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Testimony of **MARK B. GLICK, Chief Energy Officer**

before the **SENATE COMMITTEE ON WAYS AND MEANS**

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9:55 AM
State Capitol, Conference Room 211 and Videoconference

Providing Comments on
SB 2768, SD1

RELATING TO GREENHOUSE GAS EMISSIONS.

Chair Dela Cruz, Vice Chair Moriwaki, and members of the Committee, the Hawai'i State Energy Office (HSEO) provides comments on SB 2768, SD1, which requires HSEO to adopt rules governing a clean fuel standard for gasoline and diesel in the State.

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 pursuant to HRS §196-71 and HRS §196-72. Our comments are also informed by analysis and findings associated with HSEO's Act 238 report, *Pathways to Decarbonization*,¹ especially the discussion about implementing a Clean Fuel Standard based on lifecycle carbon intensity in Chapter 5 of the report. A relevant passage from the report, below, focuses on the importance of lifecycle emissions and managing carbon intensity over time:

"Bioenergy, specifically biofuels, and alternative fuels will likely play a significant role in decarbonization.... With the selection of Stage 3 projects alone setting aside over 650

¹ Hawai'i State Energy Office (2023). Hawai'i Pathways to Decarbonization Report to the 2024 Hawai'i State Legislature. Act 238 (SLH 2022). Available at: https://energy.hawaii.gov/wp-content/uploads/2024/01/Act-238_HSEO_Decarbonization_Report.pdf

MW nameplate capacity by 2033 for bioenergy.² The electric sector is anticipated to require significant biofuel production and feedstock imports.

However, as biofuels exhibit a diverse spectrum of lifecycle emissions, it becomes crucial to establish lifecycle carbon intensity standards which apply to all sectors. At a minimum, these standards should ensure that the carbon footprint throughout a biofuel's lifecycle remains consistently lower than that of fossil fuel. This approach ensures a stringent measure of environmental sustainability across various sectors. A clean fuel standard (CFS), or an adjustment to the RPS to account for the carbon emissions of biofuels [in the electric sector], would require fuel suppliers to gradually reduce the CI of the fuels sold and distributed within the state.

Increasingly stringent CI reduction requirements can serve to decrease the CI of alternative fuels and help ensure that the state prioritizes low carbon fuel imports as they become commercially available.”³

Accordingly, a CFS bill should support a lifecycle CI that is high enough to reflect fuels that are currently available while still being lower than the fossil fuel alternatives, low enough to reduce carbon emissions and have the flexibility to have the CI threshold decrease over time to encourage technological improvements and the adoption of cleaner fuels over time.

HSEO supports and welcomes the intent of this bill which encourages measures to help attain Hawai'i's decarbonization goals by providing market mechanisms to lower the carbon intensity of alternative fuels used in the state. However, HSEO recommends a modified approach to ensure the standard can be used to achieve the intent of the bill to widely support the deployment of clean transportation fuel technologies through a methodical reduction of the carbon intensity of fuels used in the state over time.

Specifically, HSEO has the following comments and concerns on the proposed measure in its current form. Suggested Ramseyer edits are provided with rationale:

Scope of the Clean Fuel Standard

SB 2768, SD1, covers a narrower scope of transportation fuels than that of other Clean Fuels Standards (“CFS”) and Low-Carbon Fuel Standards (“LCFS”) implemented in other states. Given the core purpose of a CFS is to promote better management of

² Hawaiian Electric (2023) [Renewable Project Status Board](#).

³ Hawai'i State Energy Office (2023). Hawai'i Pathways to Decarbonization Report to the 2024 Hawai'i State Legislature. Act 238 (SLH 2022). Pages 226-229.

waste and resources, while incentivizing the use of fuels with lower lifecycle carbon intensity, the scope of fuels covered under SB 2768, SD1, definitions may be too narrow to promote significant levels of decarbonization.

