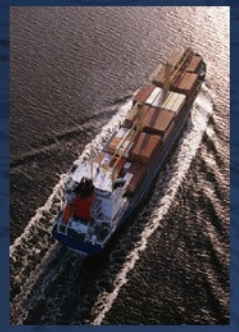





AAPA
Harbors and Navigation Committee Meeting

MARAD META Program

December 2021

1200 New Jersey Ave., SE | Washington | DC 20590
www.dot.gov

MARAD
U.S. MARITIME ADMINISTRATION

Maritime Environmental and Technical Assistance Program (META) - Overview

- Statutorily established under 46 USC 50307
  - Designed to assist maritime stakeholders with addressing emerging maritime environmental issues
  - NDAA update (January 2020)
    - Allows broader focus areas to include safety and underwater noise
- Work with industry, other government agencies, academia, classification societies, etc…
- Funded since 2010 - $3-4 million annually

META - Structure

- Under META, MARAD is authorized to engage in:
  - environmental study
  - research
  - development, assessment, and deployment of emerging marine technologies and practices

- Research papers and guidance
  - Several have led to peer-reviewed journal articles

- Demonstration projects typically involve
  - Public vessels owned by MARAD
  - Private vessels under US registry
  - Ports

- ***Big Picture – data gathering and dissemination for:***
  - Stakeholders to understand what works for maritime applications
  - Inform good policy decisions

META – Primary Goals/Outcomes

- Validation and verification of technologies/processes
- Provide information to stakeholders to make investment decisions, reduce costs, etc.
- Data collection and dissemination (cost-benefit, operational/functional, and comparative)
- Provide platforms & opportunities for demonstration, validation, data generation and collection
- Identify and assess technology transfer and dual military/commercial use opportunities
- Identify knowledge and standards gaps
- Provide technical assistance to industry in working with regulatory agencies
- Stimulate innovation and technology advances for improved sustainability and competitiveness

META - Mechanisms

- Primary contracting mechanism is through **cooperative agreements**
  - Allows MARAD input
  - Allows greater flexibility for multi-year/multi-phase projects
- Interagency agreements
  - Federal partners
- Encourage multiple partnerships
  - Leverage funding
  - Often a cost-sharing component
    - Financial
    - In-Kind/expertise
- **NOT a grant program**

Primary Focus Areas To Date

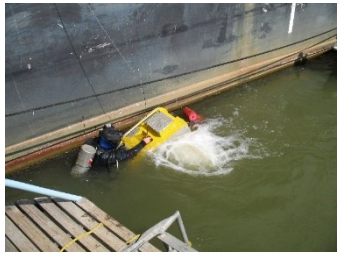
- Port and vessel air emissions, alternative energy, energy technology, energy efficiency
- Aquatic nuisance species (ballast water, underwater hull fouling, etc.)
- Industry Guides
- Multimodal emissions and energy analysis tools
- As of Jan 2020 – safety and propeller cavitation
- Maritime sector decarbonization

META – Recent and Current Projects

- **Air Emissions Reductions**
  - Biofuel testing
  - Exhaust gas cleaning systems (scrubbers)
  - *In-situ* emissions testing
  - Repowers/conversions
  - Port electrification & shorepower

- **Energy conservation/alternative fuels and technologies**
  - Fuel cells
  - Hydrogen/LNG/methanol
  - Algae biogas
  - Batteries/hybrids
  - Shipboard energy efficiency/power management
  - Autonomous applications

- **Aquatic Nuisance Species**
  - BWMS testing
  - Hull fouling



META – Recent and Current Projects, Continued

- **Multimodal Modeling**
  - Total Energy and Emissions Analysis of Marine Systems (TEAMS)
  - Geospatial Intermodal Freight Transport tool (GIFT)
  - WebGIFT

- **Other**
  - Ship-generated underwater noise
  - Blockchains
  - Integrated AIS Wx monitoring
  - Smart vessel technology/situational awareness

META Partners

Federal – EPA (HQ and Regional), USCG, DOE, DOD, NOAA, USDA, Sandia NL, Naval Research Laboratory, NavSea, NREL, SERC, Oak Ridge NL, NREL, Argonne NL, Pacific Northwest NL

State/Local – Puget Sound Clean Air Agency; California State Lands; Maryland Port Administration, Great Lakes States, Pittsburgh Region Clean Cities; Massachusetts Port Authority, Washington State Dept. of Ecology, CARB, Bay Area Air Quality Management District, South Coast Air Quality Management District

Academia – UW, RIT, UDel, UMD, UCR, UCLA, Cal Maritime Academy, Maine Maritime Academy, Mass Maritime Academy; Great Lakes Maritime Academy, MERC, GLMRI

Industry – Interlake Steamship, ACBL (inland barges); Red and White Fleet, Hornblower, SOCP, ABS, DNV-GL, TOTE Maritime, Young Brothers, Crowley, Great Lakes Ports Association, Great Lakes Shippers, Foss Maritime, Sea Machines, SeaSpan, Casco Bay Lines, eCircuit Motors

Why MARAD?

- **Non-regulatory, industry experience and detailed knowledge of vessel and port operations, engineering and design**
- **No other Federal agency is focused on commercial maritime innovation in these areas**
  - EPA, USCG, and even NOAA have regulatory roles. DOD serves the interests of the military rather than commercial maritime sector, and both EPA and DOE have limited or no expertise with maritime operations, particularly ships. MARAD as a sister Federal agency with vast experience with the commercial maritime sector is in a unique position through META to work with all stakeholders and provide expertise to regulators regarding maritime operations and work collaboratively to address environmental issues in a meaningful way.
- **Available platforms, industry relationships**
- **Connected to national, state, and international stakeholders**
- **Congressional mandate**

How to Get Involved/Contact

- RFPs/RFAs/RFIs announced through *beta.sam.gov*
- META website on *www.maritime.dot.gov* ("Innovation" Tab)
  - List of topical areas/projects with reports
- META email: *meta@dot.gov*

or contact: Daniel Yuska | (O) 202-366-0714 | daniel.yuska@dot.gov