PON 6021 Pre-Bid Webinar: Developing Maritime Vessels to Transport Hydrogen at Scale

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NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

Agenda

A. **Overview of NYSERDA's Advanced Fuels & Thermal Energy Storage Program** (Haiyan, 10 mins)
   - Team members
   - Program overview
   - Clean Hydrogen
   - Alternative fuels
   - Gas system

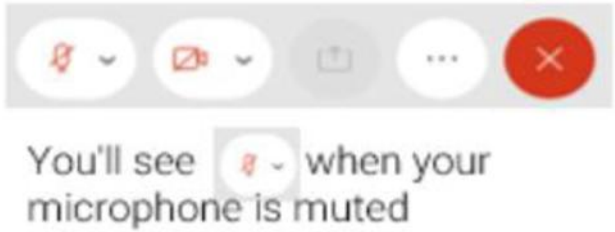
B. **Summary of PON 6021** (Eliseo/Haiyan, 25 mins)
   - Key Dates & Overview
   - Program Requirements
   - Proposal Attachments

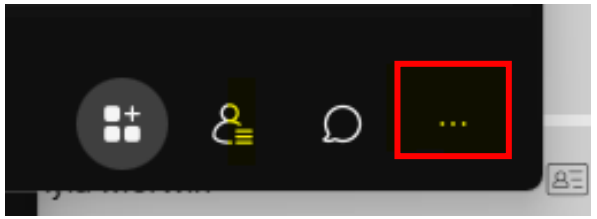
C. **Q&A** (20 mins)

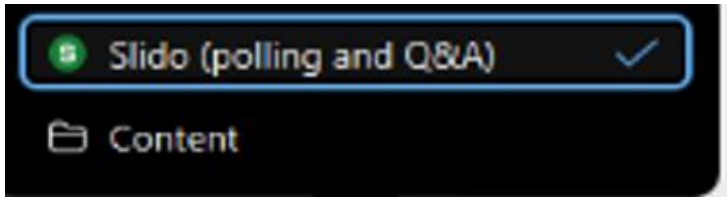
Webinar Procedures

Participation for Attendees:

- Attendees will be muted upon entry.
- Webinar attendees will be anonymous to other viewers , but visible to NYSERDA team.
- Questions and comments may be submitted in writing through the Slido Q&A feature at any time during the event. Click the three dots in the lower right corner and select the Slido option to open the feature.
- If Technical problems arise, please contact Adam Hauck at adam.hauck@nyserda.ny.gov
- Today's slides will be posted at our hydrogen program page: nyserda.ny.gov/hydrogen







Part A.
Overview of NYSERDA Advanced Fuels and Thermal Energy Storage Program

10 mins

Team Members

Haiyan Sun

Team Lead

Eliseo Curcio

Senior Project Manager

Ajay Jagdish

Project Manager

Elvin Yuzugullu

Contractor

New Hire

TBD

Program Overview

Program Focus:

Advanced Fuels and Thermal Energy Storage focuses on innovative solutions to build ecosystems for clean hydrogen and other low carbon alternative fuels, including ***production, transmission, distribution, storage and adoption*** of these fuels in hard-to-electrify sectors and support grid reliability.

Areas of innovation:

- **Clean Hydrogen:** see more details at the *hydrogen webpage*;
- **Alternative Fuels:** see more details at the *Alternative fuels webpage*
- Gas System Transition & Thermal Energy Network *(new areas)*

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Clean Hydrogen – NYS Hydrogen Assessment

Strategic Report

On April 22, 2025, NYSERDA released the New York State Hydrogen Assessment, which focuses on hydrogen produced with renewable energy, using electrolysis and water. The comprehensive assessment includes:

- Hydrogen demand scenarios across the transportation, industry, heating, and power sectors in New York State;
- Statewide infrastructure and related cost for hydrogen production, storage, and delivery;
- Total cost of ownership (TCO) for hydrogen applications compared to fossil fuel alternatives;
- Innovation focus areas

Access the report:

- Full Report [PDF]
- Summary [PDF]

Clean Hydrogen – Investment to date

Since 2023, NYSERDA has dedicated $32M in funding for hydrogen innovation.

