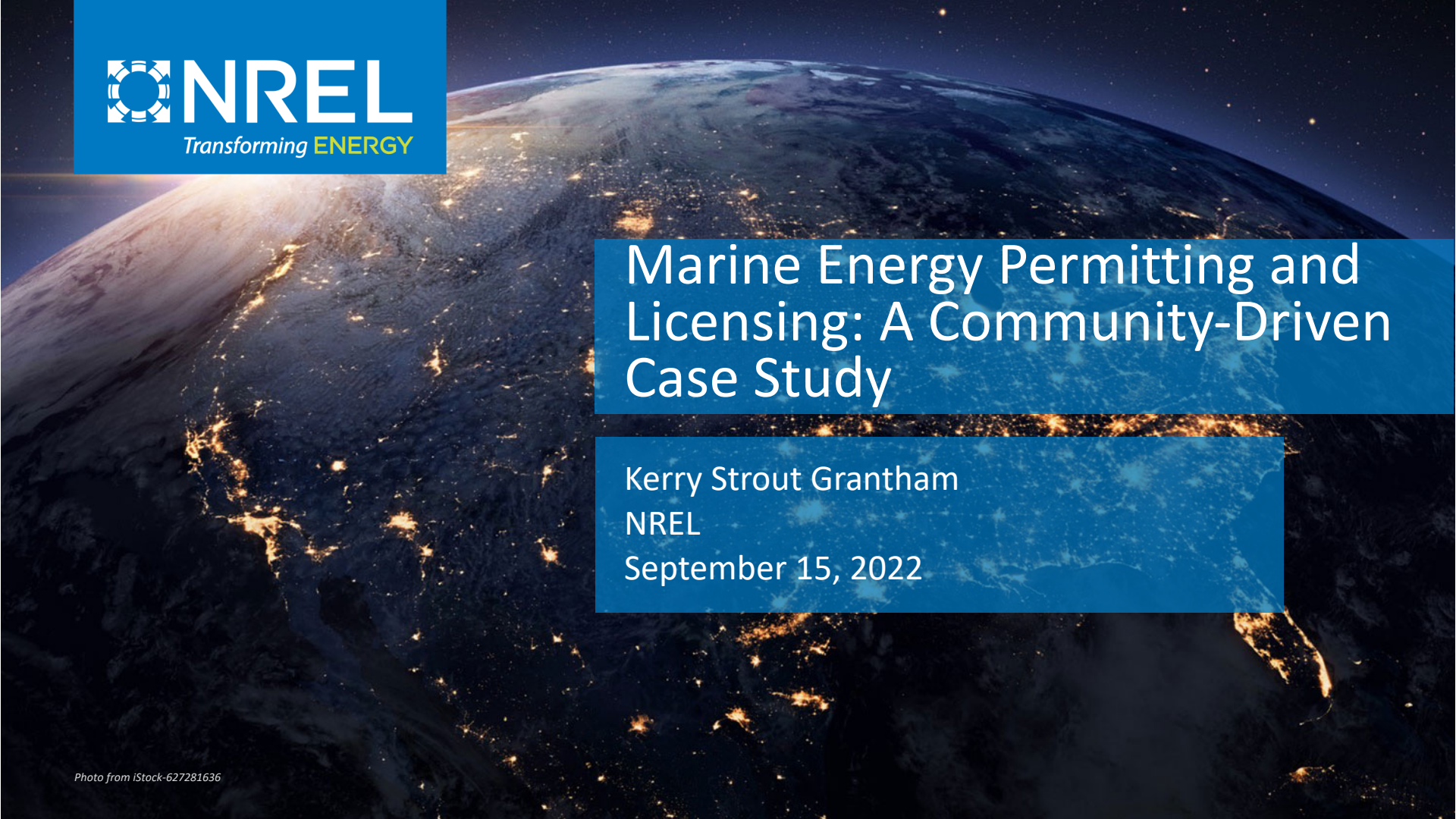


Marine Energy Permitting and Licensing: A Community-Driven Case Study

Kerry Strout Grantham
NREL
September 15, 2022

Photo from iStock-627281636

1 Introduction

2 Marine Energy Regulations and Regulatory Agencies

3 Igiugig Hydrokinetic Pilot Project

4 Conclusion

Introduction

About

- Policy Analyst at NREL in the Hydropower and Water Systems Deployment Department
- Previously the Development Services Manager at ORPC
- Former member of the Marine Energy Toolkit Team
- Information in this presentation draws from my own experiences as staff at ORPC, working on behalf of the Igiugig Village Council, and as a member of the Marine Energy Toolkit team

