JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

LEODOLOFF R. ASUNCION, JR.
CHAIR

NAOMI U. KUWAYE
COMMISSIONER

COLIN A. YOST
COMMISSIONER

STATE OF HAWAII
PUBLIC UTILITIES COMMISSION
465 S. KING STREET, #103
HONOLULU, HAWAII 96813

Telephone: (808) 586-2020
Facsimile: (808) 586-2066

Website: puc.hawaii.gov
E-mail: puc@hawaii.gov

August 23, 2024

The Honorable Ronald D. Kouchi,
President and Members
of the Senate
Thirty-Second State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,
Speaker and Members of
the House of Representatives
Thirty-Second State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Aloha President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the **Hawaii Gas 2023 Renewable Energy Report as required by HRS §269-45.**

In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at https://puc.hawaii.gov/reports/.

Sincerely,

Leodoloff R. Asuncion
Chair

Enclosure

c: Office of the Governor

April 1, 2024

Via E-Filing

The Honorable Chair and Members of
the Public Utilities Commission of the State of Hawaii
Kekuanaoʻa Building
465 South King Street, Room 103
Honolulu, Hawaii 96813

Re: Hawaii Revised Statutes (HRS) § 269-45, Gas Utility Companies Renewable Energy Report

To the Honorable Public Utilities Commission of the State of Hawaii:

In accordance with HRS § 269-45, The Gas Company, LLC, dba Hawaii Gas hereby submits its Annual Renewable Energy Report for 2023. Portions of this report have been redacted as described in the attached Confidentiality Log.

Sincerely,

/s/ Kevin Nishimura

Kevin Nishimura
Vice President Operations
The Gas Company, LLC, dba Hawaii Gas

cc: Office of the Consumer Advocate (*via email*)
Hawaii State Energy Office (*via email*)

Hawaii Gas
2023 Renewable Energy Report

Overview

The Gas Company, LLC, doing business as Hawaii Gas (Hawaii Gas), has prepared this Annual Renewable Energy Report for the Hawaii Public Utilities Commission (PUC) in accordance with Hawaii Revised Statutes (HRS) § 269-45.

Hawaii Gas' utility gas operations consist of the purchase, production, transmission, distribution, and sale of utility gas, which includes synthetic natural gas (SNG) (including 10-12% hydrogen by volume), renewable natural gas (RNG), propane, and liquefied natural gas (LNG), which are cleaner-burning fuels that produce significantly lower levels of carbon emissions during combustion than other hydrocarbon fuels, such as oil, diesel, and coal. Hawaii Gas provides a safe, reliable, and economical source of energy to approximately 70,000 residential and commercial customers throughout the State, with almost half of those customers served by the utility system on Oahu.

SNG is produced using naphtha, a byproduct of Par Hawaii's refining process. The production process is approximately 85% efficient, whereas electricity generation from oil-derived fuels is approximately 32% efficient. As a result, natural gas delivers nearly three times more energy to the end-user per barrel of oil as compared to electricity produced from oil. In 2023, an additional 729,585[1] barrels of oil were avoided by the fact that Hawaii Gas customers on Oahu used gas energy instead of electricity, which remains predominately sourced from oil. This amounts to savings of $90,606,541 based on an average cost of $124.19 per barrel of fuel oil.[2]

Current Non-Petroleum Resources

Hawaii Gas produces SNG using mainly a blend of liquid naphtha, (water) steam, and hydrogen gas, along with other gas feedstocks. Since 2000, approximately 50% of the hydrogen used to produce SNG has been from recycled water from the Honouliuli Wastewater Treatment Plant. Recycled water is combined with methane and other gases to produce hydrogen and additional methane in Hawaii Gas' utility processes. In 2023, the non-petroleum feedstock portion, based upon molar calculations, was 51.7% of the total feedstock used to produce SNG and RNG.[3]

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[1] *See* Attachment 1.

[2] *Id.*

[3] *Id.*

About Renewable Natural Gas

Hawaii Gas is committed to integrating as much cost-effective RNG and renewable hydrogen into its fuel supply mix as possible, and to do its part to help meet Hawaii's goal of carbon neutrality by 2045, in an affordable, resilient, and sustainable way for our customers and Hawaii's communities. RNG is chemically equivalent to natural gas and is produced by capturing and purifying previously flared raw biogas to obtain a methane content of at least 96.4%. Today, raw biogas is produced at several landfills and wastewater treatment plants (WWTPs) in Hawaii through the anaerobic breakdown of organic matter by microorganisms. The resulting biogas contains approximately 60% methane and 40% carbon dioxide. According to the Argonne National Laboratory GREET model, RNG made from organic materials is carbon-neutral to carbon-negative.

