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19-xxxE CAB
File No. 0007

Mr. Norman M. Uchida, P.E.
Director, Production Division
Hawaiian Electric Light Company, Inc.
P.O. Box 1027
Hilo, Hawaii, 96721-1027

Dear Mr. Uchida:

**SUBJECT: Amendment of Covered Source Permit (CSP) No. 0007-01-C
Application for Significant Modification No. 0007-07 (0007-01-C)
Application for Significant Modification No. 0070-04 (0070-01-C)
Hawaii Electric Light Company, Inc. (HELCO)
Keahole Generating Station
Two (2) 20 MW Combustion Turbine Generators, Units CT-4 and CT-5, with
Two (2) Heat Recovery Steam Generators and One (1) 16 MW Steam
Turbine, One (1) 18 MW Combustion Turbine Generator, Unit CT-2,
Three (3) 2.5 MW Diesel Engine Generators (DEG), and One (1) 500 kW DEG
Located At: 73-4249 Pukiawe Street, Kailua Kona, Hawaii
Date of Expiration: August 6, 2013 (Expiration Date to be Revised Upon Permit Renewal)**

In accordance with Hawaii Administrative Rules (HAR), Chapter 11-60.1, and pursuant to the subject applications for significant modification received on March 28, 2018, the updated greenhouse gas (GHG) emission reduction plan received on October 19, 2018, and revision to the application for significant permit modification received on December 26, 2018, for the Campbell Industrial Park (CIP) Generating Station, the Department of Health, Clean Air Branch (herein after referred to as Department), hereby amends CSP No. 0007-01-C issued to HELCO for Keahole Generating Station on June 27, 2018.

In accordance with HAR Chapter 11-60.1, Subchapter 11, the amendment incorporates provisions for partnering with other affected plants to combine emissions for flexibility in achieving GHG reductions. Individual and total combined GHG emission caps established in each facility's GHG emission reduction plan are incorporated in the amendment with associated provisions pursuant to HAR §11-60.1-204(d)(6)(C). The partnering facilities included in this amendment are:

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A. Independent Power Producers (IPPs)

- 1) AES Hawaii, LLC (AES), CSP No. 0087-02-C
- 2) Hamakua Energy, LLC (Hamakua Energy), CSP No. 0243-01-C
- 3) Kalaeloa Partners, L.P. (KPLP), CSP No. 0214-01-C

B. Hawaiian Electric Companies

- 1) Hawaiian Electric Company, Inc. (HECO), CSP No. 0548-0-C
- 2) Hawaiian Electric Company, Inc. (HECO), CSP No. 0238-01-C
- 3) Hawaiian Electric Company, Inc. (HECO), CSP No. 0239-01-C
- 4) Hawaiian Electric Company, Inc. (HECO), CSP No. 0240-01-C
- 5) Hawaii Electric Light Company, Inc. (HELCO), CSP No. 0007-01-C
- 6) Hawaii Electric Light Company, Inc. (HELCO), CSP No. 0234-01-C
- 7) Hawaii Electric Light Company, Inc. (HELCO), CSP No. 0235-01-C
- 8) Maui Electric Company, Ltd. (MECO), CSP No. 0031-04-C
- 9) Maui Electric Company, Ltd. (MECO), CSP No. 0067-01-C
- 10) Maui Electric Company, Ltd. (MECO), CSP No. 0232-01-C

The three (3) IPP permits and CSP No. 0548-01-C (HECO's CIP Generating Station) will specify individual and total combine GHG emission caps established for all of the partnering facilities. Any GHG emission cap revision will require each of these facilities (AES, Hamakua Energy, KPLP, and HECO CIP) to submit a significant permit modification.

The permits for the remaining partnering facilities operated by HECO, HELCO, and MECO will not specify individual and total combine GHG emission caps, but will reference GHG emission caps included in CSP No. 0548-01-C. Designating CSP No. 0548-01-C as the main HECO permit will reduce the burden of modifying all Hawaiian Electric Companies' permits should an emission cap be revised. Only CSP No. 0548-01-C would require modification as the emission caps will not be incorporated separately into each facility's permit.

