



POWERING THE BLUE ECONOMY™:  
**POWER AT SEA PRIZE**



AMERICAN  
**MADE**  
CHALLENGES

U.S. DEPARTMENT OF ENERGY  
NOAA

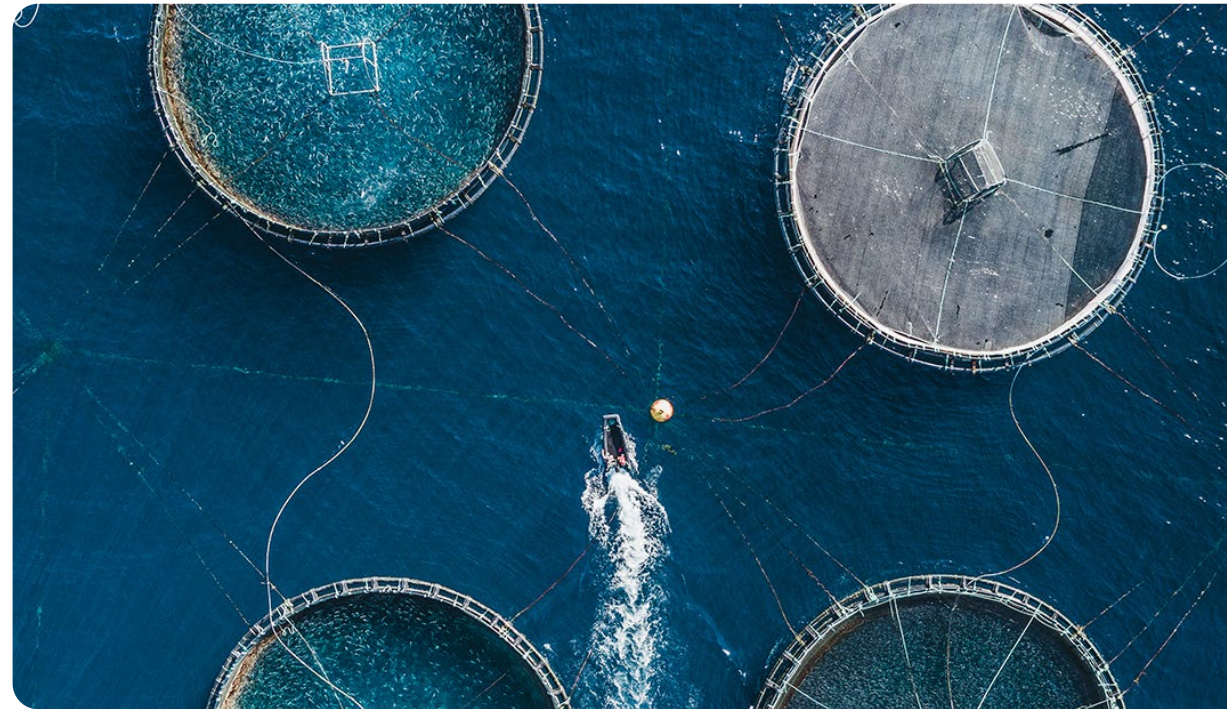


April 3, 2024

**Power at Sea Prize: ASK!**

This webinar is being recorded.

You can unmute to ask us questions, but if you have technical difficulties doing so please use the Q&A to ask your question.



# Frequently Asked Questions

Previously answered questions will be archived on HeroX

[www.herox.com/PowerAtSea/faq](http://www.herox.com/PowerAtSea/faq)

## [Does the proposed solution need to include wave or tidal energy?](#)

As stated in the Official Rules Document Section 1.2 Applications of Interest, the prize is seeking solutions which receives 50% or more of its energy needs from one of the following marine energy resources to power systems at sea: wave, tidal, ocean current, river, salinity gradients, or thermal gradients.

Hybrid technologies are acceptable, including other renewable resources and batteries, but all solutions must meet the 50% requirement to be applicable for a U.S. DOE Water Power Technologies Office Prize.

## [Do I need to be a U.S. citizen?](#)

We cannot determine eligibility in advance of receiving a competitors submission so we would refer you to the official rules document on eligibility to determine which apply to you. However consider:

- 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. 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.

