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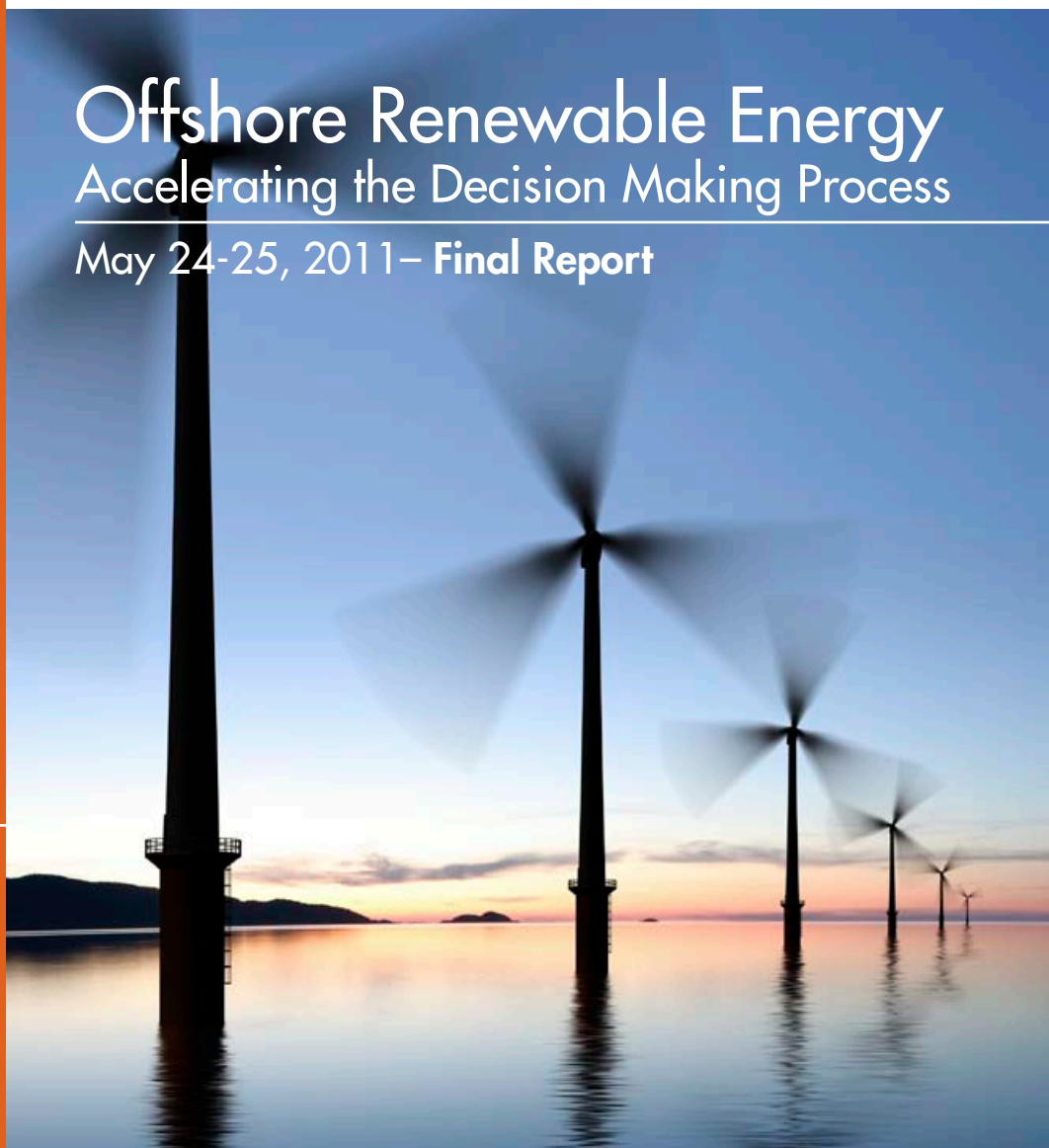
Ocean Research Advisory Panel
A United States Federal Advisory Committee

