Portal and Repository for Information on Marine Renewable Energy (PRIMRE)

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PRIMRE

The **Portal and Repository of Information on Marine Renewable Energy (PRIMRE)** provides access to marine energy data, information, and resources to help advance the industry.

- Knowledge Hubs

- Marine Energy Basics

- Events Calendar & Webinars

- Educational Resources

- Data, Tools, & Software

Funded by the US Department of Energy's Water Power Technologies Office and led by 3 national labs.
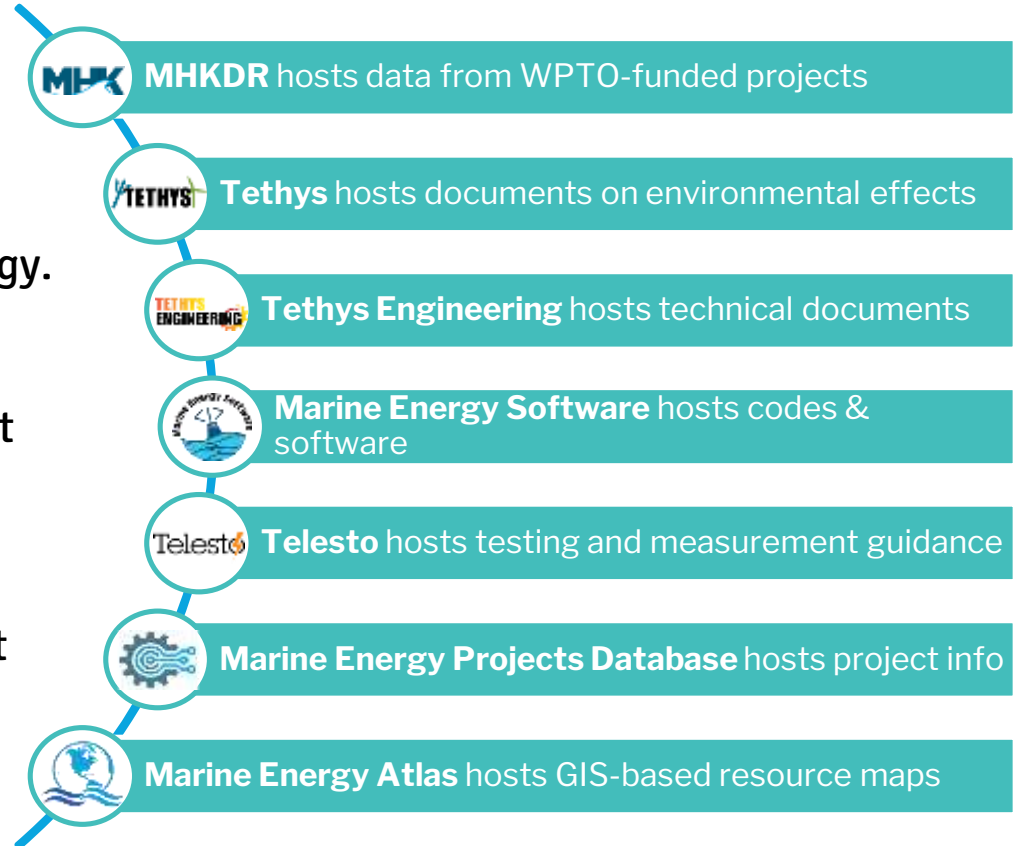

