



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

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Testimony of
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before the
HOUSE COMMITTEE ON FINANCE

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2:30 PM
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COMMENTS
SB 2283, SD2, HD1
RELATING TO THE HAWAII HYDROGEN STRATEGIC PLAN.

Chair Luke, Vice Chair Yamashita, and Members of the Committee, the Hawai'i State Energy Office (HSEO) offers comments on SB 2283, SD2, HD1, which requires the Hawai'i Natural Energy Institute (HNEI) to conduct a study to examine the potential for the production and use of renewable hydrogen in the State and the potential role of renewable hydrogen in achieving a local, affordable, reliable, and decarbonized energy system and economy, and to report to the Legislature.

HSEO appreciates that the bill was revised to specify that the results of the study shall be used to inform energy planning, including work being done by HSEO.

HSEO notes that the establishment of a screening criteria based on "lifecycle emissions" (page 3, line 1) does require quantification as a first step. Therefore, HSEO suggests that, in this initial study, carbon emissions be quantified for the relevant renewable resources included in [Section 269-91](#), Hawai'i Revised Statutes. Rather than developing and applying the screening criteria outside of the study, HSEO recommends including the information as part of the study, to better inform policy-makers and the public. Therefore, HSEO recommends that the definition of "renewable hydrogen" starting on page 2, line 19, be revised to read:

(c) For the purposes of this section,
"renewable hydrogen" means hydrogen produced
entirely from renewable sources ~~that have
lifecycle emissions of no more than fifty
grams of carbon dioxide per kilowatt hour.~~

This change allows for consistency in definitions, and adds a new and important facet to understanding the effectiveness of Hawai'i's various energy resources in reducing Hawai'i's greenhouse gas emissions that may be useful in establishing new terms and potential limits for hydrogen to qualify as "green." HSEO also notes that a threshold of "50 grams of carbon per kWh" may not include some systems on Hawai'i's grids, such as crystalline silicon photovoltaics manufactured prior to achieving the improved emissions profiles of current technologies.¹

HSEO agrees that hydrogen has the potential to be an increasingly important component of Hawai'i's energy system and that it is appropriate for HNEI to conduct the study, with input from a variety of experts. HSEO notes that in section 2, beginning on page 3, line 3, HNEI is directed to work with "applicable state or county agency" and "industry stakeholders." HSEO recommends adding "national laboratories and federal agencies" since significant greenhouse gas lifecycle assessment, harmonization work, and quantification tools have been developed and published by national laboratories.

The study of "renewable hydrogen" will be an important and useful part of HSEO's overall energy planning mandate to decarbonize the economy. In 2019, Act 122 established the HSEO "with a clear mission... to assist both the public and private sectors in achieving the State's energy goals" and "achieving a clean energy

¹ According to communication with staff of the National Renewable Energy Laboratory (NREL) regarding NREL's [Life Cycle Assessment Harmonization](#), the [Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update](#), "crystalline silicon (c-Si) PV has median life cycle GHG as reported in our analysis that is HIGHER than 50. I imagine that is a result that would not be expected and might cause consternation amongst stakeholders. C-Si PV has improved over time, and the harmonization study was not designed to estimate a current life cycle GHG emission for today's modules, rather it was designed to review extant literature and average all values, e.g., anywhere in the world, published estimates since ~1990, and would thus be more representative of all installed generation technologies of a category... One solution might be to adjust the threshold from 50 to 75." Personal communication, February, 2022.

economy,” and mandated the Chief Energy Officer to “Identify market gaps and innovation opportunities, collaborate with stakeholders, and facilitate public-private partnerships [...] that will support the State's energy and decarbonization goals.” The Hawai'i State Planning Act, HRS Section 226-55(a), also affirms HSEO's overall energy planning mandate: “The state agency head [i.e., the Chief Energy Officer] primarily responsible for a given functional area shall prepare and periodically update the functional plan for the area.” HSEO looks forward to collaborating with HNEI on the study and integration with HSEO's overall planning for the decarbonization of Hawai'i's economy.

HSEO defers to the appropriate agencies for comment on the fiscal, administrative, and regulatory impacts of this proposal.

HSEO's comments are guided by its mission to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient, clean energy, decarbonized economy.

Thank you for the opportunity to testify.