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SAN DIEGO STATE UNIVERSITY

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Re: Docket No. 12-EPIC-01

August 17, 2012

As Director of the Coastal and Marine Institute (CMI) and its marine laboratory (CMIL), at San Diego State University (SDSU), I am happyto to submit my comments to the California Energy Commission on the development of the First Triennial Investment Plan for the Electric Program Investment Charge (EPIC) Program. This plan is a step in the right direction in the development of clean energy technologies, and I am pleased that California is leading the way in developing these strategies.

The CSU is one of the largest, most diverse public university systems in the world. With 23 campuses and seven (7) marine laboratories spanning the entire state of California, the CSU is uniquely positioned to support the development of marine and hydrokinetic (MHK) technology and the evaluation of its performance and environmental impacts. In 2008 the CSU established COAST as the system-wide organization to integrate CSU marine resources and promote interdisciplinary multi-campus collaborations to advance our knowledge of California's natural coastal and marine resources and the processes that affect them. COAST provides a single point of access through which stakeholders can access the myriad resources of the entire CSU.

The CSU can play a vital role in the key phases of applied research and technology demonstration and deployment. As research and development begin, critical pathways for prototype testing and technical validation must be established (Stages 2 and 3 of the EPIC Technology Maturation Curve). These pathways must be transparent, streamlined, cleared of hurdles and accessible to all. We envision the CSU's seven waterfront facilities (Figure 1) as home to a series of robust marine renewable energy innovation clusters in which industry, government and universities collaboratively develop and test new MHK technologies. The CSU houses a wealth of intellectual expertise that can inform technological development and extensive infrastructure to support both laboratory and field-based testing. Our scientists have unparalleled knowledge of the biology, geology and physics of California's coastal ocean that can help inform all stages of development from R&D to technical validation in the field. Our marine labs have piers, docks and oceanfront property for immediate water access, as well as vessels ranging from intermediate to large for offshore access, including transportation of large pieces of equipment.

Much of the infrastructure necessary to carry out the vision of MHK energy sustainability is non-existent or in disrepair. This initiative provides an opportunity to reinvest in a re-invented waterfront, providing multi-use facilities, not only for the development and testing of MHK

technologies, but for the development of the science necessary to understand the impacts of these systems, while training and educating a workforce capable of managing this new technology.

Three key aspects of successful, functional marine renewable energy innovation clusters are 1) durable public/private partnerships, 2) industry-specific infrastructure, and 3) a regulatory climate in which permitting is coordinated and streamlined. With sufficient funding, we can create "plug-and-play" facilities in a variety of wave, tidal and physical environments with all the necessary components for developers to test their prototypes *in-situ*. The clusters will work with industry and the regulators to obtain the necessary permits, allowing the developers to focus primarily on the science and technology. Only in this type of rich, collaborative, supportive environment will real progress be made toward MHK technologies that can support California's clean energy goals. COAST is prepared to accomplish these objectives to help the State realize its clean energy goals.

The CSU is also uniquely positioned to support workforce development in clean energy technology. The CSU is the largest, most diverse and most affordable university and the largest baccalaureate degree-granting institution in the country. The CSU graduates almost 100,000 students annually who go on to live and work in California and throughout the nation. Ten percent of California's workforce is made up of CSU graduates and the CSU has a responsibility to serve the people and the State of California. The clusters will engage students from throughout the CSU including those in STEM, public policy, and teacher training. Involvement of both undergraduate and graduate students in the development of MHK technologies and its integration into California's energy vision will ensure a highly skilled future workforce capable of addressing complex challenges and ensuring the sustainability of our way of life for generations to come.

I believe that the CSU is uniquely positioned to provide the intellectual expertise, infrastructure and workforce base necessary to support and advance the development of MHK technology in California. COAST is committed to forging strong partnerships to develop innovative and sustainable solutions to the challenges we currently face. For example, the Coastal and Marine Institute Laboratory at SDSU, built in 2006 and in an urban marine environment in San Diego Bay, is in a unique position in being able to address both basic and applied research that serves many organizations. Our laboratory has seen rapid growth in faculty, students, and infrastructure, including recent improvements to its flow-through seawater system. We look forward to working with the CEC and with COAST partnerships to develop the concepts outlined here further.

Thank you for your consideration of these comments,

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