Informational Webinar

Noah Kobayashi
December 2024

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

U.S. Department of ENERGY | Office of Electricity

Agenda

1. Office of Electricity Overview
2. American-Made Challenges Overview
3. Energy Storage Innovations Prize Round 2 Overview
4. How to Apply
5. Competitor Support (Power Connectors)
6. Questions

Office of Electricity (OE) Overview

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY

MISSION The Office of Electricity (OE) leads the Department of Energy's research, development, and demonstration programs to strengthen and modernize our nation's power grid so that our nation maintains a reliable, resilient, and secure electricity delivery infrastructure.

VISION Working closely with industry and other stakeholders, we drive technological and operational advancements that ensure that every American home and business has reliable access to affordable energy, and that the U.S. sustains its global leadership in the clean energy transformation.

Pioneering innovations to advance a 21st Century electric grid

U.S. Department of ENERGY | Office of Electricity

Learn how OE supports innovations that help keep America's electric infrastructure reliable & resilient.

Energy.gov/oe/join-our-team

ACCELERATING STORAGE FROM MATERIALS TO MARKETS

	Materials	Components & Devices	System Design	Grid & System Integration	Supply Chain & Manuf.	Operations	End of Life & Reuse	Investment & Finance	Markets & Value	Workforce
Electro-chemical	Cost-Competitive & LDES		Grid & Field Validation			Reliability & Safety		• RENEW: Bringing under-represented groups into battery research • LEEP: incubating new non-lithium storage innovators		
Electro-mechanical	Advancing **non-Lithium** technologies (Sodium, Aqueous Soluble Organic, Zinc, Redox Flow) to diversify and secure supply chains for grid storage		OE Section 3201-funded demos in VT, KS, WI, NY, MI						Storage Analytics	
Thermal			• Emergency response training for utilities, fire departments • Expertise for ESS Fire Codes & Standards (NFPA, IFC, UL) • Accelerated performance modeling and validation (ROVI)							
Chemical	World's first high power modular GAN-based inverter		• PNNL/GSL 100KW grid-ready validation • SNL thermal and failure testing			Developing operational standards: • IEEE 1547.9 ES Interconnection • IEEE P2686 BMS • IEEE P2688 EMS			• QuESt: An open-source tool for Energy Storage financial evaluation • FY24 storage tutorials to state commissions in HI, VT, MI, CO, and CA • Energy Storage for Social Equity: building capacity to deploy • Vouchers for modeling, analysis	
Power Electronics	Cost-Competitive & LDES		Grid & Field Validation			Reliability & Safety				

BONUS SLIDES

EMBEDDED LINKS

Office of Electricity: https://www.energy.gov/oe/office-electricity

Join Our Team: https://www.energy.gov/oe/join-our-team

Electricity 101 YouTube Video: https://youtu.be/wQYvIOfFtCw

https://www.facebook.com/DOEElectricity

https://www.linkedin.com/company/office-of-electricity/

https://x.com/DOEelectricity

https://doepeerreview.sandia.gov/

https://www.energy.gov/energy-storage-grand-challenge/2024-energy-storage-grand-challenge-summit

American Made Challenges Overview

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

AMERICAN MADE

U.S. DEPARTMENT OF ENERGY

The American-Made program is your **fast track to the clean energy revolution**. Funded by the U.S. Department of Energy, we incentivize innovation through prizes, training, teaming, and mentoring, connecting the nation's entrepreneurs and innovators to America's national labs and the private sector.

