to the contest. This notice is not an obligation of funds; the final award is contingent upon the availability of appropriations.

A.7 Resolution of Disputes

DOE is solely responsible for administrative decisions, which are final and binding in all matters related to the contest.

Neither DOE nor the Prize Administrator will arbitrate, intervene, advise on, or resolve any matters between team members or among competitors.

A.8 Publicity

The winners of these prizes (collectively, "winners") will be featured on DOE and NREL websites.

Except where prohibited, participation in the contest constitutes each winner's consent to DOE's and its agents' use of each winner's name, likeness, photograph, voice, opinions, and/or hometown and state information for promotional purposes through any form of media worldwide, without further permission, payment, or consideration.

A.9 Liability

Upon registration, all participants agree to assume any and all risks of injury or loss in connection with or in any way arising from participation in this contest. Upon registration, except in the case of willful misconduct, all participants agree to and, thereby, do waive and release any and all claims or causes of action against the federal government and its officers, employees, and agents for any and all injury and damage of any nature whatsoever (whether existing or thereafter arising; whether direct, indirect, or consequential; and whether foreseeable or not) arising from their participation in the contest, whether the claim or cause of action arises under contract or tort.

In accordance with the delegation of authority to run this contest delegated to the Judge responsible for this prize, the Judge has determined that no liability insurance naming DOE as an insured will be required of competitors to compete in this competition per 15 U.S.C. § 3719(i)(2). Competitors should assess the risks associated with their proposed activities and adequately insure themselves against possible losses.

A.10 Records Retention and Freedom of Information Act

All materials submitted to DOE as part of a submission become DOE records and are subject to the Freedom of Information Act. The following applies only to portions of the submission not designated as public information in the instructions for submission. If a submission includes trade secrets or information that is commercial or financial, or information that is confidential or privileged, it is furnished to the government in confidence with the understanding that the information shall be used or disclosed only for evaluation of the application. Such information will be withheld from public disclosure to the extent permitted by law, including the Freedom of Information Act. Without assuming any liability for inadvertent disclosure, DOE will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for review of the application or as otherwise authorized by law. This restriction does not limit the government's right to use the information if it is obtained from another source.

Submissions containing confidential, proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The U.S. government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose.

The submission must be marked as follows and identify the specific pages containing trade secrets, confidential, proprietary, or privileged information: "Notice of Restriction on Disclosure and Use of Data: Pages [list applicable pages] of this document may contain trade secrets or confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes."

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: "Contains Trade Secrets or 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.

Competitors will be notified of any Freedom of Information Act requests for their submissions in accordance with 29 C.F.R. § 70.26. Competitors may then have the opportunity to review materials and work with a Freedom of Information Act representative prior to the release of materials. DOE does intend to keep all submission materials private except for those materials designated as "will be made public."

A.11 Privacy

If you choose to provide HeroX with personal information by registering or completing the submission package through the contest website, you understand that such information will be transmitted to DOE and may be kept in a system of records. Such information will be used only to respond to you in matters regarding your submission and/or the contest unless you choose to receive updates or notifications about other contests or programs from DOE on an opt-in basis. DOE and NREL are not collecting any information for commercial marketing.

A.12 General Conditions

DOE reserves the right to cancel, suspend, and/or modify the prize, or any part of it, at any time. If any fraud, technical failure, or any other factor beyond DOE's reasonable control impairs the integrity or proper functioning of the prize, as determined by DOE in its sole discretion, DOE may cancel the prize. Any performance toward prize goals is conducted entirely at the risk of the competitor, and DOE shall not compensate any competitors for any activities performed in furtherance of this prize.

Although DOE may indicate that it will select up to several winners for each prize, DOE reserves the right to only select competitors that are likely to achieve the goals of the program. If, in DOE's determination, no competitors are likely to achieve the goals of the program, DOE will select no competitors to be winners and will award no prize money.