Offshore Renewable Energy Accelerating the Decision Making Process

May 24-25, 2011 – Final Report

Workshop Steering Committee

Ben Chicoski – Energetics, Incorporated
Jim Fahey – California Arts and Sciences, LLC
Randy Fisher – ORAP Industry Sub-Panel Co-Chair
John Gannon – ORAP Member
Paul Kelly – ORAP Industry Sub-Panel Co-Chair
Sean O’Neill – Ocean Renewable Energy Coalition



Introduction

In 2008, the Ocean Research Advisory Panel (ORAP)¹ published a document titled “Priorities for the Incoming Administration,” which outlined what it considers to be the most promising opportunities for advancing our nation’s ocean, coastal, and Great Lakes enterprise. The document recommended that the new administration “Promote an Ocean Renewable Energy industry to support energy security and stimulate job growth.” Offshore areas represent an immense resource for renewable energy that could revolutionize energy production and job creation in the U.S. The Obama Administration has set the goal of ensuring that 10 percent of our electricity comes from renewable sources by 2012, and 25 percent by 2025 (http://change.gov/agenda/energy_and_environment_agenda/). One way to do this is to capture offshore wind, wave, tidal, and current energy along our shores. Not only does offshore renewable energy (ORE) reduce dependence on hydrocarbons, but it would reduce water usage, replace polluting fossil fuels, and create substantial job growth, among many other benefits. Furthermore, ORE directly supports all nine of the priority objectives needed to implement the National Ocean Policy.

“Priorities for the Incoming Administration” named six opportunities related to ORE that the Administration can implement right away:

1. Create a National Ocean Advisor to be the lead advocate for ocean renewable energy in the White House.
2. Mandate to federal agencies that ocean renewable energy shall be an important component of the nation’s future portfolio of renewable energy sources and federal investments.
3. Encourage private investment by establishing a new process for offshore renewable energy siting and permitting that eliminates uncertainty and is more efficient, less costly, and more predictable.
4. Provide financial incentives for ocean renewable energy development and production.
5. Provide federal research and development support for studies to assess the economic and ecological results of ocean renewable energy installations
6. Protect groups that invest in ocean renewable energy projects by giving them preference in expanding successful demonstration projects into full-scale commercial projects.

One of the most effective and immediate ways that the Administration can advance ORE development is by accelerating the process by which new projects are considered, tested, and approved for operation. The ORAP believes frank and creative dialogue about ways to improve and streamline the permitting process is important. To that end, on 24-25 May 2011, the ORAP Industry Sub-panel² hosted a workshop, entitled “Offshore Renewable Energy: Accelerating the Decision-Making Process.” The workshop consisted of seven panels on various topics, three keynote speakers, and ample time for open discussion among participants – federal agency representatives alongside members of industry. The workshop resulted in key recommendations for actions the National Ocean Council should take to achieve near-term progress on this critical national need. Many of the recommendations made at this

¹ The ORAP is a committee chartered by Congress, under the Federal Advisory Committee Act, to provide independent advice and guidance to the National Ocean Council on matters related to ocean science, education, and resource management. For more information, please refer to: www.nopp.org/committees/orap

² The Industry Sub-panel was created to facilitate a means for the U.S. industrial sector to provide its input, views, and expertise – by way of ORAP – to the ocean policy-making process.

workshop are closely aligned with the ORAP's recommendations from "Priorities for the Incoming Administration," which are as compelling today as they were when the ORAP first issued them.

Recommendations

A. Elevate energy priorities in the policymaking arena. (ORAP Priorities Doc 1 & 4)

The federal government must be unwavering in its support of the ORE industry so that the industry can overcome barriers to growth. While the U.S. government seems to show support for the ORE industry, the lack of continuity in policy support is also a reality, and the lack of favorable policy presents the greatest impediment to progress. In order for the Administration to treat ORE as a national priority during the budget process, the National Ocean Council should elevate the role of ORE in implementing the National Ocean Policy. This recommendation is similar to the recommendation the ORAP made in "Priorities for the Incoming Administration" to create a National Ocean Advisor to be the lead advocate for offshore renewable energy in the White House. Because the President created the National Ocean Council to carry out national objectives, the National Ocean Council should act as lead advocate for offshore renewable energy.

