California Energy Commission
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California Energy Commission
Dockets Office, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Docket No. 12-EPIC-01 – Marine Renewable Energy Technology Demonstration and Deployment

To the California Energy Commission:

I am writing to comment on the Electric Program Investment Charge (EPIC) Proposed 2012-2014 Triennial Investment Plan. I have provided comments to the Commission about the EPIC program at an earlier stage on August 17, 2012.

1. I appreciate the inclusion within the Triennial Investment Plan of ocean wave energy and offshore wind energy, and support full funding for: *Strategic Objective S4, "Develop Emerging Utility-Scale Renewable Energy Generation Technologies and Strategies to increase power plant performance, reduce cost and expand the resource base*", (page 60)
    a. *S.4.4 – Proposed Funding Initiative – Investigate the Economic, Environmental and Technical Barriers to Offshore Wind in California* (page 66)
    b. *S4.5 – Proposed Funding Initiative - Investigate the Economic, Environmental and Technical Barriers to Wave Energy Conversion in California*. (Page 67).

2. As many of California's marine energy organizations are universities and research laboratories, I fully support the funding for *S5.3 – Proposed Funding Initiative – Develop Analytical Tools and Technologies to Reduce Energy Stresses on Aquatic Resources and Improve Water-Energy Management* (page 73). In this regard, the University of California and California State University systems have more than ten major coastal research facilities which can be utilized to support this research, including the planned City Dock #1 facility and wave research laboratory at the Port of Los Angeles.

3. I particularly support the establishment of advanced Technology Readiness Level (TRL) offshore testing facilities for wave and offshore wind projects (*S10.2 – Proposed Funding Initiative – Support Demonstration Testing and Verification Centers to Accelerate the Deployment of Pre-Commercial Clean Energy Technologies* (page 104). Other U.S. states, such as Oregon and Hawaii, already have limited capability testing facilities in place. Currently, the only advanced TRL-level offshore testing facilities are in Europe, and the marine renewables industry is being drawn to those areas for technology commercialization, manufacturing and other supply chain enterprises. Such facilities must be established in California in order for the state to be competitive in this major emerging industry.

4. EPIC program funding levels could be programmed as an appropriate matching, or cost share, for that of the U.S. Department of Energy (DOE), which is considering $50.6

million in eventual funding for a major offshore wind energy demonstration project near Point Conception. In the first 2 years of the 5-year DOE offshore wind funding program, the funding recipient will need to provide $2.7 million in non-Federal cost-share for the DOE Wind Program grant. The timing for providing this cost share from EPIC sources is consistent with the Triennial Investment Plan's timetable. DOE proposes to fund 80% of the first 2 years of project siting studies and permitting activities which will provide an unparalleled leveraging opportunity for EPIC seed money.

DOE Offshore Wind Project Funding	Non-Fed Cost-Share (Potentially sourced by EPIC funds)	DOE Cost-Share	Total
Cost-Share Fraction:	20%	80%	100%
2013	$1.0 M	$4.0 M	$5.0 M
2014	$1.7 M	$6.7 M	$8.4 M
First 2 years	$2.7 M	$10.7 M	$13.4 M

In addition, if this largely DOE funded offshore wind demonstration project is built, it would make for an ideal foundation for a very cost-effective expansion of providing additional test bays for advanced TRL trial and performance testing of wave energy technologies. There is a good chance that the DOE Water Program will have a Funding Opportunity Announcement (FOA) in the 2013 timeframe which could provide the lion's share of funding for this wave energy device testing expansion. Thus, the heretofore daunting costs and permitting requirements associated with laying a submarine power cable to move power from the testing and demonstration location several miles offshore to the terrestrial power grid can be spread across a larger and more capable marine renewable energy demonstration and testing facility.

5. The U.S. Department of Defense (DoD) is referenced as a participating organization in the EPIC program, (page 107) which has an ambitious renewable energy goal system-wide, including ocean wave and offshore wind energy production. They are extremely supportive of the marine renewable sector, and have always been an active participant in our industry organization, the Ocean Renewable Energy Coalition (OREC).

   Specific to military facilities, which require a high level of energy independence as a matter of homeland security, *S13.2 – Proposed Funding Initiative – Demonstrate Renewable Energy-Based Microgrids Capable of Sharing Resources Across the Larger Power Grid* would certainly be applicable for wave and offshore wind energy projects at California coastal armed services facilities, which are located in the high wave/wind areas of Monterey, Point Conception, Ventura, Seal Beach, Camp Pendleton and San Diego.

   The U.S. Navy's Naval Facilities Engineering Command (NAVFAC) Engineering Service Center at Port Hueneme, California, is also the primary ocean wave energy research center for the U.S. Navy worldwide. Their Hawaii Wave Energy Test Site (WETS), located at U.S. Marine Corps Base Hawaii, and managed in association with the U.S.

Department of Energy's Energy Efficiency and Renewable Energy (EERE) is one of several highly successful models for marine energy demonstration facilities in California.

The U.S. Air Force is also interested in supporting both wave and offshore wind energy at Vandenberg Air Force Base and would consider being actively involved in the development of offshore test and demonstration facilities by holding a subsea research lease for such facilities from the Bureau of Ocean Energy Management of the U.S. Department of Interior and by purchasing the renewable energy generated.

6. I support the suggestion of an Advisory Group involving the marine energy sector, (Page 165), and feel that an organization like the Ocean Renewable Energy Coalition (OREC) in consultation with the California Marine Renewable Energy Working Group (CMREWG) would be the appropriate entity to oversee the formation and management of this Advisory Group. This Advisory Group can be beneficial in support of *S.14 Strategic Objective under Market Facilitation, "Collaborate with Local Jurisdictions and Stakeholder Groups, etc.).* – (page 132).

   Such coordination is an extremely important element in the success of wave energy and offshore wind projects. Such projects face complex multi-agency permitting jurisdictions and other challenges, which are both time consuming and expensive for individual technology companies to surmount. An Advisory Group, particularly with funding to assist on a project-by-project basis, could significantly reduce permitting time for these projects, and also help to convey a unified message to all stakeholders regarding these emerging sources of energy.

   An collaborative OREC / CMREWG led marine renewable energy group will also help to further the implementation of *S.15 Strategic Objective – Strengthen the Clean Energy Workforce"* (page 143) by working closely with the California Community Colleges Centers for Applied Competitive Technologies (CACT) and other key programs of the Community Colleges. The Community Colleges and their workforce training programs are well located for coastal innovation clusters to be formed supporting a growing marine renewable energy industry. For example, in the Santa Barbara area, the likely location of the U.S. Department of Energy funded offshore wind project, there are six Community Colleges – Santa Barbara, Ventura, Oxnard and Moorpark, Hancock and College of the Canyons, each of which can support the growth of the emerging industry in that area.

Thank you again for this opportunity to provide comments to the draft EPIC program plan. Please do not hesitate to contact me for support or further involvement in this vital program for our marine renewables industry.

Sincerely,

William I. Toman