The following enclosed Attachment II – GHG and monitoring report form are hereby added to CSP No. 0007-01-C issued on August 23, 2018, to incorporate the GHG permitting provisions:

- Attachment II - GHG: Special Conditions – GHG Reduction Requirements
- Monitoring Report Form: GHG Emissions

All other permit conditions of CSP No. 0007-01-C issued on August 23, 2018, shall not be affected and shall remain valid.

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If there are any questions regarding these matters, please contact Mr. Michael Madsen of the Clean Air Branch at (808) 586-4200.

Sincerely,

_____, P.E., ACTING CHIEF
Environmental Management Division

MM:tkg

Enclosures

DRAFT

**ATTACHMENT II - GHG: SPECIAL CONDITIONS
GHG REDUCTION REQUIREMENTS
COVERED SOURCE PERMIT NO. 0007-01-C**

Amended Date: DATE

Expiration Date: August 6, 2013
(Expiration Date to be Revised Upon Permit Renewal)

In addition to the standard conditions of the Covered Source Permit, the following special conditions shall apply to the permitted facility:

Section A. Equipment Description

1. Attachment II - GHG of this permit encompasses the following equipment and associated appurtenances for Keahole Generating Station:

<u>Unit</u>	<u>Description</u>
CT-2	18 MW Asea Brown Boveri Combustion Turbine Generator, Model Jupiter GT-35.
CT-4	20 MW General Electric LM2500 Combustion Turbine Generator.
CT-5	20 MW General Electric LM2500 Combustion Turbine Generator.
D-21	2.5 MW General Motors EMD Model 20-645F4B DEG.
D-22	2.5 MW General Motors EMD Model 20-645F4B DEG.
D-23	2.5 MW General Motors EMD Model 20-645E4 DEG.
BS-1	500 kW Caterpillar Model 3412 Black Start DEG.

(Auth.: HAR §11-60.1-3)

2. The equipment is subject to GHG emission reduction requirements of HAR, Chapter 11-60.1, Subchapter 11 and associated permit conditions based on information from the GHG emission reduction plan and permit application for significant modification. The GHG emission reduction plan shall become a part of the CSP application process for renewals and any required modifications pursuant to HAR Chapter 11-60.1, Subchapter 5. With each subsequent GHG emission reduction plan submittal, the permittee shall report:
- a. The GHG emission reduction status;
 - b. Factors contributing to the emission changes;
 - c. Any control measure updates; and
 - d. Any new developments or changes that would affect the basis of the facility GHG emissions cap.

(Auth.: HAR §11-60.1-5, §11-60.1-204(g))

Section B. GHG Permit Conditions

1. Permit conditions specified in Attachment II – GHG, including provisions to limit maximum potential GHG emissions, are state-only enforceable requirements which are not federally enforceable under the federal Clean Air Act.

(Auth.: HAR §11-60.1-3, §11-60.1-90, 11-60.1-161; 40 CFR §70.6)¹

2. The permittee shall comply with all applicable provisions of these conditions, including all emission limits, notification, testing, monitoring, and reporting requirements. The major requirements of these provisions are detailed in the special conditions of this attachment.

