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Before the Committee on Energy and Natural Resources
United States Senate
March 17, 2009

Mr. Chairman and members of the Committee, thank you for this opportunity to discuss the issue of ocean renewable energy on the Outer Continental Shelf (OCS). My name is Steven Kopf and I am a partner in Pacific Energy Ventures. I have spent the majority of my career fostering new technologies and business ideas as they move from R&D towards commercialization.

Our firm is focused on renewable energy development and has been engaged in the ocean energy industry since 2004. I am also a board-member of the Oregon Wave Energy Trust, which is funded by the State of Oregon to promote the responsible development of ocean energy with a goal of producing 3 to 5% of the Oregon's energy needs by 2025.

Collaboration Drives Success

Beginning in 2006, I organized and led the team and process for Ocean Power Technology's project in Reedsport, Oregon. The Reedsport project is a great example of how FERC is helping early stage projects effectively navigate the regulatory process. The project utilized a collaborative process to identify the issues and concerns of all project stakeholders. The result of this collaboration is a settlement agreement that addresses how the project will be monitored following construction and how it will adaptively manage any unexpected environmental effects. Our 'Settlement Team' includes State and Federal resource agencies, existing users, and environmental groups. The settlement process provides FERC with the basis to conduct its NEPA analysis with the confidence that all major issues have been adequately addressed by the stakeholders before the license application is submitted.

The investment in collaboration is already paying dividends. We are building trust with the environmental and fishing communities. We are resolving how resource agencies can manage early stage projects. These efforts are paving the way to make Reedsport the first commercial scale wave energy project in North America.

I am proud of the Settlement Team's accomplishments and have two other observations based on my experience that I would like to share:

1. **Need for Planning –** When we started the Reedsport project the Oregon's Territorial Sea plan did not include ocean energy, resulting in uncertainty in project siting. Oregon is now in the process of amending its Territorial Sea Plan and is explicitly addressing ocean energy. I commend the Governor for his leadership on this issue and feel that changes in ocean governance and planning are critical to the responsible development of this industry. Planning of the OCS must balance both existing and future uses of the ocean.

2. **Unified Siting and License Process –** Early stage companies rely on significant amounts of private investment and investors are wary of complex regulatory environments. There has been a great deal of confusion of which agency has which authority, with many overlaps in review and analysis. In Oregon we focused on how best to integrate the State and Federal review of environmental documents and developed a relatively streamlined parallel review process. Oregon and FERC have developed a Memorandum of Understanding (MOU) that clarifies roles and responsibilities. As we move forward on the OCS, I believe that it is imperative to focus on a unified regulatory process that could work within the Territorial Sea as well. A unified process will reduce cost, expedite review, eliminate redundancies and allow early stage companies to continue to attract much need investment and move forward regardless of project location.

<u>Ocean Energy Can Make Significant Contribution to the Nation's Energy Mix</u>

There are several attributes of ocean renewable energy that I would like to highlight:

- **Large Resource Potential -** EPRI estimates that as much as 10% of the US energy demand could be produced by ocean energy (wave, tidal and current).
- **Proximity of Supply and Demand –** More than 50% of the US population lives within 50 miles of the coast, reducing the need for costly transmission infrastructure.
- **Predictability** – Based on NOAA research, accurate wave energy forecasts can be made days in advance, enabling energy planners to better integrate ocean energy into their resource portfolios.

- **Base Load** – The Gulfstream is an endless current that flows northward just 5 miles from downtown Miami and can provide a consistent supply of energy.
- **Energy Resource Firming** – Solar radiation creates wind and the wind creates waves. Waves continue to propagate for several days after a storm, offering utilities the potential to blend with intermittent resources such as wind power.

And while these attributes provide the vision for innovation and private sector investment, there is a unique challenge. Unlike solar and wind, there is no way to experiment and test these technologies without some use of public trust resources. Inherently, all ocean energy development will occur in public common areas. As a result, the pioneers in this industry such as Ocean Power Technologies, Verdant, Pacific Gas and Electric, and Snohomish Public Utility District are expending large amounts of capital to deal with the complexities of public land law in order to demonstrate and validate their chosen technologies.

The Critical Energy Zone Straddles the Boundary Between the Territorial Sea & the OCS

The early demonstration of ocean renewable energy has focused on the use of the Territorial Sea (within 3 nautical miles), based on proximity to transmission, water depth and regulatory certainty. However, the Outer Continental Shelf (3 to 12 nautical miles) will play a critical role as the technology begins to mature.

Proposed projects, such as PG&E's WaveConnect site near Eureka, California, may actually straddle the boundary between the Territorial Sea and OCS. The WaveConnect project aims to test a wide variety of wave energy systems. Currently the project is confined to the Territorial Sea. However, shallow water depths in the Territorial Sea may limit the types of technologies than can be tested. Expanding this project to include an area on the OCS may be desirable, but split jurisdictions would greatly complicate the project.