## [Do I have to register on HeroX.com to follow the challenge, leave a comment or register to compete in the challenge?](#)

Yes, but it's quick and easy. Just click the "Solve this Challenge" button on this page and follow the instructions to complete your registration. All you need to provide is your name and email address.

## [I have a question that was not answered in the FAQ. Who can I contact?](#)

If you have a question not answered in the FAQ, we recommend that you post it in the Forum where someone will respond to you. This way, others who may have the same question will be able to see it.

# Stay in Touch!

For more information, visit:

- HeroX: [www.herox.com/poweratsea](http://www.herox.com/poweratsea)
- American Made Challenges: [www.americanmadechallenges.org/challenges/poweratsea](http://www.americanmadechallenges.org/challenges/poweratsea)
- Email: [poweratsea@nrel.gov](mailto:poweratsea@nrel.gov)

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[Water Column](#) (monthly marine energy news)



[Hydro Headlines](#) (monthly hydropower news)



[Water Wire](#) (bi-monthly marine energy and hydropower news)



U.S. DEPARTMENT OF  
**ENERGY**

# Water Power Technologies Office (WPTO)





## Harness energy from the world's oceans

- Waves
- Tides
- Ocean Current
- River Current
- Thermal Gradients
- Salinity Gradients
- Pressure Gradients