Marine Energy Regulations and Regulatory Agencies

Key Marine Energy Regulatory Agencies

FERC	BOEM	USACE	USCG	NMFS	USFWS	USCBP	Tribe	State	Community
• Federal Power Act • Energy Policy Act	• OCS Lands Act • Energy Policy Act	• Rivers and Harbors Act • Clean Water Act	• Coast Guard Regulations • Private Aids to Navigation	• Endangered Species Act • Marine Mammal Protection Act • Magnuson-Stevens Act	• Endangered Species Act • Marine Mammal Protection Act • Fish and Wildlife Coordination Act • Migratory Bird Treaty Act	• Jones Act	• Tribal consultation for permit and license applications • Rules and regulations of sovereign tribes	• National Historic Preservation Act • Coastal Zone Management Act • Clean Water Act • Regulations pertaining to state-managed submerged lands	• Regional permits • Rights of way • Community-centric permits for renewable energy projects

Igiugig Hydrokinetic Pilot Project

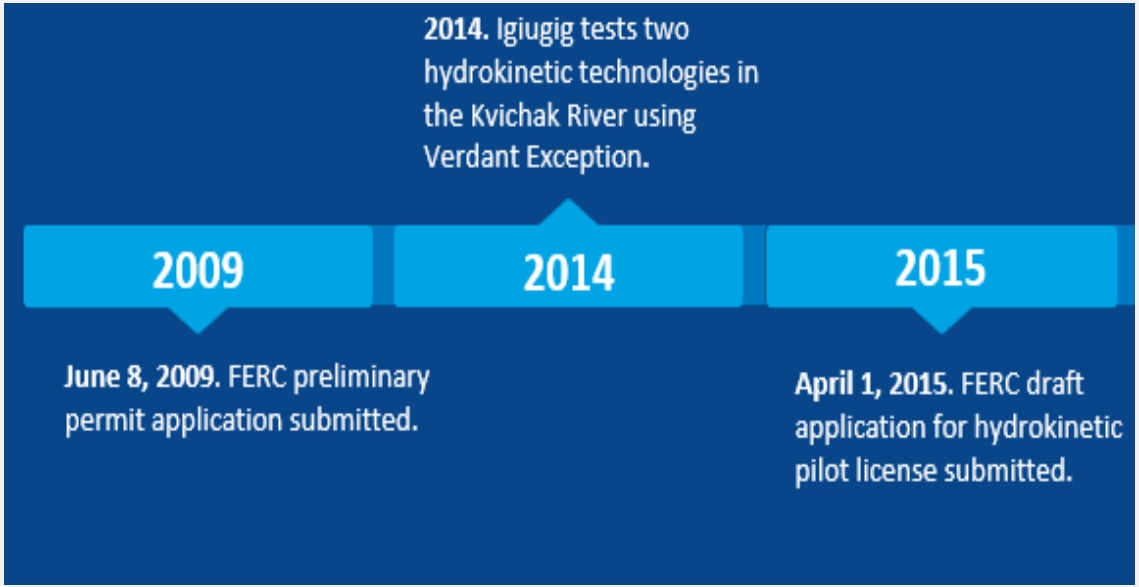
Igiugig, Alaska

- The word Igiugig means, “like a throat that swallows water” in the Yup’ik language. It is where the Kvichak River meets the mouth of Lake Iliamna.
- Igiugig is a remote southwestern Alaskan community of 68 people and in 2000 Igiugig completed its first comprehensive community sustainability vision and plan.
- In 2009, Igiugig started the journey towards determining if hydrokinetic energy is feasible in the Kvichak River.

Image by ORPC and Igiugig Village Council, NREL 68121

Igiugig Timeline: The Early Years

- After completing renewable energy feasibility studies with the help of the Alaska Energy Authority and the National Renewable Energy Laboratory in 2014, the community chose to enter into a sole partnership with Ocean Renewable Power Company (ORPC) to pursue a hydrokinetic project that could deliver baseload renewable energy without harming the salmon that are the central component of Igiugig's subsistence lifestyle, because first and foremost Igiugig are a salmon people.



