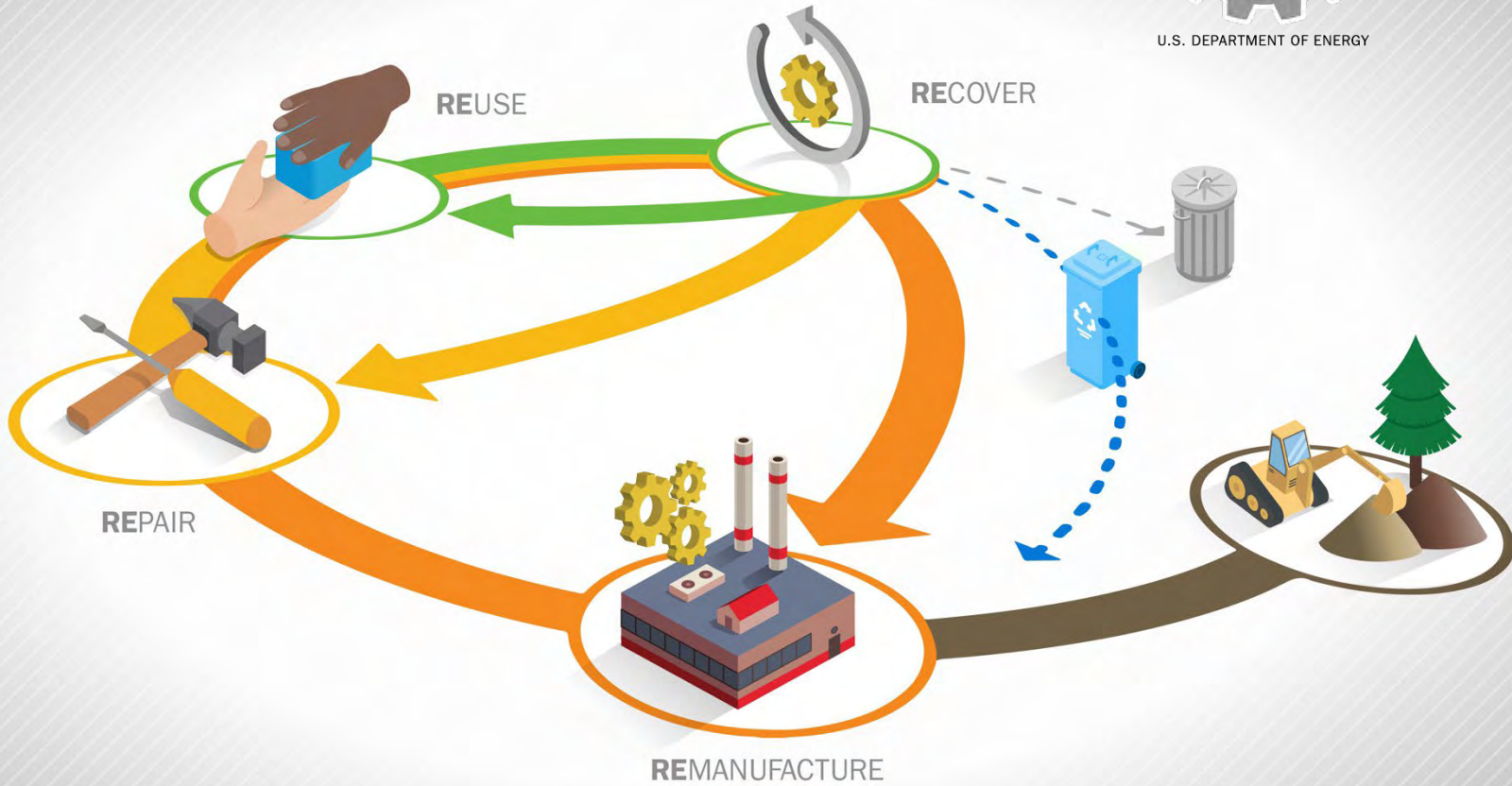




U.S. DEPARTMENT OF ENERGY



Re-X Before Recycling Prize Official Rules

November 2023

Preface

The U.S. Department of Energy's Re-X Before Recycling Prize will be governed by 15 U.S.C. §3719 and this Official Rules document. This is not a procurement under the Federal Acquisitions Regulations and will not result in a grant or cooperative agreement under 2 CFR 200. The Prize Administrator reserves the right to modify this Official Rules document if necessary and will publicly post any such notifications as well as notify registered prize participants.

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1 Program Summary

1.1 Introduction

The U.S. Department of Energy (DOE) Advanced Materials and Manufacturing Technologies Office (AMMTO) launched the American-Made Re-X¹ Before Recycling Prize on November 27, 2023. The \$5.6 million, three-phase prize is designed to stimulate innovation and private investment in circular economy approaches that valorize waste² streams to develop diverse, integrated supply networks and contribute to a robust, environmentally sustainable economy. Competitors will identify opportunities and make progress towards implementing innovations in new or expanded supply chains in the United States that valorize end-of-use products by reusing, repairing, refurbishing, remanufacturing, and/or repurposing them. The prize will support and amplify AMMTO's efforts to ensure secure and sustainable U.S. supply chains for clean energy and to establish a circular economy for the goods economy.³

Competitors have the opportunity to each win up to \$700,000 in cash and \$105,000 in national laboratory analysis consultation and technical assistance.

The Re-X Before Recycling Prize offers a total of \$4.5 million in cash prizes and \$1.1 million in technical assistance for analysis such as life cycle analysis (LCA) or techno-economic analysis (TEA). As competitors work to win cash prizes, they will be connected with a national laboratory for analysis support, which will help them gain insight into the impact of their innovations, resulting in the long-term success of participants and U.S. manufacturing. Support will be provided by one of five identified national laboratories: the National Renewable Energy Laboratory (NREL), Argonne National Laboratory (Argonne), Oak Ridge National Laboratory (ORNL), Lawrence Berkeley National Laboratory (LBNL), and Pacific Northwest National Laboratory (PNNL).

1.2 Background

This Re-X Before Recycling Prize focuses on extending the useful lifetimes of products or parts to reduce life cycle energy use and emissions. The manufacturing sector predominantly follows a linear model of production, in which raw materials are mined, transformed into manufactured goods, used, and then discarded.⁴ This once-through flow of materials to manufactured products is not a sustainable use of resources. Circular economy approaches, illustrated in [Figure 1](#) and described in [Table 1](#), can decrease the lifetime energy cost of materials and could have a significant impact on global emissions.⁵ Although recycling is an important component of the circular economy, approaches that extend the useful lifetimes of products or parts have potential for larger life cycle energy and emissions savings than recycling.⁶

¹ "Re-X" refers to circular economy strategies, such as reuse, repair, refurbish, remanufacture, and repurpose.

² "Waste" is used to describe any product or part the holder discards or intends or is required to discard.

³ AMMTO. "Circular Economy Technologies and Systems." Accessed October 2023. U.S. Department of Energy. <https://www.energy.gov/eere/ammto/circular-economy-technologies-and-systems>.

⁴ Armstrong, K., G. Avery, A. Bhatt, R. Burton, A. Carpenter, J. Cresko, C. Dollinger, W. Dong, C. Iloeje, D. Graziano, J. Greenblatt, C. McMillan, W. Morrow, S. Nicholson, S. Nimbalkar, D. Steward, S. Supekar, K. Thirumaran, and S. Upasani. 2023. *Sustainable Manufacturing and the Circular Economy*. Washington, D.C.: U.S. Department of Energy. <https://doi.org/10.2172/1963668>.

⁵ Ellen MacArthur Foundation. 2019. "Completing the Picture: How the Circular Economy Tackles Climate Change." Accessed October 2023. <https://ellenmacarthurfoundation.org/completing-the-picture>.

⁶ IRP. 2018. *Re-defining Value – The Manufacturing Revolution. Remanufacturing, Refurbishment, Repair and Direct Reuse in the Circular Economy*. Nabil Nasr, Jennifer Russell, Stefan Bringezu, Stefanie Hellweg, Brian Hilton, Cory Kreiss, and Nadia von Gries. A Report of the International Resource Panel. Nairobi, Kenya: United Nations Environment Programme. <https://www.resourcepanel.org/reports/re-defining-value-manufacturing-revolution>.

Circular supply chains are complex, with diverse value propositions and waste stream compositions that vary by region and over time. Developing pathways to keep materials in use beyond a single life cycle is critical to decarbonizing the U.S. economy. Increasing the recovery and reuse rate of end-of-use⁷ products can deliver multiple benefits, including reducing the embodied energy and carbon of manufactured goods, strengthening regional manufacturing supply chains, increasing U.S. supply security, creating jobs, and reducing environmental burdens related to landfilling, incineration, and extraction.

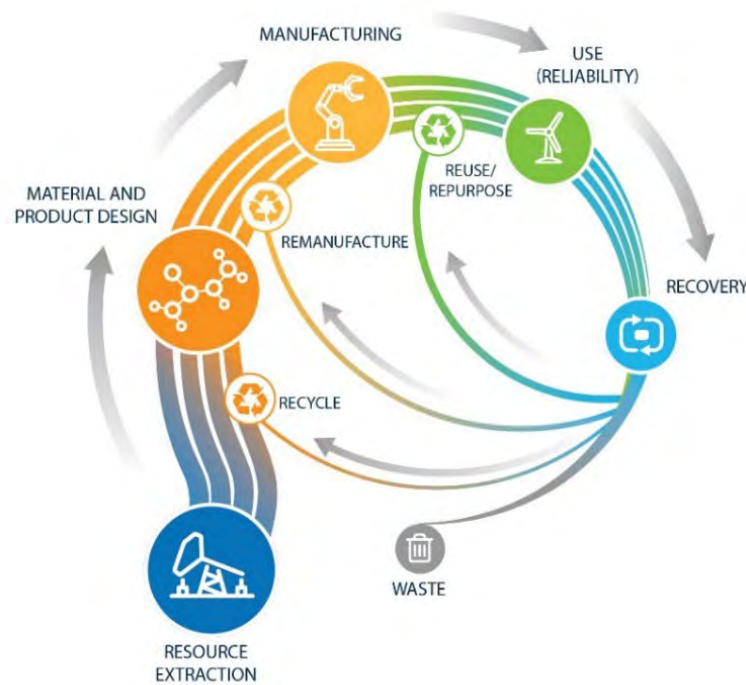


Figure 1. Idealized flow of materials in a system applying circular strategies. Adapted from Upasani et. al., 2022⁸

⁷ End-of-use refers to the point in the product or object's service life at which the product may not be needed by the current owner/user, or able to function or perform as required, and for which there are other options available to keep the product and/or its components within the market. End-of-life refers to the point in the product or object's service life at which the product or object is no longer able to function or perform as required, and for which there are no other options for the product but to be recycled or disposed into the environment. (Source: IRP 2018; see Footnote 6.)

