



## MEMORANDUM

TO: Ocean Protection Council  
FROM: Laura Engeman, Project Manager  
DATE: August 11, 2011  
RE: Preliminary Regulatory Guidance for Hydrokinetic Test and Pilot Energy Projects

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### REQUESTED ACTION:

Staff recommends the council approve the following resolution:

“The Ocean Protection Council (OPC) will sponsor a workshop and resulting white paper providing preliminary guidance for test and pilot hydrokinetic projects in California.”

### SUMMARY:

Wave and tidal energy capture (hydrokinetic energy) is still in its nascent stage in the United States.<sup>1</sup> In order to determine if marine renewable energy sources can become a contributor to California’s energy portfolio, development must move from the conceptual stage to in-water test and pilot<sup>2</sup> projects. For this reason, manufacturers and developers are interested in pursuing test and pilot projects for areas off the coast of California.

Preliminary guidance on the regulatory process for test and pilot hydrokinetic projects can assist project proponents to prepare for and meet anticipated regulatory requirements. Providing project proponents with a better understanding of the regulatory process and how a project’s attributes<sup>3</sup> and location could trigger various permits affords them with a greater capacity to design and site their projects to meet these requirements. This type of early guidance may also help proponents to minimize siting conflicts, avoid adverse impacts to ocean resources, and improve the efficiency of the permitting process. Scientific and geospatial information identified in this guidance will also highlight where OPC can focus its strategies for improving the sharing and use of scientific information, as part of its implementation of AB 2125.

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<sup>1</sup> See for example [Senate Bill 630 - Marine and Hydrokinetic Renewable Energy Promotion Act of 2011](#) §636 (a) (finding marine and hydrokinetic energy a nascent industry).

<sup>2</sup> According to the Federal Energy Regulatory Commission (FERC) definitions a **test project** is an experimental or demonstration project that is deployed for a short time to conduct studies and does not connect to the national energy grid; a **pilot project** is a project that would connect to the grid, but is limited to produce 5 MW or less, and is also subject to a shorter license term. *Licensing Hydrokinetic Pilot Projects* (Apr. 14, 2008)

<sup>3</sup> Examples of attributes may include mooring types or whether the project has a grid connection.

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In April 2011, the California Marine Renewable Energy Working Group, co-chaired by staff of the OPC, agreed that providing preliminary guidance on the regulatory process for test and pilot wave and tidal projects should be pursued. Project proponents also proposed to OPC staff that the state develop a policy to help guide appropriate hydrokinetic energy development and to protect coastal and ocean resources.

Therefore, staff recommends that the Council:

- (1) Sponsor and facilitate a workshop to outline the policy and regulatory context for hydrokinetic test and pilot projects, and
- (2) Prepare a white paper providing preliminary regulatory guidance based on the workshop results.

Staff recommends that the Council prepare a foreword for the white paper that includes recommendations for a state hydrokinetic energy policy to be considered by the California Energy Commission, the state entity responsible for developing such policies. This policy recommendation will focus on integrating goals for this renewable energy with goals for coastal and ocean protection.

### **BACKGROUND**

Hydrokinetic energy development is an emerging use of the marine and coastal environment that involves technologies to harvest wave and tidal energy for both small-scale and commercial energy production. Over the last decade, these developments have been increasingly deployed around the world.

California is attractive to hydrokinetic energy developers. The state's offshore wave climate, particularly north of Point Conception, is considered some of the country's most productive for wave energy resources.<sup>4</sup> In San Francisco Bay, strong tides may provide opportunity for harnessing tidal power. The state has an aggressive mandate to increase the state's Renewable Portfolio Standard goal to 33% by 2020 (signed into law by Governor Brown in early 2011). California also has a wealth of academic institutions, technology sectors, and other partnership opportunities for advancing this industry.

Between 2007 and 2011, a number of developers applied for hydrokinetic study permits to conduct feasibility assessments in California marine waters and federal outer continental shelf (OCS) waters. These permits provided the applicants with two to three years to perform studies within a "reserved" area, and to begin consultations with agencies and stakeholder to prepare license applications for pilot or commercial projects. During this time, most of these permit holders withdrew their permits or allowed them to expire without subsequent license applications due to difficulties in raising capital, siting conflicts with existing marine uses, and challenges in determining and meeting small and large commercial-scale permitting and associated research requirements for an untested technology.

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<sup>4</sup> Bedard, Roger. "Power and Energy from the Ocean Energy Waves and Tides: A Primer." Electric Power Research Institute: May 14, 2007.

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Despite these early challenges, several project proponents are still considering deploying test and pilot hydrokinetic technologies in California in order to test their potential for larger scale development. Data gathered through these demonstration projects would help the applicants determine the viability of their technologies and evaluate how each technology interacts with and/or could pose a danger to the marine environment. These small scale projects also provide proponents the opportunity to work with state agencies and stakeholders through a phased approach to development. Although this approach is supported by FERC and the state agencies, proponents remain challenged in differentiating 1) which FERC and state permits apply to these types of projects, 2) what geographic areas and/or technology components trigger certain permits, and 3) what type of information is needed in advance of permit issuance versus what can be collected during the project deployment. By providing increased guidance to developers on regulatory requirements and information needs, project proponents will have a greater capacity to design and site their project to meet these requirements in advance, thereby minimizing siting conflicts and improving the efficiency of the permitting process.