In December 2018, Hawaii Gas commissioned the Honouliuli WWTP Biogas Project in partnership with the City & County of Honolulu, which allows Hawaii Gas to purchase previously flared raw biogas and upgrade it to pipeline quality RNG for direct injection into Hawaii Gas' utility pipeline system. The Honouliuli WWTP Biogas Project was awarded the American Biogas Council's 2019 Project of the Year. In 2023, Hawaii Gas upgraded 329,269 therms of biogas to biomethane from the Honouliuli WWTP Biogas Project. In 2023, Hawaii Gas and the City & County of Honolulu extended the contract from December 31, 2024, to December 31, 2034, thereby ensuring continued RNG production for an additional ten years.[4]

Hawaii Gas is still considering additional potential partnerships with the City & County of Honolulu for other biogas resources, which could contribute additional RNG to Hawaii Gas' fuel mix. However, while some incremental improvements in biogas production technology have been made, these resources are generally not scalable due to feedstock limits.

In addition to biogas from landfills and WWTPs, Hawaii Gas continues to assess the use of energy crops to produce biomethane, which are the only local RNG feedstock sources that are potentially scalable in Hawaii. To minimize the cost of producing biomethane from energy crops, it is key to select an energy crop that: 1) maximizes energy production per acre of land; 2) minimizes water requirements; and 3) utilizes the most efficient pre-treatment, digester, and purification technology available. Hawaii Gas continued, in 2023, to work with partners to identify a suitable energy crop.

[4] *See* Docket No. 2016-0340, Hawaii Gas notice regarding Biogas Fuel Supply Agreement First Amendment, filed on January 24, 2023.

About Hydrogen

As part of Hawaii Gas' recent change of control proceeding (Docket No. 2021-0098), the utility agreed to the following condition of approval (COA):

> SEO COA No. 7. Hydrogen reporting. Hawaii Gas commits to give an annual informal briefing (or supplement to its Renewable Energy Report discussing hydrogen) to the Commission, SEO, and the Consumer Advocate on a confidential basis providing an update on Hawaii Gas' progress on hydrogen and pertinent data from its participation in pilot studies.[5]

Hawaii Gas subsequently notified the Commission that it intended to comply with this COA by filing a supplement to its annual Renewable Energy Report discussing hydrogen.[6] Based on the foregoing, Hawaii Gas offers the following update regarding its progress on hydrogen:

Hawaii Gas is very active with hydrogen initiatives both locally and at a national level. Hawaii Gas is also participating in hydrogen blending research and development, which is driven by nationwide interest in blending hydrogen with utility gas. Because Hawaii Gas has been blending hydrogen with its utility SNG since the early 1970s, there is significant interest in Hawaii Gas' pipeline operations and experience with gas appliances. [redacted]

Lastly, Hawaii Gas is sharing its experience with operation and maintenance of gas transmission, distribution, meters, regulators, and end user equipment with gas distribution companies, gas trade organizations, and research teams to help advance opportunities across the country and Canada to blend hydrogen with gas. This is a unique opportunity for

[5] *See* Docket No. 2021-0098, Stipulation of Settlement in Lieu of Hawaii Gas' Reply to the Hawaii State Energy Office's Statement of Position, filed on May 3, 2022, at 10-11, 17-20. This COA is referred to as "SEO COA No. 7" in Decision and Order No. 38478 filed on June 29, 2022.

[6] *See* Docket No. 2021-0098, Hawaii Gas' Submittal of Deadlines for Reporting Requirements in Compliance with Ordering Paragraph 4 of Decision and Order No. 38478, filed on August 4, 2022.

Hawaii to take center stage in the energy arena, particularly with respect to audiences interested in integrating hydrogen with gas.

Request for Proposals for the Supply of RNG and Renewable Hydrogen

On April 6, 2023, Hawaii Gas issued a Request for Proposals (RFP)[7] for the Supply of RNG and Renewable Hydrogen.

The RFP requested proposals for up to 65,000 therms per day or RNG and 2,300 kg per day of hydrogen.

Respondents were asked to provide: (a) General Bidder qualifications, (b) Product and Production Details; and (c) Product Specifications. Respondents were also asked to provide information about (i) pricing; (ii) supply term; (iii) quantity; (iv) change of custody; and (v) community support and outreach.

It was noted that "pricing … will include the precise location of delivery to Hawaii Gas pipeline or facility... on the island of Oahu".

Hawaii Gas received eight proposals by September 30, 2023, the closing date of the RFP: four proposals for the supply of hydrogen, three proposals for the supply of RNG and one proposal for the supply of bio-naphtha.

In the fourth quarter of 2023, Hawaii Gas held clarification calls and/or meetings with all respondents and was in the process of categorizing the results of the RFP process.

