

U.S. DEPARTMENT OF ENERGY

Re-X Before Recycling Prize

Informational Webinar
December 14, 2023

This webinar will be
recorded and posted on
HeroX

Informational Webinar Presenters



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Housekeeping

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Under “Select a Speaker,” click “Same as System.”
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Click the up arrow next to the “mute” button in the bottom left corner.
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- Select the Q&A button at the bottom of your screen and type in your question.
- Questions may be answered live, but all questions will be answered in writing on HeroX.

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- Technical difficulties: Chat the webinar host for additional support.
- A video/audio recording of this webinar and the slide deck will be made available on HeroX shortly after the event.

Topics

- 1 Prize Background
- 2 Prize Overview
- 3 *Phase 1: Identify!* – What You Need to Know
- 4 Phases 2 and 3– What to Expect
- 5 Get Started Today!
- 6 Questions

Who Is Behind the Prize?

- The Re-X Before Recycling Prize was established by:
 - The [U.S. Department of Energy's \(DOE's\) Office of Energy Efficiency and Renewable Energy \(EERE\)](#)
 - EERE's [Advanced Materials and Manufacturing Technologies Office \(AMMTO\)](#).
- The prize is a part of the [American-Made Challenges](#) family of prizes.
- The prize is administered by the [National Renewable Energy Laboratory \(NREL\)](#).



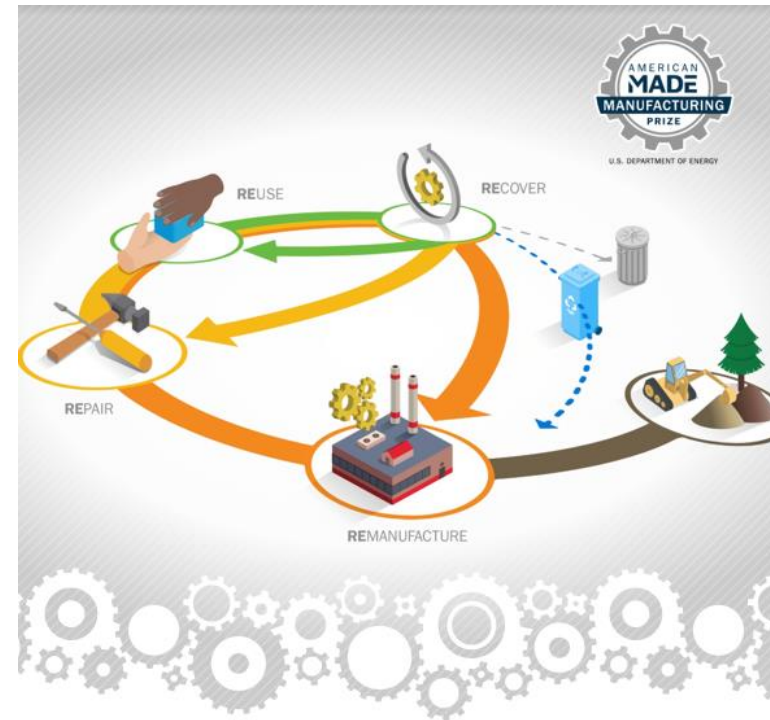
Read the Rules

Official Rules of the Re-X Before Recycling Prize
are available online:

<https://www.americanmadechallenges.org/challenges/re-x-before-recycling/docs/Re-X-Before-Recycling-Prize-Rules.pdf>

