

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

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2003 JUL -2 A 10:38

In the Matter of the Application of)

HAWAIIAN ELECTRIC COMPANY, INC.)

For Approval to Commit Funds in)
Excess of \$500,000 for)
Item P0000773, the Honolulu)
8 HP/LP Turbine Blading; and for)
Waiver of Paragraph 2.3.g.2 of)
General Order No. 7.)

DOCKET NO. 03-0083

DECISION AND ORDER NO. 20286

Filed July 1, 2003
At 12:00 o'clock P.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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_____)

Docket No. 03-0083

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DECISION AND ORDER

I.

By application filed on April 3, 2003, HAWAIIAN ELECTRIC COMPANY, INC. ("HECO") requests commission approval to commit approximately \$2,202,309 for Item P0000773, the Honolulu 8 HP/LP Turbine ("Honolulu 8") Blading project ("Proposed Project").¹ HECO's request is made pursuant to paragraph 2.3.g.2 of the commission's General Order No. 7, Standards for Electric Utility Service in the State of Hawaii ("G.O. No. 7").

HECO served copies of the application on the DIVISION OF CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS ("Consumer Advocate") (together with HECO, "Parties").

¹In a June 12, 2003 letter to the commission, HECO advised the commission that it had revised its cost estimate of the Proposed Project, from \$2,201,110 to \$2,202,309, based upon a revised scope of work upon completion of inspection of the Honolulu 8. Initially, HECO based its estimate on the inspection of the Honolulu 9 turbine, sister unit of Honolulu 8.

By Order No. 20121, filed on April 14, 2003, the commission granted HECO's request for a waiver of the G.O. No. 7, section 2.3.g.2 requirement to file its application at least 60 days prior to the commencement of construction or commitment for the expenditure of funds.

On April 25, 2003, the Consumer Advocate filed a preliminary statement of position.

On May 20, 2003, the Consumer Advocate served HECO with information requests ("IRs"). HECO provided responses to the Consumer Advocate's IRs on June 12, 2003.²

On June 24, 2003, the Consumer Advocate filed its statement of position ("SOP"). In its SOP, the Consumer Advocate states that it will not object to the commission's approval of the instant application.

II.

A.

The Proposed Project involves the repair and/or replacement of turbine blades for the Honolulu 8 turbine, a nominal 54 megawatts non-reheat steam unit, commissioned in 1954. The unit consists of a two cylinder, tandem-compound, condensing steam turbine. Honolulu 8 is the sister unit of Honolulu Unit 9

²HECO withheld confidential responses to the Consumer Advocate's IRs until such time as a protective order was filed in the instant docket. On June 18, 2003, the Parties submitted their Stipulation for Protective Order. On June 24, 2003, the commission issued Protective Order No. 20251 approving the Parties' Stipulation for Protective Order. On June 25, 2003, HECO submitted its confidential responses to the Consumer Advocate's IRs.

("Honolulu 9"). Based upon a 2002 inspection of Honolulu 9, in which it was discovered that portions of the High Pressure ("HP") and Low Pressure ("LP") turbine blades were deteriorated and in need of replacement,^{3,4} HECO expected the Honolulu 8 to be in a similarly deteriorated condition. This deterioration was confirmed during a scheduled overhaul of Honolulu 8 that began subsequent to the filing of the instant application, on April 12, 2003, in which the turbine was opened and inspected to determine the scope of repair and/or replacement work required.

By letter to the commission dated June 12, 2003, HECO informed the commission that it had completed its inspection of the Honolulu 8 HP and LP turbine blades, and that based on this inspection, the condition of the turbine blades was established as follows:

Honolulu 8 HP Turbine

- The Curtis Stage Rows 1 and 2 rotating blades are severely deteriorated. The rotating blades suffer from extreme thinning, leading edge wastage, blade breakage, and misdirected steam flow.
- The Curtis Stage stationary row of blades were found to be thin, warped and cutback by high pressure steam.

³The HP and LP turbine rotors are connected to the generator rotor which provides the rotating magnetic field required to generate electric power.

⁴The HP turbine consists of one stationary and two rotating rows of impulse blading in the Curtis Stage, and 26 pairs, rotating and stationary, of rows of reaction blading. The LP turbine consists of 12 pairs, rotating and stationary, of rows of reaction blading, with six pairs of rows in each end.

- Severe blade thinning, wastage, and warping were found on the rotating blades of rows C7 and C8, and on the stationary vanes Rows 1,2,3,4,5,6, and 7.

Honolulu 8 LP Turbine

- Both rows of the L-0 rotating blades are severely deteriorated with saturated steam erosion.
- Both rows of the L-1 rotating blades are severely deteriorated with saturated steam erosion.
- L-2 rotating blades are severely stressed due to an active stress. In 1996, the blades were temporarily repaired to hold the blade positions in place. The blades in this row also suffer from saturated steam erosion.
- Seal strips on the LP cylinder have washed out and cannot be repaired due to severe erosion of the cylinder.