(Auth.: HAR §11-60.1-3, §11-60.1-90, 11-60.1-161)¹

Section C. GHG Emission Limitations

1. GHG Emission Caps
 - a. Keahole Generating Station shall not emit or cause to be emitted carbon dioxide equivalent (CO₂e) emissions in excess of its individual cap specified in Attachment II - GHG, Special Condition No. C.1.a of CSP No. 0548-01-C for CIP Generating Station, except as specified in Attachment II – GHG, Special Condition No. C.1.c.iv of this permit.
 - b. All partnering facilities shall not emit or cause to be emitted total combined CO₂e emissions in excess of the combined limit specified in Attachment II – GHG, Special Condition No. C.1.b of CSP No. 0548-01-C for CIP Generating Station.
 - c. For purposes of the CO₂e emission limits in Attachment II - GHG, Special Condition Nos. C.1.a and C.1.b of this permit:
 - i. The CO₂e emissions shall have the same meaning as that specified in HAR §11-60.1-1;
 - ii. In accordance with HAR §11-60.1-204(d)(6)(B), biogenic carbon dioxide (CO₂) emissions shall not be included when determining compliance with the emissions limits;
 - iii. The permittee shall be in compliance with the emissions limits by the end of 2019 and each calendar year thereafter;
 - iv. The permittee may exceed the emissions cap specified in Attachment II – GHG, Special Condition No. C.1.a, if the GHG emissions limit specified in Attachment II – GHG, Special Condition No. C.1.b is met; and

- v. At no time shall the permittee exceed Attachment II – GHG, Special Condition Nos. C.1.a and C.1.b simultaneously over a calendar year. For incidences when Attachment II - GHG, Special Condition Nos. C.1.a and C.1.b are exceeded simultaneously, emissions in excess of the total combined cap shall be allocated according to the following equation for compliance purposes:

$$X = XG \frac{(A - C)}{\sum_{A_i > C_i} (A_i - C_i)}$$

Where:

- X = Adjusted portion in metric tons or short tons of GHG emissions that are in excess of total combined cap specified in Attachment II – GHG, Special Condition No. C.1.b. The equation applies to all affected facilities that do not meet the individual and total combined GHG emission caps specified in Attachment II – GHG, Special Condition Nos. C.1.a and C.1.b, respectively.
- XG = Total combined actual GHG emissions from affected facilities minus total combined GHG emissions cap. Total combined emissions cap shall be sixteen percent (16%) below the total combined baseline emission level less biogenic CO₂ emissions.
- A = Actual GHG emissions from the affected facility.
- C = GHG emissions cap for the affected facility.
- $\sum_{A_i > C_i} (A_i - C_i)$ = The sum of the difference between the actual emissions and cap emissions for all facilities that did not achieve the individual facility-wide GHG emissions cap.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-5, §11-60.1-90, §11-60.1-204)

2. GHG Emission Cap Revisions

- a. The facility-wide GHG emissions cap may be re-evaluated and revised by the Department in accordance with HAR §11-60.1-204(h).
- b. Any revision to the facility-wide GHG emissions caps shall be considered a significant modification subject to the application and review requirements of HAR §11-60.1-104. For each GHG emission cap revision, the Department may impose additional emission limits or requirements, or limit the time-frame allowed for the revised GHG emissions cap.

(Auth.: HAR §11-60.1-3, §11-60.1-90, §11-60.1-204)

Section D. Monitoring and Recordkeeping Requirements

1. GHG Emissions

For calculating CO₂e emissions to assess fees, determining compliance with the GHG emission caps, and quality assurance/quality control requirements, the permittee shall:

- a. Monitor CO₂ mass emissions data for the stationary source combustion units listed in Attachment II – GHG, Special Condition No. A.1 in accordance with the 40 CFR §98.34;
- b. Estimate missing data in accordance with the applicable procedures in 40 CFR §98.35;
- c. Determine the metric tons of CO₂, methane (CH₄), and nitrous oxide (N₂O) in accordance with 40 CFR §98.33;
- d. Calculate the GHG emissions, expressed in metric tons of CO₂e, using Equation A-1 of 40 CFR §98.2;
- e. Convert the metric tons of CO₂e emissions to short tons for monitoring and annual emissions reporting as applicable. For the conversion, one short ton is equal to 0.90718474 metric tons; and
- f. Obtain CO₂e emissions data from all other partnering facilities to report the total combined CO₂e emissions in accordance with Attachment II – GHG, Special Condition No. E.4.