https://primre.org/
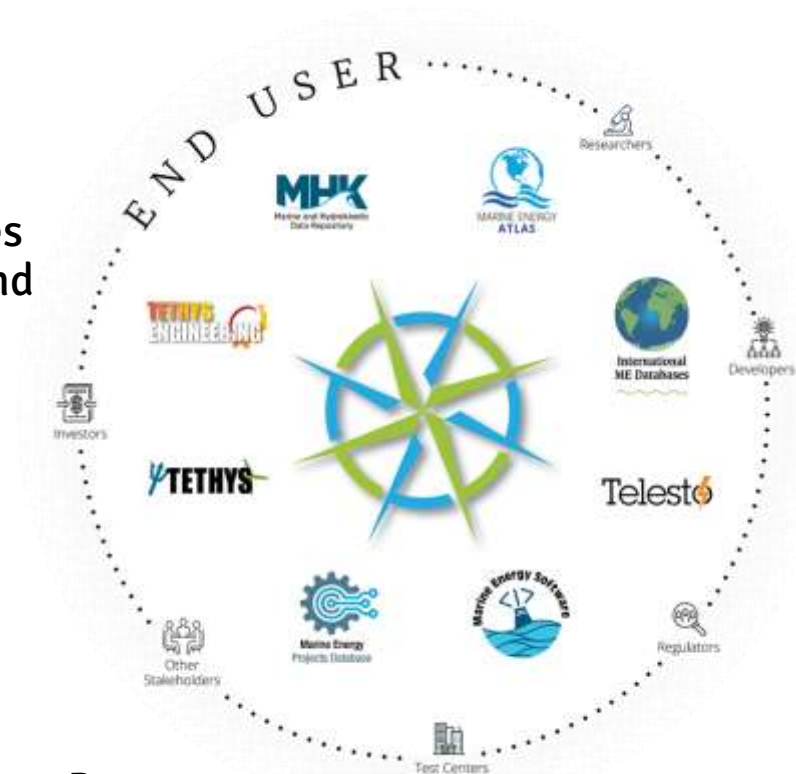
PRIMRE

- Each **Knowledge Hub** houses a different type and format of information related to marine energy.

- Several Knowledge Hubs were developed under other projects, but all have been integrated and improved.

- PRIMRE has a **one-stop search** that allows users to find data and info throughout the system.

  https://primre.org/

MHKDR hosts data from WPTO-funded projects

Tethys hosts documents on environmental effects

Tethys Engineering hosts technical documents

Marine Energy Software hosts codes & software

Telesto hosts testing and measurement guidance

Marine Energy Projects Database hosts project info

Marine Energy Atlas hosts GIS-based resource maps

MHK Data Repository

- Repository for all research and testing data collected funded by the U.S. DOE Marine and Hydrokinetic Power Program.

- Over 300 datasets with more than 2,000 individual data resources

- Over 30 TB of data, from research, development, deployment and analysis efforts, downloaded over a 100,000 times.

    https://mhkdr.openei.org/

Tethys

- Documents library with over 9,000 documents on the environmental effects of wind and marine renewable energy

- Additional features:
  - Tethys Blast
  - Events Calendar
  - Archived Webinars
  - Summaries & Fact Sheets
  - Educational Resources
  - Community Pages

  https://tethys.pnnl.gov/

PRIMRE

Educational Resources on Tethys

https://tethys.pnnl.gov/marine-renewable-energy-educational-resources

Tethys Engineering

- Documents library with over 7,800 documents on the technical aspects of marine renewable energy development

- Over 700 marine energy photos in the Tethys Engineering Photo Library

https://tethys-engineering.pnnl.gov/

PRIMRE

NREL   Pacific Northwest   Sandia National Laboratories

Marine Energy Projects Database

- ~1000 international marine energy projects, test sites, devices, and organizations

- Historic record of past deployments

- Allows for exploration of the relationships between organizations, projects, test sites, and devices

- Charts highlight interesting trends for the marine energy industry

- Anyone can add information

https://openei.org/wiki/PRIMRE/Databases/Projects_Database

King Island Wave Swell Project
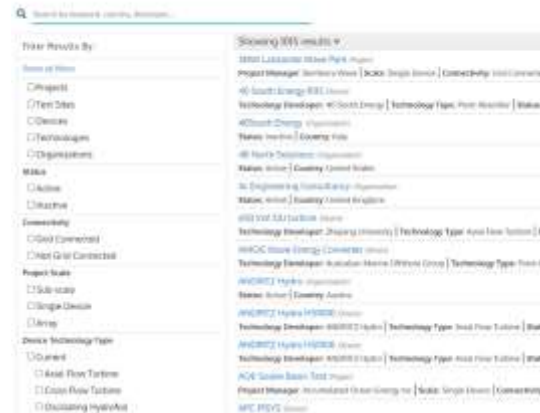
Telesto

- Wikis and databases which provide resources and guidance for marine energy planning, testing, measurement, and data processing