Or

[Re-X Before Recycling HeroX Page](#) → Resources



**Re-X Before Recycling Prize
Official Rules**

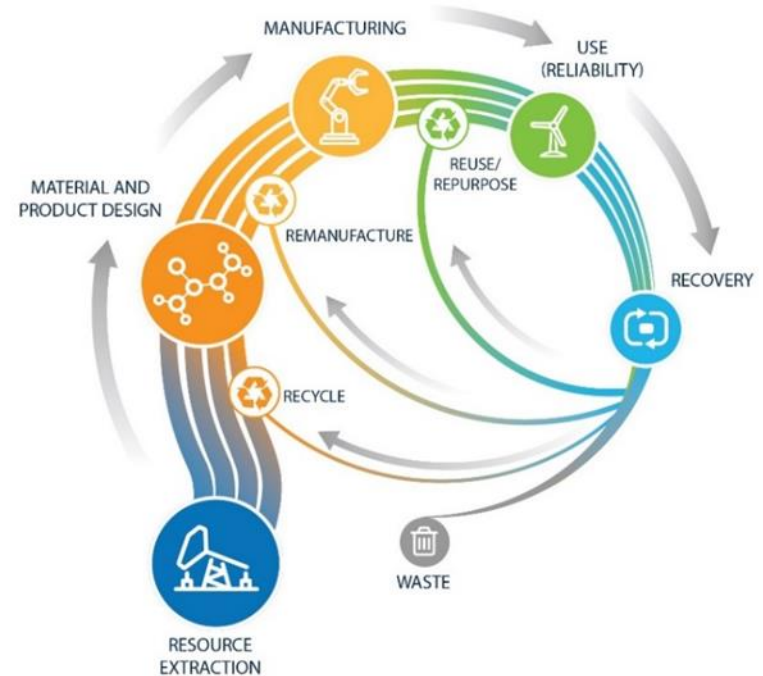
November 2023

Re-X Before Recycling Prize Background



Prize Background

- The U.S. manufacturing sector predominantly follows a linear model of production in which raw materials are mined, transformed into manufactured goods, used, and discarded.
- To fully decarbonize the U.S. economy, the country must create new, circular supply chains to keep materials in use beyond a single life cycle.
- While recycling plays an important role in this circular economy, approaches that extend the lifetimes of goods could save more energy and emissions over time than recycling alone.



Upasani et. al., 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>.

Prize Goals

- The prize is designed to stimulate innovation and private investment in circular economy approaches that can transform waste streams into diverse, integrated circular supply networks and contribute to a robust, environmentally sustainable economy.
- The prize is seeking innovations to unlock new or expanded supply chains that can reintegrate end-of-use products into the economy via reuse, repair, refurbishment, remanufacturing, and/or repurposing (“Re-X”) before recycling.

Re-X Before Recycling Prize Overview



Prize Overview

- The Re-X Before Recycling Prize is a \$5.6 million prize, with a total of \$4.5 million in cash prizes and \$1.1 million in technical assistance from national laboratories.
- The prize is designed to spur innovations to extend the lifetimes of products or parts to overcome difficulties with transitioning the United States from a linear to more circular economy.



3 Phases: *Identify!*, *Prepare!*, and *Develop!*



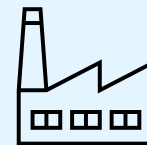
Phase 1: Identify!

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.



Phase 2: Prepare!

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.



Phase 3: Develop!

Competitors will progress to 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.

\$5.6 Million in Prizes

Prize Phase	Duration	Winners	Awards
<i>Phase 1: Identify!</i>	3.5 months	Up to 20	\$50,000 in cash and up to \$5,000 of analysis consulting to use in <i>Phase 2: Prepare!</i>
<i>Phase 2: Prepare!</i>	6 months	Up to 10	\$150,000 in cash and up to \$100,000 in analysis technical assistance to use in <i>Phase 3: Develop!</i>
<i>Phase 3: Develop!</i>	12 months	Up to 4	\$500,000 in cash

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

Analysis Technical Assistance

In addition to cash prizes, **winners will be able to access support from national laboratories for analysis** such as life cycle analysis (LCA) or techno-economic analysis (TEA) to help accelerate their innovation development and maximize environmental and economic benefits.

- 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.

Topic Areas

Established Waste Streams

- Innovations focusing on how to utilize products that are currently available in U.S. waste streams.

Emerging Waste Streams

- Innovations focusing on how to utilize products that will be available in the future waste streams.

Areas of Interest

The prize is interested in innovations that **enable new or expanded** economically viable **supply chains** that **extend the lifespan of products and parts**.

Reuse	Reuse, by another consumer, of a discarded product still in good condition, fulfilling its original function.
Repair	Repair and maintenance of defective product to be used with its original function.
Refurbish	Restore an old product and bring it up to date.
Remanufacture	Use parts of a discarded product in a new product with the same function.
Repurpose	Use a discarded product or its parts in a new product with a different function.

