

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)

HAWAIIAN ELECTRIC COMPANY, INC.)

DOCKET NO. 04-0104

For Approval to Commit Funds in)
Excess of \$500,000 for)
Item P0000939, the Waiau CT)
Separation Project.)

DECISION AND ORDER NO. 22294

Filed Feb. 23, 2006

At 9:10 o'clock A.M.

Karen Higashi
Chief Clerk of the Commission

ATTEST: A True Copy
KAREN HIGASHI
Chief Clerk, Public Utilities
Commission, State of Hawaii.

K. Higashi

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DECISION AND ORDER

By this Decision and Order, the commission approves HAWAIIAN ELECTRIC COMPANY, INC.'s ("HECO") request to commit funds estimated at \$602,822 for Item P0000939, the installation of the Waiau CT Separation project ("Proposed Project").

I.

Background

A.

The Application

1.

Procedural History

HECO is a Hawaii corporation initially organized under the laws of the Kingdom of Hawaii on or about October 13, 1891. It is a public utility as defined by Hawaii Revised Statutes ("HRS") § 269-1 and is engaged in the production, purchase, transmission, distribution and sale of electricity on the island of Oahu in the State of Hawaii.

On May 13, 2004, HECO filed an application seeking commission approval to commit approximately \$602,822¹ with the issuance of purchase orders for long-lead material items, in accordance with Paragraph 2.3.g.2 of General Order No. 7, *Standards for Electric Utility Service in the State of Hawaii* (G.O. No. 7).²

HECO served copies of the Application on the DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate") (together with HECO, the "Parties"), an *ex officio* party to this docket, pursuant to HRS § 269-51 and Hawaii Administrative Rules § 6-61-62.³

On May 28, 2004, the Consumer Advocate filed its Preliminary Statement of Position wherein it stated that upon completion of a preliminary review of the Application, it had concerns regarding (1) whether separation of the Waiau 9 and Waiau 10 generating units was necessary at this time, (2) what additional capabilities the separation would provide for the generating units, and (3) whether the estimated costs for the Proposed Project were reasonable.

¹At the time of filing the Application, the commission had not implemented its decision, filed on May 27, 2004, in Docket No. 03-0257, in which the commission ordered that effective July 1, 2004, G.O. No. 7.g.2 be modified by raising the minimum threshold of \$500,000 to \$2.5 million, excluding customer contributions.

²Application and Certificate of Service, filed on May 13, 2004 ("Application").

³No persons moved to intervene or participate in this proceeding.

On June 25, 2004, the Consumer Advocate submitted information requests ("IRs") to HECO. HECO filed responses to the IRs on July 21, 2004.

By Order No. 21115, filed on July 12, 2004, the commission ordered the Parties to file a stipulated prehearing order ("Stipulated Order") to set forth the issues, procedures and schedule for the instant proceeding. The Parties submitted their proposed Stipulated Order on August 9, 2004 and the Stipulated Order was filed by the commission on August 27, 2004.

By Order No. 21223, filed on August 6, 2004, the commission suspended the Application until further order of the commission to give the Parties and the commission additional time to review and investigate the Proposed Project.

On September 8, 2004, the Consumer Advocate filed its Statement of Position in the instant proceeding. In its Statement of Position, the Consumer Advocate stated that it did not object to the commission's approval of the commitment of funds for the Proposed Project, but voiced its concern over HECO's proposed inclusion of the Proposed Project costs in its rate base. The Consumer Advocate was of the opinion that the Proposed Project appeared to be a correction of a 1975 HECO project and asserted that it would be unfair to the present ratepayers to include the Proposed Project in HECO's current rate base.

On September 22, 2004, HECO filed a letter with the commission in which it responded to the Consumer Advocate's objection to including the Proposed Project costs in HECO's rate

base. On March 1, 2005, HECO filed a copy of a letter written to the Consumer Advocate in which it reiterated its position in support of including the Proposed Project costs in its rate base.

On April 28, 2005, the Parties filed a joint letter with the commission indicating that the Consumer Advocate had revised its recommendation and that it no longer had any objections to including the costs associated with the Proposed Project in HECO's rate base ("Letter of Agreement"). The Consumer Advocate stated, however, that it reserved its right to review the costs associated with the Proposed Project that will be included in HECO's rate base pending completion of the review of the final project cost report submitted by HECO for the Proposed Project.

2.