(Auth.: HAR §11-60.1-3, §11-60.1-90; 40 CFR §98.2, §98.33, §98.34, §98.35)¹

2. Records

All records, including support information, shall be maintained for **at least five (5) years** from the date of the monitoring sample, measurement, test, report, or applications. Support information includes all maintenance, inspection, and repair records, and copies of all reports required by this permit. These records shall be true, accurate, and maintained in a permanent form suitable for inspection and be made available to the Department or authorized representative(s) upon request.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-11, §11-60.1-90)

Section E. Notification and Reporting Requirements

1. Standard Condition Reporting

Notification and reporting pertaining to the following events shall be done in accordance with Attachment I, Standard Condition Nos. 17 and 24, respectively:

- a. Emissions of air pollutants in violation of HAR, Chapter 11-60.1 or this permit (excluding technology-based emission exceedances due to emergencies); and
- b. Permanent discontinuance of construction, modification, relocation, or operation of the facility covered by this permit.

(Auth.: HAR §11-60.1-8, §11-60.1-15, §11-60.1-16, §11-60.1-90; SIP §11-60-10, SIP §11-60-16)²

2. Deviations

- a. Except as specified in Attachment II – GHG, Special Condition No. E.2.b, the permittee shall report in writing **within five (5) working days** any deviations from permit requirements, including those attributed to upset conditions, the probable cause of such deviations, and any corrective actions or preventive measures taken. Corrective actions may include a requirement for testing, or more frequent monitoring, or could trigger implementation of a corrective action plan.
- b. The permittee shall report, in writing, deviations from Attachment II – GHG, Special Condition No. C.1.c.v, the probable cause of such deviations, and any corrective actions or preventive measures taken. Corrective actions may include a requirement for testing, more frequent monitoring, or could trigger implementation of a corrective action plan. Reports shall be submitted **within sixty (60) days** following the end of each calendar year.

(Auth.: HAR §11-60.1-3, §11-60.1-15, §11-60.1-16, §11-60.1-90)

3. Compliance Certification

- a. During the permit term, the permittee shall submit at least **annually** to the Department and U.S. Environmental Protection Agency (EPA), Region 9, the attached **Compliance Certification Form** pursuant to HAR, Subsection 11-60.1-86. The permittee shall indicate whether or not compliance is being met with each term or condition of this permit. For making this certification for the partnering facility conditions in Attachment II – GHG, the permittee is relying on information provided by other partners that these partners independently certify. The compliance certification shall include, at a minimum, the following information:
 - i. The identification of each term or condition of the permit that is the basis of the certification;
 - ii. The compliance status;
 - iii. Whether compliance was continuous or intermittent;
 - iv. The methods used for determining the compliance status of the source currently and over the reporting period;
 - v. Any additional information indicating the source's compliance status with any applicable enhanced monitoring and compliance certification, including the requirements of Section 114(a)(3) of the Clean Air Act or any applicable monitoring and analysis provisions of Section 504(b) of the Clean Air Act;
 - vi. Brief description of any deviations including identifying as possible exceptions to compliance any periods during which compliance is required and which the excursion or exceedances as defined in 40 CFR Part 64 occurred; and
 - vii. Any additional information as required by the Department, including information to determine compliance.

- b. The compliance certification shall be submitted within **sixty (60) days after** the end of each calendar year and shall be signed and dated by a responsible official.
- c. Upon the written request of the permittee, the deadline for submitting the compliance certification may be extended, if the Department determines that reasonable justification exists for the extension.

(Auth.: HAR §11-60.1-4, §11-60.1-86, §11-60.1-90)

- 4. By **August 29, 2019**, and within **sixty (60) days** following the end of each semi-annual calendar period (January 1 – June 30 and July 1 – December 31) thereafter, the permittee shall report semi-annually to the Department, the metric tons and short tons of CO_{2e} emitted by all partnering facilities, except that biogenic CO₂ shall be excluded from the total CO_{2e} emissions. The report shall be signed and dated by a responsible official. The following enclosed **form, or equivalent form**, shall be used for reporting and shall be signed and dated by a responsible official:

Monitoring Report Form: GHG Emissions

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

Section F. Agency Notification

Any document (including reports) required to be submitted by this permit shall be done in accordance with Attachment I, Standard Condition No. 28.