- Organized along the marine energy development pathway: Plan, Design & Build, Test, Deploy and Decommission

- Cross-cutting pages on Lessons Learned, Performance Metrics, Economics, Standards, and Compliance

  https://openei.org/wiki/PRIMRE/Telesto

Marine Energy Software

- Driven by user needs and input

- Catalogues codes and software relevant to marine energy

- Including commercial and open access software

- New version launching very soon

https://openei.org/wiki/PRIMRE/Software

Marine Energy Atlas

- Geographic Information System that houses marine energy resource characterization data

- Open-access, interactive mapping tool for marine energy

- Includes data layers on U.S. wave, tidal, riverine current, ocean current, and ocean thermal resources

https://maps.nrel.gov/marine-energy-atlas/
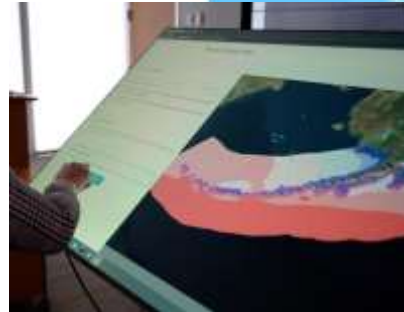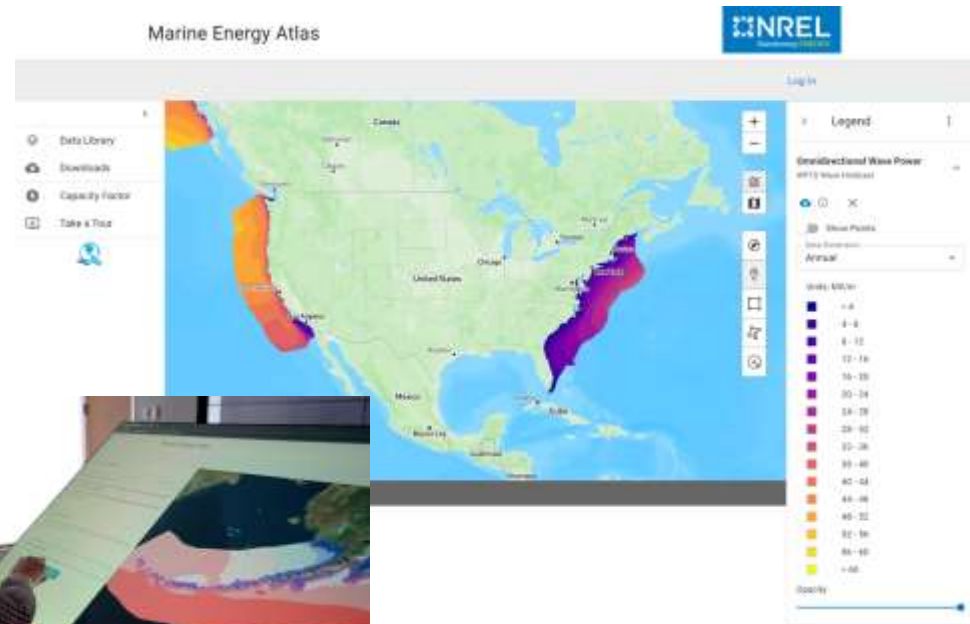
Updated Ocean Energy Systems GIS

- OES-GIS developed on platform in Europe, ported to PRIMRE Marine Energy Atlas system

- Hosts spatial data on marine energy facilities, resources, geospatial data, and environmental layers

- ~50 GB of data transferred to Marine Energy Atlas

- OES data live on Atlas spring 2023

- To be updated annually

Marine Energy Data Lakes

- Universal access to data

- Data available to anyone with an internet connection

- Access no longer limited to national labs, large universities and organizations with HPCs

- Enabling collaboration with communities of all sizes

- Including smaller universities, high schools, startup companies, and other innovators

MHKDR + OEDI

The Open Energy Data Initiative (OEDI) improves access to high-value data sets.