A copy of the RFP has been attached for reference.

Key Accomplishments

- In 2023, Hawaii Gas issued a Request for Proposals (RFP) for the supply of RNG and green hydrogen. Eight responses were received, and Hawaii Gas is progressing its review and analysis of the results.
- In 2023, Hawaii Gas upgraded 329,269 therms from raw biogas to biomethane (RNG).
- In 2023, Hawaii Gas continued to advocate for and evaluate potential solutions and responses to the capture and upgrading of biogas flared at Waimanalo Gulch Landfill and Sand Island WWTP, should an RFP be issued for these two facilities.
- In 2023, Hawaii Gas partnered with multiple stakeholders and participated in multiple national and international studies to better understand the technical aspects of integrating more hydrogen into its Oahu transmission and distribution. These studies are ongoing and Hawaii Gas continues to seek other opportunities toward achieving

[7] *See* Attachment 3.

the potential for large-scale and affordable hydrogen production, storage, and distribution in Hawaii.

- In 2023, Hawaii Gas and the City & County of Honolulu signed an extension of the Biogas Fuel Supply Agreement, thereby extending the biogas offtake and RNG production at the Honouliuli WWTP for an additional 10 years.
- In 2023, Hawaii Gas filed the final report in the integrated resource planning (IRP) proceeding, which included an assessment of the various pathways for the utility to decarbonize its fuel supply, including evaluation of existing and future renewable resources.

Calculations

In 2023, the Honouliuli WWTP Biogas Project represented approximately 1.5% of Hawaii Gas' total feedstock, produced 329,269 therms, and was 100% non-petroleum. With the inclusion of hydrogen made from recycled water and RNG from Honouliuli, the total supply molar ratio of non-petroleum feedstock in 2023 was 51.7%, and the total supply molar ratio of petroleum feedstock was 48.3%.

With the inclusion of hydrogen made from recycled water and RNG from Honouliuli, the total energy quantity of non-petroleum feedstock in 2023 was [redacted] therms, and the total energy quantity of petroleum feedstock was [redacted] therms.

Calculation of the mole percentage calculations model provided in this report consists of balancing three reactions (gasification, hydrogen reformer, shift converter). In the production of SNG and hydrogen, which are components in Hawaii Gas' final SNG stream, naphtha petroleum feedstock and water from a renewable source are used in the production. As such, the analysis focuses on three elements (C, H, O) and calculates the proportions for each reactant in feedstock (in mole)

For this report, Hawaii Gas used the same material (molar) balances and followed the same methodology used in its 2020, 2021, 2022 Renewable Energy Reports, with modifications to input volumes and compositions to match the 2023 values.

Summary

Throughout its history, Hawaii Gas has been a pioneer in the gas utility industry. In the 1970s, its SNG process was developed to meet the environmental needs of the State at the time, as well as to ensure that the State would have a reliable energy source. Today, Hawaii Gas is again at the leading edge of its industry given its integration of both RNG and hydrogen into its fuel supply mix and distributing it through the utility pipeline system. Hawaii Gas continues to aggressively pursue cost-effective local renewable energy projects to reduce Hawaii's reliance on imported oil, and a key priority for Hawaii Gas is to integrate as much cost-effective RNG and zero carbon hydrogen into its fuel supply mix as possible, in an

affordable, resilient, and sustainable way for our customers and Hawaii's communities. Hawaii Gas plays a vital role in Hawaii's energy portfolio by providing clean, reliable and cost-effective energy to commercial and residential customers. We are committed to supporting Hawaii's clean energy and carbon neutrality goals, and will continue to look toward new, innovative, and economic ways to incorporate renewable energy sources and support the State's clean and renewable energy future, while also reducing greenhouse gas emissions and aiding in waste diversion.

Attachment 1: Renewable Energy Report Summary for Renewable Non-Petroleum Feedstocks

THEGASCOMPANY

The Gas Company, LLC
Suite 1800
745 Fort Street
Honolulu, Hawaii 96813

Date: Mar-23

2023 Renewable Energy Production Report to the Public Utilities Commission

Mole Percentage of total feedstock used to produce natural gas, biogas, biofuels, or biofeedstocks for use by the gas utility in the State that is comprised of petroleum feedstock

48.30% Feedstock used comprised of petroleum feedstock

Mole Percentage of total feedstock used to produce natural gas, biogas, biofuels, or biofeedstocks for use by the gas utility in the State that is comprised of non- petroleum feedstock

51.70% Feedstock used comprised of non-petroleum feedstock [1]

The energy quantity in therms of natural gas, biogas, or gallons of biofuels, or biofeedstocks produced from petroleum feedstock for use by the gas utility within the State