⁸ Upasani, S., J. Walzberg, D. Ravikumar, A. Carpenter, G. Heath, U. Gracida-Alvarez, T. Benavides, H. Xu, T. Hawkins, D. Desantis, and J. Cresko. 2022. *Mapping the Opportunity Space to Model the Circular Economy Using Tools Funded by the DOE Office of Energy Efficiency and Renewable Energy*. Golden, Colorado: National Renewable Energy Laboratory. <https://doi.org/10.2172/1863766>.

Strategies to extend the lifespan of products and parts (R3–R7) are the focus of this prize ([Table 1](#), adapted from Potting et al. 2017⁹).

Table 1. Description of Circular Economy (Re-X) Strategies

Goal	Re-X Strategy	Description	Interest for Re-X Before Recycling Prize
Smarter product use and manufacturing	R0 – Refuse	Make a product redundant by abandoning its function or by offering the same function with a radically different product.	Outside the prize’s scope
	R1 – Rethink	Make a product’s use more intensive	Outside the prize’s scope
	R2 – Reduce	Increase the efficiency in product manufacture or use by consuming fewer natural resources and materials.	Outside the prize’s scope
Extended lifespan of products and parts	R3 – Reuse	Reuse, by another consumer, of a discarded product still in good condition, fulfilling its original function.	Within the prize’s scope
	R4 – Repair	Repair and maintenance of defective product to be used with its original function.	Within the prize’s scope
	R5 – Refurbish	Restore an old product and bring it up to date.	Within the prize’s scope
	R6 – Remanufacture	Use parts of a discarded product in a new product with the same function.	Within the prize’s scope
	R7 – Repurpose	Use a discarded product or its parts in a new product with a different function.	Within the prize’s scope
Useful application of materials	R8 – Recycle	Process discarded materials to reincorporate them into the same product or application or a different application at a lower quality.	Outside the prize’s scope
	R9 – Recover	Incinerate materials with energy recovery.	Outside the prize’s scope

DOE invests in research and development innovations that benefits the American public and lead to commercialization of technologies and products that foster sustainable, resilient, and equitable access to clean energy. Further, DOE is committed to supporting the development of more diverse, equitable, inclusive, and accessible workplaces to help maintain the nation’s leadership in science and technology.

⁹ Potting, J., M. Hekkert, E. Worrell, and A. Hanemaaijer. 2017. “Circular Economy: Measuring Innovation in the Product Chain.” The Hague, Netherlands: PBL Netherlands Environmental Assessment Agency. <http://www.pbl.nl/sites/default/files/cms/publicaties/pbl-2016-circular-economy-measuring-innovation-in-product-chains-2544.pdf>.

Innovations that enable new or expanded Re-X supply chains can also engage communities and labor; advance diversity, equity, inclusion, and accessibility (DEIA); and support the implementation of the Justice40 Initiative.¹⁰ The Re-X Before Recycling Prize aims to foster innovations that will maximize community benefits. See [Appendix B](#) for more information.

By performing analyses early in the development process of an innovation, insights into how to maximize the environment benefits and economic viability can be gained. For example, LCA is a methodology for assessing the environmental impacts associated with the entire life cycle of a product or process. TEA is a method for evaluating the economic performance of a technology, allowing analysis to objectively weigh benefits against costs.¹¹ Prize winners will be able to access support from national laboratories for analysis such as LCA or TEA to help accelerate their innovation development and maximize environmental and economic benefits.

The Re-X Before Recycling Prize is designed to spur innovations to extend the lifetimes of products or parts and to overcome difficulties with transitioning the United States from a linear to more circular economy.

1.3 Prize Awards

There are three distinct phases in which competitors can compete as part of this prize: *Phase 1: Identify!*, *Phase 2: Prepare!*, and *Phase 3: Develop!* Collectively, these phases fast-track efforts to advance innovations that enable new or expanded Re-X supply chains that extend the lifespan of products and parts.

1.3.1 Awards for *Phase 1: Identify!*

During *Phase 1: Identify!*, competitors will identify a new or expanded Re-X supply chain opportunity including potential community benefits and create a plan to develop the innovation needed to realize the opportunity.

Winners will receive \$50,000 in cash and up to \$5,000 of consultation from one of the identified national laboratories to identify analysis that may bring insights into the impact and benefits of the proposed supply chain and innovation. The funding and technical assistance are intended to help the competitor further develop their innovation during *Phase 2: Prepare!*.

1.3.2 Awards for *Phase 2: Prepare!*

During *Phase 2: Prepare!*, competitors, including participants from *Phase 1: Identify!* as well as new competitors, will deepen their insight into the opportunity, refine their plan to develop their innovation, and activate a network of partners and mentors to help advance their proposed innovation.

Winners will receive \$150,000 in cash and up to \$100,000 in technical assistance for analysis provided by one of the identified national laboratories. The funding and technical assistance are intended to help the competitor further advance their innovations during *Phase 3: Develop!* Only selected winners from *Phase 2: Prepare!* are eligible to compete in *Phase 3: Develop!*

¹⁰ "What Is the Justice40 Initiative?" White House. Accessed October 2023. <https://www.whitehouse.gov/environmentaljustice/justice40/>.

¹¹ "Life Cycle Assessment and Techno-Economic Analysis Training." U.S. Department of Energy Industrial Efficiency and Decarbonization Office. Accessed October 2023. <https://www.energy.gov/eere/iedo/life-cycle-assessment-and-techno-economic-analysis-training>.

1.3.3 Awards for *Phase 3: Develop!*

During *Phase 3: Develop!*, competitors will make progress executing their plan, further their network development and community engagement, and prepare a plan for how they will continue to advance the innovation post-prize. Winners will demonstrate substantial progress towards implementing their innovation in a viable Re-X supply chain that will continue beyond the prize period and will receive \$500,000 in cash.

1.3.4 Total Funding

In each phase, competitors will be evaluated by a panel of reviewers based on the criteria set in each phase rules. DOE will select winners based on reviewer input and the impact the innovation and Re-X supply chains may have on the manufacturing industry. The three phases offer a total of \$4.5 million in cash prizes and \$1.1 million in analysis technical assistance. Competitors have the opportunity to win up to \$700,000 in cash and \$105,000 in national laboratory analysis consultation and technical assistance.

Table 2. Prize Phase Funding

Phase	Duration (Months)	Winners	Awards
<i>Phase 1: Identify!</i>	3.5	Up to 20	\$50,000 in cash and up to \$5,000 of analysis consulting during <i>Phase 2: Prepare!</i>
<i>Phase 2: Prepare!</i>	6	Up to 10	\$150,000 in cash and up to \$100,000 in analysis technical assistance during <i>Phase 3: Develop!</i>
<i>Phase 3: Develop!</i>	12	Up to four	\$500,000 in cash

To learn more and sign up, go to www.herox.com/ReXBeforeRecycling.

1.4 Topic Areas

The Re-X Before Recycling Prize invites competitors to work on one of two categories: established or emerging waste streams.

1.4.1 Established Waste Streams

This topic area includes innovations focusing on how to utilize products that are currently available in U.S. waste streams. This topic area would include currently discarded products such as electrical devices, furnishings, consumer goods, and building materials. For insight into current waste stream compositions, refer to the U.S. Environmental Protection Agency's Facts and Figures about Materials, Waste and Recycling.¹²

¹² "Facts and Figures about Materials, Waste and Recycling." U.S. Environmental Protection Agency. Accessed October 2023. <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling>.

1.4.2 Emerging Waste Streams

This topic area includes innovations focusing on how to utilize products that will be available in the future in waste streams. For example, clean energy technologies such as wind, solar, and batteries¹³ must expand dramatically to reach our decarbonization goals¹⁴ resulting in waste at the end of their product lifespans. These products may not be available in current waste streams in large volumes but will be in the future.^{15,16}

1.4.3 Areas of Interest

The Re-X Before Recycling Prize is interested in innovations that enable new or expanded economically viable supply chains that extend the lifespan of products and parts. Innovations of interest are those that extend product and part lifetimes (Re-X pathways R3–R7, shown in [Table 1](#)). Innovations may include redesign activities if they unlock end-of-use supply chains based on re-using, repairing, refurbishing, remanufacturing, and repurposing. A non-exhaustive list of the types of innovations of interest to the Re-X Before Recycling prize is given below.

Examples of innovations of interest include those that:

- Extend the lifespan of clean energy technologies. Some potential examples include refurbishing and installing solar panels or wind turbines in a new location if they still have useful life, interventions that extend the lifetime of batteries, and repurposing batteries for a second life in a different application.
- Extend the lifespan of manufactured products and parts. Some potential examples include the recovery of components from end-of-use devices, requalification, and re-use in new devices; refurbishment of discarded furniture to enable resale; reuse of foodservice items such as cups; recovery and repurposing of building materials.
- Replicate and improve upon approaches demonstrated in one location in new regions or locations. For example, establishment of a community re-use program in a new location modeled after a successful effort elsewhere or second of a kind demonstration that greatly expand the operation envelope of an innovation.
- Deploy new technologies, such as advanced sorting or more efficient processing of end-of-use products, to reduce costs and increase the number of Re-X products produced.
- Improve access to wastes and markets via improved data and analysis, logistics, and collection. Innovations may include effective outreach to consumers and entities within the supply chain, potentially drawing from social science approaches i.e., behavioral changes of consumers/actors in the supply chain, and not solely reliant on technological advancement. Innovations may also be based on increased insights from data and analysis.

The examples provided above are not an exhaustive list of all possible innovations of interest. Submissions are welcome for any innovation that fulfill the eligibility ([Section 1.6](#)) and program goal requirements ([Section 1.7](#)).