SB 2768, SD1, proposes to enforce a CFS on diesel, gasoline, and alternative fuels. However, other state fuel standards, such as those in Washington State and Oregon have CFS that apply to gasoline, gasoline substitutes, diesel, and diesel substitutes. California's LCFS applies more broadly to (1) California reformulated gasoline; (2) California diesel fuel; (3) fossil compressed natural gas or fossil liquefied natural gas; (4) biogas CNG or biogas LNG; (5) electricity; (6) compressed or liquefied hydrogen; (7) a fuel blend containing hydrogen; (8) a fuel blend containing greater than 10 percent ethanol by volume; (9) a fuel blend containing biomass-based diesel; (10) denatured fuel ethanol; (11) neat biomass-based diesel; and (12) any other liquid or non-liquid fuel.⁴ The EPA's Renewable Fuels Standard ("RFS") Program⁵ also covers a broader range of renewable fuels.⁶ Hawaii's own alternate fuel standard goal, as codified in Hawai'i Revised Statutes section 196-42, uses the federal definition of "alternate fuels,"⁷ which also provides a broader definition of alternative fuels than that defined under SB 2768, SD1.

Accordingly, HSEO advises that an effective fuel standard would have a broadened scope of the CFS to include electricity and a broader range of alternative fuels. HSEO suggests the definition of covered fuels is consistent with EPA's Renewable Fuel Standard and 10 C.F.R. § 490.2.

⁴ ORS Chapter 468A, § 266.

⁵ *Approved Pathways for Renewable Fuel*, EPA, <https://www.epa.gov/renewable-fuel-standard-program/approved-pathways-renewable-fuel>.

⁶ 10 C.F.R. § 490.2.

⁷ "Alternative Fuel" means "methanol, denatured ethanol, and other alcohols; mixtures containing 85 percent or more by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels; natural gas, including liquid fuels domestically produced from natural gas; liquefied petroleum gas; hydrogen; coal-derived liquid fuels; fuels (other than alcohol) derived from biological materials (including neat biodiesel); three P-series fuels (specifically known as Pure Regular, Pure Premium and Pure Cold Weather) as described by United States Patent number 5,697,987, dated December 16, 1997, and containing at least 60 percent non-petroleum energy content derived from methyl-tetrahydrofuran, which must be manufactured solely from biological materials, and ethanol, which must be manufactured solely from biological materials; and electricity (including electricity from solar energy)." 10 C.F.R. § 490.2.

Page 9, Lines 7-10

"Alternative fuel" means ~~fuel that is used in transportation and derived from municipal solid waste, agriculture or forestry practices, construction waste, animal or food waste, or other biogenic biomass sources.~~ methanol, denatured ethanol, and other alcohols; mixtures containing 85 percent or more by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels; natural gas, including liquid fuels domestically produced from natural gas; liquefied petroleum gas; hydrogen; fuels (other than alcohol) derived from biological materials (including neat biodiesel); three P-series fuels (specifically known as Pure Regular, Pure Premium and Pure Cold Weather) as described by United States Patent number 5,697,987, dated December 16, 1997, and containing at least 60 percent non-petroleum energy content derived from methyl-tetrahydrofuran, which must be manufactured solely from biological materials, and ethanol, which must be manufactured solely from biological materials; and electricity (including electricity from solar energy)."

HSEO also offers language for carbon intensity thresholds, which HSEO can further refine in rulemaking. HSEO recommends extending the implementation date by at least 1 year, as this is a highly technical subject matter and would require substantial resources to develop a comprehensive CFS program.

Page 3, Lines 14-20; page 4, Lines 1-2.

- (a) The Hawaii state energy office shall adopt rules pursuant to chapter 91, Hawaii Revised Statutes, governing a clean fuel standard for diesel, and gasoline, and alternative fuels in the **State**. The rules shall include:
- 1) A schedule to phase-in the implementation of the clean fuel standard for diesel, gasoline, and alternative fuels in a manner that reduces the average carbon intensity of fuels by at least 15 per cent below 2019 levels by the year 2035, and at least 50% below 2019 levels by the year 2045 including the establishment of annual carbon intensity standards for diesel, gasoline, and alternative fuels;
 - 2) An implementation date for the clean fuel standard for diesel, and gasoline, and alternative fuels on or before January 1, ~~2025~~ 2026;

Standards for Measuring Net Greenhouse Gas Emissions

Section 2 (a) (3) requires the State Energy Office to adopt rules, which shall include (3) “Standards for measuring net greenhouse gas emissions using Argonne National Lab's GREET model attributable to the production and use of diesel, gasoline, and other alternative fuels throughout their lifecycles, including feedstock production or extraction, fuel production, transportation of raw materials and finished fuels, and greenhouse gas sequestrations;”.