[redacted] Annual Therms

The energy quantity in therms of natural gas, biogas, or gallons of biofuels, or biofeedstocks produced from non-petroleum feedstock for use by the gas utility within the State

[redacted] Annual Therms [2]

21,922,341

729,585 Barrels of Oil saved by using SNG instead of electricity [3]

$ 124.19 2020 Avg Cost per Barrel Oil

$ 90,606,541 Savings

Footnote		
	[1]	Plant basis (HHV) - R-hydrogen therm / Plant Feedstock therm
	[2]	RNG produced at Honouliuli WWTP + Hydrogen produced in the reformer and water shift reactor from Water.
	[3]	Calculated from plant conversion efficienies with hot water production

Attachment 2: Methodology Description

Hawaii Gas notes that the Renewable Energy Report format as provided under HRS § 269-45, follows a methodology common for electric utility direct combustion, and heat rate power production applications, which are different than the unique chemical conversions of liquids, gases and catalytic chemical processes, used to produce SNG.

The non-petroleum feedstock calculations for the SNG Plant focused on the chemical reactions associated with the gasification, hydrogen reformer, and shift converter processes used to produce SNG. As provided in this report, the non-petroleum feedstocks used to produce SNG as part of these processes are water, hydrogen (portion), and carbon monoxide (portion). The portion of the hydrogen that is non-petroleum based is made from recycled water. The portion of the carbon monoxide that is non-petroleum based is made from recycled water in the reformer.

Attachment 3: Hawaii Gas Request for Proposals for the Supply of Renewable Natural Gas and Green Hydrogen:

642e9d0fdaa00c9579970c3b_Hawaii Gas Renewable Natural Gas and Renewable Hydrogen RFP FINAL 4-6-23.pdf (website-files.com)

Request for Proposals
Supply of Renewable Natural Gas and Renewable Hydrogen

April 6, 2023

Deliver Proposals to:
Hawaii Gas
Attention: Kevin Nishimura
745 Fort Street Mall
Suite 1800
Honolulu, HI 96813
hg-rng-rfp@hawaiigas.com

Responses to this Request for Proposals must be received by:
September 30, 2023 at 2:00 PM, Hawaii Standard Time

Contents **Page**

1 Hawaii Gas

Background

For more than 100 years, The Gas Company LLC, dba Hawaii Gas has been essential to the Hawaiian Islands as the only regulated gas utility in the State, providing gas energy for residents, businesses, and government. Our commitment is to provide safe, secure, reliable, and affordable gas energy to all utility gas consumers and to leverage our utility infrastructure to optimize gas distribution and cost effectiveness. Because of our isolated island environment, diversity of energy supply is critical to ensure sustainability and energy resiliency. As an engaged member of our community, we are committed to Hawaii's clean energy future. At Hawaii Gas, we are doing our part to reduce Hawaii's dependence on oil and increase the supply of renewable energy for the betterment of our people, our islands, and our planet. We support the State's goal of carbon neutrality by 2045 and seek to reduce our carbon footprint by partnering with viable suppliers of renewable energy that can integrate safely with our supply and infrastructure model. Additionally, in times of emergency or natural disasters, when the electric grid is unavailable, gas is an essential component to recovery efforts for residents, businesses, healthcare facilities, and government agencies, i.e., gas allows for a hot shower and a warm meal when it matters most.

Status of Hydrogen and Renewable Natural Gas Blending

Hawaii Gas, to our knowledge, currently blends the largest proportion of hydrogen in a gas utility in North America (typically 10-12%) with the longest operating record at that composition (since 1974). The hydrogen gas blend is distributed to Oahu utility customers through 1,100 miles of transmission and distribution pipeline network that was constructed and maintained over the past 100+ years. Hawaii Gas is exploring how to increase the amount of hydrogen in its utility pipeline. Hawaii Gas is engaged with industry and government in research and data sharing to support hydrogen blending in utility gas service, to ensure safety and reliability in pipeline infrastructure as well as end user equipment. Current industry research supports hydrogen blending up to 20% by volume for utility gas service while maintaining safe and reliable distribution infrastructure and the performance of gas equipment and appliances. Hawaii Gas seeks to increase the concentration of hydrogen in its fuel mix to further reduce the carbon footprint of utility gas.

Hawaii Gas is currently blending renewable natural gas (RNG) into its utility gas supply on Oahu, produced at the City's Honouliuli Wastewater Treatment Plant from digestor biogas. Additional sources of RNG and hydrogen will enable Hawaii Gas to further diversify its fuel supplies and make progress toward the goal of carbon neutrality. Hawaii Gas intends to replace incremental volumes of synthetic natural gas ("SNG"), and/or propane ("LPG") in its Oahu utility system with a blend of RNG and renewable hydrogen where feasible and compatible. Improving diversity of fuel supply in this manner will enable Hawaii Gas to continue to provide its customers with safe, secure, reliable and affordable energy, while increasing the amount of renewable gas energy for our customers and our state.