Areas of Interest: Examples

Areas of Interest	Examples
Extend the lifespan of clean energy technologies	<ul style="list-style-type: none">• Refurbishing and installing solar panels or wind turbines in a new location
Extend the lifespan of manufactured products and parts	<ul style="list-style-type: none">• Recovery of components from end-of-use devices, requalification, and reuse in new devices• Reuse of foodservice items such as cups• Recovery and repurposing of building materials
Replicate and improve	<ul style="list-style-type: none">• Establishment of a community reuse program in a new location modeled after a successful effort elsewhere
Deploy new technologies	<ul style="list-style-type: none">• Advanced sorting 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	<ul style="list-style-type: none">• Effective outreach to consumers and entities within the supply chain, potentially drawing from social science approaches.

Areas **NOT** of Interest: Examples

- 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 reusing, repairing, refurbishing, remanufacturing, and repurposing.
- Innovations targeting food, yard, and organic agricultural waste.

See further examples of Areas of Interest (Section 1.4.3) and Areas Not of Interest (Section 1.4.4.) in the [Official Rules](#).

Who Can Participate?

- The Re-X Before Recycling Prize is open to:
 - Individuals/teams of individuals
 - Private entities (for-profits and nonprofits)
 - Nonfederal government entities (states, counties, tribes, municipalities, and academic institutions).
- Full eligibility can be found in the [Official Rules](#).



***Phase 1: Identify!* – What You Need to Know**



Phase 1: Identify! Overview

- *Phase 1: Identify!* is the first in this three-phase prize and offers a total of **\$1 million** in cash and **\$100,000** in national lab analysis consultation.
- *Phase 1: Identify!* will 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 toward implementation in a viable Re-X supply chain.

Phase 1: Identify! Prizes

- Up to 20 winners
- \$1 million in total cash prizes
- \$100,000 in analysis consultation
- Each winner receives a cash prize of \$50,000 and up to \$5,000 in analysis consultation from a national lab.

Phase 1: Identify! Timeline



What to Submit for *Phase 1: Identify!*

1

Cover Page

Not public.
Not scored.

2

90-Second Online Video

Public.
Not scored.

3

Submission Summary Slide

Public.
Not scored.

4

Analysis Support Work Slide

Not public.
Not scored.

5

Narrative

Not public.
Scored.

Cover Page

List 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).








Required	✓
Scored	✗
Public	✗

Section 3: Cover Page

Project Name *

Project Name 0/3000

Link to your 90-second online video *

Normal text ▼ **B** *I* U ~~S~~ x_2 x^2        0/5000




Link to your 90-second online video

Team members (names, contacts, and links to their LinkedIn profiles) *

Please identify the lead member.

To be completed via HeroX

90-Second Online Video

Required	
Scored	
Public	



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., YouTube).

TIP 




Focus on the **required content**, not the production quality

Submission Summary Slide

Required	
Scored	
Public	

- 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.

Analysis Support Work Slide

Required	
Scored	
Public	

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.
- List the team's top three choices of lab, in order of preference (NREL, ORNL, Argonne, LBNL, or PNNL) to provide analysis support and the reason for the preference.

The purpose of the Analysis Support Work Slide is to facilitate matching winning teams with appropriate national laboratory analysis consulting during Phase 2.

Narrative

Required	✓
Scored	✓
Public	✗

Answer each of the five questions:

- 1. Opportunity**
 - What is the opportunity and why is it impactful?
- 2. Innovation**
 - What is your innovation and why will it be successful?
- 3. Accomplishments and Team**
 - Does your team have the knowledge and experience to be successful? What have you accomplished to date?
- 4. Plan**
 - What is your plan to implement the innovation in a new or expanded Re-X supply chain?
- 5. Community Benefits Plan**
 - What community benefits would this new or expanded Re-X supply chain bring?

TIP



- ✓ Remember your audience
- ✓ Be specific and concise
- ✓ Pay attention to the word count

2,500 word maximum
with up to 5 supporting
images, figures, or graphs.