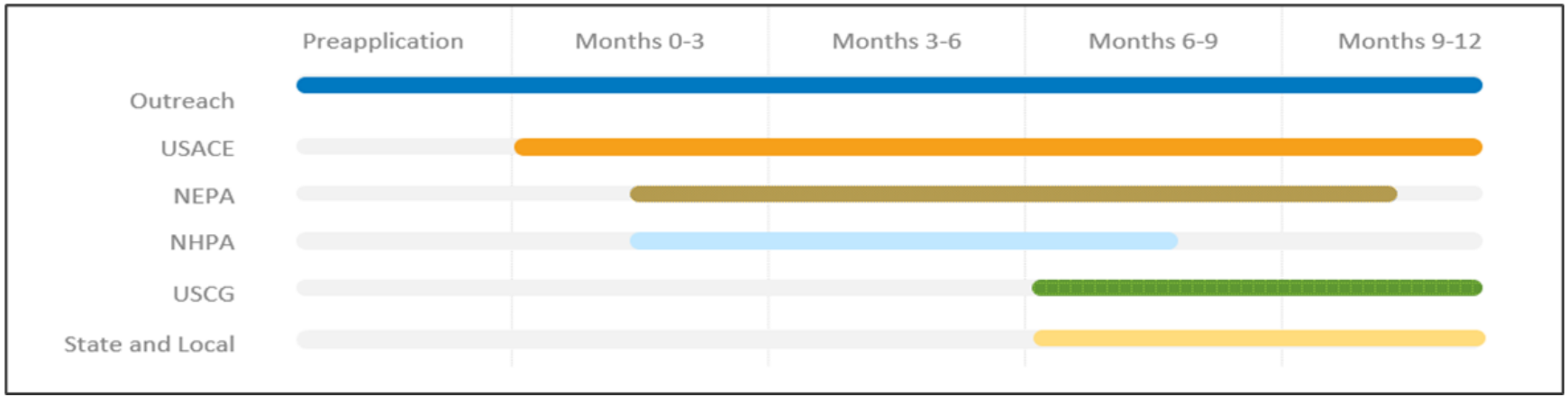
Permitting and Licensing Pathways for Marine Energy Devices

- Verdant Exception – USACE permit
- FERC Hydrokinetic Pilot Project License
- FERC Integrated License Process in State Waters
- FERC Integrated License Process in OCS Waters

