

EXHIBIT

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Hawaii Renewable Hydrogen Program

Work Plan

I. Introduction

Hawaii faces long-term problems from overdependence on imported petroleum. There is no cleaner, lasting solution than using hydrogen as an energy carrier, derived from water electrolysis fueled by renewable energy. In the near-term, creating a renewable hydrogen program will attract investments in technology development and increased use of renewable energy that will gradually, but significantly reduce dependence on imported petroleum. In the near-term the fund can be used to cost share projects that will attract a significant amount of federal and private R and D activity to Hawaii. It can also be used to seed investments in emerging Hawaii advanced energy technology companies. Done strategically, these investments can also foster the development of renewable energy in the state, with initial prospects greatest on the Big Island. Authorized by the legislature and seeded by a \$10 million capital investment fund, SID will implement this program in the current fiscal year. Because the fund has been established within the Hawaii Strategic Development Corporation's (HSDC) revolving fund, the cooperation and support of the HSDC board is required.

II. Renewable Hydrogen Capital Investment Fund Elements

- Total capitalization: \$10 million
- Requires Separate Ledger within HSDC revolving fund
- Overall Policy for Fund Use: Act 240, SLH 2006 (see attached)
- Required Elements: (1) Program management including normal expenses for project execution and support, (2) cost share support for public-private partnerships, and (3) seed/venture investments in Hawaii emerging advanced energy companies whose profiles align with the guiding principals of the renewable hydrogen program under Act 240

III. Preliminary Budget (See Yearly Action Plan, attached)

- \$500,000 for program management (not more than 10 per cent of fund balance)
 - Technical Services Contract, \$400,000, managed for at least two years
 - Intergovernmental Personnel Agreement, \$60,000 over two years as state cost share
 - \$40,000 in Other Current Expenses such as supplies, computers and equipment, conference fees, training, and in-state and out-of-state travel

- \$6,000,000 for cost share to attract public and private partnerships. These projects will be selected based on the criteria below.
- \$3,500,000 for seed/venture investments. These projects will be selected based on the criteria below.
- DBEDT reserves the right to adjust the budget between cost share and seed venture investments depending on the response to the program solicitations and the quality and viability of project proposals in either category.

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IV. Criteria for Use of the Funds

The funds must be deployed in a manner consistent with Act 240, SLH 2006. The Legislature has decreed that the funds shall be used in a manner consistent with Chapter 211, HRS, which is HSDC's governing statute.

The program elements and policy direction described in Act 240 follow the principles outlined by Governor Linda Lingle in her Energy for Tomorrow package, which was conceived, justified, and defended by DBEDT. The legislature also established the renewable hydrogen program within DBEDT, thus concurring that DBEDT manage this program. DBEDT plans to implement this program through its Strategic Industries Division and its Chief Technology Officer, since the Administration's request for program startup funding and three personnel to manage the program were not approved by the Legislature. Accordingly, the CTO has temporarily assumed responsibility for startup with the assistance of SID staff, but will require additional support through the development of an Intergovernmental Personnel Agreement with the USDOE, and a technical support services consultant contract.

- Technical Support Contractor
 - Demonstrated technical capability in hydrogen systems development
 - Familiarity with relevant energy programs
 - Ability to assist the state with developing project prospects
 - Familiarity with Hawaii's comparative advantages in renewable hydrogen and Hawaii stakeholders
 - Proven ability to develop public-private partnerships
 - Ability to execute assignments in a timely manner with a preference for a Hawaii presence
 - Ability to develop a competitive Hawaii program based on previous relevant corporate experience
 - Greatest prospects to help the state attract a maximum of non-state funding
 - Knowledge and demonstrated proficiency with federal policies and program development to enable the state to maximize attraction of federal dollars
- Matching State Funds for R, D and D public-private partnerships
 - Minimum cost match of 3:1, with a desirable cost match of 5:1 or greater using a ratio of non-state/state funds