	Technical Focus Areas	*PON # & Release year*
Closed	• Research, development, & demonstrations (RD&D) enabling hydrogen applications for high-temperature industrial manufacturing processes. • Clean hydrogen production & integration with renewable energy (e.g., solar, wind, hydropower). • Technology development for NOx control. • Demonstrations of hydrogen-based systems to provide black start provision, electricity, & heat supply to microgrids & grid firming. • Hydrogen storage technology (salt caverns, underwater, limited footprint at urban locations) • Hydrogen fuel cell electric vehicles and fueling stations	• *2023: PON5322 & PON5500 (R1)* • *2024: PON5712 & PON5500 (R2)*
Active	• Clean Hydrogen Fuel Cell for Firm Capacity and Industrial process (link)	• *PON 5944 (released on June 9)*
	• Developing Maritime Vessels to Transport Hydrogen at Scale (link)	• *PON 6021 (today's focus)*

Awarded hydrogen innovation projects*: see details at Hydrogen Projects

The Innovation & Research (2026-2030 CEF proposal) included hydrogen investment, filed for public comments: link.

*Some recently awarded projects and projects still under contract negotiation are not shown.

Innovation focus Alternative Fuels

Research, development, and demonstration of alternative fuels, including **biofuels, waste-derived fuels, and e-fuels** to support hard-to-electrify sectors such as aviation, maritime, long-haul trucking, and certain industrial applications.

Approved RGGI plan (See link)

- On Jan. 29, 2025, NYSERDA approved Regional Greenhouse Gas Initiative (RGGI) operating plan with $24.5M in 3 years to advance feedstock conversion technologies for producing clean fuels from non-food, waste, and residue feedstocks.

RFI 5985 - Clean Fuels R&D and Pilot (currently closed)

- Released on March 28, 2025, to gather stakeholder input for future solicitations on clean fuel production from waste resources.

Gas System Transition & Thermal Energy Network – Innovation Focus

Gas System Transition

- Enable improved, transparent mapping and characterization of the gas system, and invest in low-cost, accurate leak detection methods and pipeline remediation technologies to enhance the efficiency and safety of NYS gas infrastructure.

Thermal Energy Network (TEN)

- Technical assistance to utility TENs pilots and enable TENs deployment in NYS.

Part B
Summary of PON 6021

25 mins

Key Dates for PON 6021

Solicitation Issue Date	July 9, 2025
Proposal Due Date	October 1, 2025 by 3:00 pm ET
Expected Date for Selection Notification	December 2025
Expected Project Start	Q2 2026

PON 6021 Overview

Solicitation Objective: Up to **$4.7million*** available to support the development of innovative maritime vessel solutions for transporting bulk clean hydrogen without pipelines and support industrial scale hydrogen application in New York State. Identify and support economically viable and safe maritime vessel solutions optimized for bulk hydrogen transport.

Funding Category: Product Development (TRL 4-6).

Funding Category	Estimated Technology Readiness Level (TRL)	Minimum Cost Share (non-NYSERDA funding)	Anticipated Period of Performance (months)	Anticipated Number of Awards
Product Development	4-6	50% of total project cost	Within 36 months	1~2 awards

* The total funding available under this solicitation has been increased from $3.9 million to $4.7 million after the webinar.

Project team requirement

At a minimum, the proposal team should consist of the following:

- **Naval Architect and/or Shipyard**
- **Maritime Vessel Operator in New York State**
- **Hydrogen Fuel Supplier**

Strong preference will be given to proposing teams with experience designing, building and operating hydrogen or alternative fuel vessels, or teams familiar with New York State waterways and maritime ports.

Register your entity or find hydrogen partners at: Hydrogen Partners - NYSERDA

Note: Registering on the partners list is not required for submissions or being included on a proposal team.

Technical Requirements

Vessel Capacity and Distance
Capable of transporting at least 20,000 kg of hydrogen per shipment over maritime distances of 100 nautical miles or more.

Safety and Compliance
Full adherence to applicable maritime and hydrogen safety standards (e.g., USCG, IMO, NFPA codes).

Logistical Feasibility
Logistically feasible for inland waterway and coastal hydrogen transport within New York State waterways or from adjacent states.

Fuel Flexibility
Vessels can be powered by hydrogen, alternative low-carbon fuels, or conventional fuels compliant with ISO 8217:2024.

Provision for Future Fuel Adaptability
Vessel design must incorporate provisions for potential future upgrades or transitions to alternative low-carbon or zero-carbon maritime fuels in response to evolving market conditions and regulations.

Expected Scope of Work

All proposals must include tasks to design and build the maritime vessel to meet technical requirements specified in the solicitation, including but not necessarily limited to engineering drawings, equipment list, vessel construction and factory test.