¹³ [National Blueprint for Lithium Batteries 2021-2030 \(energy.gov\)](#)

¹⁴ Denholm, Paul, Patrick Brown, Wesley Cole, et al. 2022. Examining Supply-Side Options to Achieve 100% Clean Electricity by 2035. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A40-81644. <https://www.nrel.gov/docs/fy22osti/81644.pdf>

¹⁵ Solar Energy Technologies Office. “Solar Energy Technologies Office Photovoltaics End-of-Life Action Plan.” 2022. Washington, D.C.: U.S. Department of Energy. DOE/EE-2571. <https://www.energy.gov/sites/default/files/2023-10/SETO-PV-End-of-Life-Action-Plan-1.pdf>.

¹⁶ “End of Service Wind Turbine Guide.” U.S. Department of Energy’s WINDEXchange. Accessed October 2023. <https://windexchange.energy.gov/end-of-service-guide>.

1.4.4 Areas Not of Interest

A non-exhaustive list of examples of innovations not of interest include:

- The Re-X Before Recycling Prize is not interested applications or approaches that fall within Re-X pathways R0 to R2, and R8 to R9 shown in [Table 1](#).
- Approaches or innovations relying on recycling to recover materials from end-of-life products and convert the materials into feedstocks to produce new products.
- Approaches or innovations that focus on redesign without unlocking end-of-use supply chains based on re-using, repairing, refurbishing, remanufacturing, and repurposing. For example, redesigning a component to use less material without extending product or part lifetime.
- Innovations targeting food, yard, and organic agricultural waste.

1.5 Important Dates

Please refer to HeroX for important dates: www.herox.com/ReXBeforeRecycling/

1.6 Eligibility Requirements

Competitors in the Re-X Before Recycling Prize must comply with the eligibility requirements below. By uploading a submission package, a competitor certifies that they are in compliance with these eligibility requirements. Eligibility is subject to verification before prizes are awarded. As soon as the Prize Administrator becomes aware that a competitor is not eligible to win the *Identify!*, *Prepare!*, or *Develop!* phases, the competitor may be disqualified. The registered competitor is the individual or entity that registers in HeroX to compete.

In keeping with the goal of growing a community of innovators, competitors are encouraged to form diverse, multidisciplinary teams while developing their concepts. The HeroX platform provides a space where parties interested in collaboration can post information about themselves and learn about others who are also interested in competing in this contest.

1.6.1 Eligibility for *Phase 1: Identify!*

Eligible participants for *Phase 1: Identify!*:

- Can include individuals, teams of individuals, private entities (for-profits and nonprofits), and nonfederal government entities (such as states, counties, tribes, municipalities, and academic institutions).
- May submit a maximum of two submissions. If more than two submissions are received from a competitor, the two most recently submitted submissions will be considered. Only one submission per competitor can advance to *Phase 2: Prepare!*.
- Can be partners on multiple submissions but may only be the lead competitor on one funded submission. *Note: The cash prize award will be paid to the lead competitor as identified in the submission, if selected.*

1.6.2 Eligibility for *Phase 2: Prepare!*

Eligible participants to compete in *Phase 2: Prepare!*:

- Can include winner and nonwinners from *Phase 1: Identify!* as well as new competitors.
- Must be private entities or nonfederal government entities. Individuals or groups of individuals are not eligible to compete.

- Must form a legal entity to participate in *Phase 2: Prepare!* if they were an individual winner from *Phase 1: Identify!*

1.6.3 Eligibility for *Phase 3: Develop!*

Eligible competitors in *Phase 3: Develop!*:

- Can only include the winning private entities or nonfederal government entities of *Phase 2: Prepare!*
- Must be a private entity or nonfederal government entity. Individuals or groups of individuals are not eligible to compete.

1.6.4 Prize Eligibility

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

- An individual prize competitor (who is not competing as a member of a group) must be a U.S. citizen or a permanent resident.
- 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 a permanent resident. Individuals competing as part of a team may 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 six 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.
- NREL employees directly involved in the administration of the prize are not eligible to participate in any prize contest in this program.
- NREL employees not involved in the administration of the prize and all other national lab employees, including laboratory researchers, may participate as private individuals, provided they do not use their facilities at the national laboratories.
- 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.
- Entities identified in U.S. Department of Homeland Security Binding Operational Directives as publicly banned from doing business with the U.S. government are not eligible to compete. See <https://cyber.dhs.gov/directives/>.
- Entities and individuals identified as restricted parties on one or more screening lists of U.S. Department of Commerce, State or the Treasury are not eligible to compete. See Consolidated Screening List. https://2016.export.gov/ecr/eg_main_023148.asp.

- Individuals participating in a foreign government talent recruitment program¹⁷ sponsored by a country of risk¹⁸ 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 § 287 287 and 31 U.S.C. §§ 3729-3733 and 3801-3812.

1.7 Program Goal Requirements

Only submissions relevant to the goals of this program are eligible to compete. The Prize Administrator must conclude that all the following statements are **true** when applied to your submission:

- The proposed innovation enables a new or expands an existing supply chain that extend the lifetime of products or parts via re-using, repairing, refurbishing, remanufacturing, and repurposing.
- The majority of activities that are described in and support the submission package are performed in the United States and have the potential to benefit the U.S. market.
- The proposed innovation will move the industry beyond its current state.
- The proposed innovation does not involve the lobbying of any federal, state, or local government office.
- The proposed innovation is based on fundamental technical principles and is consistent with a basic understanding of the U.S. market economy.
- The proposed innovation is not a standalone theoretical modeling and analysis efforts.
- The proposed innovation has a clear financial or supply chain path to implementation.
- The submission content sufficiently confirms the competitor's intent to implement their innovation in a viable, U.S.-based Re-X supply chain in the near future. The commercial viability cannot solely depend on licensing fees of intellectual property.

¹⁷ 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 United States 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.

¹⁸ DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

- The proposed innovation is not focused on food, yard, or organic agricultural waste.

1.8 Additional Requirements

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

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

2 Rules for *Phase 1: Identify!*

2.1 Introduction to *Phase: 1 Identify!*

Phase 1: Identify! is the first phase in the three-phase Re-X Before Recycling Prize, and it offers a total of \$1 million in cash and \$100,000 in national lab analysis consultation as prizes. Anyone meeting the eligibility requirements can compete in *Phase 1: Identify!*. **The following rules are for competitors in *Phase 1: Identify!*** “You” and “your” reference competitors in this phase.

<i>Phase 1: Identify!</i> Prizes
<ul style="list-style-type: none"> • Up to 20 winners • \$1 million in total cash prizes. Each winner receives a cash prize of \$50,000 and up to \$5,000 of analysis consultation from a national lab during <i>Phase 2: Prepare!</i>

2.2 Goal of *Phase: 1 Identify!*

The goal of *Phase 1: Identify!* is to focus on two key areas:

- **Opportunity & Innovation Identification:** Identify an innovation that, if implemented in a new or expanded Re-X supply chain, would deliver substantial environmental, economic, and community benefits.
- **Plan development:** Develop a plan to advance the innovation from its current state towards implementation in a viable Re-X supply chain.

2.3 Prizes to Win in *Phase: 1 Identify!*

Phase 1: Identify! offers up to 20 cash prizes of \$50,000 and up to \$5,000 of consultation to identify analysis that can bring insights into the impact and benefits of the innovation and proposed supply chain from one of the identified national labs.

2.4 How to Enter *Phase: 1 Identify!*

To enter the competition, complete a submission package online at www.herox.com/ReXBeforeRecycling before the contest closing date.

2.5 Process for *Phase: 1 Identify!*

Phase 1: Identify! consists of three steps:

1. **Identification and Submission.** Competitors will identify a high impact new or expanded Re-X supply chain opportunity, create and prepare their team, and begin their development plan for their innovation that includes community benefits. Potential teams should read the entire rules document and be familiar with the goals and submission requirements for *Phase 1: Identify!*. Competitors must complete their submission packages and submit online before *Phase 1: Identify!* 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. The judging criteria assess the following (more details can be found in [Section 2.6](#)):
 - **Opportunity:** What is the opportunity and why is it impactful?
 - **Innovation:** What is your innovation and why will it be successful?
 - **Accomplishments & Team:** Does your team have the knowledge and experience to be successful? What have you accomplished to date?
 - **Plan:** What is your plan to implement the innovation in a new or expanded Re-X supply chain?
 - **Community Benefits Plan:** What community benefits would this new or expanded Re-X supply chain bring?
3. **Announcement.** After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute cash prizes and arrange the national laboratory analysis consultation. After winning *Phase 1: Identify!*, winners go on to develop and refine their innovations in accordance with their plan to compete in *Phase 2: Prepare!*

2.6 What to Submit and Evaluation Criteria for *Phase: 1 Identify!*

A complete submission package, discussed in detail further in this section, for *Phase 1: Identify!* should include:

- 90-second online video (to be made public)
- Cover page
- Narrative that answers five questions about the opportunity, innovation, accomplishments and team, plan, and community benefits plan (not to exceed 2,500 words)
- Submission summary slide (to be made public)
- Analysis support work slide.

All documents other than the video and cover page **must be uploaded as a PDF.**

Note: Portions of the submission package are made available to the public. These have been denoted as such, and DOE does not intend to release the remaining parts of the submission to the public. See [Appendix A](#) for additional details.

Expert reviewers will evaluate your submission by assigning a single score for each scored submission section, based on their overall agreement or disagreement with a series of statements. Each section will be evaluated on a scale of 0 (strongly disagree) to 5 (strongly agree), as shown in [Table 3](#).

Table 3. Judging Scale for Expert Reviewers

0	1	2	3	4	5
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

2.6.1 Online Public Video

The video should answer the question: What is your innovation?

Suggested content you provide includes:

- The real-world opportunity for a Re-X supply chain that your innovation will enable.
- Your solution and why it is transformative.
- Who you are and why you will be successful.

Post your *publicly accessible*, 90-second video online (e.g., on YouTube).

Be creative and produce a video that conveys the required information in exciting and interesting ways, but do not focus on time-consuming activities that only improve production values (i.e., technical elements such as décor, lighting, and cinematic techniques). Assistance from others with experience in this area may be helpful. Members of the American-Made Network may be able to help you create your video.

2.6.2 Cover Page

The cover page must list the following basic information about your submission.