Template available: <https://www.herox.com/ReXBeforeRecycling/resource/1565>



Community Benefits Plan

- The competitor's narrative should consider the following community benefits aspects and must address **at least one** of the following topic areas in their Community Benefits Plan:
 - **Diversity, Equity, Inclusion, and Accessibility**
 - **Environmental Justice**
 - **Workforce Implications.**
- See Appendix B in the [Official Rules](#) for further discussion of topic areas.

Metrics for Assessing Impacts

- 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 target metrics** for their innovation and Re-X supply chain, and clearly indicate how the proposed innovation will satisfy the metrics.
- See Appendix C in the [Official Rules](#) for example metrics.

How to Read the Scoring Rubric

Topic and Percent of Score	Suggested Content to Include	What the Score Will Be Based On
<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 to address.</p> <p>Weight % of this section on your total score.</p>	<p>On the left-hand side is suggested content you could provide to address the judging criteria.</p> 	<p>On the right-hand side are the judging criteria that reviewers will use to score your submission.</p> 

Phase 1: Identify! Submission Scoring Overview

- Scoring
 - A panel of expert reviewers will read, score, and comment on each submission.
 - 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.

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

Phase 1: Identify! Submission Scoring Overview

- The final score from an individual reviewer for a submission package will be calculated based on the weighting shown.

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

- All reviewer scores will then be averaged for a final reviewer score for the submission package.
- DOE is the final judge and will make selections based on reviewer scores and comments, and program policy factors.
- Interviews:** The Prize Administrator may decide to hold a short virtual or in-person interview with a subset of the teams prior to the announcement of winners to clarify any questions the Prize Administrator may have. Attending interviews is not required, and interviews are not an indication of winning.

A full list of Program Policy Factors can be found on page 39 of the [Official Rules](#)

HeroX Live Demo

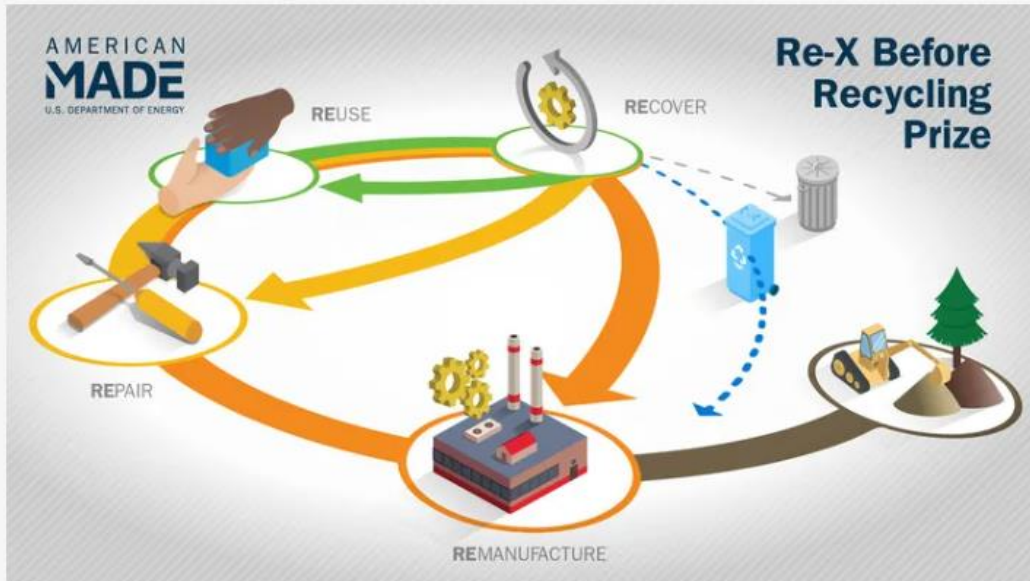


American-Made Challenges

👁 77

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Re-X Before Recycling Prize

Seeking innovations to unlock new or expanded supply chains that can reintegrate end-of-use products into the economy before recycling

Energy, Environment & Resources

Government

Stage:
Pre registration

Prize:
\$5,600,000

FOLLOW CHALLENGE

Follow along at: www.herox.com/ReXBeforeRecycling

Phases 2 and 3 – What to Expect



Phase 2: Prepare!