- o Potential to sustain project activity beyond the initial proposed project, including demonstrated prospects for continued federal and private sector funding beyond the proposed project
- o Commitment of the proposed team resulting in long-term Hawaii benefit
- o Ability to demonstrate how the proposal enhances Hawaii's comparative advantages for renewable energy and hydrogen technologies
- o Ability to demonstrate how the project will help to achieve Hawaii's goal to maximize utilization of renewable energy first on the Big Island, and ultimately, for other islands and the remainder of the state. If the project is proposed for other than Hawaii Island, the proposer must explicitly address how the project will help to develop renewable energy, maximize its use, and lead to energy independence for the island location being considered
- o Ability to demonstrate linkage with inventions and innovations from Hawaii research Universities
- o Prospects to bridge applied research to eventual technology commercialization
- Seed/Venture Investments in Emerging Hawaii Advanced Energy Technology Startup Companies
 - o All of the above under the Matching Fund category, plus
 - o Demonstrate that the proposer is a Hawaii company
 - o Prospects for job creation and growth in Hawaii
 - o Address intellectual property ownership and return on investment that can help in sustain the renewable hydrogen revolving fund under Chapter 211, either through equity, shared license income and royalties, etc.

V. Timetable for Matching and Investment Funds

Since the initial capitalization of the fund is contained within HSDC's revolving fund, we envision a multi-year program execution plan; say over a minimum of three years. By three years we expect that results from the first year placements will be realized. By year two, DBEDT will be able to discern whether results justify that additional request for state funds can be made of the legislature.

Accordingly, we expect to proceed with an initial allocation of \$3 million in cost match for FY07 for the R D and D cost matching program, and \$2.0 million in seed/venture placements for FY07, with a maximum of \$1.0 million in individual project awards.

VI. Advisory Committee

DBEDT envisions organizing an advisory committee, established as an investigative committee under HSDC to provide advice to DBEDT on the overall program direction, and to assist with review of project proposal. As an investigative committee under HSDC, the body will not be charged with making any decision, but will provide

recommendations to the DBEDT Director, CTO, Interim Project Manager, and HTDC Board.

This committee will number at least five individuals as follows:

- HSDC Member Director DBEDT designee (Mark Anderson)*
- HSDC Member, appointed by HSDC Chair
 - Ed Young?
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- At-Large Member from Renewable/Hydrogen Technical Area (public/academia)
 - Jo-Ann Milliken, USDOE acting hydrogen program manager
 - Potential members from other state renewable public benefit funds—CA, CT, etc.
 - Representative from the National Renewable Energy Lab (NREL), Dale Gardner, George Sverdrup
- At-Large Member from Renewable/Hydrogen Technical Area (private)
 - Dr. Pat Takahashi, Director Emeritus, HNEI
 - Director of CA Fuel Cell Partnership?
 - Representative from Hydrogen or Fuel Cell company
- At-Large Member with Venture Capital Background
 - Barry Weinmann?
 - Ron Higgins?
 - Irvin Barash, RE Venture Capitalist, Vencon Management, Inc., NYC (Takahashi knows him)
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The advisory committee membership will select a chair from its members. Until such time as that occurs, the HSDC-DBEDT representative will serve as interim chair. Members will serve for two years, at the "pleasure of the Director, DBEDT."

Additionally, DBEDT CTO, HSDC President, Renewable Hydrogen Interim Program Manager shall serve as resources to the committee. Appropriate out-of-pocket expenses for the members shall be reimbursed through the renewable hydrogen fund.

(Note: While it may seem advantageous to appoint a member from the University of Hawaii HNEI hydrogen program, potential conflict of interest issues are present, since UH is likely to be a recipient of these funds.)

*The Director of DBEDT will be the selecting official and contracting officer for projects funded from the special fund. To remain arms length from the solicitation, evaluation and ranking process, the Director will not be a part of the advisory committee.