- Project name
- Link to your 90-second online video
- Team members (names, contacts, and links to their LinkedIn profiles)
- Your city, state, and nine-digit zip code
- The topic area you are addressing
- Website (if applicable).

2.6.3 Narrative

You should answer each of the following five questions provided in [Table 4](#). The content bullets are only suggestions to guide your responses. You decide where to focus your answers. The individual answers to the five questions do not have a word limit; however, **the aggregate response to these five questions must not exceed 2,500 words**, not including captions, figures/graphs, and references. A word count must be included at the end of your submission (see template for details). You may also include **up to five supporting images, figures, or graphs**. The reviewers will score the questions based on the content you have provided. The narrative should be submitted as a PDF file.

Use the following template: <https://www.herox.com/ReXBeforeRecycling/resource/1565>.

Table 4. Topics to Address in the *Phase 1: Identify!* Narrative

Topic and Percent of Score	Suggested Content to Include	What the Score Will Be Based On
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<p>Question 1: <i>Opportunity</i></p> <p>What is the opportunity and why is it impactful?</p> <p>This section is 20% weight of your total score.</p>	<ul style="list-style-type: none"> • Describe the Re-X supply chain opportunity. Be specific about the opportunity space that your supply chain addresses. • Explain why this opportunity has not yet been realized and why now is the right time to address it. Describe how it can become an economically viable supply chain. • Show how you know this is a significant opportunity using evidence-based validation (e.g., interviews, case studies, literature). Provide detail on the estimates of waste stream size and availability, interventions needed, end markets, and type and scale of expected impacts (life cycle greenhouse gas or other emissions, product life extension, jobs, etc.). Ensure assumptions are as reasonable as possible. 	<ul style="list-style-type: none"> • The competitor identifies and explains clearly an opportunity for a new or expanded Re-X supply chain that, if realized, will deliver substantial environmental and economic benefits across supply chains at a national scope. • The competitor demonstrates an understanding of the opportunity, relevant industrial ecosystem, and why it has not yet been realized. • The competitor uses real-world evidence to validate key assumptions about the potential environmental, community, and economic impacts of realizing this supply chain. The competitor demonstrates insight into the full supply chain (waste stream, processes needed, end markets) as well as provides estimates of expected impacts based on reasonable assumptions.
<p>Question 2: <i>Innovation</i></p> <p>What is your innovation and why will it be successful?</p> <p>This section is 20% weight of your total score</p>	<ul style="list-style-type: none"> • Thoroughly describe your innovation concept and how it advances the status quo. • Describe your innovation’s value proposition and how it will lead to a viable Re-X supply chain. Does it save money, increase effectiveness, or provide other benefits? • Provide details on anticipated challenges to successfully realizing the supply chain opportunity and how these challenges can be overcome by this innovation. 	<ul style="list-style-type: none"> • Sufficient detail was provided to understand the proposed innovation. • The competitor has identified a compelling innovation that is differentiated from the status quo and that is likely to lead to a viable Re-X supply chain. • The competitor demonstrates insight into the challenges and provides compelling reasoning as to why the innovation has the potential to overcome the challenges.
<p>Question 3: <i>Accomplishments and Team</i></p> <p>Does your team have the knowledge and experience to be successful? What</p>	<ul style="list-style-type: none"> • Introduce your team. Highlight knowledge and skills that make your team capable of realizing the innovation. • Describe your team’s readiness to meet your goals and whether your team requires additional talent and/or resources. 	<ul style="list-style-type: none"> • The team demonstrates entrepreneurial qualities such as adaptability, creativity, decisiveness, and resourcefulness. The team is diverse and has the knowledge, experience, and determination to realize the innovation and/or has

<p>have you accomplished to date?</p> <p>This section is 20% weight of your total score.</p>	<ul style="list-style-type: none"> • What experience do you have trying new things, solving difficult problems, and overcoming barriers to bring ideas to reality? Highlight your team’s diversity. • Describe your efforts to advance your innovation prior to or after the announcement of this Prize phase. Highlight key learnings and achievements. 	<p>identified gaps in resources to be addressed.</p> <ul style="list-style-type: none"> • A considerable amount of high-quality effort was put into defining the opportunity and advancing the innovation concept.
<p>Question 4: <i>Plan</i></p> <p>What is your plan to implement the innovation in a new or expanded Re-X supply chain?</p> <p>This section is 20% weight of your total score.</p>	<ul style="list-style-type: none"> • Describe where you stand in your innovation’s development cycle and develop a plan with SMART¹⁹ goals to advance your innovation from the current state toward implementation in a viable supply chain. • Describe your team’s proposed metrics that will be used to determine success. See Appendix C for example metrics. • Describe risks and mitigation strategies to address them. • Describe any analysis, such as LCA or TEA, that has been done and how working with a national lab to perform analysis will help you be successful with your innovation. 	<ul style="list-style-type: none"> • The stated goals are ambitious and show commitment to an accelerated development timeline. Meeting them will demonstrate critical progress toward implementing the innovation. • The proposed metrics are clear, ambitious while being achievable, and well defined. • Risks and mitigation strategies have been described. • The team identifies how analysis will help them gain insights to inform design improvements, increasing the innovation’s impact in a viable supply chain.
<p>Question 5: <i>Community Benefits Plan</i></p> <p>What community benefits would this new or expanded Re-X supply chain bring?</p> <p>This section is 10% weight of your total score.</p>	<ul style="list-style-type: none"> • Identify communities the supply chain will affect. Describe the challenges or problems the communities are facing and the benefit your proposed innovation will foster. • Describe the specific strategies and activities that you plan to use to engage, educate, gain trust, and obtain buy-in from these communities. • Include at least one SMART goal addressing DEIA, workforce implications, or environmental justice. 	<ul style="list-style-type: none"> • The competitor demonstrates insight into the impact of the Re-X supply chain on disadvantaged, underserved, and/or marginalized communities. This includes environmental and economic benefits, hazards, and workforce implications. • The approach to community benefits describes at least one measurable goal with concrete actions, is strong, and is likely to be successful.

¹⁹ A SMART action plan incorporates five characteristics of a goal: specific, measurable, attainable, relevant, and time-based. For more information about SMART goal planning, see: <https://www.atlassian.com/blog/productivity/how-to-write-smart-goals>.

<p>Reviewer Recommendation</p> <p>This recommendation is 10% weight of your total score.</p>	<p>There is no direct corresponding submission requirement for this score. Rather, it is an overall assessment of the total potential impact of the innovation compared to the team's likelihood of success.</p>	<p>The submission demonstrates a potentially impactful innovation with a strong likelihood of success.</p>
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2.6.4 Submission Summary Slide

The summary slide should be a PowerPoint slide submitted as a PDF. It will be made public.

Make your own public-facing, one-slide submission summary that contains technically specific details but can be understood by most people. There is no template, so feel free to present the information as you see fit. Please make any text readable in a standard printout and conference room projection.

2.6.5 Analysis Support Work Slide

The analysis support work slide should be a PowerPoint slide submitted as a PDF.

It should:

- Briefly describe any analysis, such as LCA or TEA, the team has already done.
- Describe how the technical support and consultation for analysis from a national lab will help the team deepen insights into the supply chain opportunity, advance your innovation, and understand and/or quantify environmental and economic impacts.
- Identify which types of analysis would provide the most insight, if known.
- In order of preference, list the team's top three choices of lab (NREL, ORNL, Argonne, LBNL, or PNNL) to provide analysis support and the reason for the preference.

2.7 Scoring Weight and Process for *Phase 1: Identify!*

Only submissions that meet the eligibility criteria and include the five elements will pass *Phase 1: Identify!* screening for eligibility. Ineligible submissions will not be reviewed by the advisory reviewer panel and will not be considered for award.

The scoring of submissions will proceed as follows:

1. **Screening.** The Prize Administrator and DOE will screen each application for overall eligibility and completeness. Each submission must have the main elements requested as part of the submission package:
 - Online Public Video
 - Cover page
 - Narrative, including answers to all five areas
 - Submission Summary Slide
 - Analysis Support Work Slide.
2. **Scoring.** A panel of expert reviewers will read, score, and comment on each submission. The narrative questions receive a weighted score, based on the bulleted list of statements. The final score from an

individual reviewer²⁰ for a submission package will be calculated based on the weighing shown in [Table 5](#). All reviewers' scores will then be averaged for a final reviewer score for the submission package. The final review process considers reviewer scores when deciding the winners of the awards.

Table 5. Scoring Weight of *Phase 1: Identify!* Submission Items

Question	Weight (%)
Narrative Question 1 – Opportunity	20
Narrative Question 2 – Innovation	20
Narrative Question 3 – Team and accomplishments	20
Narrative Question 4 – Plan	20
Narrative Question 5 – Community Benefits Plan	10
Reviewer Recommendation	10

- 3. Reviewer Comments.** Expert reviewers also provide comments on the submissions they review. The Prize Administrator intends to provide comments to teams after the winners are announced for each phase. These comments are intended to help teams continue to improve and iterate on their work. The comments are the opinions of the expert reviewers and do not represent the opinions of DOE.
- 4. Interviews.** The Prize Administrator may decide to hold a short virtual or in-person interview with a subset of the teams. Interviews would be held prior to the announcement of winners and would serve to help clarify questions the Prize Administrator may have. Attending interviews is not required, and interviews are not an indication of winning.

The final determination of winners takes reviewer scores, discussions with reviewers (if applicable), interview findings (if applicable), and the program policy factors listed in [Appendix A](#) into account. DOE is the judge and final decision maker and may elect to award all, none, or some of the submissions accepted at each submission deadline.

2.8 Additional Requirements for *Phase 1: Identify!*

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

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

²⁰ Reviewers may not have personal or financial interests in, or be an employee, officer, director, or agent of, any entity that is a registered participant in this contest or have a familial or financial relationship with an individual who is a registered competitor.