DOE may conduct a risk review, using government resources, of the competitor and project personnel for potential risks of foreign interference. The outcomes of the risk review may result in the submission being eliminated from the prize competition. This risk review, and potential elimination, can occur at any time during the prize competition. An elimination based on a risk review is not appealable.

A.13 Program Policy Factors

While the scores of the expert reviewers will be carefully considered, it is the role of the prize Judge to maximize the impact of prize funds. Some factors outside the control of competitors and beyond the independent expert reviewer scope of review may need to be considered to accomplish this goal. The following is a list of such factors. In addition to the reviewers' scores, the below program policy factors may be considered in determining winners:

- The degree to which the submission promotes quality employment, equitable economic development, and/or other community benefits within disadvantaged communities.
- The degree to which the submission contributes to the Justice40 Initiative.
- Geographic diversity and potential economic impact of projects.
- The degree to which the submission operates in partnership with tribal energy development organizations, Indian Tribes, Tribal organizations, or territories, and/or substantially benefits Tribes.
- Whether the submission will result in new initiatives, efforts, or activities not previously underway.
- Whether the use of additional DOE funds and provided resources are non-duplicative and compatible with the stated goals of this program and the DOE mission generally.
- The degree to which the submission exhibits technological or programmatic diversity compared to the existing DOE project portfolio and other competitors.
- The degree to which the submission will accelerate transformational technological, financial, or workforce advances in areas that industry by itself is not likely to undertake because of technical or financial uncertainty.

- The degree to which the submission supports complementary DOE-funded efforts or projects, which, when taken together, will best achieve the goals and objectives of DOE.
- The degree to which the submission expands DOE's funding to new competitors and recipients who have not been supported by DOE in the past.
- The degree to which the submission enables new and expanding market segments.
- Whether the project promotes increased coordination with nongovernmental entities toward enabling a just and equitable clean energy economy in their region and/or community.
- Whether the submission will lead to repurposing shuttered facilities
- Whether the submission uses brownfield or previously underutilized development rather than greenfield development
- Whether the submission will lead to reequipping existing production lines to manufacture clean energy technologies.
- The degree to which the competitor has considered or will implement strategies for reducing lifetime emissions or carbon intensity of the facility's outputs.

A.14 National Environmental Policy Act Compliance

This prize is subject to the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321, et seq.). NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the potential environmental impacts of their proposed actions. For additional background on NEPA, please see DOE's NEPA website at <http://nepa.energy.gov/>.

While NEPA compliance is a federal agency responsibility and the ultimate decisions remain with the federal agency, all participants in MAKE IT Prize Round 2 will be required to assist in the timely and effective completion of the NEPA process in the manner most pertinent to their participation in the prize competition. Participants may be asked to provide DOE with information on fabrication and testing of their device such that DOE can conduct a meaningful evaluation of the potential environmental impacts.

A.15 Bonus Prizes

While no additional or bonus prizes are available at this time, DOE may leverage the MAKE IT framework to add bonus prizes at any time. Bonus prizes may range in value but will not exceed the value of that phase's prize. Updates will be posted to [HeroX](#) in the event that bonus prizes are added.

A.16 Definitions

Prize Administrator – Prize Administrator means both the Alliance for Sustainable Energy, operating in its capacity under the management and operating contract for NREL, and the U.S. Department of Energy. When the Prize Administrator is referenced in this document, it refers to staff from both the Alliance for Sustainable Energy and DOE staff. Ultimate decision-making authority regarding prize matters rests with DOE.

A.17 Return of Funds

As a condition of receiving a prize, competitors agree that if the prize was made based on fraudulent or inaccurate information provided by the competitor to DOE, DOE has the right to demand that any prize funds or the value of other noncash prizes be returned to the government.

ALL DECISIONS BY DOE ARE FINAL AND BINDING IN ALL MATTERS RELATED TO THE PRIZE.

