Modernizing the Existing Fleet
Pumped Storage
New Low-Impact Projects
Wave
Tidal, River and Ocean Current
Ocean Thermal (OTEC)
Outyear Priorities for WPTO

Top Priorities

1. Optimize U.S. hydropower and PSH to support renewables integration and a 100% clean energy grid.

2. Ensure 21st century hydropower is environmentally sustainable and fully resilient to climate change.

3. Reduce the costs of grid-scale marine renewable energy to enable a fully-renewable grid.

4. Deploy marine energy systems to catalyze and unlock new economic, climate resiliency, and scientific opportunities in the ocean.

5. Develop and advance water power and water systems to increase resiliency critical for remote communities and hard-to-decarbonize applications.
Oceans, Climate, and the Economy

• The ocean’s contribution to emissions reductions, and a more equitable climate future, derive from four sectors:
  – Ocean Energy
  – Maritime Decarbonization
  – Low Emission Seafood
  – Healthy Ecosystems and Carbon Storage

• Underlying these four pillars are core values that tie together, constrain, and focus how we use the ocean to support climate change mitigation:
  – Equitable energy transitions supporting coastal communities
  – Support sustainable growth in the blue economy
  – Improve energy system reliability and increase flexibility to achieve decarbonization goals
  – Leverage public private partnerships, and the full capacity of the federal R&D and science mission
DOE’s Hydrogen Program, Led by the Hydrogen & Fuel Cell Technologies Office

A multi-office collaboration
A Common Vision for Hydrogen Around the World

Addressing energy security, energy efficiency & resiliency, economic growth, innovation & technology leadership, as well as climate change & environmental justice

Global Action Agenda
Aspirational Targets:
“10, 10, 10”
10M systems,
10K stations, 10 years

enabling affordable, reliable, clean, and secure energy across sectors

https://www.energy.gov/eere/fuelcells/h2scale
Today’s Mission: Exploring Marine-to-H₂ Opportunities & Challenges

**Opportunities**

- New ways to leverage untapped marine energy resources *including vast coastal and deep-water resources*
- Renewable synthesis of clean H₂ and value-add co-products *supporting energy, transportation and industrial sectors*
- Exploiting inherent advantages of chemical energy transport
- Leveraging global advances in the H₂ energy revolution

**Challenges**

- Reducing costs in electrolyzer systems and balance of plant
- Advancing TRL of diverse marine energy technologies
- Optimizing coupling of marine resources with H₂ generation
- Mitigating effects of marine environments on integrated systems
- Reducing costs with innovations such as direct seawater splitting

*Special Thanks to the Trailblazers!*
Thank You

& Have a Great Meeting!

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