HSEO notes that while the Argonne National Laboratory's GREET is an ideal model for determining lifecycle carbon emissions, adjustments to the model would be needed, particularly to capture upstream emissions from in-state biofuels and feedstock, as the default feedstock carbon intensity calculator (FD-CIC) does not have Hawai'i-specific land characteristics built-in, these characteristics must be input by the user and can be both subjective and skewed by the user. California adopted its lifecycle models and documentation to overcome this challenge and ensure appropriate system boundaries were applied to the applicant's analysis.⁸ Hawai'i would likely need to do the same, additional resources would be needed to assist in the development of a HI-GREET Model.

Consistent with EPA guidance, HSEO also recommends removing language around “net” emissions, instead the focus should be on total lifecycle emissions. Sequestration activities not associated with the production of the feedstock should not be included in the lifecycle analysis; assessment of fuel production should not include activities that are unrelated to the fuel lifecycle.⁹

Page 4, Lines 5-11

3) Standards for measuring ~~net~~-lifecycle greenhouse gas emissions, including biogenic emissions, using Argonne National Lab's GREET an appropriate and opensource GHG model attributable to the production and use of diesel,

⁸ California Air Resources Board (2023). LCFS Life Cycle Analysis Models and Documentation <https://ww2.arb.ca.gov/resources/documents/lcfs-life-cycle-analysis-models-and-documentation>

⁹ EPA RPS standard practice <https://www.epa.gov/renewable-fuel-standard-program/lifecycle-analysis-greenhousegas-emissions-under-renewable-fuel>

gasoline, and other alternative fuels throughout their lifecycles, including feedstock production or extraction, fuel production, and the transportation of raw materials and finished fuels,~~and greenhouse gas sequestrations;~~

Allowing for Flexibility in Rulemaking

HSEO recommends line items Section (a) items 9-13 be moved to the section (b), to allow for more flexibility in rulemaking, particularly as it relates to exemptions which may not be appropriate.

Page 5, Lines 7-19

- 7) Mechanisms that allow credits to be traded and to be banked for future compliance periods;
- 8) A mechanism that requires diesel, gasoline, or other alternative fuel that is exported from the State to retire any associated credit or debit;
- 9) Exemptions for diesel, gasoline, and alternative fuel that are used in volumes below thresholds established by the Hawaii state energy office;
- 10) Exemptions for diesel, gasoline, or other fuels used by aircraft, railroad locomotives, military vehicles, and interstate waterborne vessels; (13) Procedures for verifying the validity of credits and deficits generated under the clean fuel standard.

Revising Definitions, Section 2 (c)

HSEO recommends biogenic be redefined to accurately reflect the definition more broadly used by the EPA.

Page 8, Lines 11-13

"Biogenic Emissions" means emissions related to the natural carbon cycle, as well as those resulting from the combustion, harvest, digestion, fermentation, decomposition, or processing of biologically based materials produced within the past one hundred years, not inclusive of fossil emissions. ~~from any carbon or hydrogen absorbed by plants or trees from the atmosphere through photosynthesis within the past one hundred years.~~

HSEO recommends the definition be broadened as megajoules may not be the most appropriate unit of measurement. HSEO appreciates the flexibility in rulemaking.

Page 8, Lines 14-16

"Carbon intensity" means that quantity of lifecycle greenhouse gas emissions per unit of fuel energy, expressed in grams of carbon dioxide equivalent per megajoule. Unit of energy produced.

Additional Considerations

Finally, HSEO would like to provide additional edits for consistency, clarity, and accuracy for consideration by the committee.

Clean Air Act Compliance, Federal Preemption, and State Implementation Plans

Under Section 110 of the CAA, states must adopt State Implementation Plan (SIPs) and submit them to the EPA to ensure that they are adequate to meet the statutory requirements of the Clean Air Act. SIPs provide a plan for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards ("NAAQS") in each state.¹⁰

Title II of the CAA generally preempts states from adopting their own emission standards for new motor vehicles or engines. CAA Section 209(b) provides an exception to federal preemption of state vehicle emission standards:

The [EPA] Administrator shall, after notice and opportunity for public hearing, waive application of this section [the preemption of State emission standards] to any State which has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor vehicle engines before March 30, 1966, if the State determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards.