NREL HERO WEC – Nags Head, North Carolina



CalWave – San Diego, California



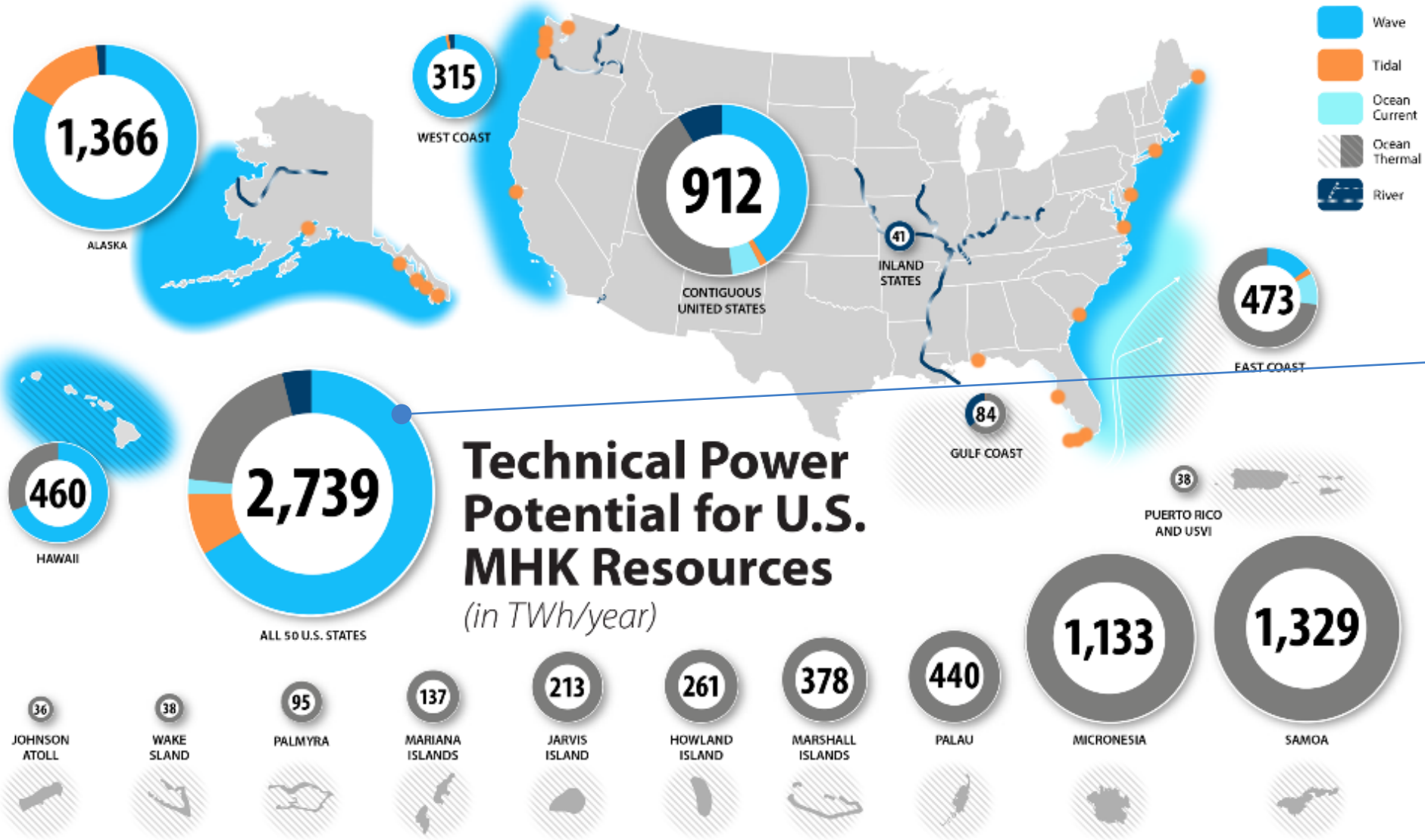
Oneka – Nags Head, North Carolina



Verdant Power – New York, New York



# The Size of the Marine Energy Resource is Significant



Equivalent to 57% of electricity generated in the U.S. in 2019

# Powering the Blue Economy



Potential market opportunities where marine energy may hold a **unique value proposition** to meet the energy needs of the blue economy.

Technology attributes of marine energy beneficial to many blue economy markets:

- Ability to provide both **electrical and mechanical power**
- **Minimal surface expression** improving storm survivability
- Opportunities for **co-design and integration** with other infrastructure
- Ability to leverage **existing maritime supply chains**

Represents a new strategic focus for the marine energy program, supporting opportunities uniquely suited to marine energy attributes







# The Next Powering the Blue Economy™ Prize: **Power at Sea**

# Prize Goals



Engage and cultivate a community of **new and existing participants in marine energy** to introduce new, creative minds to Powering the Blue Economy and the marine energy field, fostering the development of new concepts and lessons learned.



Identify **new, innovative, and feasible marine energy concepts** that have a high likelihood of providing power at sea in the near term to accelerate the commercialization of the nascent marine energy industry.



Introduce competitors to **WPTO and government funding mechanisms** and prepare them to compete technically and financially for future funding opportunities both within and beyond DOE





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**CONCEPT PHASE**

Up to \$200,000  
Cash Prize Pool

Up to \$10,000 for  
up to 20 teams

**DEVELOP PHASE**

Up to \$1,500,000  
Cash Prize Pool

Up to \$75,000 for  
up to 20 teams



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## CONCEPT PHASE

**Up to \$200,000  
Cash Prize Pool**

**Up to \$10,000 for  
up to 20 teams**

- **November 13, 2023**  
CONCEPT Phase Submission Open
- **July 26, 2024, at 5 p.m. ET**  
CONCEPT Phase Submission Close
- **August 2024**  
CONCEPT Phase Winner Announcement

# Blue Economy Applications

Competitors must propose a tangible system, subsystem, or component that receives **more than or equal to 50% of energy needs** from one of the following marine energy resources: wave, tidal, ocean current, river, salinity gradients, or thermal gradients to power systems at sea.

Competitors will be required to choose one challenge area to address from the following list of specific **blue economy integration challenges** (listed in alphabetical order) that can be addressed in the marine energy concepts submitted to this prize (on next slide).

Estimated Power at Sea Device Power Usage (order of magnitude)					
	Milliwatts (mW)	Watts (W)	Kilowatts (kW)	Megawatts (MW)	Gigawatts (GW)
mCDR (including monitoring)	•	•	•	•	•
Ocean observation and navigation	•	•	•	•	
Marine aquaculture (including monitoring)	•	•	•	•	
Underwater vehicle charging		•	•		
Subsea communications		•	•	•	•
Mining seawater minerals and gasses			•	•	•
Data centers			•	•	•
Hydrogen electrolysis			•	•	•
Marine restoration			•	•	•
Pollution remediation			•	•	•
Offshore fuels production				•	•

This table defines applications that could use power at sea. **Applicants must identify** one of these examples or another application in their proposal.