3 Rules for *Phase 2: Prepare!*

3.1 Introduction to *Phase 2: Prepare!*

Phase 2: Prepare! is the second phase in the three-phase Re-X Before Recycling Prize, and it offers a total of \$1.5 million in cash prizes and up to \$1.0 million in technical assistance for analysis. Any competitor meeting *Phase 2: Prepare!* eligibility requirements, including winners and nonwinners from *Phase 1: Identify!* as well as new competitors, can compete in *Phase 2: Prepare!* Winning *Phase 2: Prepare!* is required to compete in *Phase 3: Develop!*

Phase 2: Prepare! Prizes

- Up to 10 winners
- \$1.5 million in total cash prizes
- \$1.0 million in analysis technical assistance
- Each winner receives a cash prize of \$150,000 and up to \$100,000 in analysis technical assistance from a national lab.

The following rules are for competitors interested in *Phase 2: Prepare!*. “You” and “your” refer to competitors in this phase.

3.2 Goal of *Phase 2: Prepare!*

The goal of *Phase 2: Prepare!* is to focus on three key areas:

- **Deepen Insight:** Leverage national laboratory expert analysis consultation and other resources to deepen insight into environmental, economic, and community benefits of the innovation and Re-X supply chain.
- **Plan Refinement:** Refine your plan for how to advance innovation towards implementation in a supply chain based on progress made and insights gained.
- **Network Activation:** Cultivate a network of mentors and partners to help advance the proposed innovation and understand the potential impacts on communities.

3.3 Prizes to Win in *Phase 2: Prepare!*

Phase 2: Prepare! offers up to 10 cash prizes of \$150,000 and up to \$100,000 in technical assistance for analysis that can bring insights into the impact and benefits of the proposed supply chain and innovation from one of the identified national laboratories.

3.4 How to Enter *Phase 2: Prepare!*

Complete a submission package outlined in [Section 3.6](#) online at www.herox.com/ReXBeforeRecycling before the contest closing date.

3.5 Process for *Phase 2: Prepare!*

Phase 2: Prepare! consists of three steps:

1. **Preparation and Submission:** Competitors will begin preparing to turn their identified opportunity into a viable supply chain.
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. The judging criteria assess the following (more details can be found in [Section 3.6](#)):

- **Opportunity & Innovation:** How does your innovation advance a Re-X supply chain and what benefits will it bring?
 - **Team:** Does your team have the knowledge and experience to be successful? How have you grown?
 - **Progress:** What progress have you made to advance your innovation?
 - **Plan:** What is your plan to achieve your goals?
 - **Community Benefits Plan:** What community benefits would implementing your innovation in a Re-X supply chain bring? What is your plan to maximize them?
3. **Announcement:** After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute cash prizes and arrange the national laboratory analysis technical assistance. After winning *Phase 2: Prepare*, winners go on to develop and refine their innovations in accordance with their plan to compete in *Phase 3: Develop!*.

3.6 What to Submit and Evaluation Criteria for *Phase 2: Prepare!*

A complete submission, discussed in detail further in this section, for *Phase 2: Prepare!* must include:

- Cover page
- Link to your 90-second online video (public)
- Narrative that answers five questions about the opportunity & innovation, team, progress, plan, and community benefits plan (not to exceed 5,000 words)
- Summary slide (public)
- Analysis support work slide.

Additional information about these materials is provided in this section.

Note: Portions of the submission package are made available to the public. These have been denoted as such, and DOE does not intend to release the remaining parts of the submission to the public. See [Appendix A](#) for additional details.

All documents other than the video and cover page must be uploaded as a PDF.

Expert reviewers will evaluate your submission by assigning a single score for each scored submission section, based on their overall agreement or disagreement with a series of statements. Each section will be evaluated on a scale of 0 (strongly disagree) to 5 (strongly agree), as shown in [Table 3](#).

3.6.1 Online Public Video

Your video should answer the question: What is your innovation?

Suggested content includes:

- The real-world opportunity for a Re-X supply chain that your innovation will enable.
- Your innovation and why it is transformative.
- Who you are and why you will be successful.
- How you have advanced your innovation so far.

Post your *publicly accessible*, 90-second video online (e.g., on YouTube).

Phase 1: Identify! participants are encouraged to update their previous video. Be creative and produce a video that conveys the required information in exciting and interesting ways, but do not focus on time-consuming activities that only improve production values (i.e., technical elements such as décor, lighting,

and cinematic techniques). Assistance from others with experience in this area may be helpful. Members of the American-Made Network may be able to help you create your video.

3.6.2 Cover Page

The cover page must list the following basic information about your submission.

- Project name
- Link to your 90-second online video
- Team members (names, contacts, and links to their LinkedIn profiles)
- Your city, state, and nine-digit zip code
- Website (if applicable).

3.6.3 Narrative

You should answer each of the following five questions provided in [Table 6](#). The content bullets are only suggestions to guide your responses. You decide where to focus your answers. The individual answers to the five questions do not have a word limit; however, **the aggregate response to these five questions must not exceed 5,000 words**, not including captions, figures/graphs, and references. A word count must be included at the end of your submission (see template for details). You may also include **up to five supporting images, figures, or graphs**. The reviewers will score the questions based on the content you have provided. The narrative should be submitted as a PDF file.

Use the following template: <https://www.herox.com/ReXBeforeRecycling/resource/1565>.

Table 6. Topics to Address in the *Phase 2: Prepare!* Narrative

Topic and Percent of Score	Suggested Content to Include	What the Score Will Be Based On
<p>Question 1: <i>Opportunity & Innovation</i></p> <p>How does your innovation advance a Re-X supply chain and what benefits will it bring?</p> <p>This section is 35% weight of your total score.</p>	<ul style="list-style-type: none"> ● Describe your innovation, its value proposition, how it will enable a new or expanded viable Re-X supply chain, the benefits of the supply chain, anticipated challenges, and how the challenges can be overcome. Explain how your concept for the innovation has evolved. ● Show how you know this is a significant opportunity using evidence-based validation. Describe how the activities during the prize have informed your understanding of the significance of realizing this opportunity. Incorporate relevant insights from national lab analysis consulting, if applicable. 	<ul style="list-style-type: none"> ● The competitor clearly explains the innovation, why it would represent significant process toward a viable Re-X supply chain, and how their concept has evolved during the prize. ● The competitor demonstrates understanding of the key challenges to be overcome and provides compelling reasoning and evidence that the innovation has potential to overcome the challenges. ● The competitor has substantially refined their understanding of the significance of the Re-X opportunity using real-world evidence to validate key assumptions.

	<ul style="list-style-type: none"> • Provide estimates of waste stream size and availability, interventions needed, end markets, and type and scale of expected impacts (life cycle greenhouse gasses or other emissions, product life extension, jobs, etc.). Ensure assumptions are as reasonable as possible. 	<ul style="list-style-type: none"> • The competitor provides quantitative estimates of expected environmental and economic impacts based on reasonable assumptions and informed by deepening insight into waste stream, processes needed, end markets.
<p>Question 2: <i>Team</i></p> <p>Does your team have the knowledge and experience to be successful? How have you grown?</p> <p>This section is 15% weight of your total score.</p>	<ul style="list-style-type: none"> • Introduce your team. Highlight knowledge and skills that make it capable of achieving your goals. • Describe how you have activated your network of mentors and partners and how they will help you be successful. Highlight how your team has evolved, including any strategic hires or partnerships. • Include any letters of intent/support. 	<ul style="list-style-type: none"> • The team's drive, diversity, knowledge, and experience provides a strong competitive edge toward realizing this innovation in the near future. • The team identified gaps in talents and resources and brought in the right people or partners to fill those gaps. • The team has activated a network of mentors and partners that increases the team's chances of implementing the innovation in a viable supply chain.
<p>Question 3: <i>Progress</i></p> <p>What progress have you made to advance your innovation?</p> <p>This section is 15% weight of your total score.</p>	<ul style="list-style-type: none"> • Describe the progress made to advance your innovation. Highlight key insights gained, relationships or partnerships formed, and milestones achieved. • Summarize challenges identified and what has been done to overcome them. • Provide a timeline and milestones for advancing the innovation and describe outcomes to date. 	<ul style="list-style-type: none"> • The competitors are successfully meeting goals, overcoming challenges, and demonstrating continued critical progress toward advancing their innovation. • A considerable amount of high-quality effort was put into deepening insight and developing partnerships to advance the innovation and realize the Re-X supply chain opportunity.
<p>Question 4: <i>Plan</i></p> <p>What is your plan to achieve your goals?</p> <p>This section is 15% weight of your total score.</p>	<ul style="list-style-type: none"> • Provide a detailed plan with SMART goals for advancing your innovation from the current state toward implementation in a viable Re-X supply chain. <i>Phase 1: Identify!</i> competitors can revise their previous plan. Include the metrics that will 	<ul style="list-style-type: none"> • The stated goals are ambitious, address risks, and show commitment to an accelerated implementation timeline. Meeting the stated goals will demonstrate critical progress toward implementing the innovation in a viable Re-X supply chain.

	<p>be used to determine success.</p> <ul style="list-style-type: none"> ● Describe the risks to the plan to advance your innovation and mitigation strategies to address them. ● Describe the LCA, TEA, or other analysis that a national laboratory will perform during Phase 3: Develop! to assess the potential impact of your innovation and opportunities to improve it and/or increase the impact. What insights do you expect to gain and how will you incorporate them into your plan? How has insights from national lab analysis consultation been incorporated into your understanding, if applicable? 	<ul style="list-style-type: none"> ● The approach to complete the plan is well-reasoned and makes good use of the resources available. ● Sufficient risks to the development plan have been identified and reasonable mitigation strategies have been described. ● The team describes what national lab analysis will provide insights to improve their innovation and increase impact. The proposed analysis makes sense, is likely to provide insights to improve their innovation and impact, and the competitor is poised to incorporate those insights into future plans.
<p>Question 5: <i>Community Benefits Plan</i></p> <p>What community benefits would implementing your innovation in a Re-X supply chain bring? What is your plan to maximize them?</p> <p>This section is 10% weight of your total score.</p>	<ul style="list-style-type: none"> ● Describe the impact of your innovation and Re-X supply chain on communities and how your understanding has evolved over the prize. ● Describe how the innovation will advance DEIA, workforce development, and environmental justice in these communities. Include at least one SMART goal to advance at least one of these aspects. ● Describe progress made in engaging, educating, gaining trust, or obtaining buy-in from the targeted communities. Include challenges or barriers identified and how you plan to continue to engage these communities. 	<ul style="list-style-type: none"> ● The competitor demonstrates deepening insight into the impact of the proposed supply chain on communities. ● The approach to community engagement describes concrete actions, is strong, and progress has been demonstrated. ● The competitor has identified at least one SMART goal to advance DEIA, work force, or environmental justice.
<p>Reviewer Recommendation</p> <p>This recommendation is</p>	<p>There is no direct corresponding submission requirement for this score. Rather, it is an overall assessment of the total potential impact of the innovation compared to the team's likelihood of success.</p>	<p>The submission demonstrates a potentially impactful innovation and has a strong likelihood of success.</p>

10% weight of your total score.		
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3.6.4 Submission Summary Slide

The summary slide should be a PowerPoint slide submitted as a PDF. It will be made public.

