DOCKETED

Docket Number:	17-EPIC-01
Project Title:	Development of the California Energy Commission Electric Program Investment Charge 2018 â€“ 2020 Triennial Investment Plan
TN #:	215844
Document Title:	Rob Shalhoub Comments: Suggestion to Invest in a Deepwater Offshore Testing Facility
Description:	N/A
Filer:	System
Organization:	Rob Shalhoub
Submitter Role:	Public
Submission Date:	2/10/2017 10:55:54 AM
Docketed Date:	2/10/2017

Comment Received From: Rob Shalhoub
Submitted On: 2/10/2017
Docket Number: 17-EPIC-01

Suggestion to Invest in a Deepwater Offshore Testing Facility

Additional submitted attachment is included below.

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

The Energy Commission is currently soliciting ideas and stakeholder input for the 2018 – 2020 EPIC Triennial Investment Plan. For those that would like to submit an idea for consideration in the 2018-2020 EPIC Triennial Plan, we ask that you complete the form below. Submittals are due by **5:00 p.m. on February 10, 2017.**

Part 1. Initiative Description and Purpose:

1. Please provide a brief description of the proposed initiative:

Ocean waves - by far the most dense and abundant renewable energy resource - can satisfy the world's energy demand several times over. And yet there is very little investment and support into the power generation technologies required to harvest this energy-rich resource.

We would like to see California invest in an deepwater clean energy testing facility - minimum 200m depth - where wave energy generation technologies under development can be tested for performance, durability, and scalability.

2. What technical and/or market barriers would the proposed initiative help overcome? For scientific analysis and tools, what knowledge gaps would the proposed initiative help fill?

Currently, there are no offshore testing facilities proximate and available to California businesses. Setting up an offshore testing facility requires an orchestration of participation and resources from private businesses, investors, several state and federal agencies, and likely utilities.

This complex regulatory environment is a significant pain point for individual innovators or small technology developers in their quest to solve the clean energy problems. As a result, technology developers look to develop their systems elsewhere, where infrastructure and investment already exist and where there is active ecosystem to support their path to commercialization.

The nearest offshore testing facility that we know of is located in Oregon. The Oregon facility has a maximum depth of 50m, which is inadequate for testing deepwater wave

Part 2. Benefits and Impacts

3. If this initiative is successful, either fully or partially, what would be the expected impact? Who are the primary users and/or beneficiaries?

An offshore testing facility off the coast of California, nearby to the brilliant minds in Silicon Valley, Silicon Beach, and the dozens of public and private universities would offer an invaluable resource for clean offshore energy technology research and development.

For the purpose of ocean energy, it is simply not good enough to test energy devices in computer modeling systems or in laboratory pools. The marine environment with all of its varying dynamics - from the physical motion and power of the waves to the presence of organic material to the salinity and corrosive nature of ocean water - simply cannot be simulated to the degree of accuracy that is required for commercializing offshore energy technologies.

Given that 50% of the world's energy demand resides within 50 miles of the coast (and growing), offshore clean energy is certain to become a major contributor to the energy

4. Describe what quantitative or qualitative metrics or indicators would be used to evaluate the impacts of the proposed initiative:

- how many new devices has this facility helped bring to market?
- how much R&D time and resources have been saved?
- how many new businesses have been formed to support this emerging marketplace?
- what is the direct and indirect economic impact on California businesses to support this emerging marketplace?
- how much outside investment has been brought to California to support this emerging marketplace?
- how much offshore clean energy can be produced?
- how much money will Californians save with offshore clean energy piping into the grid?
- how much new clean energy will California Utilities gain from offshore technologies?
- how much will clean offshore contribute to the state's clean energy mandate?

5. Please provide a list of peer-reviewed references that support the responses for questions 3 and 4. Proposed initiatives that include peer-reviewed references will be given stronger consideration.

https://www.boem.gov/Ocean-Wave-Energy/
https://energy.gov/sites/prod/files/2013/12/f5/mappingandassessment.pdf
http://www.energy.ca.gov/oceanenergy/E2I_EPRI_REPORT_WAVE_ENERGY.PDF
http://www.energy.ca.gov/2007publications/CEC-500-2007-083/CEC-500-2007-083.PDF

6. (For technologies only) What competitive advantages does the proposed technology solution have over current benchmark technologies? If the technology is beyond the prototype stage, what strategies do you suggest to bring to scale?

Part 3. Connection to Energy Commission's EPIC Framework

Energy Commission staff have developed a draft strategic framework to guide the CEC's planning and implementation of EPIC across triennial investment cycles. One of the objectives of the draft strategic framework is to communicate a consistent set of priorities for organizing current and future EPIC investments.

7. Please indicate which of the following strategic framework themes you feel the proposed initiative best fits within:
    - Advance Technology Solutions for Deep Energy Savings in Building and Facilities
    - Accelerate Widespread Customer Adoption of Distributed Energy Resources
    - Increase System Flexibility from Low-Carbon Resources
    - Increase the Cost-Competiveness of Renewable Generation
    - Create a Statewide Ecosystem for Incubating New Energy Innovations
    - Maximize Synergies in the Water-Energy-Food Nexus
    - Develop Tools and Analysis to Inform Energy Policy and Planning Decisions
    - Catalyze Clean Energy Investments in California's Underrepresented and Disadvantaged Communities

Create a Statewide Ecosystem for Incubating New Energy Innovations

If Other, Please Specify