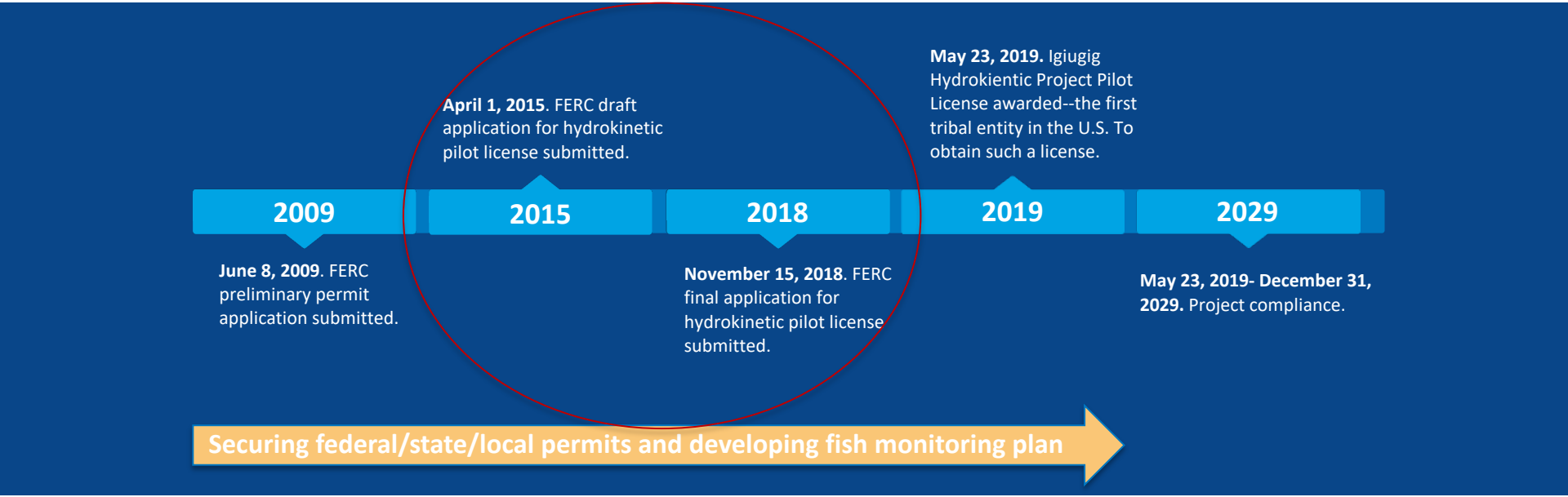
Verdant Exception

- Technology in question is experimental;
- The proposed facilities are to be utilized for a short period (generally up to 18 months) for the purpose of conducting studies necessary to prepare a license application; and
- Power generated from the test project will not be transmitted into, or displace power from, the national electric energy grid (FERC 2005 and 2010).

USACE Permit Timeline



Igiugig Hydrokinetic Project Pilot License Timeline



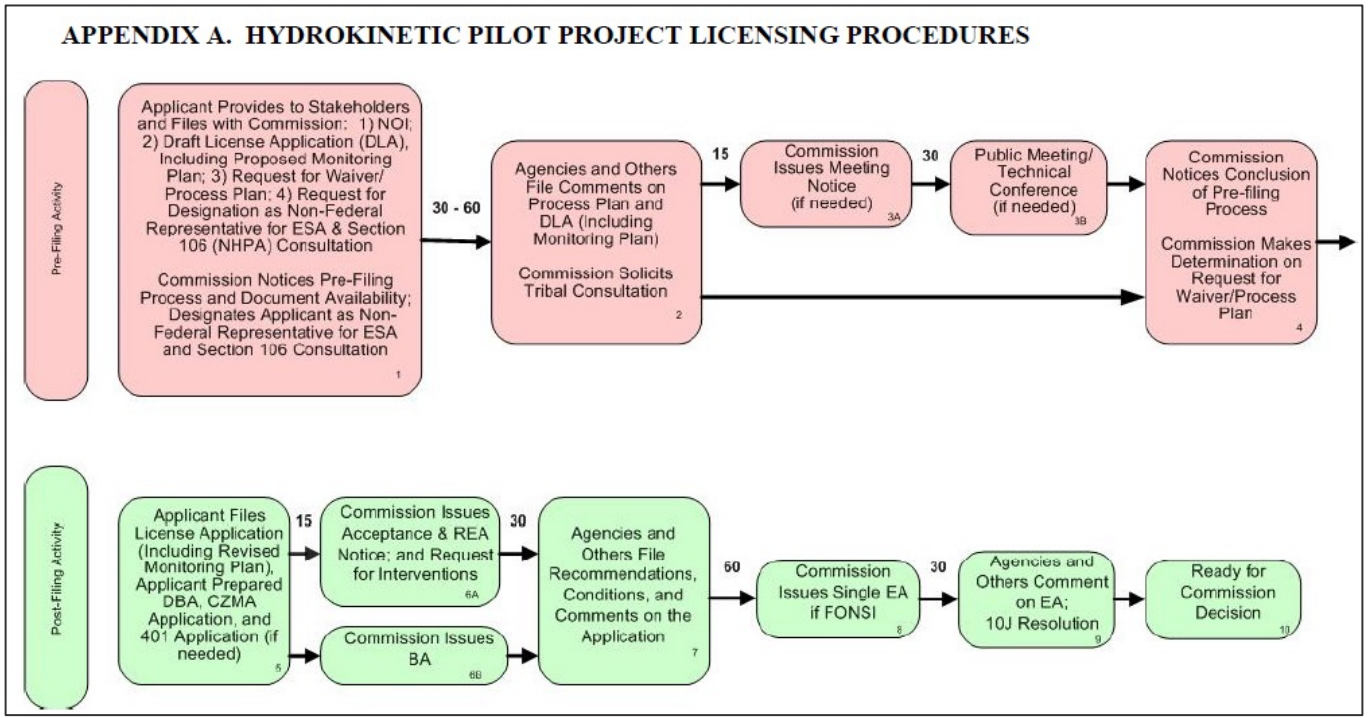
FERC Hydrokinetic Project Pilot License

- Under 5 MW;
- Short term (10 years in length);
- Not located in sensitive areas;
- Removed, with site restored, before the end of the license term; and
- Initiated by a draft application in a form sufficient to support environmental analysis (FERC 2008).