Make your own public-facing, one-slide submission summary that contains technically specific details but can be understood by most people. There is no template, so feel free to present the information as you see fit. Please make any text readable in a standard printout and conference room projection.

3.6.5 Analysis Support Work Slide

The analysis support work slide should be a PowerPoint slide submitted as a PDF.

It should:

- Briefly describe any analysis, such as LCA or TEA, that has been done. Include any insights gained or progress made during *Phase 2: Prepare!* (either via national laboratory consultation or separately).
- Describe the LCA, TEA, or other analysis you would like a national laboratory to perform during *Phase 3: Develop!* To help you deepen your insights and improve your innovation and/or increase the impact in a viable Re-X supply chain.
- In order of preference, list your top three choices for which lab (NREL, ORNL, Argonne, LBNL, or PNNL) you'd like to provide analysis support and the reason for the preference.

3.7 Scoring Weights and Process for *Phase 3: Prepare!*

Only submissions that meet the eligibility criteria and include the five elements will pass *Phase 2: Prepare!* screening for eligibility. Ineligible submissions will not be reviewed by the advisory reviewer panel and will not be considered for award.

The scoring of submissions will proceed as follows:

1. **Screening.** The Prize Administrator and DOE will screen each application for overall eligibility and completeness. Each submission must have the main elements requested as part of the submission package:
 - Cover page
 - Video
 - Narrative, including answers to all five areas.
 - Submission Summary Slide
 - Analysis Support Work Slide
2. **Scoring.** A panel of expert reviewers will read, score, and comment on each submission. The narrative questions receive a weighted score, based on the bulleted list of statements. The final score from an individual reviewer²¹ for a submission package will be calculated based on the weighing shown in [Table](#)

²¹ Reviewers may not have personal or financial interests in, or be an employee, officer, director, or agent of, any entity that is a registered participant in this contest or have a familial or financial relationship with an individual who is a registered competitor.

7. All reviewers' scores will then be averaged for a final reviewer score for the submission package. The final review process considers reviewer scores when deciding the winners of the awards.

Table 7. Scoring Weight for *Phase 2: Prepare!* Submissions

Question	Weight (%)
Narrative Question 1 – Opportunity & Innovation	35
Narrative Question 2 – Team	15
Narrative Question 3 –Progress	15
Narrative Question 4 – Plan	15
Narrative Question 5 – Community Benefits Plan	10
Reviewer Recommendation	10

3. **Reviewer Comments.** Expert reviewers also provide comments on the submissions they review. The Prize Administrator intends to provide comments to teams after the winners are announced for each phase. These comments are intended to help teams continue to improve and iterate on their work. The comments are the opinions of the expert reviewers and do not represent the opinions of DOE.
4. **Interviews.** The Prize Administrator may decide to hold a short virtual or in-person interview with a subset of the teams. Interviews would be held prior to the announcement of winners and would serve to help clarify questions the Prize Administrator may have. Attending interviews is not required, and interviews are not an indication of winning.

The final determination of winners takes reviewer scores, discussions with reviewers (if applicable), interview findings (if applicable), and the program policy factors listed in [Appendix A](#) into account. DOE is the judge and final decision maker and may elect to award all, none, or some of the submissions accepted at each submission deadline.

3.8 Additional Requirements for *Phase 2: Prepare!*

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

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

4 Rules for *Phase 3: Develop!*

4.1 Introduction to *Phase 3: Develop!*

Phase 3: Develop! is the third phase in the three-phase Re-X Before Recycling Prize, offering a total of \$2 million in cash prizes. Only winners of *Phase 2: Prepare!* can compete in *Phase 3: Develop!*

The following guidelines are for competitors interested in *Phase 3: Develop!* “You” and “your” reference competitors in this phase.

Phase 3: Develop! Prizes

- Up to four winners
- \$2 million in total cash prizes
- Each winner receives a cash prize of \$500,000

4.2 Goal of *Phase 3: Develop!*

The goal of *Phase 3: Develop!* is to focus on three key areas:

- **Plan Execution:** Demonstrate that the innovation is advancing by making progress executing the plan refined during previous prize phases.
- **Network Development and Community Engagement:** Work to ensure the supply chain innovation can be implemented by cementing ecosystem partnerships with focus on community engagement.
- **Post-Contest Planning:** Develop a long-term plan for implementing the innovation in a viable Re-X supply chain that provides a compelling case that there is, or will soon be, sufficient resources to keep the effort going beyond this prize contest. Incorporate insights gained from analysis performed at a national lab to improve your innovation and maximize benefits from realizing the supply chain.

4.3 Prizes To Win *Phase 3: Develop!*

Phase 3: Develop! offers four \$500,000 cash prizes.

4.4 How to Enter *Phase 3: Develop!*

Complete a submission package online at www.herox.com/ReXBeforeRecycling before the contest closing date.

4.5 Process for *Phase 3: Develop!*

Phase 3: Develop! consists of three important steps:

1. **Progression and Submission.** Competitors will substantially advance their concept towards an economically viable supply chain.
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. The judging criteria assess the following (more details can be found in [Section 4.6](#)):
 - **Opportunity & Innovation:** How does your innovation advance a Re-X supply chain and what benefits will it bring?
 - **Team:** Going forward, does your team have the knowledge and experience to be successful? How have you grown?
 - **Progress:** What progress have you made to advance your innovation and prove it will be successful?

- **Post-Prize Plan:** What is your plan to achieve your goals post-prize?
 - **Community Benefits Plan:** What community benefits would implementing your innovation in a Re-X supply chain bring and how are you working to maximize them?
3. **Announcement.** After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute cash prizes.

4.6 What to Submit and Evaluation Criteria for *Phase 3: Develop!*

A complete submission, discussed in detail further in this section, for *Phase 3: Develop!* must include:

- Cover page
- Link to your updated 90-second online video (public)
- Narrative that answers five questions about the opportunity, challenge, plan, accomplishments and team, and community benefits (not to exceed 7,500 words)
- Summary slide (public)
- Committed partnership or support letter
- Environmental Questionnaire 1.

Note: Portions of the submission package are made available to the public. These have been denoted as such and DOE does not intend to release the remaining parts of the submission to the public. See [Appendix A](#) for additional details.

All documents other than the video and cover page must be uploaded as a PDF.

Expert reviewers will evaluate your submission by assigning a single score for each scored submission section, based on their overall agreement or disagreement with a series of statements. Each section will be evaluated on a scale of 0 (strongly disagree) to 5 (strongly agree), as shown in [Table 3](#).

4.6.1 Online Public Video

Your video should answer the question: What is your innovation?

Suggested content includes:

- The real-world opportunity for a Re-X supply chain that your innovation will enable.
- Your innovation and why it is transformative.
- Who you are and why you will be successful.
- How have you advanced your innovation so far?

Post your publicly accessible, 90-second video online (e.g., on YouTube).

Be creative and produce a video that conveys the required information in exciting and interesting ways, but do not focus on time-consuming activities that only improve production values (i.e., technical elements such as décor, lighting, and cinematic techniques). Assistance from others with experience in this area may be helpful. Members of the American-Made Network may be able to help you create your video.

4.6.2 Cover Page

The cover page must list the following basic information about your submission.

- Project name
- Link to your updated 90-second online video

- Team members (names, contacts, and links to their LinkedIn profiles)
- Your city, state, and nine-digit zip code
- Website (if applicable)

4.6.3 Narrative

You should answer each of the following five questions provided in [Table 8](#). The content bullets are only suggestions to guide your responses. You decide where to focus your answers. The individual answers to the five questions do not have a word limit; however, **the aggregate response to these five questions must not exceed 7,500 words**, not including captions, figures/graphs, and references. A word count must be included at the end of your submission (see template for details). You may also include **up to eight supporting images, figures, or graphs**. The reviewers will score the questions based on the content you have provided. The narrative should be submitted as a PDF file.

Use the following template: <https://www.herox.com/ReXBeforeRecycling/resource/1567>.

Table 8. Topics to Address in the *Phase 3: Develop!* Narrative

Topic and Weight	Suggested Content	What Your Score Will Be Based On
<p>Question 1: Opportunity & Innovation</p> <p>How does your innovation advance a Re-X supply chain and what benefits will it bring?</p> <p>This section is 30% weight of your total score.</p>	<ul style="list-style-type: none"> • Describe your innovation, its value proposition, how it advances the status quo, anticipated challenges, and how the challenges can be overcome. Explain how your innovation has evolved during the prize. • Show how you know this is a significant opportunity using evidence-based validation. Describe how the activities during the prize have informed your understanding of the significance of realizing this Re-X supply chain opportunity. • Provide revised estimates of waste stream size and availability, interventions needed, end markets, and type and scale of expected impacts (life cycle greenhouse gasses or other emissions, product life extension, jobs, etc.). Incorporate insights from analysis and other activities during the prize. 	<ul style="list-style-type: none"> • The competitor clearly explains their supply chain innovation, how it advances the status quo, why it would represent significant progress, and how it has developed during the prize. • The competitor has identified a compelling innovation, demonstrates understanding of the key challenges to be overcome, and provides compelling reasoning and evidence that the innovation has potential to overcome the challenges. • The competitor demonstrates substantial refinement of their understanding of the significance of their innovation and the supply chain it enables using real-world evidence to validate key assumptions. • The competitor provides revised quantitative estimates of expected environmental and economic impacts based on reasonable assumptions and informed by deep sight into waste stream, processes needed, and end markets.
<p>Question 2: Team</p>	<ul style="list-style-type: none"> • Re-Introduce your team. Highlight knowledge and skills that make it capable of achieving 	<ul style="list-style-type: none"> • The team demonstrates the passion, skills, commitment, and diversity