(Auth.: HAR §11-60.1-4, §11-60.1-90)

¹The citations to the CFR identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the CFR. Due to the integration of the preconstruction and operating permit requirements, permit conditions may incorporate more stringent requirements than those set forth in the CFR.

²The citations to the State Implementation Plan (SIP) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the SIP.

**MONITORING REPORT FORM
GHG EMISSIONS
COVERED SOURCE PERMIT NO. 0007-01-C
(Page 1 of 2)**

Amended Date: DATE

Expiration Date: August 6, 2013
(Expiration Date to be Revised Upon Permit Renewal)

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following information semi-annually:

(Make Copies for Future Use)

For Period: _____ Date: _____

Facility Name: _____

Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record. In making this certification for the partnering facility conditions in Item 2 of this form, I am relying on information provided by other partners that these partners independently certify.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____

1. Report the CO₂e emitted by Keahole Generating Station during each reporting period for purposes of the facility's individual GHG emissions cap:

Emission Year Reporting For _____					
Reporting Period	Keahole Generating Station Emissions (Metric Tons of CO ₂ e)			Keahole Generating Station Emissions (Total CO ₂ e)	
	CO ₂ (Non-biogenic)	CH ₄	N ₂ O	Metric Tons	Short Tons
January 1 – June 30 (1 st Semi-annual Period)					
July 1 – December 31 (2 nd Semi-annual Period)					
Total Emissions →					

Provide a copy of this completed form or equivalent to all other partnering facilities to report the CO₂e emitted by Keahole Generating Station during each reporting period for purposes of calculating total combined GHG emissions.

**MONITORING REPORT FORM
GHG EMISSIONS
COVERED SOURCE PERMIT NO. 0007-01-C
(CONTINUED, Page 2 of 2)**

Amended Date: DATE

Expiration Date: August 6, 2013
(expiration date will be revised upon permit renewal)

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following information semi-annually:

(Reproduce this Sheet as Needed for Each Partnering Facility)

2. Report the total combined CO₂e emitted by all partnering facilities during each reporting period for purposes of the total combined GHG emissions cap for these facilities:

Emission Year Reporting For _____					
Reporting Period	Total Combined Emissions from All Partnering Facilities (Metric Tons of CO ₂ e)			Total CO ₂ e ^a	
	CO ₂ (Non-biogenic)	CH ₄	N ₂ O	Metric-tons	Short Tons
January 1 – June 30 (1 st Semi-annual Period)					
July 1 – December 31 (2 nd Semi-annual Period)					
Total Emissions →					

^aThe total combined CO₂e emitted is based on completed monitoring report forms, signed and dated by each facility's responsible official, to report the total combined CO₂e emitted by the partnering facilities.

3. For incidences when the individual cap for Keahole Generating Station and total combined cap for all partnering facilities are exceeded, report the emissions in excess of the total combined cap using the following equation:

$$X = XG \frac{(A-C)}{\sum_{A_i > C_i} (A_i - C_i)} = \underline{\hspace{2cm}}$$

Where:

X = Adjusted portion in metric tons or short tons of GHG emissions that are in excess of total combined cap specified in Attachment II-GHG, Special Condition No. C.1.b. The equation applies to all affected facilities that do not meet the individual and total combined GHG emission caps specified in Attachment II – GHG, Special Condition Nos. C.1.a and C.1.b, respectively.

XG = Total combined actual GHG emissions from affected facilities minus total combined GHG emissions cap. Total combined emissions cap shall be sixteen percent (16%) below the total combined baseline emission level less biogenic CO₂ emissions.

A = Actual GHG emissions from the affected facility.

C = GHG emissions cap for the affected facility.

$\sum_{A_i > C_i} (A_i - C_i)$ = The sum of the difference between the actual emissions and cap emissions for all facilities that did not achieve the individual facility-wide GHG emissions cap.