The Proposed Project

The Proposed Project involves electrically separating the Waiau 9 and Waiau 10 units by placing them on separate buses in the Waiau 138 kilovolt ("kV") Substation ("Substation"). The units are currently on the same bus in the Substation.

The Waiau 9 and Waiau 10 are nominal 50 megawatt ("MW") combustion turbine ("CT") generators that were commissioned in 1973. The units are generally used (1) to meet load demand during peak periods, (2) as a stop-gap measure to serve load as the next cycling unit is being started, or (3) as quick-start or quick load pick-up generation during a system emergency.

Generation output from Waiau Units 9 and 10 is transmitted on one 138 kV generator tie line and connected to the 138 kV "C" bus located in the Substation. A 138 kV transmission line spans from Waiau 10's "H-Frame" structure to the mauka end of the Waiau 9 "A-Frame" structure. There are 138 kV jumpers at the Waiau 9 "A-Frame" to tie Waiau 10 to the 138 kV generator tie line connecting to the 138 kV "C" bus in the Substation. There is a second existing 138 kV generator tie line which originates at the Waiau "D" bus in the Substation and runs parallel to the Waiau 9 and 10 tie line described above. This tie line terminates at the makai end of the Waiau 9 "A-Frame". It is currently not being used and is de-energized.

a.

Scope of Work

The scope of work for the Proposed Project consists of:

- (1) re-terminating the existing 138 kV transmission line span from the Waiau 10 "H-Frame" structure to the opposite end of Waiau 9's "A-Frame" structure;
- (2) removing the 138 kV jumpers that connect Waiau 10 to the 138 kV generator tie line connecting to the "C" bus;
- (3) removing shorting and grounding connections on the 138 kV "D" bus;
- (4) installing 138 kV jumpers connecting the second existing 138 kV generator tie line to the "D" bus in the Waiau 138 kV Substation;
- (5) removing jumpers on the 138 kV "C" bus;

(6) installing two sets of group operated switches to disconnect the generator tie lines from the 138 kV bus;

(7) revising protective relaying to accommodate the reconnection (revisions to the protective relaying will be required to protect the "D" bus and the second 138 kV tie line, and changes will be required for the protection system on the "C" bus and the first 138 kV tie line); and

(8) energizing the second existing 138 kV generator tie line.

b.

Waiau 9 "A-Frame" and Waiau 10 "H-Frame"

138 kV Line Work

The existing 138 kV transmission line span between the Waiau 10 "H-Frame" and Waiau 9 "A-Frame" utilizes 556.6-kcmil AAC conductors. The conductors will be disconnected from the mauka end of the Waiau 9 "A-Frame" and re-connected to the makai end using the existing conductors. New jumper material and post insulators will be installed to connect the existing conductors to the makai end of the Waiau 9 "A-Frame" and existing de-energized 138 kV generator tie line.

c.

Equipment Installation at Waiau Power Plant
and Switching Station

This item involves the installation of two (2) 138 kV, 800 amp, group operated, disconnect switches with interrupters,

two (2) 125 volt DC motor operators, three (3) 138 kV potential transformers, linear couples/current transformers for existing 138 kV breakers, protective relays and related electrical equipment.

Within the Waiau Switching Station, HECO will construct approximately two hundred (200) feet of 2" ducts, two hundred (200) feet of 3" ducts, and foundations and steel structures to support the potential transformers. HECO will also modify existing steel structures to support the disconnect switches. In the Waiau Power Plant, HECO will install cable trays and ducts for control cables.

3.

Proposed Project Justification

HECO states that it has experienced instances in the past where both units were unavailable because the "C" bus was on outage due to routine maintenance work or on a forced outage.⁴ Consequently, HECO asserts that the Proposed Project is needed in order to: (1) increase the availability of Waiau 9 and 10 by not requiring both CT units to be off-line during an outage (due to either scheduled maintenance or forced outage) of the 138 kV generator tie line or 138 kV "C" bus; (2) prevent a sudden disconnection of both CT units if a problem occurs on the 138 kV generator tie line and/or 138 kV "C" bus; and (3) resolve an existing situation where a CT unit, which happens to be off-line

⁴See HECO's discussion of these instances at Application at 7.

for maintenance or overhaul work, is ready to return to service and must wait until the second CT unit is brought off-line in order to reconnect the CT unit that was on maintenance onto the 138 kV generator tie line.

