Ocean Energy:

Some Thoughts on Project Development in the U.S.

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Engineers, Scientists, Regulatory Specialists

- **Specializing in renewable energy**
- **Ocean Energy, Wind, Hydropower**
- **Projects throughout U.S. and Canada**

……moving forward ….HDR….

Exciting Times

What's Fueling Some of the Excitement?

- Clean Renewable Energy
- Energy Security
- Obama Administration
  - Green Energy Agenda is a Priority
  - Looking to Make Projects Happen

U.S. Ocean Energy Activity
A Quick Snapshot

Tidal and Wave Energy

- Currently 49 preliminary permits issued by FERC, 31 more applications in pipeline
- One license issued – Makah Bay
- Projects in Maine, NH, Mass, N.Y., CA, OR, WA, Alaska, Florida..

Offshore Wind Energy

- Permitting activities underway with various regulatory authorities
- Activity throughout the U.S. Massachusetts, Rhode Island, New Jersey, Delaware, Great Lakes, Texas

Moving A Project Forward in the U.S.

Requirements

- Federal
  - FERC
  - ACOE
  - Endangered Species Act, Marine Mammal Protection Act
  - USCG
- State
  - Hydro/Site Development
  - Water Quality Certification
  - Coastal Zone Consistency
  - Submerged Land Lease

Resource Issues

- Alteration of Seabed Habitat
- Marine Mammals and Seabirds
- Effect of Installation on Aquatic Community
- Electromagnetic Fields
- Mooring Line Fouling
- Seabirds
- Release of Oil/Recovery
- Noise/Vibration
- Navigation/Safety
- User Conflicts – Fishing, Recreation
- Historic Sites

Challenges on Pioneer Projects

Some of the issues encountered in developing a new ocean energy project in the U.S.….

- **Regulatory Framework**
  - **the process is evolving**
  - **still establishing clear lines of regulatory authority**

- **Environmental Impacts**
  - **uncertainty regarding the full range of the effects of the new technologies**
  - **limited existing information for some sites**

- **Balancing Competing Uses of the Marine Resource**
  - **integrating with historical and traditional uses**
  - **quantifying the effects**

Implications for Project Development

These issues can result in added caution by permitting authorities

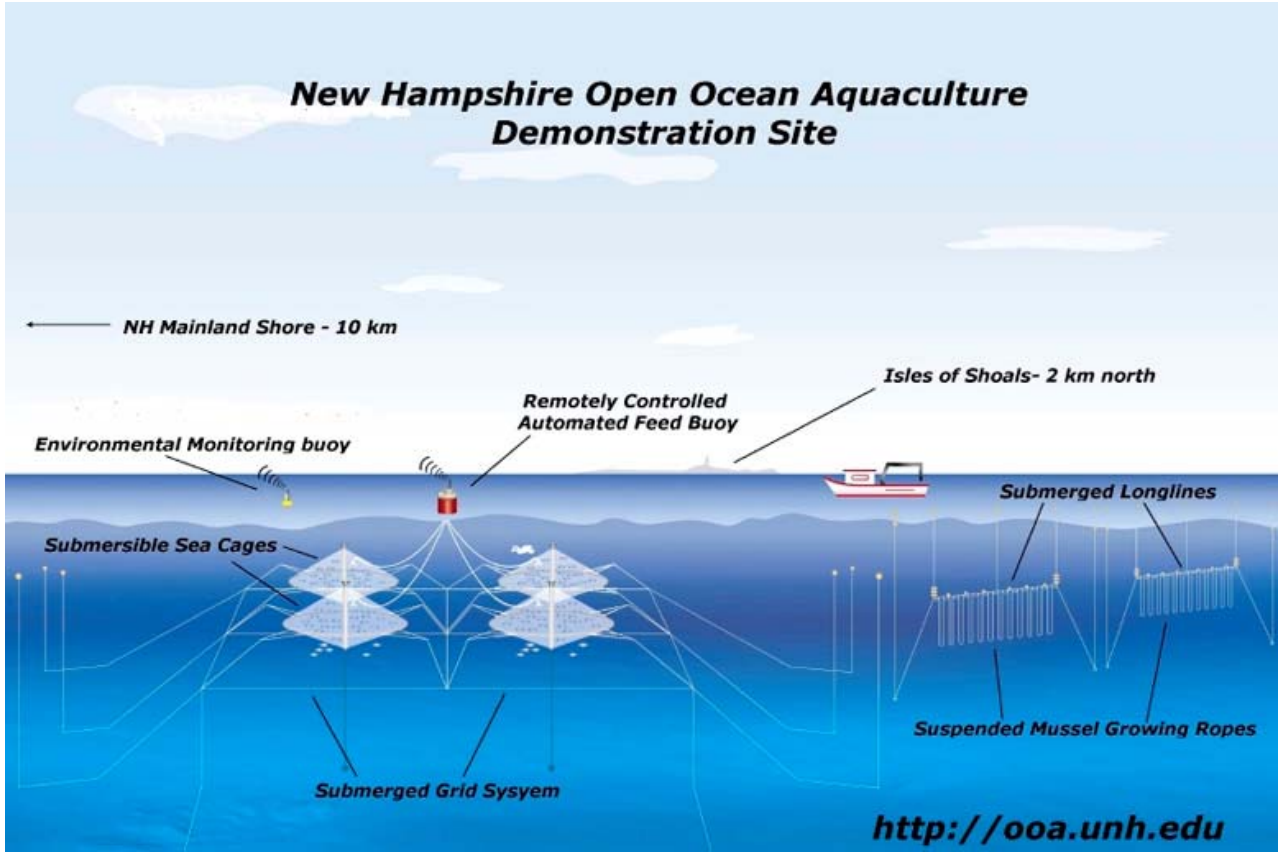
- Leading to increased study requests
- Longer timeframe for permitting

……. increase project costs

Responding to the Challenges

We're Finding …….

- **Early Stakeholder Involvement is Key**
  - **Define the project, the issues, and necessary information (e.g., Oregon Solutions Process)**
- **A Team Effort - Build Trust**
  - **Establish resource working groups to address issues**
  - **Maintain regular contact with regulators- keep them informed**
- **Think Creatively**
  - **Consider solutions which aren't yet typical**
  - **Experience from other, non-energy marine based activities**



Source: Atlantic Marine Aquaculture Center 2008.

Responding to the Challenges (cont.)

We're Finding …….

- Remain Flexible
  - Consider the trade-offs (e.g., Adaptive Management)
- Take An Active Policy Role
  - Become involved with the legislative/regulatory process
- Sources of Funding
  - Identify local and federal funding mechanisms to help offset added costs

Suggestions for Maine's Ocean Energy Development ….

- **Criteria for Acceptable Locations – Streamlined Permitting**
- **MOU's – Internal/External to Reduce Redundancy**
- **Financial Support - funding for studies, tax incentives**
- **Educational Support**