Only California can qualify for such a preemption waiver because it is the only state that adopted motor vehicle emission standards "prior to March 30, 1966." However, Section 177 of the CAA allows other states to adopt California's stricter motor

¹⁰ *Basic Information About Air Quality SIPs*, EPA, <https://www.epa.gov/air-quality-implementation-plans/basic-information-about-air-quality-sips>.

vehicle emission standards in lieu of federal requirements, but only for non-attainment areas (i.e., areas where pollution levels have not met the NAQQS). Hawai'i consistently receives "attainment" status from the EPA, therefore under Section 177 of the CAA, it is ineligible to adopt California's stricter vehicle emissions standards.¹¹ This may be an insurmountable hurdle in Hawai'i pursuing vehicle emissions standards. However, the State of Hawai'i could make a request to EPA to gauge the remote possibility of preparing a SIP for fuel standards that is not currently required by law, but would be advantageous to Hawai'i air quality and health such that the EPA Administrator makes a finding that such a SIP and potential emissions standard would be necessary to help the state achieve a NAAQS standard.¹² Thus, insofar that Hawai'i's CFS is for motor vehicle emission control, Hawai'i will likely have to modify its SIP for EPA approval in a totally novel manner relative to other states. The State Department of Health, Clean Air Branch would be the coordinating agency for making the request to EPA and ultimately modifying Hawai'i's SIP based on EPA's guidance.

HSEO recommends this step be incorporated into the SB 2768, SD1, and be done as an important next step and certainly prior to preparing and finalizing rules.

Importance of Complementary Policy

While a CFS with a temporally decreasing carbon intensity target is likely needed to meet Hawai'i's emissions target (HRS §225P-5), the state should implement complementary policies that promote alternative fuel production, otherwise, alternative fuel supply may become an issue.

Act 122, Session Laws of Hawai'i 2019 required HSEO to examine the implementation of a carbon pricing policy for Hawai'i. The analysis noted Hawai'i's relatively small market size and limited number of market participants limit the effectiveness of instituting a cap-and-trade policy. One way to bridge the limitation of

¹¹ See FACT SHEET: Review of Hawaii Status to Adopt a Zero Emission Vehicle Standard, HSEO (Dec. 2018), available at: https://energy.hawaii.gov/wp-content/uploads/2019/03/Review-of-Hawaii-Status-to-Adopt-a-ZEV-Standard_Dec2018.pdf

¹² A State may prescribe and enforce, for purposes of motor vehicle emission control, a control or prohibition respecting the use of a fuel or fuel additive in a motor vehicle or motor vehicle engine if an applicable implementation plan for such State under section 7410 of this title so provides. The Administrator may approve such provision in an implementation plan, or promulgate an implementation plan containing such a provision, only if he finds that the State control or prohibition is necessary to achieve the national primary or secondary ambient air quality standard which the plan implements." 42 U.S.C. § 7545(c)(4)(C)(i).

market size may be for Hawai'i to join existing cap-and-trade policies that exist in other jurisdictions. States like Washington and California have discovered that a combination of LCFS and cap-and-trade help drive long-term investments in renewables and advanced fuels without which meaningful air quality improvements can be achieved in communities that are disproportionately impacted by carbon emissions.

However, for California, researchers have found that the cap-and-trade currently is not stringent enough to drive substantial emission reductions because over time many covered entities and outside investors have banked unused allowances.¹³ A carbon tax program could serve a similar purpose if fuels not meeting the CFS are subject to an aggressive surcharge. Further research is needed to determine the appropriate complementary carbon pricing regime.

HSEO thanks the Committee for hearing this bill and respectfully requests your consideration of the recommended modified approach and changes.

Thank you for the opportunity to testify.

¹³ California's Cap-and-Trade Program: Frequently Asked Questions. (2023, October 24). Legislative Analyst's Office.
<https://lao.ca.gov/Publications/Report/4811#:~:text=However%2C%20cap%2Dand%2Dtrade,significant%20number%20of%20unused%20allowances>.