One of the ways the federal government can offer its continuous support for the ORE industry is to provide financial incentives into the future. ORE developers face years of permitting before approval, much longer than traditional energy projects face. Today, it still remains unclear how long a project will actually be in the review process; at the same time, the project is dependent upon short-term federal incentives. The incentives typically expire every other year, which corresponds to at least once while a project is still in the review phase. For example, the tax credits in place today for ORE projects are set to expire next year. This is a key concern that needs to be addressed in order for projects to attract outside capital. Non-federal investment in renewables rises and falls in direct correlation with the presence and absence of tax incentives. Thus, ORE project investment risk increases substantially once the federal incentives expire. Guarantees are needed to ensure that tax incentives are in place when a project comes to fruition; this might be accomplished by coordinating the timing between the tax incentives and the project review process.

B. Create an Offshore Renewable Energy Directorate in order to facilitate interagency cooperation (ORAP Priorities Doc 2, 3, & 6)

In order to create efficiencies and lower costs, federal agencies must work together. The recently released National Offshore Wind Strategy, jointly created by the Departments of Energy and Interior, is an impressive example of interagency collaboration on common objectives. More collaboration is necessary to eliminate redundancies, demonstrate that the federal family is coordinated, and ensure that the national ORE enterprise is conducted in the public's best interest.

To accomplish these goals, the ORAP suggests the creation of a unified Offshore Renewable Energy Directorate that coordinates across government agencies and sectors and is singularly responsible for making sure that public resources achieve results. The Directorate would:

- Make connections, build partnerships, and mediate the relationships between federal agencies and the ORE private sector. It would be the "face of ORE" to the non-federal world.
- Be empowered to act like a "think tank" by providing thought leadership for new ideas and nurturing developing ideas and technologies.

- Institutionalize interagency collaboration by being comprised of agency detailees and experts assigned through the Intergovernmental Personnel Act (IPA) mobility program. The Directorate would maintain open communication lines by keeping agencies aware of each other's activities. Investments in and benefits of the ORE enterprise would be shared across agencies.
- Look out for the public good, be guided by national strategy that aligns and focuses resources, and support ORE development as a whole, in the process lowering costs for individual projects. The office could also periodically report to Congress on the state and hurdles of ORE progress and demonstrate the effectiveness of interagency collaboration.

The Directorate would have an associated advisory committee that functions as a conduit for the outside community of experts to provide independent recommendations and validate the Directorate's approach. The general model we propose has already been applied in a more narrowly focused effort, through the Bureau of Land Management's Joint Pipeline Office, established in 1990 for the single purpose of managing the Trans-Alaska Pipeline. The Joint Pipeline Office has an Executive Council, similar to what we recommend, as well as a Memorandum of Agreement with 15 states and federal regulatory agencies (<http://www.jpo.doi.gov/>).

The Directorate could assign one case manager to guide each project applicant through the application process. Giving developers a single point of contact from start to finish would add clarity, efficiency, and accountability to the application process. The Directorate would not be a "one-stop shop," but rather a "first-stop shop" for aspiring developers daunted by murky regulatory requirements. Relieving individual agencies of their various niche responsibilities in project permitting would allow them to focus on and better carry out their core mission priorities.

Finally, the ORE Directorate would function as the public educator for ORE, not another layer of government regulation. ORE resources possess many of the qualities desired in our future energy supply mix, and they hold great promise in helping America reach President Obama's goal of 80% clean energy by 2035. Society will benefit from strong public support for efforts to develop these sources in a responsible way.

C. Maximize the benefit of ocean observing and CMSP to support Offshore Renewable Energy implementation (ORAP Priorities Document #5).

For the last ten years, the U.S. has been developing and implementing a plan for ocean observing, but there is a tremendous need in the energy sector to utilize the Integrated Ocean Observing System (IOOS) and Ocean Observatories Initiative (OOI) infrastructure for collection of environmental and resource assessment data. Assessment of resources and collection of environmental data on a continuous basis would provide a growing baseline dataset(s) so that each new project would not have to begin the environmental assessment process anew, given that an observatory network is in place for that site. Additionally, one of the OOI program goals is to work toward standardizing all available data into one format which would allow the community to obtain and make use of a larger portion of available data.