<p>Going forward, does your team have the knowledge and experience to be successful? How have you grown?</p> <p>This section is 15% weight of your total score.</p>	<p>your goals and implementing your innovation.</p> <ul style="list-style-type: none"> Describe how you have developed ecosystem partnerships and how your team has evolved. Provide detail on how these partnerships will help you be successful. Include at least one letter of commitment partnership or support. 	<p>needed to realize their supply chain innovation in the near future.</p> <ul style="list-style-type: none"> The team identified gaps in talents and resources and brought in the right people or partners to fill those gaps. The team’s ecosystem partnerships demonstrate their ability to implement their supply chain innovation. They have submitted at least one letter of committed partnership or support.
<p>Question 3: Progress</p> <p>What progress have you made to advance your innovation and prove it will be successful?</p> <p>This section is 15% weight of your total score.</p>	<ul style="list-style-type: none"> Describe the progress you made during the prize. Highlight key insights you have gained, relationships or partnerships you have formed, and milestones you have achieved. Summarize the challenges that have occurred and what has been done to overcome them. Provide the goals from your <i>Phase 2: Prepare!</i> submission package and describe the actual outcomes. Comment on any adaption of the goals you have made to be more impactful based on deepening your understanding gained during prize. 	<ul style="list-style-type: none"> The competitor is successfully meeting prior goals, overcoming challenges, and demonstrating continued critical progress toward advancing their innovation. The competitor has adapted their goals and plan to make their innovation more impactful based on their deepening understanding. A considerable amount of high-quality effort was put into advancing the innovation and developing partnerships.
<p>Question 4: Post-Prize Plan</p> <p>What is your plan to achieve your goals post-prize?</p> <p>This section is 20% weight of your total score.</p>	<ul style="list-style-type: none"> Describe your business model/plan post-prize. How will you ensure you have the support post-prize to continue advancing your innovation towards a viable supply chain? What challenges do you foresee post-prize and how will you address them? Describe how you plan to incorporate insights from the national lab analysis to improve your innovation and/or understand impacts of the Re-X supply chain. Describe any changes you have made as a result of insights from the analysis. 	<ul style="list-style-type: none"> The approach to implement the innovation in a viable supply chain beyond this prize is well-reasoned and feasible. Metrics to measure progress have been identified and are appropriate. Largest risks to the development plan have been sufficiently identified and reasonable mitigation strategies have been described. Insights from national lab supported analysis have been integrated into the team’s understanding and their approach to advancing the innovation.

<p>Question 5: Community Benefits Plan</p> <p>What community benefits would implementing your innovation in a Re-X supply chain bring and how are you working to maximize them?</p> <p>This section is 10% weight of your total score.</p>	<ul style="list-style-type: none"> • How has your understanding of and approach to community benefits evolved over the prize? • What have you achieved to realize community benefits? Describe actual outcomes of your goals. • What is your actionable plan to maximize community benefits as you continue to advance your innovation post-prize? 	<ul style="list-style-type: none"> • The competitor demonstrates deepening insight into the impact of the proposed supply chain on communities. • The competitor demonstrates progress realizing their community benefits goals. • The post-prize plan to maximize community benefits is actionable, strong, and likely to succeed.
<p>Reviewer Recommendation</p> <p>This recommendation is 10% weight of your total score.</p>	<p>There is no direct corresponding submission requirement for this score. Rather, it is an overall assessment of the total potential impact of the innovation compared to the team's likelihood of success.</p>	<p>The submission demonstrates a potentially impactful innovation and has a strong likelihood of success.</p>

4.6.4 Submission Summary Slide

The summary slide should be a PowerPoint slide submitted as a PDF. It will be made public.

Make your own public-facing, one-slide submission summary that contains technically specific details but can be understood by most people. There is no template, so feel free to present the information as you see fit. Please make any text readable in a standard printout and conference room projection.

4.6.5 Committed Partnership or Support Letter

A committed partnership that demonstrates the innovation's viability is required and must be part of the submission package. A committed partnership could be a signed contract, purchase order, signed letter from a partner with a guaranteed commitment, or evidence of credible customers in the form of executed customer agreements or payment receipts. The committed partnership must be from an entity that is not represented by a team member on the submission package or anyone that has personal, familial, or social ties to the competitor. Competitors should submit the strongest possible documentation to meet this requirement. DOE and NREL will not provide a preliminary review. A team will not be eligible to win *Phase 3: Develop!* if this requirement is deemed unfulfilled.

4.6.6 Environmental Questionnaire 1

The Environmental Questionnaire (EQ-1) will provide detailed information about your proposed project. The information in the EQ-1 is required for the DOE National Environmental Policy Act (NEPA) review. The instructions and template for the EQ-1 is located on HeroX: <https://www.herox.com/ReXBeforeRecycling/resource/1584>.

4.7 Scoring Process

Only submissions that meet the eligibility criteria and include the five elements will pass *Phase 3: Develop!* screening for eligibility. Ineligible submissions will not be reviewed by the advisory reviewer panel and will not be considered for award.

The scoring of submissions will proceed as follows:

1. **Screening.** The Prize Administrator and DOE will screen each application for overall eligibility and completeness. Each submission must have the main elements requested as part of the submission package:
 - Cover page
 - Updated video
 - Narrative, including answers to all five areas.
 - Submission Summary Slide
 - Legally binding committed partnership or support letter.
 - Environmental Questionnaire 1.
2. **Scoring.** A panel of expert reviewers will read, score, and comment on each submission. The narrative questions receive a weighted score, based on the bulleted list of statements. The final score from an individual reviewer for a submission package equals the total weighted sum of the scores for all the sections. All reviewers' scores are then averaged for a final reviewer score for the submission package. The final prize judge considers reviewer scores when deciding the winners of the Prize. The final score

from an individual reviewer²² for a submission package will be calculated based on the weighing shown in [Table 9](#). All reviewers' scores will then be averaged for a final reviewer score for the submission package. The final review process considers reviewer scores when deciding the winners of the awards.

Table 9. Scoring Weight for Phase 3: *Develop!* Submissions

Section	Weight (%)
Narrative Question 1 – Opportunity & Innovation	30
Narrative Question 2 – Team	15
Narrative Question 3 – Progress	15
Narrative Question 4 – Post-Prize Plan	20
Narrative Question 5 – Community Benefits Plan	10
Reviewer Recommendation	10

3. **Reviewer Comments.** Expert reviewers also provide comments on the submissions they review. The Prize Administrator intends to provide comments to teams after the winners are announced for each phase. These comments are intended to help teams continue to improve and iterate on their work. The comments are the opinions of the expert reviewers and do not represent the opinions of DOE.
4. **Interviews.** The Prize Administrator may decide to hold a short virtual or in-person interview with a subset of the teams. Interviews would be held prior to the announcement of winners and would serve to help clarify questions the Prize Administrator may have. Attending interviews is not required, and interviews are not an indication of winning.

The final determination of winners takes reviewer scores, discussions with reviewers (if applicable), interview findings (if applicable), and the program policy factors listed in [Appendix A](#) into account. DOE is the judge and final decision maker and may elect to award all, none, or some of the submissions accepted at each submission deadline.

4.8 Additional Requirements

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

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

²² Reviewers may not have personal or financial interests in, or be an employee, officer, director, or agent of, any entity that is a registered participant in this contest or have a familial or financial relationship with an individual who is a registered competitor.

Appendix A Additional Terms and Conditions

A.1 Universal Contest Requirements

Your submission for the *Identify!*, *Prepare!*, and *Develop!* phases of the Re-X Before Recycling Prize, hosted by the U.S. Department of Energy (DOE) Advanced Materials and Manufacturing Technologies Office (AMMTO) and managed by the National Renewable Energy Laboratory (NREL), is subject to following terms and conditions:

- If any team member is actively receiving funding from AMMTO at the Identify submission deadline, AMMTO will review any potential prize awards, as well as other DOE funding, and make a decision as to whether awarding a prize to individuals or entities already receiving funding is in line with the program policy factors ([Section A.14](#)).
- You must post the final content of your submission or upload the submission form online at www.herox.com/ReXBeforeRecycling before the *Identify!*, *Prepare!*, and *Develop!* phases close. Late submissions or any other form of submission do not qualify.
- The video submission, summary slide, and technical assistance request will be made public.
- The cover page, narrative, and letters of commitment/support are not intended to be made public; however, see [Section A.11](#) regarding the Freedom of Information Act (FOIA).
- You agree to release your submission video under a Creative Commons Attribution 4.0 International License (see <http://creativecommons.org/licenses/by/4.0/>).
- You must include all the required submission elements. 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 readable and searchable PDF format. Scanned handwritten submissions will be disqualified.
- Competitors will be disqualified if, during any engagement with the Re-X Before Recycling Prize, including but not limited to the submission, the online forum, emails to the Prize Administrator, or other forms of communication, contain any matter that, in the discretion of DOE, is indecent, 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 contests described in this document, these rules will form a valid and binding agreement between you and DOE, 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 contests described here and no other contests on the HeroX platform or anywhere else.
- The Prize Administrator, when feasible, may give competitors an opportunity to fix non-substantive 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 National Lab Analysis Pairing System

The Prize Administrator will assign resources from the National Renewable Energy Laboratory, Oak Ridge National Laboratory, Argonne National Laboratory, Lawrence Berkeley National Laboratory, or Pacific Northwest National Laboratory to provide consulting and perform analysis. *Phase 1: Identify!* winners will receive analysis consulting during *Phase 2: Prepare!* National lab scientists will perform analysis for *Phase 2: Prepare!* winners during *Phase 3: Develop!*

A.3 Verification for Payments

The Prize Administrator will verify the identity and the role of a participant potentially qualified to receive the 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 after the date that the results are announced. Each competitor (or parent/guardian if under 18 years of age) will be required to sign and return to the Prize Administrator, within 30 days of the date the notice is sent, a completed National Renewable Energy Laboratory Request for ACH Banking Information form and a completed W9 form (<https://www.irs.gov/pub/irs-pdf/fw4.pdf>). At 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 cannot be contacted; (ii) the person/entity fails to sign and return the required documentation within the required time period; (iii) the notification is returned as undeliverable; or (iv) the submission or person/entity is disqualified for any other reason.