2 Request for Proposal Overview

Hawaii Gas is seeking firm proposals for the supply of up to 65,000 therms per day of renewable natural gas, and up to 2,300 kg per day of renewable hydrogen. The upper range of 2,300 kg per day of renewable hydrogen has been scaled with the upper range of 65,000 therms per day of renewable natural gas to reach a blend of up to 15% hydrogen by volume, which is the recorded "high water" mark for the hydrogen concentration in the synthetic natural gas. Eligible proposals from new and existing production resources include but are not limited to:

- Wastewater Treatment Plant RNG
- Landfill RNG
- Bio-crop RNG
- Biomass fast pyrolysis RNG
- Food waste RNG
- Dairy RNG
- Hydrogen produced by electrolysis powered by renewable electricity
- Steam methane reforming hydrogen using renewable natural gas
- Methane pyrolysis from landfill gas, renewable gas
- Biomass gasification
- Ethanol or biomass reformation
- Microbial electrolysis cell using renewable electricity

The specifications for RNG are shown in Appendix 3 Table 6.1. Responders are to provide their gas specifications in Tables 6.1. Proposals can offer one or multiple forms of RNG, renewable hydrogen, or blends of RNG and renewable hydrogen. Proposals must include firm gas supply volume. Gas supply volume should be shown with upper and lower supply volume on a therms per day and on a therms per year basis for RNG or RNG/hydrogen blends. Renewable hydrogen supply volume should be shown with upper and lower supply volume for kilograms per day and kilograms per year.

Depending on the proposed RNG volume and delivery location, Hawaii Gas may require gas to be delivered to transmission pipeline at gas pressure greater than 500 psig, or to gas distribution pipeline system at regulated gas pressure of approximately 15 psig. Gas supply proposals should provide a specific delivery location and delivery pressure assumptions with the delivered price based on the exact location and pressure.

Depending on the proposed renewable hydrogen supply volume, it is likely that Hawaii Gas will require delivery at or very close to the SNG plant or RNG supply location and into the transmission pipeline at a gas pressure greater than 500 psig. The final supply location and pricing may be subject to adjustment based on other RNG supply variables.

All proposals must include details on project listed in the attached Appendices:

- **Appendix 1: General Bidder Qualifications**
- **Appendix 2: Product and Production Details**
- **Appendix 3: Product Specifications**

The information set out in this RFP is being provided by Hawaii Gas for information purposes only. Hawaii Gas does not make any representation or warranty as to the accuracy or completeness of any information set out in this RFP, and Hawaii Gas does not assume any undertaking to supplement such information as further information becomes available or in light of changing circumstances. Hawaii Gas shall not have any liability for any representations or warranties (express or implied) contained in, or any omissions from, the RFP or any other written or oral communication transmitted to interested parties in the course of its evaluation.

The information contained in this RFP is confidential and has been prepared to assist interested parties in performing their own evaluation and for no other purpose. The information is preliminary in nature and does not purport to be all-inclusive or to contain all information that a responsive bidder may desire. It is understood that each interested party of this RFP will perform its own independent investigation and analysis as it deems relevant. The information contained herein is not a substitute for an interested party's independent investigation and analysis. The recipient acknowledges that Hawaii Gas considers the RFP documentation to include confidential, sensitive and proprietary information and agrees that it shall use precautions in accordance with its established procedures to keep the material contained in this RFP confidential.

This RFP, and the information it contains, should be understood to supersede for all purposes any information relating to the RFP which Hawaii Gas may have previously furnished the recipient, either directly or indirectly. In preparing responses to this RFP, recipients should rely only on information contained in this RFP and on written supplements provided by Hawaii Gas or its representatives.

2.1 Pricing

Hawaii Gas seeks competitively priced proposals for the supply of RNG, renewable hydrogen, or blends of RNG and renewable hydrogen to Hawaii Gas, that provide the maximum value to its customers. Pricing shall be provided in dollars per therm ($/therm) for supply of RNG or RNG/hydrogen blends, and in dollars per kilogram ($/kg) for supply of hydrogen. The preference is for fixed-price, non-index linked fuel supply except for those cost components that are inherently variable. If variable cost is proposed, the variable cost component should be detailed, and the pricing calculation explained on a per therm or kilogram basis. Pricing for all delivered products will include the precise location of delivery to Hawaii Gas pipeline or facility, delivery pressure, and location and description of change of custody, on the island of Oahu.