In addition, proposers should include the following tasks:

- **Safety and Regulations:** Outline applicable safety codes, standards and regulatory requirements from relevant agencies. Specify timelines to engage relevant authorities for required reviews and approvals.
- **Market Analysis:** Project applicable end-use cases. Estimate annual hydrogen demand, confirm vessel capability meets projected scenarios, and assess infrastructure compatibility.
- **Planning for Future Demonstration**: Identify suitable future demonstration sites, secure support from port or terminal operators and hydrogen end users and develop an initial community and stakeholder engagement plan.
- **Cost Analysis:** Estimate CAPEX and OPEX for the entire system. Compare estimated hydrogen transport costs via maritime vessel versus commercially available trucking. Include “last-mile” delivery cost if necessary.

Examples of Eligible & Noneligible Proposals

Eligible proposals may include, but are not limited to

- **Retrofitted Articulated Tug Barge (ATB):** Integrated cryogenic LH_2 tanks designed for flexible, efficient loading and unloading.
- **Flat-Deck Barges with Modular LH_2 ISO Tanks:** Containerized storage optimized for rapid turnaround, scalable capacities, and enhanced volumetric efficiency.
- **A maritime vessel incorporating features and systems optimized for hydrogen transportation,** such as modular boil-off gas (BOG) management systems, cryogenic transfer connectors, advanced insulation systems, or materials resistant to hydrogen embrittlement.

Noneligible proposals may include, but are not limited to

- **Projects unrelated to maritime hydrogen transportation,** such as projects related to hydrogen pipeline infrastructure development, or transporting hydrogen by truck or rail.
- **Early-Stage Research and Feasibility Studies** (TRL 1–3)

Required Proposal Attachments

Required Attachments for the Proposal:

- Attachment A – Proposal Narrative Template
- Attachment B – Statement of Work Template
- Attachment C – TRL/CRL Calculator
- Attachment D1 – Milestone Payment Schedule
- Attachment D2 – Budget Form
- Attachment E – Executive Summary Slide Template
- Project List: A list of relevant projects that the proposal team has completed in the past
- Letter(s) of Commitment: Letters from the applicant, all teaming entities, and all cost share providers
- Indirect Cost Rate Supporting Documentation
- Resumes/CVs
- References

Recoupment Requirement

For product development projects exceeding $100k funding, NYSERDA will require a royalty based on sales and/or licensing of the new product developed: which is **1% of sales and of all license revenue** accruing to the Contractor for products produced, for a period of **fifteen years or until the Contractor pays NYSERDA an amount equal to the total amount of funds paid by NYSERDA to the Contractor, whichever comes first**.

The recoupment requirement is applicable only when the product developed using award funding generates revenue. Therefore, if there are no sales, either from product sales or license revenue, there is no recoupment.

All qualified proposals submitted to PON6021 are under the product development category, and subject to recoupment once awarded.

Cost Share Requirements

- PON 6021 requires a minimum **50%** of the **total project cost** to be provided by non-NYSERDA entities. E.g., if the total project cost is $3M (NYSERDA + non-NYSERDA contribution), the proposers are required to provide at least $1.5M in cost share.
- Cost sharing can be from the proposer, other team members, and other government or private sources
- Contributions of direct labor and purchased materials may be considered "cash" contributions.
- Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions
- The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred.
- Cost share **must be verifiable upon submission of the Proposal**
  - If funds from a federal source are being proposed as cost share, the Proposer must provide a commitment letter from the federal agency.
  - Cost share commitments cannot be dependent on some future event.
  - The Proposer must submit Letters of Commitment from all cost share providers

More Explanation on Proposal Attachments

1. Attachment B – Statement of Work Template
   - Basis of future contract if selected
   - Project review committee
   - Format for each task
   - Go/No-go decision
2. Attachment D1 – Milestone Payment Schedule
3. Attachment D2 - Budget form
   - A separate tab for each Subrecipient that is expected to perform work estimated to be more than $250,000.
   - If the total project cost for a vendor is over $250,000, a budgetary quote from the vendor will be required upon selection for contract negotiation by NYSERDA.

Future questions about PON 6021

- **A list of today's questions and answers will be published at: PON 6061 website**
- **Send additional questions about PON 6021 to: PON6021@nyserda.ny.gov**

Thank you

For more questions, send an e-mail to: PON6021@nyserda.ny.gov