Comprehensive, integrated, ecosystem-based Coastal and Marine Spatial Planning (CMSP) and management will empower agencies, developers, and the public to make decisions regarding renewable energy project development that are based on sound science and demonstrate the economic benefits of

ORE. Clearly describing and making known those benefits is utterly essential to building the popular support that influences public policy. Therefore, Coastal and Marine Spatial Plans should include analyses of jobs and economic impact that can result from developing ORE in each region. One available model for such analysis is the DOE-developed, Jobs and Economic Development Impact (JEDI) model (http://www.nrel.gov/analysis/jedi/about_jedi_wind.html)). These analyses are cost-effective, and they frame the positive impacts of ORE development in ways that resonate with decision makers and the general public.

Another way to support ORE project implementation is to establish a baseline understanding of the suitability of a broad area for development (e.g., Programmatic Environmental Impact Statements (PEIS)) so that lengthy (and costly) environmental studies do not need to be conducted for every proposed project at every proposed micro-location. According to FedCenter³, the PEIS establishes mitigation measures, best management practices, and other guidelines for offshore renewable energy development. The PEIS, completed as a requirement of NEPA, serves as the basis for environmental reviews of individual projects (site-specific). FedCenter directly states that “by ‘tiering’ off the PEIS, individual projects would require less lengthy environmental assessments.” We recommend that a PEIS be conducted for ORE development in Great Lakes and coastal regions. The Great Lakes region is often neglected in the conversation about ORE, despite its remarkable ORE resources and outstanding – but currently underutilized – manufacturing base. Therefore, we recommend that a PEIS first be conducted in the Great Lakes region. Completed PEISs would lower the costs of project financing and build-out, allowing projects to more efficiently complete their site-specific environmental assessments in a timeframe that minimizes delays to project schedules.

D. Facilitate Offshore Renewable Energy Technology Development (ORAP Priorities Document #4)

The ORE industry is working hard to prove its technology is emission-, waste-, and discharge-free, and that it does not deplete finite resources. However, the specter of cost looms large, as the cost of energy from ORE sources is too high based on current technologies, scale, and limited government support. The industry needs catalyzing investments from the government and private sectors to allow it to mature to cost-effective scales. Currently, three of the biggest obstacles facing the ORE industry are that 1) early-stage technologies are too expensive, 2) the power markets are not structured to accommodate high experimental development costs, and 3) the financiers are reluctant to invest in ORE until there is regulatory policy that creates demand. The federal government could take an integrated approach to accelerate the domestic development of ORE technologies. A guaranteed market, specifying a renewable energy portfolio standard in coastal states, where a specified percentage of energy must come from wind or marine hydrokinetics, will form the foundation for project economic viability. A reliable market, in the New England region, for example, would help create a more stable national market. Loan guarantees, focused on the technology risk, and grants reducing the cost of Research and Development, could ensure more certain returns on venture capital. The imposition of tariffs on the import of foreign-manufactured ORE devices would serve to nurture our domestic capability, creating domestic jobs and intellectual property.

³ FedCenter is a joint initiative of EPA, U.S. Army Corps of Engineers, and the Office of the Federal Environmental Executive “to create, for the first time, an all-services technical and compliance assistance center to help federal environmental officials, especially those in the civilian sector, better address their environmental needs.” (See <http://www.fedcenter.gov/help/about/>)

In order to get projects in the water faster, it is important to have a standard, integrated system of ORE test facilities. Pilot projects need to be able to address cumulative environmental effects prior to full-scale implementation. This process is significantly stalled without access to test facilities that allow devices and pilot projects to be evaluated in a standardized way in well-characterized, representative environments. A managed network of test centers each with a specialized, clear mission and continuous funding, would allow the development of a comprehensive database of baseline environmental conditions and performance of devices under specific conditions. For example, test centers could be selected for their primary environmental driving force (wind, tide, wave, current or thermal gradient), to not only test energy device designs, but also to evaluate the impact of individual devices and deployed arrays on specific environments. By guiding projects through maturation, the integrated group of test facilities would then have the capability of translating data in space and time, and building on earlier data from previous projects, so that data collection does not start from scratch for every new technology or project.