# Blue Economy Integration Challenge Areas

Access	<i>How does your marine energy solution help to reduce the high cost or limited opportunities for service, maintenance, and/or intervention for at-sea blue economy applications?</i>
Deployment Duration	<i>How does your marine energy solution improve the deployment duration of at-sea blue economy applications?</i>
Energy Storage	<i>How does your marine energy solution improve the capabilities and duty cycles currently limited by battery capacity, especially considering that batteries may account for most of sensor volume and weight?</i>
Environmental/Ecological Impact	<i>How does your marine energy solution minimize the negative effects of interactions with local flora and fauna at the deployment site?</i>
Harsh Operational Conditions	<i>How does your marine energy solution minimize or otherwise address operations in challenging conditions like violent storms, strong currents, strong pressure (i.e., for subsea applications), corrosive media, and unwanted growth of marine organisms?</i>
Hybridization with Other Renewable Energy Resources	<i>How does your hybrid solution utilize marine energy to address power gaps caused by intermittency of other non-marine renewable energy resources like solar and wind due to seasonality and changing weather patterns?</i>
Suitability of Power	<i>How does your marine energy solution match power generation to power needs to maximize efficiency?</i>

# Submission Requirements

## Summary Slide

- Public
- Accept/Reject
- Competitors will identify basic information about their submission,
- This information should not exceed a single page.
- Should include:
  - Title
  - Competitor team name and contributing team member names
  - Organization
  - Challenge area
  - Blue economy application
  - Short description of the proposed plan, activities, and use of the prize funds.
  - Link to the 3-minute video pitch.

## 3-Minute Video Pitch

- Public
- Scored
- Competitors will produce a 3-minute video that will help the reviewers and public understand the competitor, the concept, and the relevant market the technology intends to serve.
- Competitors should be creative and convey information in a fun and engaging way.
- Reviewers will focus on the content, not the quality, of the video production, as this is intended to primarily help introduce someone to the technical concept.

## Technical Narrative

- NOT Public
- Scored
- Competitors will write a detailed narrative describing the solution.
- There is a template available.
- The total page count must not exceed 10 pages.
- Acceptable fonts and margins are listed in the official rules document.
- The narrative may also include up to five supporting visualizations or graphics.

# Scoring and Criteria

All scored submission components will be scored on how well the competitor addresses the statements in each criterion; each statement will be scored by reviewers on a 0–5 scale.

Scoring Criteria: 3-Minute Video and Technical Narrative	
<p>Suggested Content Competitor Provides:</p> <ul style="list-style-type: none"> <li>• Example: An introduction to the team</li> </ul>	<p>Each Statement Scored on a 0–5 Scale:</p> <ul style="list-style-type: none"> <li>• Example: A description of the team and their relevant experience, qualifications, and capabilities.</li> </ul>
<p>On the <b>left-hand side</b> are suggested content you could provide to address the scored statements.</p>	<p>On the <b>right-hand side</b> are the exact scoring statements that reviewers will use to score your submission.</p>

0	1	2	3	4	5
Strongly Disagree/ Does Not Address	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree/ Fully Addresses



# Scoring and Criteria

Scoring Criteria	Number of Scored Statements	Total Possible Points
<b>3-Minute Video Pitch</b>	<b>4</b>	<b>20</b>
<b>Technical Narrative</b>	<b>14</b>	<b>70</b>
○ <b>Criterion 1:</b> Identification of Application and Challenge Area	3	15
○ <b>Criterion 2:</b> Proposed System, Subsystem, or Component	6	30
○ <b>Criterion 3:</b> Team Engagement and Planned Development	5	25
<b>TOTAL</b>	<b>18</b>	<b>90</b>

# HeroX Platform

**American-Made Challenges** 1,623 **Share** **Follow (684)**

## Power At Sea Prize

Create reliable and cost-effective renewable power at sea to support Powering the Blue Economy™ initiatives. #PowerAtSea Prize

Energy, Environment & Resources Government

Stage: Enter Prize: \$1,700,000

**SOLVE THIS CHALLENGE**

Summary **Timeline** Updates <sup>1</sup> **Forum** <sup>2</sup> **Teams** <sup>684</sup> Entries **Resources** FAQ **Upcoming Webinars**

Share & follow the prize

Submit your idea!