2.2 Supply Term

Hawaii Gas intends to enter a Fuel Supply Agreement (FSA) for renewable gas and/or hydrogen supply, contingent on approval from the Hawaii Public Utilities Commission (HPUC). The term of the FSA shall be

for a minimum of five years and a maximum of 20 years. Proposals may also include options to extend the term of the contract.

2.3 Quantity

Hawaii Gas intends to enter one or more term FSAs to purchase an aggregate volume of up to 65,000 therms per day of RNG and up to 2,300 kg/day of renewable hydrogen. Proposals can include options for incremental quantities of RNG or renewable hydrogen that may be available in the future.

2.4 Change of Custody

Hawaii Gas prefers that gas supply be delivered into its transmission pipeline through a pipeline tie-in location. The alignment of the 21-mile pipeline is available upon request from bidders. Change of custody, where Hawaii Gas shall assume title to the gas product will occur at the inlet of Hawaii Gas' gas meter located where gas is delivered and measured by volumetric gas metering to Hawaii Gas' pipeline or gas receiving facility. Responders can propose a different point for change of custody if it is more appropriate for the delivery scenario.

2.5 Community Support and Outreach

Hawaii Gas is committed to strengthening the communities we serve. We foster partnerships with local non-profit organizations and provide support through corporate and employee monetary donations and sponsorships, volunteering, participating in educational, outreach, and vocational programs, investment in improving infrastructure and energy efficiency, and other philanthropic initiatives. For years, Hawaii Gas and its employees have generously supported local organizations such as Aloha United Way, Special Olympics, Hawaii Humane Society, American Red Cross, and many more, including Hawaiian cultural preservation organizations. Our intent is to partner with those who share in this commitment to community support and betterment. It is equally important that the impact of the proposed project is vetted with the community in which it is proposed. Community outreach to gain acceptance and support for the project construction and operations will be a key consideration. We ask that proposals include a section that details the community support and outreach programs that the responder's business or organization engages in, its monetary and/or non-monetary support and outreach efforts. Please include annual value of support, description and level of non-monetary support and the organization or community beneficiaries. Hawaii Gas will use the community support and outreach engagement level as one of the selection criteria for evaluating and selecting from qualified proposals.

3 Proposal Submission Instructions

3.1 Due Date

A digital PDF version of the proposal is due September 30, 2023, 2:00 p.m. Hawaii Standard Time. PDF versions may be delivered via email to hg-rng-rfp@hawaiigas.com or copied onto a thumb drive and delivered by standard carrier at the following address by the September 30, 2023, 2:00 p.m.

Hawaii Gas
Attention: Kevin Nishimura
745 Fort Street, Suite 1800
Honolulu, Hawaii 96813

The cover letter must be signed and dated by a person having authority to enter into an agreement with Hawaii Gas. Hawaii Gas will record the date and time proposals were received. Proposals that are delivered after the proposal due date, or are non-conforming may be disqualified. Hawaii Gas reserves the right to cancel or postpone the proposal due date at any time before, on or after the proposal due date.

Estimated timeline and contract award schedule:

- RFP Issue Date: April 6, 2023
- Proposals Due Date: September 30, 2023
- Proposals Review: October 2023
- Contract Discussions: November 2023
- Execute Term Sheet(s): December 2023 – First quarter 2024

3.2 Questions and Answers

Questions must be submitted by June 15, 2023, by email addressed to: hg-rng-rfp@hawaiigas.com. Hawaii Gas shall have the sole option of determining whether a response to a question is necessary or appropriate under the circumstances. If Hawaii Gas elects to respond to a question, it shall have the further option of determining whether it shall respond solely to the person asking the question or to make the response available to all bidders in the interest of transparency and fairness.

3.3 Proprietary Rights and Confidentiality

This RFP has been prepared exclusively for Hawaii Gas and is proprietary in nature. Hawaii Gas reserves all copyrights for this document and its constituent parts and prohibits any unauthorized use or reproduction hereof. All or portions of this RFP and/or Attachments hereto may be designated or marked as confidential ("Confidential Information"). Prospective bidders acknowledge and agree to maintain in strict confidence all Confidential Information and data relating to the subject matter of this RFP or to Hawaii Gas' business or affairs which is marked as confidential and which is disclosed by Hawaii Gas to a

prospective bidder, and agrees to take normal and reasonable precautions to maintain such confidentiality so that no Confidential Information will be divulged to any party other than Permitted Persons.

