

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)
HAWAIIAN ELECTRIC COMPANY, INC.)
For Approval to Commit Funds in)
Excess of \$2,500,000 for)
Item P0001534, the Barbers Point)
Fuel Oil Tank 131 Renovation.)

DOCKET NO. 2007-0409

DECISION AND ORDER NO. 24228

Filed May 15, 2008
At 12 o'clock P.M.

Karen Higost.
Chief Clerk of the Commission

DIV. OF CONSUMER ADVOCACY
DEPT. OF COMMERCE AND
CONSUMER AFFAIRS
STATE OF HAWAII

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I.

Background

A.

Tank 131

HECO's Barbers Point Tank Farm has three identical fuel oil tanks: Tanks 131, 132, and 133. These three tanks are the largest fuel oil tanks on the HECO system, with each tank providing approximately 14.5 million gallons of low sulfur fuel oil ("LSFO") storage.

Initially constructed in 1980, Tank 131 is a 210-foot diameter by 56-foot high, above ground, steel insulated tank. Tank 131 is typically used to accept LSFO deliveries from Chevron Hawaii and Tesoro Hawaii Corporation, and to transfer LSFO to HECO's Kahe Power Plant.

After Tank 131 was cleaned in September 2007, an internal tank inspection was performed by a third-party in accordance with the guidelines of the American Petroleum Institute ("API").² The Inspection Report uncovered significant corrosion around the entire inner circumference of the floor, and on the lower first course of the shell. Of particular note, the Inspection Report "identified underside corrosion of the existing steel floor as a dominant factor in the deterioration of

²A copy of the Inspection Report, dated November 15, 2007, and prepared by Powers Engineering & Inspection, Inc. ("Inspection Report"), is attached as Attachment 2 to the application.

the tank bottom. Corrosion of the lowest shell course was attributed to the method used to secure the exterior thermal insulation."³

According to HECO, a "tank renovation focusing on [the] replacement of the steel floor is necessary before the tank can be safely returned to service."⁴

B.

Application

By its Application filed on December 11, 2007, HECO requests the commission's approval to commit approximately \$4,075,084 in funds for the Project. Specifically, HECO "proposes to commit funds on an expedited basis to procure materials to replace the deteriorated steel floor on Barbers Point Fuel Oil Tank 131."⁵

On December 20, 2007, the commission approved HECO's request to deviate from the requirement set forth in Paragraph 2.3(g)(2) of G.O. No. 7, as modified by Decision and Order No. 21002, that HECO file its application at least sixty days prior to the commencement of construction or commitment for the expenditure of funds for the Project.⁶ HECO estimates that "Tank 131 will remain out of service for

³Application; Verification; Attachments 1 - 5; and Certificate of Service, filed on December 11, 2007 (collectively, "Application"), at 6.

⁴Application, at 5.

⁵Application, at 3.

⁶Order No. 23915, filed on December 20, 2007.

approximately six months after Commission approval of the deviation from Paragraph 2.3(g)(2) of G.O. 7 is received[,]" i.e., until about June 20, 2008.⁷

C.

Scope of Work

With respect to the scope of work for the Project:

HECO proposes to address the corrosion problem by installing an El Segundo-type double bottom design. This design utilizes an impermeable liner and a concrete layer on top of the existing steel bottom to isolate completely the new steel floor from the existing steel floor and soil foundation. The impermeable liner under the new concrete layer provides effective containment of any leaks. Slots or grooves cast into the concrete layer provide leak detection and monitoring capability.

In summary, the proposed scope of work for the [Project] includes:

Removal, processing and disposal of sludge and any water in the tank,

Cleaning of the tank to ensure a gas-free environment for API inspection activities,

Inspection of the tank interior and exterior in accordance with API inspection protocols,

Preparation for and installation of a new tank bottom based on the El Segundo double bottom design, including leak detection and monitoring capability, and

Installation of new steam heating coils.

Application, at 5.

⁷Application, at 10.

Utilizing the El Segundo double bottom design, the existing steel tank bottom will become the secondary tank bottom, while the new steel floor will be the primary tank bottom, i.e., the double bottom design. A geo-synthetic fabric will be utilized as a barrier between the proposed liner and the old tank bottom.⁸ "The proposed liner to be used for the El Segundo bottom renovation will be a high-density polyethylene ("HDPE"), manufactured from virgin polyethylene resin, or equal, and a minimum of 80 mils thick."⁹

D.

HECO's Position

In support of its Project, HECO states:

1. "[T]he three tanks at HECO's Barbers Point Tank Farm allow for a level of reserve LSFO storage which helps [to] protect HECO from unforeseeable events such as a refinery malfunction, or an accident involving a tanker ship."¹⁰ If such an event occurred, HECO would need the full capacity of all three tanks in service at the Barbers Point Tank Farm in order to mitigate its exposure to these unforeseeable supply disruptions.