Appendix B: Eligible Technology Components

B.1 Background

DOE has identified the technology components listed in this appendix as eligible for use in this prize competition. DOE encourages competitors to look at the following reports and documents to better understand DOE assessment of manufacturing opportunities for critical components for the clean energy transition:

- DOE Pathways to Commercial Liftoff reports³⁴
 - Clean Hydrogen³⁵
 - Long Duration Energy Storage (LDES)³⁶
 - Industrial Decarbonization³⁷
 - Carbon Management³⁸
 - Advanced Nuclear.³⁹
- America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition⁴⁰ reports
 - Carbon capture materials⁴¹
 - Electric grid, including transformers and high-voltage direct current (HVDC)⁴²
 - Energy storage⁴³
 - Fuel cells and electrolyzers.⁴⁴
- DOE National Clean Hydrogen Strategy and Roadmap⁴⁵
 - Energy Storage Grand Challenge.⁴⁶

Please review the entirety of the prize rules. Only statements of intent related to one of the following technology components will be deemed eligible to compete for the prize.

This prize does not include research, development, and/or demonstration activities of new technologies or new components. This prize is for establishing new manufacturing facilities; the technology component being manufactured is expected to be completely de-risked and ready to being sold.

³⁴ <https://liftoff.energy.gov/>.

³⁵ <https://liftoff.energy.gov/wp-content/uploads/2023/05/20230523-Pathways-to-Commercial-Liftoff-Clean-Hydrogen.pdf>

³⁶ <https://liftoff.energy.gov/wp-content/uploads/2023/03/20230320-Liftoff-LDES-vPUB-0329-update.pdf>.

³⁷ https://liftoff.energy.gov/wp-content/uploads/2023/10/LIFTOFF_DOE_Industrial-Decarbonization_v8.pdf.

³⁸ https://liftoff.energy.gov/wp-content/uploads/2023/04/20230424-Liftoff-Carbon-Management-vPUB_update.pdf.

³⁹ <https://liftoff.energy.gov/wp-content/uploads/2023/05/20230320-Liftoff-Advanced-Nuclear-vPUB-0329-Update.pdf>.

⁴⁰ <https://www.energy.gov/policy/articles/americas-strategy-secure-supply-chain-robust-clean-energy-transition>.

⁴¹ <https://www.energy.gov/sites/default/files/2022-02/Carbon%20Capture%20Supply%20Chain%20Report%20-%20Final%202.25.25.pdf>.

⁴² <https://www.energy.gov/sites/default/files/2022-02/Electric%20Grid%20Supply%20Chain%20Report%20-%20Final.pdf>.

⁴³ <https://www.energy.gov/sites/default/files/2022-02/Energy%20Storage%20Supply%20Chain%20Report%20-%20final.pdf>.

⁴⁴ <https://www.energy.gov/sites/default/files/2022-02/Fuel%20Cells%20%26%20Electrolyzers%20Supply%20Chain%20Report%20-%20Final.pdf>.

⁴⁵ <https://www.hydrogen.energy.gov/clean-hydrogen-strategy-roadmap.html>.

⁴⁶ <https://www.energy.gov/energy-storage-grand-challenge/energy-storage-reports-and-data>.

B.2 List of Eligible Technology Components

Manufacturing and/or recycling of components for production, processing, delivery, and storage of clean hydrogen and/or hydrogen fuel cells

The production, processing, delivery, storage, and end use of clean hydrogen, including innovative uses in the industrial and transportation sector, are crucial to DOE's strategy for achieving the goal of a 100% clean electric grid by 2035 and net-zero carbon emissions by 2050. The entire clean hydrogen supply chain must scale rapidly, representing a significant opportunity as domestic and international markets mature. The following critical components are eligible to compete in this prize:

- Components supporting heavy-duty/high-flow fueling stations capable of achieving 10 kg/min average fill rates (including nozzles, hoses, cryo-pumps, gas chillers, flow control valves, and mass flow meters).
- Power electronics and other balance of system components for electrolyzers and fuel cells.
- The following electrolyzers and fuel cell stack components: alkaline-exchange membranes, interconnects for high-temperature electrolyzers, separators for liquid-alkaline electrolyzers, and cathode gas diffusion layers for proton-exchange-membrane electrolyzers.