3.4 Disclosure of Certain Information for Regulatory Purposes

Prospective bidders should be aware that as a regulated public utility Hawaii Gas will be required to obtain certain regulatory approvals prior to entering into a definitive fuel supply agreement with a winning bidder. Hawaii Gas anticipates that at the appropriate time it will seek the HPUC's approval to submit privileged and confidential information contained in responses to this RFP for the HPUC's and other stakeholders' review subject to a protective order and appropriate confidentiality undertakings. By submitting a response to this RFP, you agree to allow Hawaii Gas to submit privileged and confidential information for the HPUC's and other stakeholders' review.

3.5 Proposal Review Criteria

Proposals will be evaluated using the following criteria: delivery timing after HPUC approval, price, production location, proposed term in years, proven technology, carbon intensity score, community support and outreach, additional costs to HG, volume, project risks, gas quality, and proven track record of developer. Each of these criteria will have a scoring weight to determine the final score for proposals; price, proven technology, and carbon intensity score will be among the higher weighed criteria.

Proposals will also be assessed on responsiveness to HRS § 269-6(b), which requires the HPUC to consider four factors in determining the reasonableness of costs associated with potential gas utility system capital improvements and operations. The four factors are (i) price volatility, (ii) export of funds for fuel imports, (iii) fuel supply reliability risk, and (iv) greenhouse gas emissions. Hawaii Gas will select proposals based on the criteria and scoring to discuss terms for term sheets that would establish the framework for a fuel supply agreement.

4 APPENDIX 1: General Bidder Qualifications

The Bidder shall obtain and maintain all licenses, permits, liability insurance, workman's compensation insurance and comply with any and all other standards or regulations required by Federal, State statute, ordinances and rules during the performance of any contract between the Bidder and Hawaii Gas.

Bidder Information	Response
Company Name	
Address	
City, State, Zip code	
Federal Taxpayer ID	
Point of Contact, Title	
Email address for Point of Contact	
Phone number for Point of Contact with area code	

1) Certify that no officer of the firm or affiliates has been convicted of fraud or any felony in the past 5 years.
2) Demonstrate supplier has experience with energy system design and construction in Hawaii and is able to obtain all necessary permits, licenses, or authorizations.
3) Provide adequate evidence of the ability to meet the financial requirements and commitments of a fuel supply agreement. Provide details of similar projects and fuel supply agreements completed.
4) The proposal shall provide delivery or production guarantees.
5) Provide a Certificate of good standing or equivalent showing current license to operate in Hawaii in good standing.
6) Provide evidence that the Supplier has legal rights to the supplied product as well as the proposed feedstock.
7) Provide evidence that the supplier has experience with the proposed production, handling, and delivery of the proposed product to be supplied.
8) Provide description of bidder's Community Support Programs, support level, and outreach programs.

5 APPENDIX 2: Product and Production Details

1) Proposed product
2) Owner of production facility and land
3) Location of production facility (if in Hawaii, provide zoning land use information)
4) Feedstock description and source
5) Feedstock owner
6) Ownership of gas (if gas feed is sourced from a third party)
7) Production start date
8) Product pricing: RNG in $ per therm, for hydrogen in $ per kilogram
9) Delivery location (on Oahu), provide delivery pressure and flow rate
10) Production technology (new build or existing)
11) Supply Volume: For RNG or RNG/hydrogen blend: minimum and maximum therms per day and minimum and maximum therms per year. For hydrogen: minimum and maximum kilograms per day and minimum and maximum kilograms per year.
12) Delivery method (pipeline, container, tube-trailer, etc)
13) Schedule for first delivery
14) Term of supply agreement in years (include proposed start date)
15) Carbon Intensity (CI) Score (as determine using GREET)
16) Project Financing description

6 APPENDIX 3: Product Specifications

The specification for the Renewable Natural Gas is defined by the following tables:

6.1 Table 1: Gas specifications for RNG and RNG/hydrogen blend

Constituent	Requested Stream Concentration	Responder Concentrations
Methane	Greater than 97 MOL % (RNG without H2)	
Hydrogen Sulfide	Less than 4 ppm	
Siloxanes	Less than 50 ppm	
Carbon Dioxide	Less than 3.0 % by volume	
Carbon Monoxide	Less than 1.0 % by volume	
Nitrogen	Less than 1.0 % by volume	
Oxygen	Less than 0.4% by volume	
Hydrogen	Less than 20% by volume	
Other Inert/HC Gases	Less than 2% by volume	
Water Content	Less than 7 pounds per million cubic feet	
Sulfur	Less than 12.6 parts per million	
Heating Value	960 – 1130 BTU/SCFT (HHV, dry)	
Wobbe Index	1280-1400	
Specific Gravity	0.52 – 0.62 (Air = 1.0)	

6.2 Table 2: Gas specifications for hydrogen

Constituent	Responder Concentrations or Comments
Hydrogen	
Please list other constituents:	