⁸HECO's response to PUC-IR-101.

⁹HECO's response to PUC-IR-102.

¹⁰Application, at 4; see also HECO's response to PUC-IR-3.a (both of the Hawaii oil refineries are operating at near full capacity; thus, a forced outage of either refinery poses a potential problem to HECO).

2. With Tank 131 out-of-service, the loss of one-third of HECO's central LSFO storage capacity limits its "ability to optimize LSFO inventories, to effectively schedule LSFO receipt and transfer operations, and to respond to and mitigate supply disruptions and receipt of off-specification LSFO."¹¹

3. HECO evaluated two tank bottom renovation alternatives for Tank 131: (A) an in-kind bottom plate and shell repairs for only those areas with identified corrosion;¹² or (B) a new tank bottom based on the El Segundo double bottom design.

4. The El Segundo bottom tank design was developed by Chevron Corporation ("Chevron") to provide a release prevention barrier ("RPB") when renovating existing petroleum storage tanks. According to HECO:

. . . . An RPB is an impermeable liner under the tank bottom that will block the flow of petroleum products into the ground if the tank bottom [was] to develop a leak. The API supports the installation of an RPB under new tanks during initial construction. Installation of an RPB can be easily accomplished during construction for new tanks. However, for existing tanks, installation of an RPB is much more difficult. In response to the need for a cost-effective design to provide RPBs, Chevron developed the El Segundo double bottom design. Use of this design has become

¹¹Application, at 3-4 and 10; see also HECO's response to PUC-IR-3.a.

¹²The in-kind bottom and shell repair alternative involves cutting out and replacing approximately thirty percent of the existing steel floor plates, and replacing the corroded sections of the shell (the "in-kind repair alternative"). The estimated cost of the in-kind repair alternative is \$2.97 million.

widespread and is recognized by API and the U.S. Environmental Protection Agency as providing an effective RPB.

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In the El Segundo design, the new steel tank floor is isolated from the ground by the secondary tank bottom (the existing steel floor for the Tank 131 installation), an impermeable flexible membrane liner (usually high density polyethylene - HDPE), and a concrete layer. The El Segundo double bottom design substantially reduces corrosion by:

1. Raising the new steel bottom off of the compacted road base (coral) so that it is in a less corrosive environment;
2. The concrete itself is considered a corrosion inhibitor because it is alkaline in the presence of water; and
3. The concrete provides a good hard bottom surface which allows for accurate control of the tank bottom slope. This makes for good water removal, which reduces tank interior corrosion.

Application, at 6-8; see also HECO's response to PUC-IR-103.

5. While the in-kind repair alternative has a lower initial cost, it carries significant on-going future maintenance costs, and exposes HECO to the possibility that a bottom leak may occur between the recommended eight-year inspection intervals. Conversely, the El Segundo double bottom alternative has a higher initial cost, but future maintenance costs are much lower. With a completely new steel floor on an elevated concrete base, the next interior inspection is extended to twenty years, with negligible remedial work anticipated at that time.

6. "The El Segundo design is a recognized bottom renovation method for fuel storage tanks. [API] Standard 653, sections 9.10.2.1 thru 9.10.2.4, provide procedures and materials for renovation using the El Segundo approach. API standards represent proven and sound engineering and operating practices in the industry."¹³

7. HECO undertook and completed a revenue requirements analysis of the two alternatives:¹⁴

The revenue requirements analysis shows that [the] El Segundo double bottom alternative has a lower accumulated present worth revenue requirements ("APWRR") through the first five years of the analysis, then the two plans alternate having a lower APWRR for years six through 17, after which the APWRR for the in-kind repair alternative remains lower for the remainder of the 30-year analysis

The difference in APWRR between the two alternatives at the end of the 30-year analysis is relatively small (\$322,000 or 5%) in favor of the in-kind bottom plate repair alternative. However, the El Segundo double bottom design is expected to extend the internal inspection interval to 20 years, would provide new leak detection capabilities, and would incorporate [an RPB] that the existing tank does not have. As a result, HECO recommends the complete floor replacement of Barbers Point Tank 131 with an upgraded El Segundo double bottom design.

Application, at 9 (emphasis added).

¹³HECO's response to CA-IR-4, and pages 15-17 thereto, API Standard 653, Tank Inspection, Repair, Alteration, and Reconstruction.

¹⁴A copy of HECO's revenue requirements analysis is attached as Attachment 5 to its Application.

8. The Project is consistent with HECO's Third Integrated Resource Plan ("IRP"), which: (A) explicitly assumes that existing generating units will continue to operate and supply reliable energy to HECO's system; and (B) implicitly assumes that the support infrastructure, including delivery systems such as Tank 131, will continue to operate and supply fuel to the existing and new generating units. The Project pursues a cost-effective solution so that Tank 131 can continue to reliably supply fuel to all of HECO's power plants, which will maintain HECO's system reliability.