E. Formalize a mechanism for international cooperation

The U.S. should work diligently to learn from Europe's experience and progress. France, for example, recently committed significant funds for research on ORE and will seek investors for a project to build the first offshore wind project in that country, with 600 wind turbines planned to be installed at five locations off its Atlantic Coast. This plan will increase renewable energy production by 6,000 MW, and is intended to reduce France's dependence on nuclear power. Likewise, the United Kingdom, concerned about the decline in the production of oil and natural gas in the North Sea, is moving aggressively into ORE development in the Thames Estuary and farther offshore. Offshore wind energy production is already at commercial scale in Europe, with 1,136 wind turbines currently installed and grid connected, totaling 2,946MW in 45 wind farms in nine countries. Another 140 GW of offshore wind energy projects are currently in various stages of planning (*source: European Wind Energy Association*).

The Singapore-based Keppel Corporation recently teamed up with Britain's Seafox to build offshore wind turbines for the UK and German markets and claims to have built the first vessel to install wind turbines in 60+ meters of water. The Keppel-Seafox announcement came only weeks before Germany announced its plans to phase out nuclear power. While less is known about activities in China, the country is moving aggressively into ORE, having installed its first offshore wind farm last year and having made a national commitment to expand its offshore wind capacity to 5 GW by 2015 and 30 GW by 2020.

Additionally, there are a few existing international cooperation programs that are in place and are proving their success:

- The International Energy Agency Ocean Energy Systems Implementing Agreement (IEA-OES-IA), of which the U.S. leads the IEA-OES-IA Annex IV, designed to share environmental data, and
- The International Electrotechnical Committee TC-114, Marine and Hydrokinetic international Standards and TC-88 Wind International Standards. The U.S. participates through the American National Standards Institute, funded by the Department of Energy.

These developments offer an outstanding opportunity for the U.S. to learn from international experiences and establish a strong domestic capability. International technology in ORE is clearly

advancing at a record pace, and the U.S. has an opportunity to take advantage of foreign progress while at the same time position itself on the cutting edge of innovative technologies. The ORAP strongly believes that it is time for our government to become more instrumental in these developments, thereby improving the nation's energy supply. International relationships in these endeavors already exist in the private sector. Cooperative international relationships presently exist among offshore oil and gas regulators in various countries in Europe and elsewhere, and there is no reason why such relationships cannot be extended to ORE endeavors.

Discussion & Summary

The Ocean Research Advisory Panel, through the workshop participants and panelists, recommends the following in order to advance offshore renewable energy development:

- A. Elevate energy priorities in the policy arena
- B. Create an Offshore Renewable Energy Directorate in order to facilitate interagency cooperation
- C. Maximize the benefit of ocean observing and CMSP to support offshore renewable energy implementation
- D. Facilitate offshore renewable energy technology development
- E. Formulate a mechanism for international cooperation.

The United States has recently begun its strong commitment to offshore renewable energy by introducing a diverse suite of bills related to renewable energy. Related bills HR 2170, HR 2171, HR 2172, and HR 2173 all complement the U.S. goal of developing renewable energy on federal lands. During the testimony for this package of bills, testifier P.J. Dougherty of Strategic Marketing Innovations, Inc. stated that “federal commitment to creating a robust U.S. renewable energy industry will advance our national economic goals by creating high-quality employment in rural communities, new sources of revenues for all levels of government, long-term investment in supporting infrastructure, and strengthening the thousands of businesses that make up the U.S. energy and industrial supply chain.”