The scope of work on the Proposed Project is as follows:

Honolulu 8 HP Turbine

Replace:

- Row 1 Curtis Stage A rotating blades
- Row 2 Curtis Stage B rotating blades
- Curtis Stage stationary blades
- Row C7 rotating blades
- Row C8 rotating blades
- Stationary Vanes Rows 1,2,3,4,5,6 and 7 blade replacement

Honolulu 8 LP Turbine

Replace:

- L-0 rotating blades (Turbine End row)
- L-0 rotating blades (Generator End row)
- L-1 rotating blades (Turbine End row)
- L-1 rotating blades (Generator End row)
- L-2 rotating blades (Turbine End row)
- Stainless Steel Cylinder Liner/Seal Retainer installation

HECO does not recommend that blade replacement be deferred to the next scheduled Honolulu 8 maintenance, currently scheduled for September 2006. A blade failure in the HP and/or LP turbine could result in a catastrophic failure of the HP and/or LP sector and cause an extended forced outage of the unit of approximately two years. This could adversely impact system reliability and scheduled maintenance on other units.

B.

The Consumer Advocate does not object to commission approval of HECO's commitment of funds for the Proposed Project. It recognizes, based upon its review of the instant application, that the repair and replacement of the HP and LP turbine blades for Honolulu 8 is necessary due to the deteriorated condition of the blades, and possible disastrous consequences as a result of blade failure. The Consumer Advocate had other concerns, however, regarding (1) the continued need for Honolulu 8 and (2) whether the estimated costs for the Proposed Project were reasonable.

HECO asserts that if Honolulu 8 were retired, the retirement would advance the need for the next generating unit from 2009 to 2003, and advance the need for the second new generating unit from 2015 to 2012.^{5,6} The Honolulu 8 currently operates each weekday, starting up before the morning peak, and shutting down following the evening peak, and as system requirements determine. Based upon its review, the Consumer Advocate has concluded that there will be a continued need for the generation produced by Honolulu 8.⁷

The Consumer Advocate will not object to the estimated costs for the Proposed Project of \$2,202,309. It notes, however, that 98 per cent of the estimated cost comes from two components, Materials and Outside Services. These costs were based on proposals received by Diversified Energy Services ("DES"). HECO did not conduct a competitive bid for the Proposed Project, instead relying on its experience with DES, the company that provided the blade replacements for Honolulu 9. The Consumer Advocate acknowledges that its concerns regarding the reasonableness of costs for the Proposed Project are more appropriately pursued after reviewing the final cost report to be

⁵See HECO's Responses to the Consumer Advocate's Information Requests, CA-IR-7a.

⁶The retirement review date for Honolulu 8 is 2024. Id. at CA-IR-9a.

⁷The Consumer Advocate has larger concerns beyond the instant docket, relating to HECO's generation planning and the reliability guidelines upon which such planning is based. However, the Consumer Advocate recognizes that this issue is better addressed in the review of HECO's next Integrated Resource Plan, scheduled to be filed in 2005.

submitted by HECO when the Proposed Project is completed. At that time, the Consumer Advocate can pursue any issues regarding the reasonableness of including the Proposed Project's costs in rate base in HECO's next rate proceeding.

III.

Upon a careful review of HECO's application, its responses to the Consumer Advocate's IRs, and the Consumer Advocate's SOP, we find the Proposed Project to be reasonable and in the public interest. We agree with HECO's recommendation to not defer blade replacement to the next scheduled Honolulu 8 maintenance (September 2006). The present deteriorated condition of the blades could result in a catastrophic failure, leading to an extended outage of approximately two years, severely impacting system reliability and the scheduled maintenance of other units. Thus, we conclude that HECO's application to commit funds for the Proposed Project should be approved.

IV.

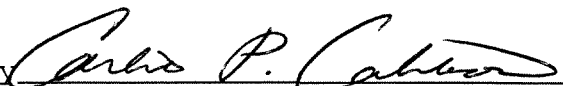
THE COMMISSION ORDERS:

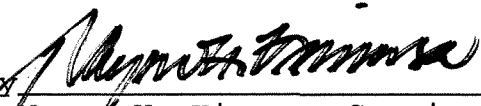
1. HECO's application, filed on April 3, 2003, to commit \$2,202,309, for the proposed Honolulu 8 HP/LP Turbine Blading project, Item P0000773, in accordance with paragraph 2.3.g.2 of G.O. No. 7, is approved; provided that no part of the Proposed Project may be included in HECO's rate base unless and until the Proposed Project has been completed, and is used and useful for utility purposes.

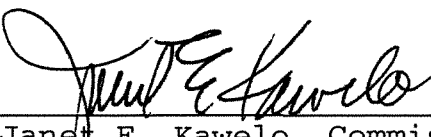
2. HECO shall submit a report within 60 days of the completion of the Proposed Project, with an explanation of any deviation of 10 per cent or more in the Proposed Project's cost from that estimated in the application. Failure to submit the report, as requested by this decision and order, will constitute cause to limit the cost of the project, for ratemaking purposes, to that estimated in the application.

DONE at Honolulu, Hawaii this 1st day of July, 2003.

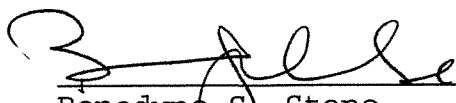
PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By 
Carlito P. Caliboso, Chairman

By 
Wayne H. Kimura, Commissioner

By 
Janet E. Kawelo, Commissioner

APPROVED AS TO FORM:


Benedyne S. Stone
Commission Counsel

03-0083.ah

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 20286 upon the following parties, by causing a copy hereof to be mailed, postage prepaid, and properly addressed to each such party.

DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
DIVISION OF CONSUMER ADVOCACY
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Karen Higashi

DATED: July 1, 2003