The Gas Company, LLC dba Hawaii Gas – 2023 Renewable Energy Report
CONFIDENTIALITY LOG

Document Name/ Reference	Page Number; Line Number(s) or Section Redacted	Designation	Identification	Basis of Confidentiality	Cognizable Harm
2023 Renewable Energy Report	Redacted portion of pages 3-4	Confidential	Information regarding proprietary and confidential hydrogen projects	Commercially Sensitive Information; Competitive Harm – Frustration Exception The redacted information is protected from public disclosure, pursuant to the "frustration of legitimate government function" exception of the UIPA. Pursuant to HRS § 92F-13(3), the Commission may withhold "records that, by their nature, must be confidential in order for the government to avoid the frustration of a legitimate government function[.]" The redacted information meets the frustration exception under UIPA because the contents contain confidential business/ commercial information where public disclosure would likely result in substantial competitive harm. See Office of Information Practices, Open Records: Guide to Hawaii's Uniform information Practices Act, at 20-21 (August 2019), available at https://oip.hawaii.gov/wpcontent/uploads/2019/08/August-2019-UIPA-Manual.pdf The redacted information contains confidential business, commercial, and financial information and/or other information considered confidential, privileged, and/or proprietary in the form of the proprietary and confidential project status and counterparty names, including content subject to contractual confidentiality restrictions.	Public disclosure of the redacted information could competitively disadvantage Hawaii Gas by providing competitors with confidential information that could be used without expending their own resources to obtain it to the competitive disadvantage of Hawaii Gas. Misuse or unpermitted disclosure of the redacted information could place Hawaii Gas at a competitive disadvantage with respect to industry competitors and would give competitors information useful in making their own investment, financial, business and market decisions, without expending the time, resources, and investment necessary to gather and develop data and/or could provide competitors with insights regarding Hawaii Gas' confidential business operations, practices and decisions that could be used for unfair strategic advantage in the highly competitive energy environment. The redacted information is also subject to contractual confidentiality restrictions, the disclosure of which

					could expose Hawaii Gas to contractual liability.
2023 Renewable Energy Report	Two redacted values on page 5	Confidential	Information regarding proprietary energy data	HRS § 269-45(a), provides that ""[d]ue to the proprietary nature of the information required by paragraphs (3) and (4), that information shall be held in confidence by the commission; provided that any information obtained by the commission under this section, including confidential information, shall be made available to the department of business, economic development, and tourism or its authorized representative, which shall safeguard the confidentiality of that information." The redacted information constitutes energy quantity data in therms of natural gas produced from petroleum feedstock and non-petroleum feedstock under HRS §§ 269-45(a)(3) and (a)(4), and therefore qualifies as proprietary under the foregoing confidentiality provision.	Public disclosure of the redacted information could competitively disadvantage Hawaii Gas by providing competitors with confidential information that could be used without expending their own resources to obtain it to the competitive disadvantage of Hawaii Gas. Misuse or unpermitted disclosure of the redacted information could place Hawaii Gas at a competitive disadvantage with respect to industry competitors and would give competitors information useful in making their own investment, financial, business and market decisions, without expending the time, resources, and investment necessary to gather and develop data and/or could provide competitors with insights regarding Hawaii Gas' confidential business operations, practices and decisions that could be used for unfair strategic advantage in the highly competitive energy environment.
Attachment 1, 2023 Renewable Energy Report	Two redacted values in Attachment 1	Confidential	Information regarding proprietary energy data	HRS § 269-45(a), provides that ""[d]ue to the proprietary nature of the information required by paragraphs (3) and (4), that information shall be held in confidence by the commission; provided that any information obtained by the commission under this section, including confidential information, shall be made available to the department of business, economic development, and tourism or its	Public disclosure of the redacted information could competitively disadvantage Hawaii Gas by providing competitors with confidential information that could be used without expending their own

				authorized representative, which shall safeguard the confidentiality of that information." The redacted information constitutes energy quantity data in therms of natural gas produced from petroleum feedstock and non-petroleum feedstock under HRS §§ 269-45(a)(3) and (a)(4), and therefore qualifies as proprietary under the foregoing confidentiality provision.	resources to obtain it to the competitive disadvantage of Hawaii Gas. Misuse or unpermitted disclosure of the redacted information could place Hawaii Gas at a competitive disadvantage with respect to industry competitors and would give competitors information useful in making their own investment, financial, business and market decisions, without expending the time, resources, and investment necessary to gather and develop data and/or could provide competitors with insights regarding Hawaii Gas' confidential business operations, practices and decisions that could be used for unfair strategic advantage in the highly competitive energy environment.

The foregoing document was electronically filed with the State of Hawaii Public Utilities Commission's Case and Document Management System (CDMS).