Stay up-to-date

Communicate with the prize administration team

Build a team

Access valuable resources like the rules and templates!

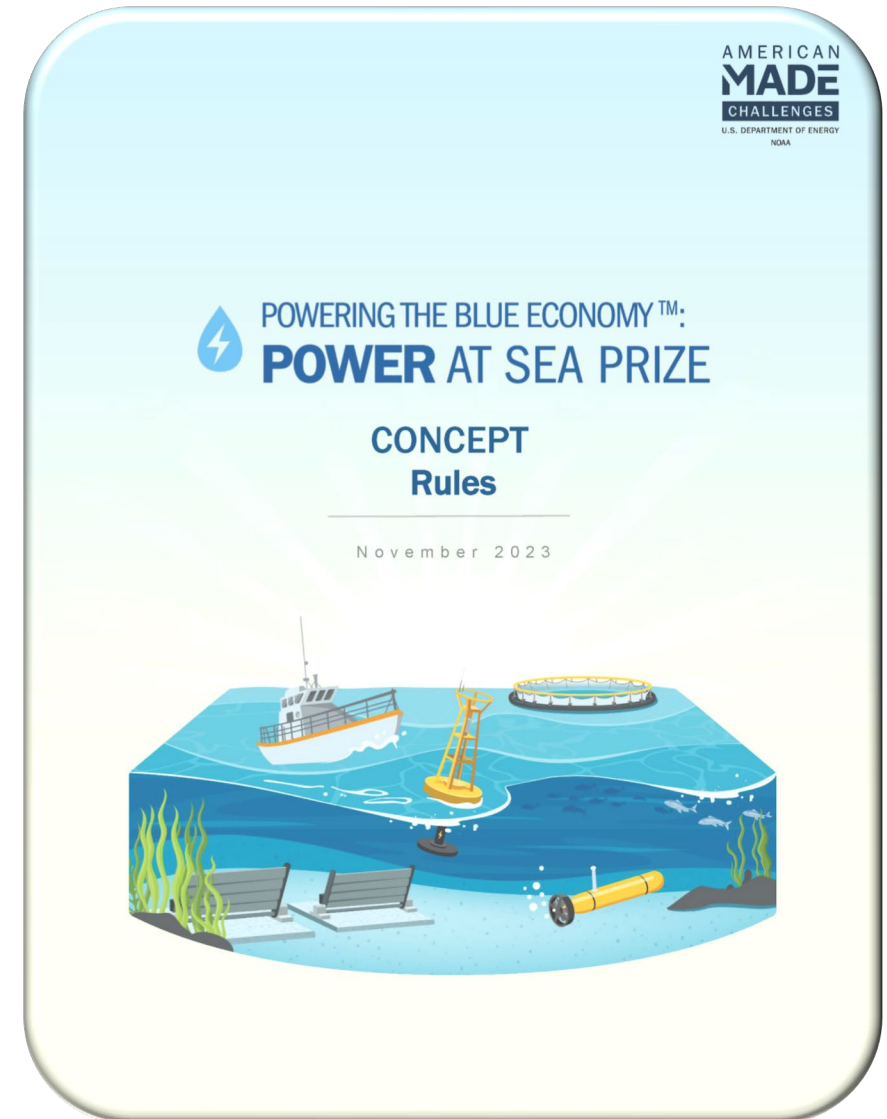
Register for upcoming Webinars

# Read the Rules

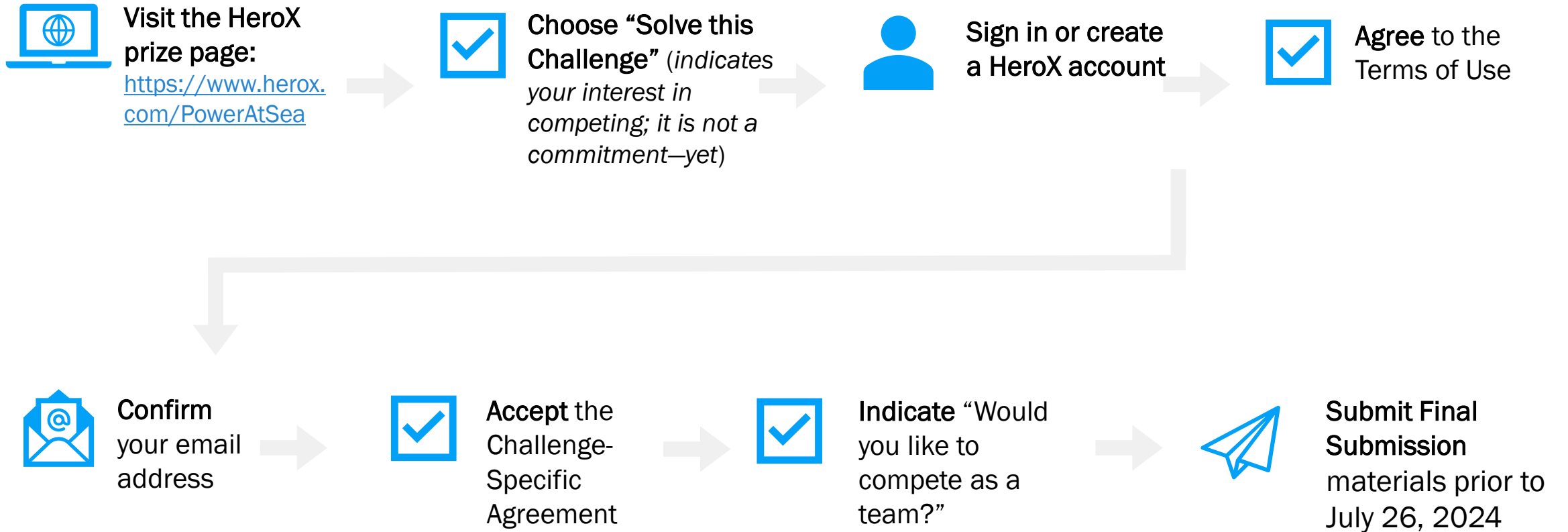
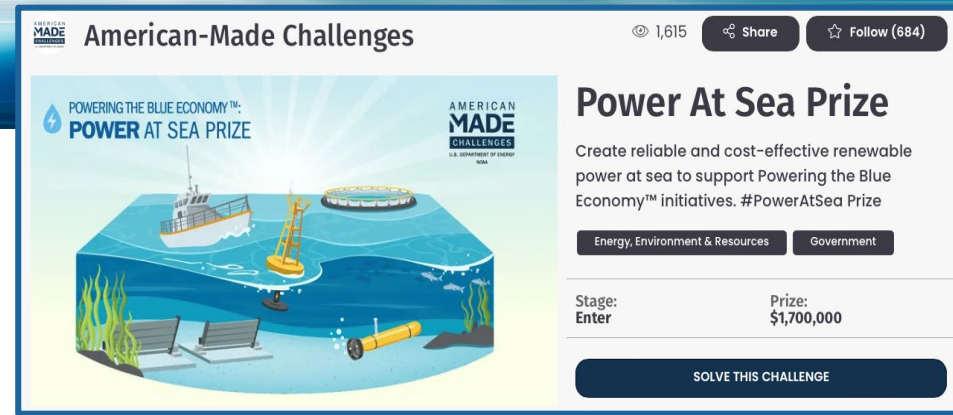
Topics covered in today's presentation can all be found in the Official Rules Document.

For a more in-depth look at these topics, please read the rules document, which is available here:

<https://americanmadechallenges.org/challenges/poweratsea/docs/Power-At-Sea-Prize-Rules.pdf>



# Register and Compete



PowerAtSea@NREL.gov

Thank you & Questions



[HeroX.com/poweratseaprize](https://HeroX.com/poweratseaprize)  
[#PowerAtSea Prize](https://twitter.com/PowerAtSeaPrize)