HECO's Adequacy of Supply ("AOS") Report, filed March 31, 2004, stated that a new generating unit would need to be in place in 2006 to keep pace with a higher forecast for peak demand if alternative measures were not sufficient to either reduce demand or increase supply to maintain a generating system reliability at or above the threshold of 4.5 years per day.⁵ HECO also stated that in the event the next generating unit could not be installed by 2006, other options must be considered to mitigate the effects of the higher forecast on generating system reliability. Some of the options considered by HECO were (1) more aggressive energy and load management demand-side management programs, (2) identification and implementation of combined heat and power projects, and (3) HECO's choice for the instant docket, increasing output from HECO's existing units within the limits of existing permits.

HECO contends that the Proposed Project will help to increase the availability of the Waiau 9 and 10 CT units. The Waiau 9 and 10 units bring flexibility to the system because they can be used in different modes of operation which other units on the HECO system are unable to do. HECO asserts that the Waiau 9 and 10 units can be used as peaking units to meet peak

⁵HECO's reliability guideline is set at a Loss of Load Probability of 4.5 years per day. This means that the probability of an outage due to a generation shortfall should be no more than once every 4.5 years.

load demand, as stop-gap measures and as quick-start units to help restore system frequency after a loss of power.

Power from the Waiau 9 and 10 is currently transported on one (1) 138 kV tie line to the "C" bus in the Waiau Substation. HECO states that placing the CT units on separate buses in the Substation will decrease the amount of times that both units are unavailable as a result of problems on the 138 kV generator tie line.

HECO also notes that the CT units will be operated during system disturbances following the loss of generation because the CT units have the ability to start and connect to the utility grid relatively quickly. Both units could simultaneously become disconnected from the system for any contingency involving the Waiau 138 kV "C" bus or the 138 kV generator tie line. HECO asserts that this simultaneous disconnection of both CT units would cause HECO's system frequency to drop and could trigger underfrequency load shedding and the loss of service to HECO customers.

Under the existing configuration, if one CT unit is on overhaul or off-line due to a maintenance outage and the other unit is on-line, when the unit off-line is ready to be returned to service, the unit on-line must be turned off in order to close in the air switch used to reconnect the off-line unit to the 138 kV generator tie line before the CT unit that is off-line can be made available for generation. If HECO is already operating the on-line CT unit during periods where generating capacity is limited, lowering the output of the on-line CT unit down to zero

would affect the generation capacity needed to serve the load. Additionally, the CT unit that was on maintenance or overhaul and now ready for service would not be available until HECO could reconnect the unit. HECO asserts that installing the Proposed Project would resolve this type of situation, and allow the off-line unit to reconnect as soon as it was available without affecting the operation of the other CT unit.

4.

Public Hearing

HRS § 269-27.5 provides, in relevant part, that where a public utility plans to "place, construct, erect, or . . . build a new 46 kilovolt or greater high-voltage electric transmission system above the surface of the ground through any residential area, the [commission] shall conduct a public hearing" prior to commission approval of the plans.

HECO asserts that the Proposed Project does not fall within the requirements of HRS § 269-27.5. It represents that the area where the proposed 138 kV overhead line re-termination work will occur is zoned Intensive Industrial. In addition, HECO proposes to re-terminate the existing 138 kV line from the Waiau 10 "H-Frame" structure from the mauka end of the Waiau 9 "A-Frame" to the makai end of the Waiau 9 "A-Frame", and thus, HECO contends that the 138 kV line should not be considered "new".

Overhead 138 kV Lines

HECO also contends that the Proposed Project falls outside of the purview of HRS § 269-27.6 in that, as noted above, the 138 kV line should not be considered "new", and therefore, a commission determination pursuant to HRS § 269-27.6 is not required.⁶

⁶In this regard, whenever a public utility applies to the commission for approval to place, construct, erect or otherwise build a new 46 kV or greater high-voltage electric transmission system, HRS § 269-27.6(a) requires the commission to determine whether the proposed system shall be placed overhead or underground. In making this determination, HRS § 269-27.6(a) requires the commission to consider certain factors:

1. Whether a benefit exists that outweighs the costs of placing the electric system underground;
2. Whether there is a governmental public policy requiring the electric transmission system to be placed, constructed, erected, or built underground, and the governmental agency establishing the policy commits funds for the additional costs of undergrounding;
3. Whether any governmental agency or other parties are willing to pay for the additional costs of undergrounding;
4. The recommendation of the Consumer Advocate; and
5. Any other relevant factors.