We have also learned in Oregon that Dungeness crabs love the Territorial Sea. Generally, crabs are harvested in water depths of less than 40 to 50 fathoms, the majority of which is inside the 3 nautical mile Territorial Sea boundary. Siting projects farther offshore could help minimize spatial conflicts with this important fishery.

Clearly the OCS is critical to the commercialization of this industry and I thank you for recognizing this need and holding this hearing to address the need for regulatory clarity on the OCS.

Guiding Principles

Over the past year I have had the opportunity to participate in a diverse stakeholder coalition led by the Environmental Defense Fund (EDF). The coalition consists of 34 organizations including private sector developers, utilities, local governments, universities, and six environmental organizations, including: EDF, Hydropower Reform Coalition, Natural Heritage Institute, Natural Resources Defense Council, Ocean Champions, and Surfrider Foundation. This group worked together and drafted a set of principles that were presented in December to President Obama's Transition Team. The principles that were agreed to by this diverse group include:

1. **Commit Resources -** to support a robust evaluation of ocean renewable energy and its potential environmental impacts.
2. **Support Demonstration Projects –** to rapidly accelerate the deployment of this promising technology under permitting conditions that protect ocean resources.
3. **Fund Environmental Database -** to assist developers and regulators in assessing and studying potential environmental effects.
4. **Resolve the FERC/MMS Jurisdictional Dispute -** to allow this nascent industry to move forward under a clear, consistent regulatory environment.
5. **Enable Cooperation Between Federal and State Agencies -** to simplify, expedite, and economize the regulatory process. A process which uses a single NEPA document is desirable.
6. **Provide a Mechanism for Ocean Planning –** in a way that leverages respective agency strengths, respects the State's CZMA authorities, and balances the short-term need for demonstration projects with the longer term need for balanced ocean use.
7. **Encourage and Facilitate Stakeholder Participation –** in a way that balances the need for public input on decisions affecting public lands with the imperative to move the industry forward.

These principles clearly demonstrate a consensus to develop ocean renewable energy, but in a way that respects the environment and proactively plans for the growth of the industry. The power of the coalition is that it unites a diverse group of stakeholders into a common vision of how we can do this right. Leveraging this position can only increase the probability of mutual success, and I strongly encourage the committee to adopt these principles as the framework for whatever action it takes.

Recommendations

I recognize that there is no easy solution on how best to plan, lease, and license the OCS for an emerging industry, but I ask the Committee to consider these additional recommendations as you move forward with new energy legislation:

1. **Build on Momentum and Familiarity –** Consider that the industry has already invested in learning how to do a project in the Territorial Sea that includes FERC as the lead agency. And FERC has invested in this nascent industry by recognizing our unique needs and adapting their regulations accordingly.
2. **Leverage the Unique Skills of Agencies –** Consider how to take advantage of the unique skills of different agencies. MMS clearly has experience in leasing of the OCS. FERC has demonstrated how to engage stakeholders and to develop collaborative solutions in the form of settlement agreements with adaptive management plans. And NOAA has much to offer in the area of environmental baseline research and ocean planning.
3. **Oil & Gas and Renewable Energy Are Different –** Recognize the differences between oil/gas, wind, and ocean energy. A consistent message in comments that were made to MMS on its proposed rule is that it did not adequately accommodate these differences. The rules should consider the differences in scale and make sure that the procedures and fees for ocean energy reflect the early stage development of the industry. Overburdening the developers with multiple NEPA reviews and disproportionate, front-loaded license fees will likely limit near term development of the OCS. Section 8 of the Outer Continental Shelf Lands Act (OCSLA) provides the Secretary with broad discretion on collecting rents and royalties. Recognize that unlike oil and gas on the OCS, renewable energy is not depleting a natural resource, and that payments to the Federal Government

must reflect the sustainable public benefit and the long term nature of capital cost recovery, particularly in emerging renewable energy technologies.

Over the past week since I was called to testify, I solicited the opinions of a wide range of parties interested in this topic. This included trade groups such as the Ocean Renewable Energy Coalition and the National Hydro Association, members of the EDF coalition, attorneys, lobbyists, and consultants. As you might expect, there are a wide range of opinions. Some are pro-FERC. Others are pro-MMS. However, we are all united on the need to resolve this quickly and completely. Resolving the jurisdictional dispute is critical, but is just one component of the comprehensive legislative and appropriations solution we need to allow this industry to rapidly demonstrate that ocean renewable energy can be an important component of our Nation's energy independence.

Thank you and I look forward to your questions.