Components for hydrogen storage (including tanks, other storage vessels, etc.), pipeline materials and components, electrolyzer and fuel cell stacks are not eligible for this prize.

Manufacturing of components related to the electric grid

The U.S. energy sector industrial base will require radical transformations to decarbonize by 2050, including renewable energy generation and transportation from carbon-neutral sources, combined with storage of that energy. Many critical components supporting the power grid have limited domestic manufacturing capacity and face complex challenges in supporting a rapid expansion of the grid to meet multiple objectives, including decarbonization goals. This prize will focus on the following critical components:

- **Power electronics and monitoring devices.**
Technologies that are categorized as grid-enhancing technologies (GET). Components include but are not limited to:
 - Components enabling dynamic line rating (DLR); for example, specialized sensors
 - Components/systems for advanced power flow control (PFC)
 - Power factor correction devices
 - Advanced sensors
 - Smart reclosers
 - Advanced flexible transformers or other innovative transformer designs.
- **Advanced AC conductor or advanced conductor core.**
Components include, but are not limited to:
 - Aluminum conductor alloy reinforced
 - Aluminum conductor composite core
 - Aluminum conductor composite reinforced
 - Aluminum conductor carbon fiber reinforced
 - Aluminum conductor steel reinforced

- Aluminum conductor steel supported.
- **Components for distribution and large power transformers.**

Transformers are used both at the transmission and the distribution level to step up voltage to decrease the power losses from electricity transmission and to step down voltage for distribution at lower, more usable voltage levels. There is a current shortage in the United States of distribution transformers, and the average age of installed large power transformers is approximately 40 years, which is the end of their expected lifetime. This fact combined with potential bottlenecks to rapid grid expansion raise concerns about the vulnerability of the domestic electric grid. Within the distribution and large power transformer supply chain, grain-oriented electrical steel (GOES), continuously transposed conduction copper wire, and insulating materials have a significant influence on final component availability and price. Manufacturing facilities for distribution and large power transformers as well as GOES are eligible for this prize. Components of specific interest include but are not limited to:

 - Large power transformer manufacturing
 - Distribution transformer manufacturing
 - Transformer cores
 - Transformer windings
 - GOES
 - Amorphous steel
 - Mineral oil
 - Tap changers
 - Continuously transposed cable copper wire
 - Arresters
 - Fuses
 - Switches.
- **Components for HVDC transmission.**

HVDC transmission provides a complementary electrical transmission system to conventional alternating current (AC) and can increase the power grid's capacity to receive, transmit, and deliver large amounts of energy. HVDC technology is more cost-effective than HVAC for longer transmission distances. In addition, this technology improves grid resilience, security, and operation flexibility, and it accommodates the integration of renewable energy transmission into the existing grid to reach the nation's goal of carbon neutrality. The manufacturers of the main HVDC components and their subcomponents are eligible for this prize. The main components are:

 - Cables for underground and submarine HVDC transmission
 - HVDC circuit breakers
 - HVDC converters (eligible subcomponents include, but are not limited to, thyristors and insulated-gate bipolar transistors)
 - HVDC conductors.

Manufacturing and assembly of long duration energy storage (LDES) components and systems

LDES technologies can increase local control of the power system, build resilience for communities, minimize power grid disruptions, and help reach the goal of 100% clean electricity by 2035 and net-zero emissions by 2050.^{47,48} LDES systems—10 or more hours in duration—can enhance the capabilities of customers and communities to more effectively integrate grid storage into their energy mix. However, the

⁴⁷ <https://www.energy.gov/oced/long-duration-energy-storage>.

⁴⁸ <https://www.energy.gov/energy-storage-grand-challenge/energy-storage-grand-challenge>.