(b) In making the determination set forth in subsection (a), for new 138 kilovolt or greater high-voltage transmission systems, the public utilities commission shall evaluate and make specific findings on all of the following factors:

- (1) The amortized cost of construction over the respective usable life of an above-ground versus underground system;
- (2) The amortized cost of repair over the respective usable life of an above-ground versus underground system;

B.

Consumer Advocate's Position

In light of the Parties' Letter of Agreement, the Consumer Advocate has no remaining concerns regarding the Proposed Project. In particular, the Consumer Advocate does not object to the commitment of funds for the Proposed Project and the inclusion of the costs associated with the Proposed Project in HECO's rate base. As noted above, the Consumer Advocate reserves its right to review the costs associated with the Proposed Project that will be included in HECO's rate base pending completion of the review of the final project cost report submitted by HECO for the Proposed Project.

(3) The risk of damage or destruction over the respective usable life of an above-ground versus underground system;

(4) The relative safety and liability risks of an above-ground versus underground system;

(5) The electromagnetic field emission exposure from an above-ground versus underground system;

(6) The proximity and visibility of an above-ground system to:

(A) High density population areas;

(B) Conservation and other valuable natural resource and public recreational areas;

(C) Areas of special importance to the tourism industry; and

(D) Other industries particularly dependent on Hawaii's natural beauty;

(7) The length of the system;

(8) The breadth and depth of public sentiment with respect to an above-ground versus underground system; and

(9) Any other factors that the public utilities commission deems relevant.

II.

Discussion

G.O. No. 7 states, in relevant part:

Proposed capital expenditures for any single project related to plant replacement, expansion or modernization, in excess of \$[2.5 million]⁷ or 10 percent of the total plant in service, whichever is less, shall be submitted to the Commission for review at least 60 days prior to the commencement of construction or commitment for expenditure, whichever is earlier. If the Commission determines, after hearing on the matter, that any portion of the proposed project provides facilities which are unnecessary or are unreasonably in excess of probable future requirements for utility purposes, then the utility shall not include such portion of the project in its rate base. If the utility subsequently convinces the Commission that the property in question has become necessary or useful for public utility purposes, it may then be included in the rate base.

Based upon a review of the record, including the agreement reached by Parties as evidenced in the Letter of Agreement, the commission finds reasonable HECO's determination that it would be prudent to electrically separate the Waiau 9 and Waiau 10 units by placing them on separate buses in the Waiau 138 kV Substation. Separation of the units would increase the availability of the Waiau 9 and 10 units by not requiring both units to be off-line during an outage of the 138 kV generator tie line or 138 kV "C" bus, prevent a sudden disconnection of both units or resolve a situation where both CT units must be off-line before reconnecting a unit which was on maintenance. Accordingly, the commission concludes that the Proposed Project is necessary to meet the forecasted higher

⁷See n. 3, supra.

demand for generation and for greater system reliability, and should be approved.

III.

Orders

THE COMMISSION ORDERS:


1. HECO's request to expend an estimated \$602,822 for Item P0000939, the installation of the Waiau CT Separation project, is approved; provided that no part of the Proposed Project may be included in HECO's rate base unless and until the Proposed Project is in fact installed, and is used and useful for public utility purposes.

2. HECO shall submit a report within sixty (60) days of the completion of the Proposed Project, with an explanation of any deviation of ten (10) percent or more in the Proposed Project's cost from that estimated in the Application. Failure to submit the report, as requested by this Decision and Order will constitute cause to limit the cost of the Proposed Project, for ratemaking purposes, to that estimated in the instant Application.

3. HECO shall conform to the commission's order set forth in paragraph 2, above. Failure to adhere to the commission's order shall constitute cause for the commission to void this Decision and Order, and may result in further regulatory action as authorized by law.

DONE at Honolulu, Hawaii FEB 23 2006.

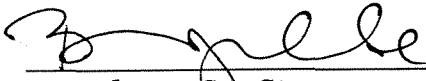
PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By 
Carlito P. Caliboso, Chairman

By (EXCUSED)
Wayne H. Kimura, Commissioner

By 
Janet E. Kawelo, Commissioner

APPROVED AS TO FORM:


Benedyne S. Stone
Commission Counsel

04-0104.eh

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 22294 upon the following parties, by causing a copy hereof to be mailed, postage prepaid, and properly addressed to each such party.

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Karen Higashi

DATED: FEB 23 2006