- Overview:
 - *Phase 2: Prepare!* will offer a total of \$1.5 million in cash and up to \$1 million in technical assistance for analysis
 - Any competitor, including winners and nonwinners from *Phase 1: Identify!* as well as new competitors, can compete in *Phase 2: Prepare!*
- Goals:
 - **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 toward 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.

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.

Phase 2: Prepare! Timeline

Launch:
April 2024
(anticipated)



Submission
Deadline:
October 2024
(anticipated)



Winners
Announcement:
November 2024
(anticipated)

Phase 1 winners will receive up to \$5,000 of analysis consultation from a national laboratory to use during Phase 2.

What to Submit for *Phase 2: Prepare!*

1

Cover Page

Not public.
Not scored.

2

90-Second Online Video

Public.
Not scored.

3

Submission Summary Slide

Public.
Not scored.

4

Analysis Support Work Slide

Not public.
Not scored.

5

Narrative

Not public.
Scored.

Phase 3: Develop!

- Overview:
 - *Phase 3: Develop!* will offer a total of \$2 million in cash prizes.
 - Only winners of *Phase 2: Prepare!* can compete in *Phase 3: Develop!*
- Goals:
 - **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.

Phase 3: Develop! Prizes

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

Phase 3: Develop! Timeline

Launch:
January 2025
(anticipated)



Submission
Deadline:
December 2025
(anticipated)



Winners
Announcement:
January 2026
(anticipated)

Phase 2 winners will receive \$100,000 in technical assistance for analysis consulting from a national laboratory to use during Phase 3.

What to Submit for *Phase 3: Develop!*

1

Cover Page

Not public.
Not scored.

2

90-Second Online Video

Public.
Not scored.

3

Submission Summary Slide

Public.
Not scored.

4

**Committed
Partnership or
Support Letter**

Not public.
Required.

5

**Environmental
Questionnaire 1**

Not public.
Not scored.

6

Narrative

Not public.
Scored.

Get Started Today!



Resources – Power Connectors

Competitors who are participating in Phase 1 will be able to access support from Ensemble Consulting and yet2, American-Made Power Connectors:

- Ask questions about the prize
- Receive feedback on submission materials
- Receive general support for the prize.

Find more information about Power Connectors on [HeroX](#) → Power Connectors Tab.

Ensemble

- Contact Pashioune Wilson at pwilson@ensembleconsultancy.com



Yet2

- Contact Kim Ayers at kayers@yet2.com



Resources – Teaming

Participate in resources and upcoming events to connect with other interested competitors:

- Check out [HeroX](#) → Teaming tab for more information.



Get Started Today!

Get signed up:

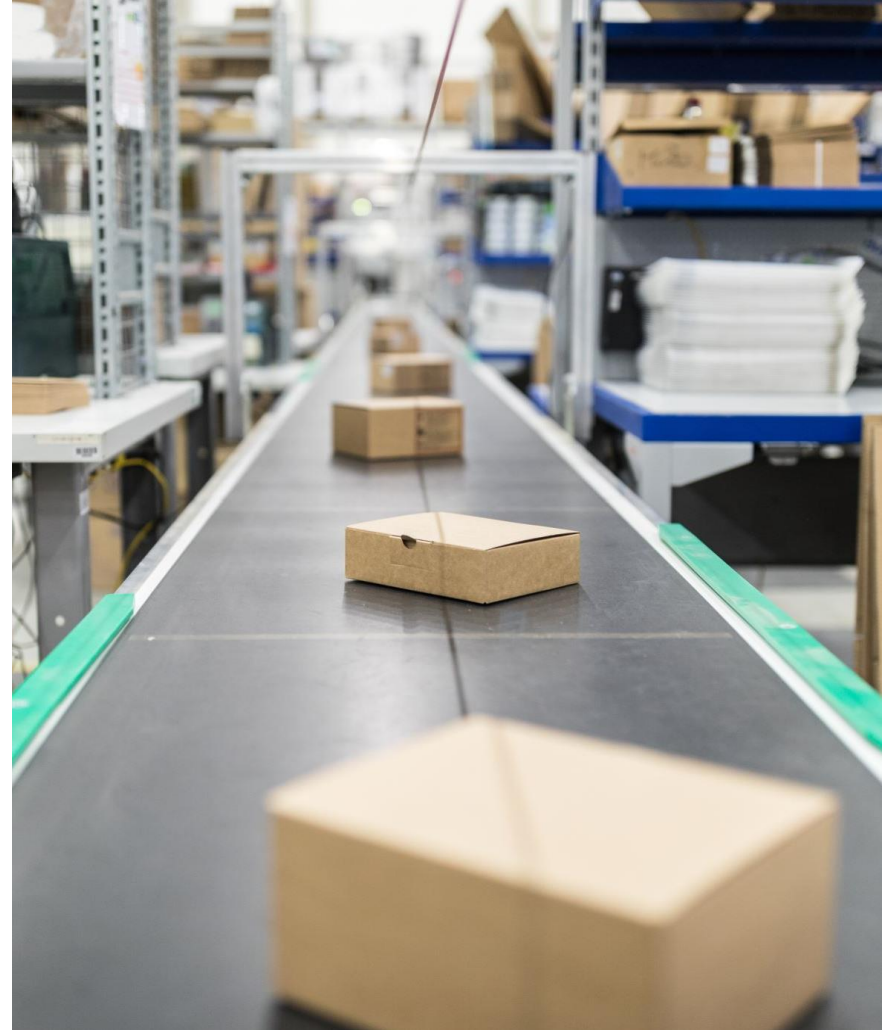
- Follow the [challenge on HeroX](#).