**PROPOSED ACTION BY OPC:**

In 2010, OPC established a California Marine Renewable Energy Working Group<sup>5</sup> (Working Group) with membership from California state agencies that have regulatory jurisdiction and/or policies relevant to marine renewable energy. The Working Group serves as a venue for coordination among state agencies to address regulatory challenges, information gaps, and to implement the MOU between California and the Federal Energy Regulatory Commission (FERC). The Working Group has also provided a valuable role for interested project proponents to introduce their projects to the state agencies, stakeholders, interested academic and private research entities and the relevant federal regulatory agencies (National Marine Fisheries Service, the Bureau of Ocean Energy Management and FERC) to receive early input.

In a recent Working Group discussion, OPC and California Energy Commission (CEC) staff highlighted the challenges of interpreting the various state and federal regulatory requirements that can apply to pilot and demonstration hydrokinetic projects, since these are often triggered by specific project components and/or the siting of the project. For example, a project that would involve a grid connection would require a FERC license; however a project in state waters with no grid connection may not require a federal license, only state authorizations. Both project applicants and agencies supported the development of preliminary guidance on the regulatory processes for test and pilot project.

In addition, various project proponents and stakeholders expressed to OPC staff a desire to understand the state's vision for hydrokinetic energy development in the context of its policies to protect coastal and ocean resources for long-term sustainability and for the enjoyment of all public citizens.

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<sup>5</sup> Working Group members include: the California Ocean Protection Council (co-chair), the California Energy Commission (co-chair), the California Coastal Commission, the California State Lands Commission, the California Department of Fish and Game, and the California Public Utilities Commission. The State Water Resources Control Board has been invited, but has not yet participated.

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Given the potential advantages to the state in providing this guidance, both in terms of contributing to the ocean economy and the renewable energy portfolio, OPC staff recommends that the Council sponsor and facilitate a workshop to outline the regulatory context for test and pilot hydrokinetic energy projects and authorize staff to prepare the resulting white paper. Staff recommends that the Council prepare a foreword for the white paper that includes recommendations for a state hydrokinetic energy policy to be considered by the California Energy Commission, the state entity responsible for developing such policies.

**RELATED OPC MARINE RENEWABLE ENERGY INITIATIVES:**

**Geospatial Information**—AB 2125 requires OPC to promote the use and sharing of scientific and geospatial information, useful for ocean and coastal decision-making. Identifying information needs for hydrokinetic siting and permitting decisions will directly inform OPC’s efforts to expand access to geospatial information that is useful to agencies, stakeholders, and industry in planning for and managing the hydrokinetic industry.

**Development of the Report, “Wave Energy Development in California: Potential Ecological and Socio-economic Effects” (2008)**<sup>6</sup>. Co-funded by the OPC and the CEC, this report provided a general description of the potential effects of wave energy projects. Information in this report will be used as a foundation for the outlining the workshop discussion and resulting white paper.

**California Marine Renewable Energy Working Group** – OPC co-chairs this Working Group with the CEC. The Working Group members will participate in the workshop and will provide input on the development of the white paper.

**California MOU with the Federal Energy Regulatory Commission** - The MOU outlines a process for cooperation between the state and FERC to coordinate application review schedules, encourage pilot projects prior to commercial development, and coordinate environmental reviews, where possible. This MOU would be bolstered by the development of guidelines for siting consistent with state marine and coastal protection laws, as proposed in the white paper. This white paper will further the goal of developing those recommendations and will address FERC license processes and FERC coordination with state regulatory processes where applicable.

**West Coast Marine Renewable Energy Framework** – OPC staff participate as state representatives on The West Coast Governors’ Agreement on Ocean Health (WCGA) Marine Renewable Energy Action Coordination Team. This team received \$100,000 in federal funds to assist in the development of a web-based resource hub on marine renewable energy projects, technology, and related environmental research and data. (<http://www.advancedh2opower.com/framework/default.aspx>). OPC staff will use some of the hub’s information to assist in framing the workshop discussion and the OPC white paper will be made available as regulatory resource available on this hub.

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<sup>6</sup> [http://www.energycentral.com/download/products/ca\\_wec\\_effects.pdf](http://www.energycentral.com/download/products/ca_wec_effects.pdf)

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**CONSISTENCY WITH THE CALIFORNIA OCEAN PROTECTION ACT:**

The proposed action is consistent with the California Ocean Protection Act (Division 26.5 of the Public Resources Code). Section 35615(a)(1) specifically directs the Council to coordinate activities of state agencies to improve the effectiveness of state efforts to protect ocean resources. In addition, subsection (5) of this section directs the OPC to provide the results of its research and investigations to state agencies to provide information for policy development. The Council may expend funds on projects that are consistent with these responsibilities given to the OPC. Pub. Res. Code § 35650(b)(1).

**CONSISTENCY WITH THE OPC'S STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):**

The project is consistent with the current OPC's Five-Year Strategic Plan<sup>7</sup> in the following respects:

**Goal A (Governance), Objective 2b: Interagency Collaboration:** “Work with all relevant state agencies to develop necessary legislation, regulations, or other tools to improve ocean governance.” The proposed action is designed to encourage collaboration among state and agencies with regard to marine renewable energy planning and regulation.

**Goal E (Ocean and Coastal Ecosystems), Objective 5a: Encourage Sustainable Economic Activity:** “Encourage and support new and innovative economic activities that can be conducted in a sustainable manner along or off the California coast.” The proposed action will promote the development of regulatory guidance for marine renewable energy consistent with the protection of the state's valuable marine and coastal resources and activities.

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<sup>7</sup> The current strategic plan continues to guide the Council's activities until the next five-year strategic plan has been adopted.