A.4 Teams and Single-Entity Awards

The Prize Administrator will award a single dollar amount to the designated primary submitter, whether the submitter consists of a single or multiple entities. The primary submitter is solely responsible for allocating any prize funds among its member competitors as they deem appropriate.

A.5 Submission Rights

The public videos in this contest must be submitted and released to the public under a Creative Commons Attribution 4.0 International License (see <http://creativecommons.org/licenses/by/4.0/>).

By making a submission and consenting to the rules of the contest, a 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 parts of the submission that are designated as “public” for government purposes. This license includes posting or linking to the public portions of the submission on the Prize Administrator’s or HeroX’s applications, on the contest website, on DOE websites, and on partner websites, and the inclusion of the submission in any other media worldwide. The submission may be viewed by DOE, the Prize Administrator, and judges for purposes of the contests, including but not limited to screening and evaluation purposes. The Prize Administrator and any third parties acting on their behalf will also have the right to publicize the competitors’ names and, as applicable, the names of competitors’ team members and organizations that participated in the submission, on the contest website indefinitely.

By entering, Competitor represents and warrants that:

The competitor is the sole, original author and copyright owner of the submission or that the applicant has acquired sufficient rights to use and to authorize others, including DOE, to use the submission as specified

throughout the rules; that the submission does not infringe upon any copyright, trade secret, trademark, nondisclosure agreement, patent, or any other third-party rights; and that the submission is free of malware.

A.6 Copyright

Each competitor represents and warrants that the competitor is the sole author and copyright owner of the submission; that the submission is an original work of the applicant, or that the applicant has acquired sufficient rights to use and to authorize others, including DOE, to use the submission, as specified throughout the rules; that the submission does not infringe upon any copyright or upon any other third-party rights of which the applicant is aware; and that the submission is free of malware.

A.7 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 Contest 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 awards are contingent upon the availability of appropriations.

A.8 Resolution of Disputes

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

In the event of a dispute, 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. Competitors and potential winners may be required to show proof of being the authorized account holder.

The Prize Administrator will not arbitrate, intervene, advise on, or resolve any matters between team members or any disputes between teams.

A.9 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.10 Liability

Upon registration, all participants agree to assume and, thereby, have assumed any and all risks of injury or loss in connection with or in any way arising from participation in this contest or development of any submission. 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 Director of AMMTO, the Director has determined that no liability insurance will be required of competitors to compete in this competition, per 15 USC 3719(i)(2).

A.11 Records of Retention and Freedom of Information Act (FOIA)

All materials submitted to DOE as part of a submission become DOE records. Any confidential commercial information contained in a submission should be designated at the time of submission.

Competitors are encouraged to employ protective markings in the following manner:

- The cover sheet of the submission must be marked as follows and must identify the specific pages containing trade secrets or commercial or financial information that is privileged or confidential:

Notice of Restriction on Disclosure and Use of Data:

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

- The header and footer of every page that contains trade secrets or privileged commercial or financial information must be marked as follows: “May contain trade secrets or commercial or financial information that is privileged or confidential and exempt from public disclosure.”
- In addition, each line or paragraph containing trade secrets or commercial or financial information that is privileged or confidential must be enclosed in brackets.

Competitors will be notified of any FOIA 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 FOIA representative prior to the release of materials.

A.12 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.13 General Conditions

DOE reserves the right to cancel, suspend, and/or modify the contest, or any part of it, at any time. If any fraud, technical failures, or any other factors beyond DOE's reasonable control impair the integrity or proper functioning of the contests, as determined by DOE in its sole discretion, DOE may cancel the contest. . Any performance toward contest 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 indicates in the Identify, Prepare, and Develop Contests that it will select up to several winners for each contest, 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.14 Program Policy Factors

While the scores of the expert reviewers will be carefully considered, it is the role of the Prize Administrator to maximize the impact of contest 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:

- Geographic diversity and potential economic impact of projects.
- Whether the use of additional DOE funds and provided resources continues to be nonduplicative and compatible with the stated goals of this program and DOE's mission generally.
- The degree to which the submission exhibits technological or programmatic diversity when compared to the existing DOE project portfolio and other competitors.
- The level of industry involvement and demonstrated ability to accelerate commercialization and overcome key market barriers.
- The degree to which the submission is likely to lead to increased employment and manufacturing in the United States or provide other economic benefit to U.S. taxpayers.
- 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 efforts or projects, which, when taken together, will best achieve the research goals and objectives.
- The degree to which the submission expands DOE's funding to new competitors and recipients that have not been supported by DOE in the past.
- The degree to which the submission exhibits team member diversity and the inclusion of underrepresented groups, with participants including but not limited to graduates and students of historically Black colleges and universities and other minority-serving institutions, or members operating within historically underutilized business zone,²³ Justice40 Initiative disadvantaged communities, and other underserved communities.
- The degree to which the submission enables new and expanding market segments.
- Whether the project promotes increased coordination with nongovernmental entities for the demonstration of technologies and research applications to facilitate technology transfer.

²³ A [historically underutilized business zone](#) is an economically distressed area as determined by the Small Business Administration, based on income and unemployment data.

A.15 Definitions

Prize Administrator means both the Alliance for Sustainable Energy LLC operating in its capacity under the Management and Operating Contract for NREL and AMMTO. When the Prize Administrator is referenced in this document, it refers to staff from both the Alliance for Sustainable Energy LLC and AMMTO staff. Ultimate decision-making authority regarding contest matters rests with the Director of AMMTO.

Technical assistance is part of the prize and may only be used at national laboratories. The funds will be provided directly to the laboratory on behalf of the winner to conduct a mutually agreed upon scope of work between the laboratory and the team.

A.16 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 non-cash prizes be returned to the government.

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

Appendix B Community Benefits Plan

The competitor's Community Benefits Plan should include at least one specific, measurable, achievable, relevant, and timely (commonly shortened to SMART) target in each prize phase. The Community Benefits Plan will be evaluated as part of the technical review process.

The plan should be specific to the proposed innovation and not a restatement of an organization's policies. Competitors should describe the future implications or a milestone-based plan for identifying future implications of their research on communities, including, but not limited to, environmental justice and benefits for the U.S. workforce. These impacts may be uncertain, occur over a long period of time, and/or have many factors within and outside the specific proposed research. Competitors are encouraged to describe the influencing factors and the most likely workforce and environmental justice implications of the proposed innovation if it is successfully integrated into a Re-X²⁴ supply chain. While some guidance and examples are provided below, competitors are encouraged to leverage promising practices and develop a plan that is tailored for their project. The competitor's submission should consider the following community benefits aspects and must address at least one of the following topic areas in their Community Benefits Plan.

A.17 Diversity, Equity, Inclusion, and Accessibility

To build a clean and equitable energy economy, it is important that there are opportunities for people of all racial, ethnic, socioeconomic and geographic backgrounds, sexual orientation, gender identity, persons with disabilities, and those re-entering the workforce from incarceration. Innovations should advance diversity, equity, inclusion, and accessibility (DEIA) efforts by identifying minority-owned businesses to work with, increasing representation of minority demographics, etc. This section of the plan should demonstrate how DEIA is incorporated in the technical project objectives. The plan should identify the specific action the competitor would undertake that integrated into the project goals and teams. Submitting an institutional DEIA plan without specific integration into the project will be deemed insufficient.

A.18 Environmental Justice

Competitor's consideration of long-term environmental justice implications of their innovation and the Re-X supply chain it enables should be articulated. It should identify how the specific innovation plans to integrate environmental and energy considerations into the supply chain to support equitable outcomes or benefits to disadvantaged or energy burden communities should the innovation be successful. This section should tie the Justice40 Initiative²⁵ policy priorities into the scope of the project. The Community Benefits Plan requires a description of the equity implications of the innovation, like cost reductions and commercialization plans, if successful.

A.19 Workforce Implications

Competitor's consideration of long-term workforce impacts and opportunities of the innovations should be articulated. It should identify how the project is designed and executed to include an understanding of the future workforce needs should the resulting innovation be successful. Innovations should support

²⁴ "Re-X" refers to circular economy strategies, such as reuse, repair, refurbish, remanufacture, and repurpose.

²⁵ "What Is the Justice40 Initiative?" The White House. Accessed October 2023. <https://www.whitehouse.gov/environmentaljustice/justice40/>.

community workforce development by advancing high-wage opportunities, reducing income disparities across demographic groups, ensuring a trained and available workforce that is reflective of the community, and creating a safe working environment and pathways to union membership.

Please find additional guidance on the recommended Community Benefits Plan on the [HeroX website](#).

Appendix C Metrics for Assessing Impact

A successful Re-X Before Recycling Prize competitor should demonstrate pathways by which their innovation will reduce waste, promote greater resource productivity, show cost competitiveness, advance resiliency to resource/scarcity issues in the future, and reduce environmental impacts of production and consumption.

Competitors must identify and justify appropriate (e.g., material, energy, and emissions benefits) target metrics for their innovation and Re-X²⁶ supply chain, and clearly indicate how the proposed innovation will satisfy the metrics.

Metrics should be specific to target waste streams and should define appropriate baselines, minimum targets, and stretch targets. For example, competitors can specifically articulate the number of companies involved in the supply chain or the size of the Re-X product market, or competitors can demonstrate the extension of product life through reuse or remanufacturing.

A non-exhaustive list of potential metrics includes those in [Table C1](#).

Table C1. Example Prize Performance Target Metrics

Metric	Performance Target
Reduced processing cost	U.S. dollars (\$) per unit
Increased processing rate	Units per hour
Reduced carbon intensity of the product	Percent (%) carbon intensity change as measured by ton of carbon dioxide equivalent (CO ₂ eq) per kilogram (kg) product
Increased product lifetime	% increase over status quo
Reduced cost of collection	\$ per unit collected
Increased collection	Number of products or components recovered at end-of-use or return rate for reuse systems
Reduced product cost	\$ per unit
Reduced process energy and emissions	MegaJoules (MJ) per unit and kgCO ₂ eq per unit
New material use avoided	kg per unit
Community partnerships formed	Number
Jobs created	Number

This is the end of the Re-X Before Recycling Prize Official Rules document. Thank you for reading.

²⁶ “Re-X” refers to circular economy strategies, such as reuse, repair, refurbish, remanufacture, and repurpose.