supercharge

A REVOLUTION OF **BOLD IDEAS**

Fast track your ideas for the clean energy revolution

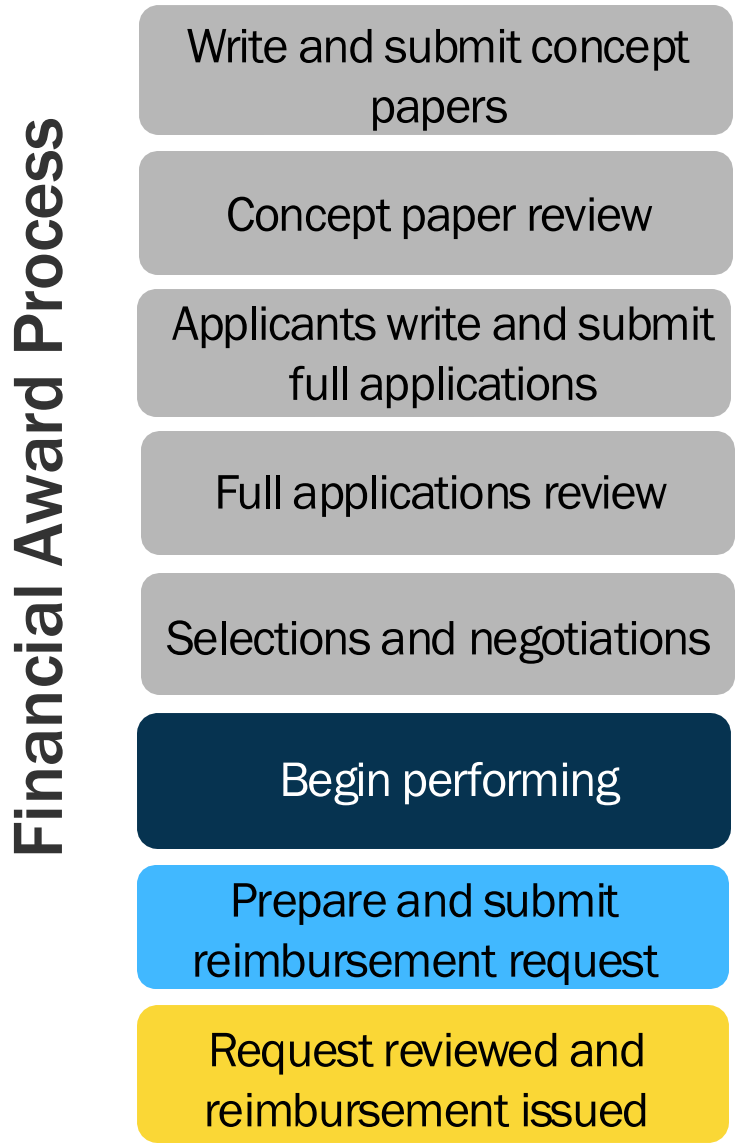
AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