LDES supply chain is nascent—less than 1 GW of LDES was deployed as of 2022, excluding pumped storage hydropower. For LDES to be a viable component of the net-zero equation, annual manufacturing and deployment capacity must approach 10–15 GW/year by 2035 and 30 GW/year by 2040.

LDES technologies encompass a broad variety of technologies and approaches that share the goal of storing energy for long periods of time for future dispatch. Within this prize, “long duration” is defined as 10 or more hours (intraday, multiday, and seasonal storage). Facilities to manufacture components and/or systems related to any technological approach to LDES are eligible to compete in this prize if there is a clear path to commercial offtake as soon as construction of the facility is expected to be completed. Areas of particular interest include:

- The manufacturing and assembling of metal anode and flow batteries.
- Recovering, recycling, extracting and processing raw materials (especially nickel and vanadium from secure mines).

Equipment and components for industrial decarbonization

Reducing emissions from industrial sectors is critical for the decarbonization of the U.S. economy. Investing in industrial decarbonization can solidify a first-mover advantage for U.S. industry in low- and net-zero carbon manufacturing, substantiate the market for clean products, and build broadly shared prosperity for American workers and communities. Emissions in the industrial sector come from a variety of sources, including energy (power and heat), feedstocks, and processes. **Eligible submissions must include components enabling at least one of the following decarbonization levers:**

- Components for alternative production methods leading to energy and/or material efficiency improvements (i.e., inert anodes, membranes, noncarbonate feedstocks, electrochemical production)
- Components and equipment required in a facility to produce an alternative feedstock
- Components for utilization of alternative fuels for process heat (i.e., clean hydrogen)
- Components and equipment for process electrification and efficiency improvements (e.g., combined heat and power systems, waste heat recovery, and thermal energy storage).

Components including, but not limited to, industrial decarbonization in the following sectors are especially of interest:

- Aluminum
- Chemicals and refining
- Concrete and cement
- Food and beverage
- Glass
- Iron and steel
- Pulp and paper.

Components should not be designed for use by only a single customer.

The following components are **not eligible**:

- Components for onsite generation of renewable energy systems.
- Components for plant level efficiency (e.g., LEDs, HVAC systems, and building insulation).
- Components for non-process plant level efficiency improvements.

Facilities that do not manufacture components or equipment and solely produce alternative feedstocks and fuels are not eligible.

Components related to hydrogen generation, transportation, and/or storage are ineligible under this topic and should apply under the hydrogen topic, if eligible (see previous, “Manufacturing and/or recycling of components for production, processing, delivery, and storage, of clean hydrogen and/or hydrogen fuel cells”). Components related to the end use of hydrogen for industrial decarbonization, either as a feedstock or fuel, are eligible under this topic. Components related to carbon capture are ineligible under this topic and should apply under the carbon capture topic if eligible (see below, “Manufacturing of components related to carbon capture and storage”).

Submissions should clearly note the technology the component enables and provide an estimation of emissions reduction resulting from deploying that technology.

Manufacturing of components related to carbon capture and storage (CCS)

Carbon capture technologies are designed to improve the efficiency, effectiveness, cost, emissions reductions, and environmental performance of coal and natural gas use, including in manufacturing and industrial facilities. A typical carbon capture hub will integrate capture, transport, and storage infrastructure that can be deployed at fossil energy power plants and major industrial sources of carbon dioxide, such as cement, pulp and paper, iron and steel, and certain types of chemical production facilities. In an aggressive infrastructure deployment scenario, the likely upper bound of carbon capture and storage capacity for the United States is 1.7 Gt per year by 2050. The critical facilities needed to manufacture and/or recycle solvents, sorbents, membranes, and other components used during the carbon capture are eligible for this prize:

- Carbon capture solvent
- Sorbents
 - Zeolites amines
 - Ionic liquids
 - Metal hydroxides
 - Metal organic frameworks.
- Mineral looping media, including calcium oxide (CaO) and magnesium oxide (MgO)
- Membrane recovery facilities
- CCS equipment: components related to the storage of captured carbon.