Submit your *Phase 1: Identify!* Submission:

- Read the [Official Rules](#)
- Submit by **March 12, 2024, at 5 p.m. ET.**

Have additional questions?

- Post your questions on the [HeroX forum](#)
- Utilize a Power Connector for support
- Contact us at before.recycling@nrel.gov

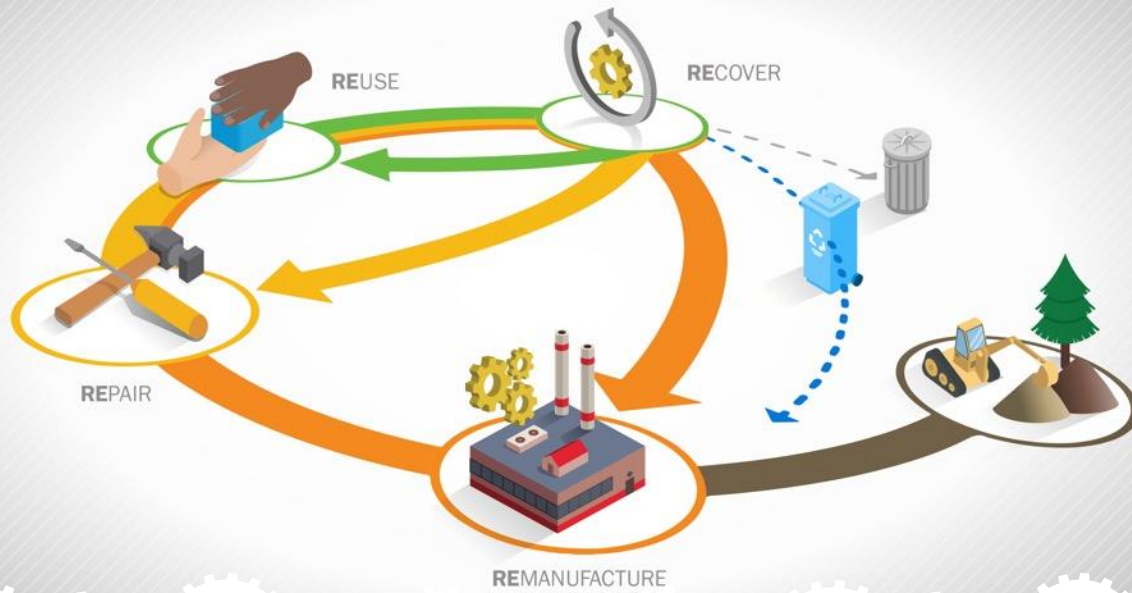


Questions?

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U.S. DEPARTMENT OF ENERGY

Re-X Before Recycling Prize

Thank You!