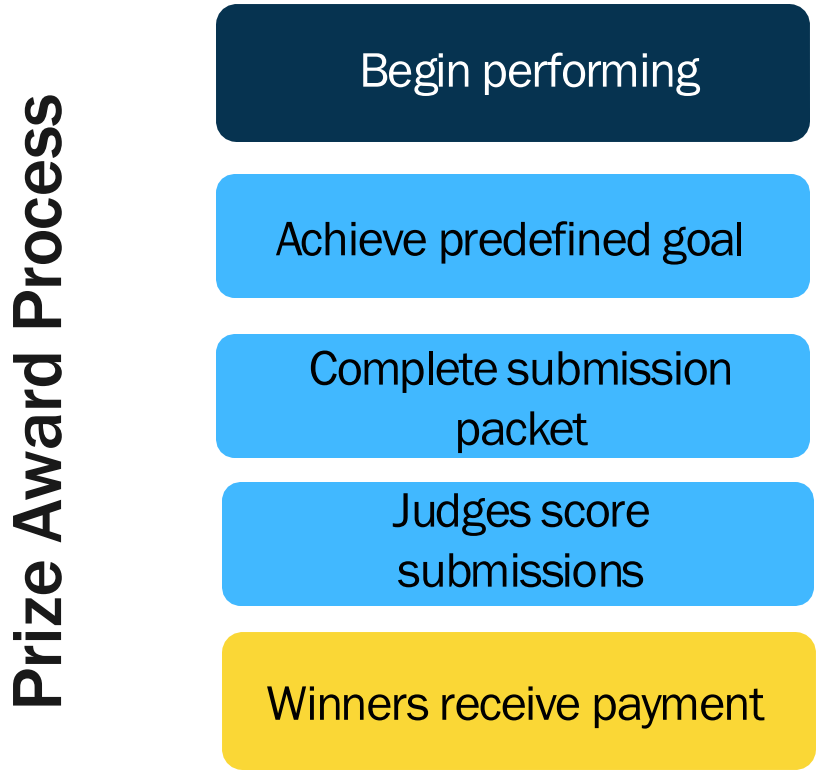
$400M
in cash prizes and support

100+
prizes

500+
Network members

Grants vs. Prizes





Energy Storage Innovations Prize Round 2 Overview

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

Round 2 Snapshot

- The Energy Storage Innovations Prize Round 2 is a call for new, innovative, and promising energy storage solutions to address niche markets and to grow a community of innovators.
- **The prize focuses on less conventional use cases (e.g., remote and/or underserved communities, extreme climates) and innovative (less mature) energy storage technology solutions, across all duration scales, to advance the market landscape.**
- The prize aims to gain insights on innovative, emerging, and next-generation energy storage solutions that address niche markets and inform the U.S. Department of Energy's (DOE's) strategy on transformative storage technologies to accelerate grid modernization for all consumers, while achieving needed reliability, affordability, and energy security.
- Round 2 offers a total prize pool of $300,000. There will be up to 10 winners total, with up to five Storage Innovations Round 2 Champion winners receiving $50,000 each and up to five Storage Innovations Round 2 Finalist winners receiving $10,000 each.
- Winners must participate in a DOE promotional video as part of the prize award!

Round 2 Eligibility

Individuals, teams of individuals, private entities (for-profits and nonprofits), and nonfederal government entities (such as states, counties, tribes, municipalities, and academic institutions) are eligible to compete in this prize.

- An individual prize competitor or a team may only submit a single submission.
- An individual prize competitor (who is not competing as a member of a group) must be a U.S. citizen or 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 permanent resident.
- Private entities must be incorporated in and maintain a primary place of business in the U.S.
- Academic institutions must be based in the U.S.

Refer to the official rules for the complete eligibility requirements.

Example Prize Technologies of Interest

Other technologies beyond those listed below are also of interest!
However, the submitted technologies must discharge electricity.

Electrochemical	Lithium-ion
	Redox flow
	Lead-acid
	Sodium-ion
	Zinc-ion
	Lithium-metal
	Sodium-metal
	Other metals (e.g., magnesium, aluminum)
	Reversible fuel cells
	Supercapacitors
Electromechanical	Liquid air energy storage
	Flywheels
	Geomechanical
	Pumped storage hydropower
	Compressed-air energy storage
	Gravitational

Thermal	Phase change
	Low-temperature storage
	High-temperature sensible heat
	Thermal-photovoltaic
Chemical	Chemical carriers (e.g., ammonia)
	Hydrogen
Flexible buildings	Thermostatically controlled loads
	Building mass
	Ice and chilled water
	Organic phase change material
	Salt hydrate
	Thermochemical
	Desiccant
Flexible generation	Front-of-the-meter flexibility and hybrids
	Behind-the-meter hybrids

How to Apply

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

Read the Rules!

Official Rules for the American-Made Energy Storage Innovations Prize Round 2 are available online!

https://americanmadechallenges.org/challenges/storageinnovations/round2

What to Submit

- Online Public Video (90-Sec)
- Competitor Background
- Summary Slide
- Benefit Cost-Analysis Worksheet
- Cover Page
- Technical Concept Paper

Online Public Video

The video serves as a first introduction of your team and solution to the reviewers.

- Suggested content for 90-second video:
  - Describe your solution, including the energy storage use case and why it is less conventional.
  - Identify the market, community, sector, or other group your solution will impact.
  - Indicate who you are (your organization and key team members) and why you have a competitive edge.
- Judges will be evaluating for similar content.
  - While the public video will not be scored, it will be reviewed as part of the entire submission package.

TIPS and TRICKS

- This is your first impression
- Be creative and focus on content
- Watch previous winners' videos
- Get feedback before you post online

Competitor Background

This section should provide reviewers with information about the individual competitor's or the team's familiarity and experience with similar projects and provide context about their organization and what resources were available.

