DAVID Y. IGE
GOVERNOR

RANDALL Y. IWASE
CHAIR

MICHAEL E. CHAMPLEY
COMMISSIONER

LORRAINE H. AKIBA
COMMISSIONER

STATE OF HAWAII
PUBLIC UTILITIES COMMISSION
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April 20, 2016

DEPT. COMM. NO. 341

The Honorable Senator Kouchi,
Senate President
Twenty-Eighth State Legislature
State Capitol, Room 409
Honolulu, Hawaii, 96813

The Honorable Representative Souki,
House Speaker
Twenty-Eighth State Legislature
State Capitol, Room 431
Honolulu, Hawaii, 96813

Dear President Kouchi, Speaker Souki, and Members of the Legislature:

For your information and consideration, the Public Utilities Commission ("Commission") hereby transmits a copy of the Hawaii Gas 2015 Renewable Energy Report, pursuant to section 269-45, HRS. In accordance with section 93-16, HRS, the Commission informs you that the report may be viewed electronically at http://puc.hawaii.gov/reports/energy-reports/.

Sincerely,

RANDALL Y. IWASE
Chair, Public Utilities Commission

Enclosure
cc: Office of the Governor, Policy

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HAWAI'I GAS
THE CLEAN ENERGY COMPANY

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March 8, 2016

DEPT. COMM. NO. 341

HAND DELIVER

The Honorable Chair and Members of
the Hawaii Public Utilities Commission
465 South King Street
Kekuanoa Building, 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 doing business as Hawaii Gas, hereby files its Annual Renewable Energy Report for 2015. Portions of the report have been redacted in accordance with HRS § 269-45(a).[1]

Sincerely,

Lori Y. Sun
Associate General Counsel
Hawaii Gas

[1] HRS § 269-45(a) states in part, "Due 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."

Hawaii Gas
2015 Renewable Energy Report

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

Hawaii Gas manufactures synthetic natural gas (SNG) for its utility customers on Oahu, and distributes propane through utility and nonutility systems throughout the State's six main islands. SNG and propane are clean-burning fuels that produce lower levels of carbon emissions than other hydrocarbon fuels such as oil and coal. SNG and propane provide 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 SNG utility system on Oahu.

SNG is produced using naphtha, a byproduct of the existing oil refining process in Hawaii. The production process is approximately 85% efficient as compared to electricity generation from oil-derived fuels, which is approximately 32% efficient. As a result, SNG delivers nearly three times more energy to the customer per barrel of oil as compared to electricity produced from oil. Had customers on Oahu used electricity instead of gas energy, an additional 860,792[1] barrels of oil would have been needed. This amounts to a savings of $50,795,361 based on an average cost of $59.01 per barrel of low sulfur fuel oil.[2]

Renewable Energy Data and Information

Hawaii Gas produces SNG using a blend of naphtha and hydrogen, along with other feedstocks. Since 2000, approximately 50% of the hydrogen used to produce SNG has been from recycled water from the Honouliuli Wastewater Treatment Plant (WWTP). Recycled water from the WWTP is combined with methane and other gases to produce hydrogen and additional methane in Hawaii Gas' utility processes. In 2015, hydrogen produced from reclaimed water accounted for 2.8%[3] of the total feedstock used to produce SNG.

[1] See Attachment 1.
[2] Id.
[3] Id.

Renewable Natural Gas (RNG)

Hawaii Gas is committed to increasing the use of renewable natural gas (RNG) in Hawaii.

- **Renewable Natural Gas Plant:** In 2011, Hawaii Gas constructed a Renewable Natural Gas Pilot Plant[4] to produce renewable gas energy using renewable fats and oils. Results demonstrated that while it is possible to produce renewable gas from fats and oils, the process could not meet the efficiency, reliability, and quality standards needed to sustain large scale production. Challenges included low feedstock conversion rates, the presence of byproducts that could not be effectively separated from the feedstock stream and additional capital investments and chemical treatments. Hawaii Gas is considering alternative uses for the Pilot Plant equipment.
- **Industry Collaboration:** Hawaii Gas is working with large land owners to assess the cost and risks associated with converting agricultural crops into biogas, and is engaged with a separate entity to convert landfill waste into biogas.
- **City and County of Honolulu:** In October 2015, Hawaii Gas responded to the City and County of Honolulu's Request for Proposals to purchase biogas from the Honoluliuli Wastewater Treatment Plant. While the RFP is still pending, if the City were to award Hawaii Gas the contract to purchase biogas, Hawaii Gas could potentially displace up to 3% of its current SNG supply with RNG.
- **Request for Proposals:** In January 2016, Hawaii Gas released a Request for Proposals to obtain bids for the supply of biogas or bio-methane. Proposals are due in March 2016.

Summary

Hawaii Gas plays a vital role in Hawaii's energy portfolio by providing clean and cost-effective energy to commercial and residential customers. We are committed to Hawaii's clean energy goals, and will continue to look toward new, innovative, and economical ways to generate renewable energy, while also reducing greenhouse gas emissions and aiding in waste diversion.

[4] See Docket No 2010-0334, Decision and Order No. 30096, issued on January 9, 2012.

Attachment 1: Renewable Energy Report Summary
Confidential - Pursuant to HRS § 269-45(a)

Annual Report to the Hawaii Public Utilities Commission			
Date:	March 1, 2016		
Submitted by:	The Gas Company, LLC dba Hawaii Gas		
	745 Fort Street, Suite 1800		
	Honolulu, Hawaii 96813		
Requested Information		**Value**	**Barrel of Oil Equivalent (BOE)**
	Percentage of total feedstock comprised of petroleum feedstock	97.2%	
	Percentage of total feedstock comprised of non-petroleum feedstock [1]	2.8%	
	The energy quantity in therms produced from petroleum feedstock (therms/ year)		
	The energy quantity in therms produced from non-petroleum feedstock (therms/ year) [2]		
	Total (therms/ year)		
Savings to Hawaii from the use of Synthetic Natural Gas (SNG) [3]			
	Number of barrels of imported oil saved by using SNG instead of electricity (barrels/ year) [4]		**860,792**
		$/ barrel	
	Dollars saved on imported oil for the Hawaiian economy [5]	$59.01	**$50,795,361**
	- For every one (1) barrel of therm equivalent of SNG it would require 2.8125 barrels of oil for generator fuel [6]		
	- As an example for heating water, if electrical cost would be $100, the SNG cost would be $35.54 (higher conversion efficiency)		
Footnote			
1	Plant stoichiometric basis (HHV) - R-hydrogen therm/ Plant Feedstock therm - use of recycled water from Honouliuli Wastewater Treatment Plant.		
2	Hydrogen produced in the reformer and water shift reactor from reclaimed wastewater - therm quantity based on feedstock flow.		
3	SNG is made using naphtha, a by-product produced at a neighboring refinery, and does not require any additional oil to be imported to Hawaii.		
4	Calculated from plant conversion efficienies with hot water production.		
5	Average $59.01/ LSFO barrel from HECO Monthly reports Jan thru Dec 2015.		
6	For every Barrel Therm Equivalent of SNG produced there is a savings of 1.728 barrels of oil saved (54.4614 therms/ barrel).		

CONFIDENTIAL
Pursuant to HRS § 269-45(a)