Information Needed for FERC License Applications

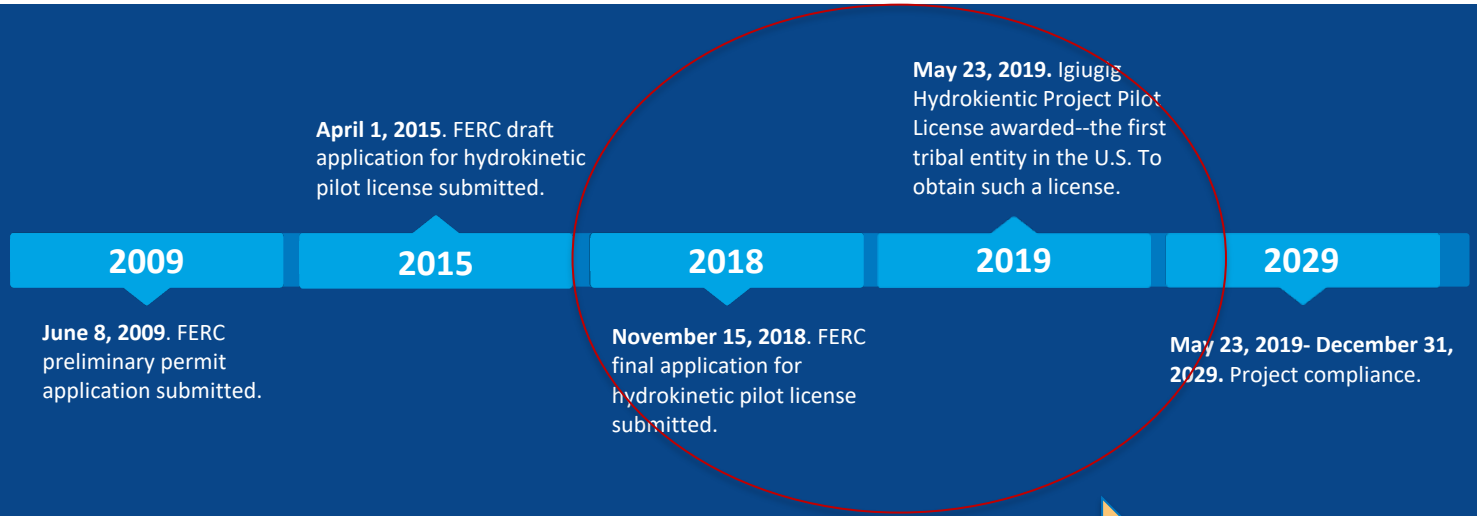
- Description of technology
- Exact location of testing and permission to access area
- Length of deployment
- How technology attaches to seafloor
- Equipment used onshore and offshore for deployment & retrieval
- Description of waterbody and environment
- Hazardous substances
- Funding & Project Economics
- Record of consultation

Hydrokinetic Pilot Project Licensing Timeline



Source: 2008 Federal Energy Regulatory Commission Licensing Hydrokinetic Pilot Projects

Igiugig Hydrokinetic Project Pilot License Timeline



Project Delays

- Funding
- Delays in regulator decision-making; government shut-downs
- Regulatory negotiations resulting in expensive and time-consuming monitoring
- Presence of rare, endangered, or threatened species and/or critical habitat in project area
- Timing of deployment and seasonality (migration, commercial or subsistence fishing)
- Marine energy licensing process uses elements of hydroelectric dam licensing that are not relevant to marine energy resulting in lengthy agency negotiations

Conclusions and Resources

Challenges and Resources

Challenges

- FERC licensing process for ME projects is based on the hydropower industry
- DOE funding awards and disbursements don't always align with permitting timelines
- Regulatory negotiations resulting in expensive and time-consuming monitoring

Resources

- Marine Energy Toolkit
- Tethys
- Marine Energy Atlas
- PRIMRE
- OES Environmental
- National ESA Critical Habitat Mapper

Thank you

www.nrel.gov

NREL
Transforming ENERGY

Photo from iStock-627281636