Machine Learning

Analytics

Industry, Academia, Public Access

Data Lake (Big Data)

Cloud-based HPC (On Demand)

On-premises Conventional HPC (Cloud Connected)

Real-time Data

PRIMRE

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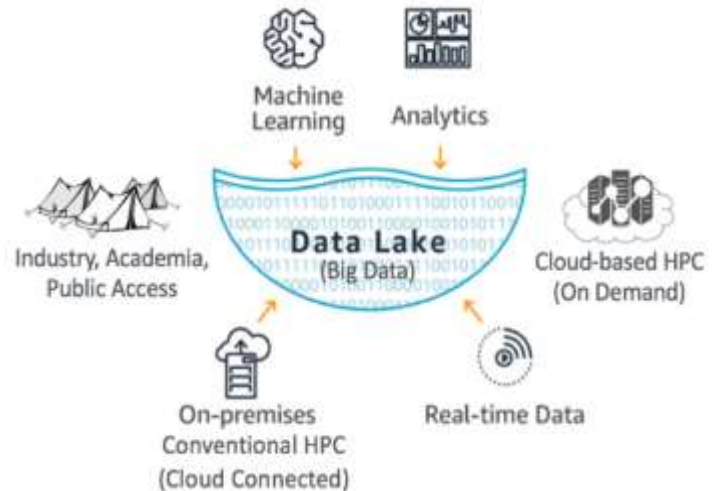
Contribute to PRIMRE

Contributing to PRIMRE

Submissions to PRIMRE from researchers, academics, and developers involved in the Marine Energy (ME) industry are highly encouraged. The table below helps identify the appropriate knowledge hub for each type of content. Any questions or requests for guidance on how to contribute content to PRIMRE can be directed to the PRIMRE Help email address.

Help me choose.
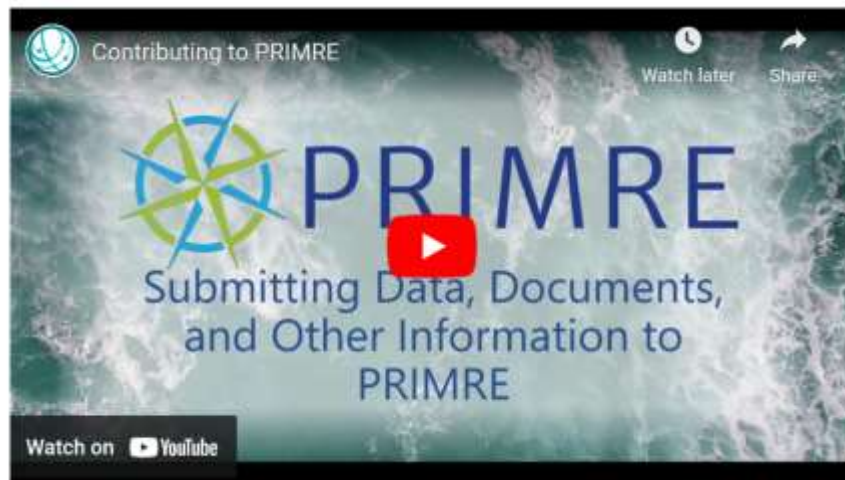
What would you like to contribute?

○ A journal article or conference paper relevant to Marine Energy

○ Data, including tabular data, time series data, videos, code, software, or APIs.

○ New guidance, lessons learned, standards, or best practices.

○ Information about a new project, device or organization operating in ME.

○ Text, images or other content to one of the PRIMRE pages

International Data Sharing Workshops

- On behalf of Ocean Energy Systems and the U.S. DOE, the PRIMRE team hosts annual international workshops to explore the potential for sharing marine energy data internationally.