The aggregate response to this section **must not exceed 500 words** including section headers, but not including the captions, tables, and figures/graphs. You must include a word count for this section on the Cover Page. Including the contents of the Technical Concept section, you may include **up to five supporting images, tables, or figures/graphs**.

DOE encourages all teams to consider diversity, equity, and inclusion initiatives and applications as they form their teams and submissions; however, this will not be scored in the submission review.

Suggested content:

- *Describe the individual competitor's or team's relevant background.*
- *Highlight relevant past experiences with projects like this prize.*
- *Provide information about the individual competitor's or team's organization(s).*
- *Identify resources available to support the proposed technology solution.*

Technical Concept Paper

1. Solution

What is your innovative solution and its less conventional use case?

2. Benefits & Costs

What are the expected benefits and costs of your solution and how does your solution support DOE's goals for providing affordable, equitable, resilient, and reliable energy or other DOE priorities (e.g., sustainable domestic supply chain)?

Word Limit: 3,000 words
Up to 5 supporting images, figures or graphs

3. Challenges

What challenges are associated with the development and execution of your solution?

4. Future Plans

How would you further develop or commercialize your solution?

TIPS and TRICKS

- Remember your audience
- Be specific (this portion isn't public)
- Pay attention to the word count

Benefit-Cost Analysis (BCA) Worksheet

Competitors must complete a BCA to organize the detailed benefits and costs of your energy storage solution over the solution's lifetime. Competitors should discuss their overall approach to determining benefits and costs in the Technical Concept Paper as part of the prize submission. Competitors should also use the Technical Concept Paper to discuss any qualitative benefits and costs for which they were unable to estimate dollar values.

Competitors should use positive Net Present Values (NPVs) for benefits, negative NPVs for costs, and provide clear and complete details so reviewers can easily follow their method and reasoning. Competitors may use, with appropriate citations, the results of models, demonstrations, or studies from the literature to inform their analysis.

NOTE: Prize submissions will not necessarily be scored negatively if costs outweigh benefits. Rather, each competitor's approach and reasoning will be evaluated.

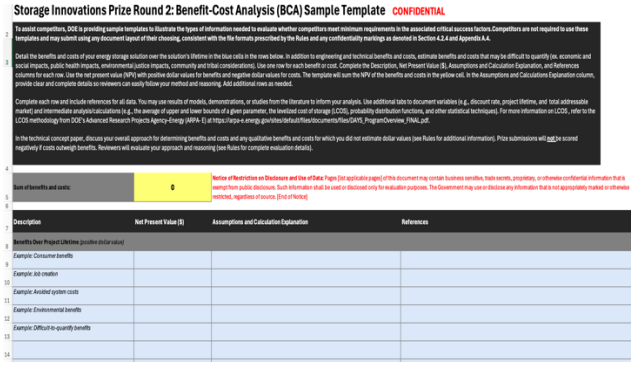
Available HeroX Templates

The following prize templates have been made available on HeroX:

[Cover Page & Technical Concept Paper]

[Benefit-Cost Analysis Worksheet (Non-Confidential)]

[Benefit-Cost Analysis Worksheet (Confidential)]



Use of these templates is **not required;** however, teams must include all required information and abide by all denoted file formats and confidentiality markings as listed in the Official Rules document.

https://www.herox.com/storageinnovationsround2

HeroX Submission

- Your submissions are due by **April 21, 2025, at 5 P.M. ET.**
- Late submissions will not be accepted!
- Submissions can be entered at: https://www.herox.com/storageinnovationsround2

Competitor Support

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY

Power Connectors

- ADL will be providing mentorship office hours throughout the prize.

Next Steps

1. Follow the Storage Innovations Prize Round 2 on the official prize platform, HeroX.
2. Read the Official Rules.
3. Submit your application through HeroX before April 21, 2025, at 5 p.m. ET.

Contact Us

Should you have any questions or need further clarification, please contact us at: energystorageinnovationsprize@nrel.gov

AMERICAN MADE
U.S. DEPARTMENT OF ENERGY