While each of these bills focuses on different aspects of the ORE industry, they are all important legislative measures to increase the U.S.’s chances of growing a viable ORE industry that boosts the nation’s economy. At the same time, regulatory improvements are equally vital. While streamlining the federal review and permitting process is only one ingredient for ORE success, its importance cannot be overstated. It was therefore the key topic of the ORAP Industry sub-panel workshop. The ORAP admires the recent announcement by the Bureau of Ocean Energy Management, Regulation, and Enforcement’s (BOEMRE) Director, Michael Bromwich, that “BOEMRE has finalized a proposed rule that will eliminate a redundant step in the noncompetitive leasing process for commercial renewable energy development on the U.S. Outer Continental Shelf.” Stronger measures, however, can and must be taken.

The ORAP applauds Congress and the federal agencies for the steps they are taking, and will take, to provide clarity and support for ORE projects. Tremendous credit should duly be given to the ORE developers, whose persistence and vision present the perfect complement to legislative and regulatory enhancements.



Offshore Renewable Energy:

Accelerating the Decision Making Process

May 24-25, 2011

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8:45 Welcoming Remarks

Paul Kelly, ORAP Industry Sub-panel Co-Chair

9:00 Panel 1: Current Status of Offshore Renewable Energy Industry

- Moderator, Sean O'Neill – Ocean Renewable Energy Coalition
- Ron Smith – Verdant Power, Inc.
- Markian Melnyk – Atlantic Grid Development, LLC
- Dennis Duffy – Energy Management, Inc.

10:00 Break

**10:15 Panel 2: Identifying Impediments to Progress
that the Federal Government Can Affect**

- Moderator, Randy Fisher – Pacific States Marine Fisheries Commission
- Maureen Bornholdt – Bureau of Ocean Energy Management, Regulation, and Enforcement
- Chris Hart – Department of Energy
- Ann Miles – Federal Energy Regulatory Commission

12:00 Lunch – Keynote Address

Laura Morton – Department of Energy

1:00 Panel 3: Assessments, Standards, and Science Needs

- Moderator, Jim Fahey – California Arts and Sciences
- Neil Rondorf – Science Applications International Corporation
- Paul Jacobson – Electric Power Research Institute
- George Hagerman – Virginia Polytechnic Institute and State University

2:30 Panel 4: Coordination and Information Sharing

- Moderator, John Gannon – International Joint Commission, retired
- David Bigger – Bureau of Ocean Energy Management, Regulation, and Enforcement
- Terry Yonker – Great Lakes Wind Collaborative
- Mike Reed – Department of Energy
- Jim Lanard – Offshore Wind Development Coalition

3:30 Break

3:45 Keynote address

Kate Moran – National Ocean Council

4:15 Panel 5: Coastal and Marine Spatial Planning: Recommendations for Energy-Related Needs

- Moderator, Ben Chicoski – Energetics Incorporated
- Tundi Agardy – Sound Seas
- Morgan Gopnik – Duke University
- Jessica Hamilton Keys – National Oceanic and Atmospheric Administration

5:15 Closing Remarks

Randy Fisher – ORAP Industry Sub-panel Co-Chair

5:30 Reception

Tuscana West: 1350 I Street, NW

May 25, 2011

8:45 Day 1 Remarks

Paul Kelly – ORAP Industry Sub-panel Co-Chair

9:30 Panel 6: Agree on Regulatory Changes Needed

- Moderator, Sean O’Neill – Ocean Renewable Energy Coalition
- Carolyn Elefant – Law Offices of Carolyn Elefant
- Elizabeth Butler – Pierce Atwood, LLP
- Mike O’Connell – Stoel Rives, LLP

10:30 Break

10:15 Panel 7: Agree on Policy Changes Needed

- Moderator, Jim Fahey – California Arts and Sciences
- Damian Kunko – SMI/Helios Strategies
- Brian Bonlender – Representative Inslee’s Office
- Chuck Kleeschulte – Senate Energy Committee

12:00 Lunch – Keynote Address

Keith Martin – Chadbourne & Parke, LLP

1:00 Open Discussion: Identifying Best Opportunities for the Federal Government to Accelerate Putting Projects in the Water

Facilitator, Steve Ackleson – Ocean Leadership

3:00 Closing Remarks

Paul Kelly – ORAP Industry Sub-panel Co-Chair

4:00 Workshop Adjourned