

COVERED SOURCE PERMIT REVIEW – 0007-01-C
RENEWAL – APPLICATION NO. 0007-04

Facility Title: Keahole Generating Station

Applicant: Hawaii Electric Light Company (HELCO)

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Background:

HELCO is currently operating two 20 MW combustion turbines (CTs) at the Keahole Generating Station. The LM 2500 CTs fire on fuel oil no. 2, use water injection to control nitrogen dioxide, and are permitted to operate 8,760 hours per year. The CTs are currently operating in simple cycle.

HELCO will operate the CTs in combined cycle once construction of the steam turbine and the associated infrastructure is complete. A selective catalytic reduction (SCR) system will be operated only when the combustion turbine generators are operating in combined cycle mode and at loads greater than or equal to 50 percent of the peakload. At loads less than 50 percent, only water injection will be used to control NO_x emissions because operating the SCR at less than 50 percent peakload will cause ammonium sulfates to form in the catalyst and on the boiler tubes of the heat recovery steam generator.

Also operating at the Keahole Generating Station are three 2.5 MW diesel engine generators (DEGs). These DEGs fire on diesel fuel no. 2 and use fuel injection timing retard to control nitrogen dioxides. Two of the three DEGs, unit nos. D22 and D23, are permitted to operate 8,760 hour per year. DEG unit no. D21 has a fuel consumption limit of 70,000 gallons per rolling 12 months. The DEGs are currently operating under CSP no. 0256-01-C.

Renewal:

This renewal application will incorporate the requirements of CSP No. 0256-01-C into CSP No. 0007-01-C. Upon issuance of CSP No. 0007-01-C, the current operating permit for the diesel engines, CSP No. 0256-01-C, will be closed.

Air Pollution Controls:

The combustion turbines are currently operating in simple cycle and use water injection to control NO_x emissions. HELCO is constructing two heat recovery steam generators and a steam turbine. Once complete, an SCR system will be used to further reduce the NO_x emissions while operating in combined cycle. Water injection will continued to be used while operating in both simple and combined cycles.

Applicable Requirements:

There no proposed modifications with this renewal application and there are no new applicable requirements are associated with this renewal. The following are requirements currently applicable to the diesel engine generators and combustion turbines CT-4 and CT-5.

Hawaii Administrative Rules (HAR):

Chapter 11-59 Ambient Air Quality Standards

Chapter 11-60.1 Air Pollution Control

Subchapter 1 General Requirements

Subchapter 2 General Prohibitions

11-60.1-31 Applicability

11-60.1-32 Visible Emissions

11-60.1-38 Sulfur Oxides from Fuel Combustion

Subchapter 5 Covered Sources

Subchapter 6 Fees for Covered Sources, Noncovered sources, and Agricultural
Burning

11-60.1-111 Definitions

11-60.1-112 General Fee Provisions for Covered Sources

11-60.1-113 Application Fees for Covered Sources

11-60.1-114 Annual Fees for Covered Sources

11-60.1-115 Basis of Annual fees for Covered Sources

Subchapter 8 Standards of Performance for Stationary Sources

CAM:

The purpose of Compliance Assurance Monitoring (CAM) is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 Code of Federal Regulations, Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential pre-control emissions that are 100% of the major source level; and (5) not otherwise be exempt from CAM. The facility is subject to the requirements of CAM, however, the current CEMS and COMS satisfies the CAM requirements.

NSPS:

The combustion turbines are subject to the Standards of Performance for Stationary Gas Turbines, 40 CFR Part 60, Subpart GG.

Non-Applicable Requirements:

Hawaii Administrative Rules (HAR):

This renewal does not affect the applicability of any HAR.

BACT:

A Best Available Control Technology (BACT) analysis is required for new or modified emission units if the net increase in pollutant emissions exceeds significant levels as defined in HAR §11-60.1-1. No modifications were proposed, thus, BACT does not apply.

CERR (Consolidated Emission Reporting Rule):

40 CFR part 51, Subpart A – Emission Inventory Reporting Requirements, determines applicability based on the emissions of each pollutant from any individual emission point within the facility that emits at the triggering levels. The facility is subject to CERR, however, no changes are being proposed with this application. As such, there is no change to the applicability of the CERR.

MACT:

MACT is not applicable because the facility is not a major source of HAPs.

NESHAP:

NESHAP for stationary combustion turbines is not applicable because the facility is not a major source of HAPs.

NSPS:

The diesel engines and the combustion turbines are not subject to any new NSPS.

NSR:

NSR is not applicable since the facility is located in an attainment area and PSD applicability has been reviewed.

PSD:

PSD permits were issued for the diesel engines and combustions. A new PSD review is applicable only if there are any new major sources or modifications to existing major sources. Since there are no new major sources and no new modifications under consideration for this application, a new PSD review is not applicable.

Synthetic minor:

A synthetic minor is a facility that without limiting conditions, physical or operational, emits above the major triggering levels as defined by HAR 11-60.1-1 for either criteria pollutant(s) or hazardous air pollutant(s). This facility is a major source.

Insignificant Activities/Exemptions:

The current permit for the combustion turbines, CSP No. 0007-01-C, lists an emergency diesel engine fire pump. This unit is exempt under §11-60.1-82(g)(6). As such, this unit shall be removed from the permit.

There are no new insignificant activities being proposed with this application. The current list of insignificant activities at the facility includes:

- fuel oil storage tanks;
- paint spray and welding booths;
- laboratory equipment; and
- various activities for plant maintenance including gasoline-fired portable equipment, various hand held equipment, and containers of solvent.

Alternate Operating Scenarios:

No new alternate operating scenarios were proposed.

Project Emissions:

The estimated emissions from the facility remain unchanged from the previous submittal.

Air Quality Assessment:

Since there are no proposed modifications, an ambient air quality analysis is not required and the previously submitted ambient air quality assessment remain valid.

Conclusion and Recommendation:

This renewal application will combine two of the three operating permits for the Keahole Generating Station into one. No modifications to the means and methods of operation are being proposed. Further, there are no changes to the monitoring and reporting requirements. The facility will continue to operate in accordance with the state and federal requirements set forth in CSP Nos. 0007-01-C and 0256-01-C. The facility has been operating within compliance with those requirements and there is no reason to believe that the facility cannot continue to remain in compliance.

Recommend issuance of renewal.