E.

Consumer Advocate's Position

On April 16, 2008, the Consumer Advocate filed its Statement of Position, informing the commission that it does not object to the approval of HECO's Application.¹⁵

The Consumer Advocate does not object to HECO's claim that there is a continued need for Tank 131 to mitigate current risks to HECO's LSFO supply, noting that the information in HECO's forthcoming IRP-4, scheduled for filing by June 30, 2008, "will allow for a better assessment of the Company's future LSFO requirements and the associated infrastructure to maintain such requirements."¹⁶ In addition, the Consumer Advocate concurs with HECO's assessment that the El Segundo double bottom design is the

¹⁵Statement of Position; and Certificate of Service, filed on April 16, 2008 (collectively, "Statement of Position").

¹⁶Consumer Advocate's Statement of Position, at 8.

preferred alternative, based on the additional benefits identified in "articles from the Environmental Protection Agency and the Aboveground Storage Tank Guide[.]"¹⁷ Lastly, the Consumer Advocate states its intent to review the Project's actual costs and determine the reasonableness of such costs when the final cost report is submitted. "At that time, the Consumer Advocate will identify issues, if any, regarding the reasonableness of the instant project's actual costs and pursue such concerns in the Company's first rate proceeding following the completion of the proposed project."¹⁸

E.

HECO's Reply

On April 24, 2008, HECO, on behalf of the Parties, informed the commission that the proceeding is ready for decision-making.

II.

Discussion

Paragraph 2.3(g)(2) of G.O. No. 7, as modified by Decision and Order No. 21002, states in relevant part:

Capital Improvements.

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¹⁷Consumer Advocate's Statement of Position, at 9 (referring to HECO's response to CA-IR-4).

¹⁸Consumer Advocate's Statement of Position, at 10.

2. Proposed capital expenditures for any single project related to plant replacement, expansion or modernization, in excess of \$2,500,000, excluding customer contributions, or 10 per cent 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 Failure of the Commission to act upon the matter and render a decision and order within 90 days of filing by the utility shall allow the utility to include the project in its rate base without the determination by the Commission required by this rule. The data submitted under this rule shall be in such form and detail as prescribed by the Commission.

G.O. No. 7, Paragraph 2.3(g)(2), as modified by Decision and Order No. 21002, Ordering ¶ No. 2, at 15.

The underlying purpose of the Project is to repair the severe corrosion of Tank 131's bottom area by installing an El Segundo-type double bottom, which utilizes an impermeable liner that should effectively contain any leaks. In effect, the existing steel tank bottom will become the secondary tank bottom, while the new steel floor will be the primary tank bottom. While the El Segundo double bottom tank design has a higher initial cost than the in-kind bottom repair alternative, the advantages of the El Segundo-type design include less maintenance costs, prolonged inspection intervals, fewer disruptions in storage capacity, a longer useful service life, enhanced structural integrity, and an RPB for environmental protection. Tank 131, once it is repaired and returned to service, will resume the storage of LSFO for HECO's cycling and base load units at Kahe Power Plant.

The commission: (1) finds that the Project is reasonable and consistent with the public interest; and (2) will approve HECO's expenditure of funds for the Project.

III.

Orders

THE COMMISSION ORDERS:

1. HECO's request to commit approximately \$4,075,084 in funds for the Barbers Point Fuel Oil Tank 131 Renovation Project is approved; provided that no part of the Project may be included in HECO's rate base unless and until the Project is in fact installed, and is used and useful for public utility purposes, as determined in the rate proceeding following the Project's completion date.

2. HECO shall submit a report within sixty days of the Project's commercial operation, with an explanation of any deviation of ten percent or more in the Project's costs from that estimated in the Application. HECO's failure to submit this report will constitute cause to limit the cost of the Project, for ratemaking purposes, to that estimated in the Application.

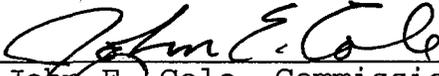
3. HECO shall conform to the commission's order set forth in paragraph 2, above. The failure to adhere to the commission's order may constitute cause for the commission to void this Decision and Order, and may result in further regulatory action as authorized by the commission.

DONE at Honolulu, Hawaii

MAY 15 2008

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By: 
Carlito P. Caliboso, Chairman

By: 
John E. Cole, Commissioner

By: 
Leslie H. Kondo, Commissioner

APPROVED AS TO FORM:



Michael Azama
Commission Counsel

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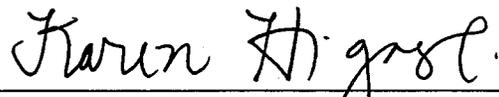
CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 24228 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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DATED: MAY 15 2008