Components should not be designed for use for a single customer and should offer a significant advantage over the current state of the art. Competitors should show that their components are compatible with multiple off-takers and demonstrate commercial interest from multiple customers.

Manufacturing of components related to direct air capture (DAC)

Carbon dioxide removal via DAC is a critical tool for cleaning up legacy carbon pollution and hard-to-abate emissions sources. Scaling up the commercial use of DAC technologies can lead to increased jobs across the country and lower the risk of climate-change-related damage such as storms, floods, and wildfires. Components for DAC systems are eligible to compete in this prize, including but limited to:

- Air contactors
- Air contactor fills
- Monoliths
- Cryogenic DAC systems
- Heat exchangers.

Components should not be designed for use by a single customer. Competitors should show their components are compatible with multiple off-takers and demonstrate commercial interest from multiple customers.

Manufacturing of materials, components, and systems related to advanced nuclear power applications

Advanced nuclear reactor technologies are designed to improve capability, performance, economics, safety, and security beyond that of the existing domestic nuclear power production reactor fleet. These improvements include smaller scale reactors that can break into markets currently not served by nuclear energy and can support applications beyond electricity production, such as industrial process heat supply. Projections indicate that an additional 200 GW of nuclear power will be necessary on the domestic grid to reach the 2050 net-zero goal. The nuclear power supply chain will have to be developed and strengthened to support ramping up new nuclear power plant deployments. The following areas of the nuclear supply chain need to scale and are eligible to compete in this prize:

- **Heavy equipment manufacturing.**
Heavy equipment manufacturing for nuclear power systems includes large forgings and downstream machining to produce items such as reactor pressure vessels and steam generators. Manufacturing of these items also includes nuclear quality assurance programs to satisfy regulatory requirements for licensing. Facilities that can perform raw material melting, forging, shaping, and machining are eligible to compete in this prize.
- **Seamless pipe and tubing manufacturing.**
Nuclear reactor power plants require seamless pipe and tubing to ensure integrity of specific systems and to preclude any release of radioactive materials. Typically, high-integrity piping and tubing are used in the primary coolant circulation systems and in heat exchangers used to transfer heat and produce steam. The piping and tubing necessary to support nuclear applications come with stringent quality assurance requirements and are often specialized alloys. Facilities that produce piping and tubing for use in nuclear power plant applications are eligible to compete in this prize.
- **Fuel and reactivity control materials manufacturing.**
Manufacturing capabilities will be necessary for both fuel and neutron absorbing materials to support scaling of new nuclear power plant deployments. This manufacturing includes, but is not limited to, oxide fuels, metallic fuels, boron carbide neutron poison, and hafnium neutron poison. Facilities that manufacture nuclear fuel and nuclear controls materials are eligible to compete in this prize.
- **Reactor structural and cladding material manufacturing.**
Advanced reactors require unique materials for structural and cladding applications. Capability and capacity will have to expand to support manufacturing specialized materials for reactor structural and cladding applications as power plant deployments scale up. These material applications include, but are not limited to, high-grade graphite, high-temperature steel alloys,

and select zirconium alloys. Facilities that produce these structural and cladding materials are eligible to compete in this prize.

- **Primary system pumps, valves, and control systems.**

Specialized pumps are used to circulate primary coolants in nuclear reactors. Often these pumps are of a canned design to ensure containment of the primary coolant and preclude leaking of any radioactive material. Specialized valves, such as large check valves and reactor isolation valves, are necessary to direct coolant flow and support the safety basis for operations and licensing. Specialized drive mechanisms are used for control rod motion and control systems in nuclear power plants. These control systems are necessary to set and adjust system power and to shut down power production in a reactor. Facilities that manufacture primary system pumps, specialized valves, and control systems for nuclear applications are eligible to compete in this prize.