- Each workshop features presentations on various marine energy resources available around the world (e.g., databases, portals, tools), followed by discussions focused on the values and barriers to data sharing, and solutions to overcome those barriers.

- The 2023 workshop highlighted MARENDATA and PRIMRE's interoperability and participant discussions focused on geospatial data sharing and to the Marine Energy Atlas.
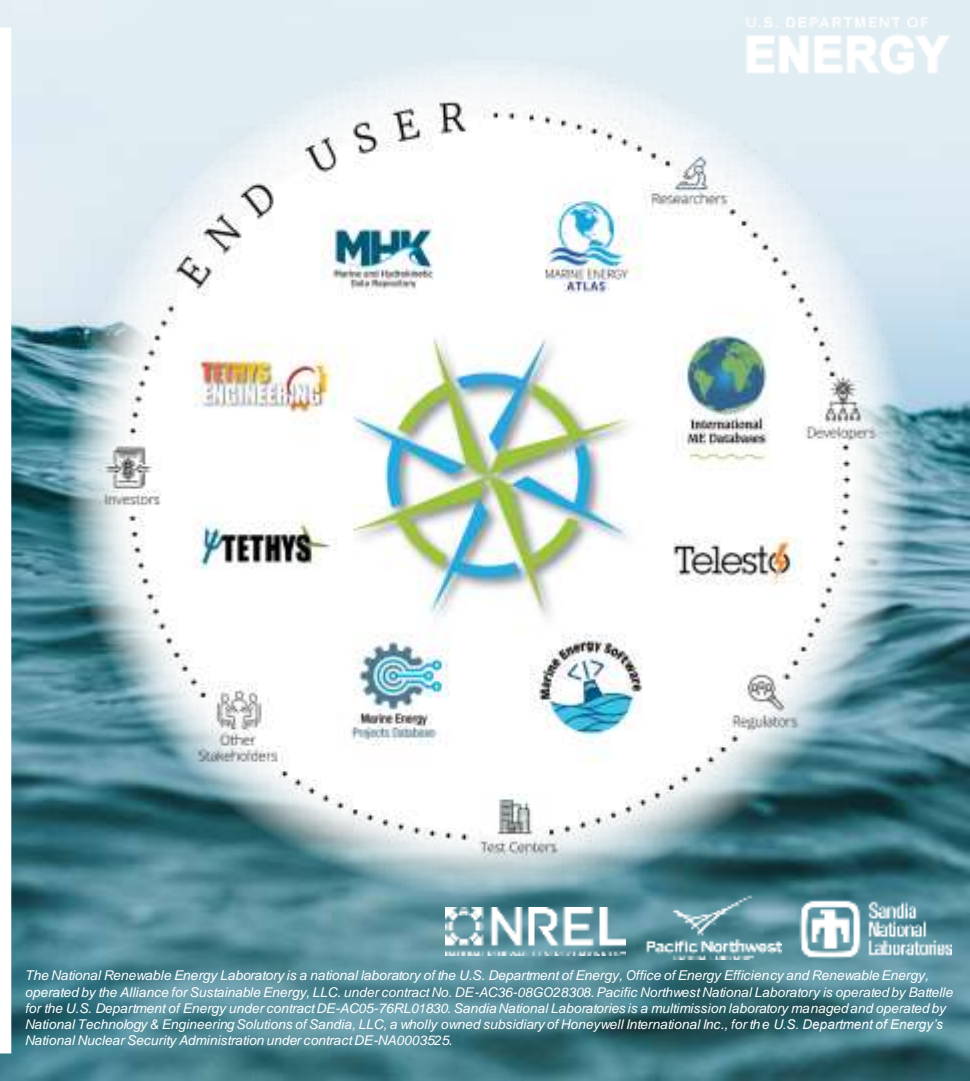
Thank You!

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- Sandia: Kelley Ruehl, Will Peplinski, and Megan Anderson