BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of HAWAIIAN ELECTRIC COMPANY, INC. For Approval to: (1) Commit Funds for Item Y00040, the Ford Island Substation Project; and (2) Construct 46 kV Subtransmission Lines Above and Below the Surface of the Ground.	DOCKET NO. 04-0278

DECISION AND ORDER NO. 21692

Filed March 10, 2005

At 2 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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of the Ground.)	

DECISION AND ORDER

The commission approves HAWAIIAN ELECTRIC COMPANY, INC.'s ("HECO") requests to: (1) commit approximately $9,108,719 for Item Y00040, the Ford Island Substation Project ("Project"); and (2) construct 46 kilovolt ("kV") subtransmission lines above and below the surface of the ground, as part of the Project.

I.

Background

HECO requests the commission's approval to: (1) commit approximately $9,108,719 for the Project; and (2) construct 46 kV subtransmission lines above and below the surface of the ground.[1]

[1]HECO's Application, Verification, Exhibits I to IX, and Certificate of Service, filed on September 21, 2004 (collectively, the "Application"). The total estimated capital cost of the Project is $21,554,719, which includes contributions-in-aid-of-construction ("CIAC" or "contribution") from the United States ("U.S.") Navy of $12,446,000. The U.S. Navy's total contribution is $12,964,500, which includes a general excise tax amount of $518,500.

HECO makes its requests pursuant to: (1) Section 2.3.g.2 of General Order No. 7 ("G.O. No. 7"), *Standards for Electric Utility Service in the State of Hawaii*, as modified by Decision and Order No. 21002, filed on May 27, 2004, in Docket No. 03-0257;[2] and (2) Hawaii Revised Statutes ("HRS") § 269-27.6(a).

HECO served copies of its Application upon the Department of Commerce and Consumer Affairs, Division of Consumer Advocacy ("Consumer Advocate").

On November 30, 2004, the commission held a public hearing on HECO's proposed construction of a 46 kV overhead subtransmission line through a residential area, as part of the Project, in accordance with HRS § 269-27.5.[3] HECO's

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[2]In Docket No. 03-0257, the commission increased the monetary threshold governing the filing of capital expenditure applications by HECO, from $500,000 to $2.5 million, exclusive of customer contributions, effective from July 1, 2004.

[3]HECO explains that:

1. The 46 kV overhead line work will include the installation of two (2) new 65-foot steel poles (P.6Y and P.58X), one (1) new 60-foot wood pole (P.47), approximately 7,000 circuit feet of 46 kV conductors on existing and new steel poles, and the re-use of approximately 3,000 circuit feet of existing 46 kV conductors on existing steel and wood poles.

2. A section of the new Makalapa 44 46 kV overhead line will be visible from townhouses on Salt Lake Boulevard located across the street from HECO's Makalapa substation.

3. A new section of the Makalapa 43 46 kV overhead line will be visible from residences at the U.S. Navy's Makalapa Naval Housing and from living quarters on the Pearl Harbor Naval Base.

Vice President of Energy Delivery and the Consumer Advocate both submitted written testimony and orally testified. No one from the general public appeared or testified.

On December 6, 2004 and January 21, 2005, HECO responded to the Consumer Advocate's information requests. On February 11, 2005, the Consumer Advocate filed its position statement: (1) stating that it does not object to the commission's approval of HECO's Application; and (2) making certain recommendations and observations.[4] On February 25, 2005, HECO responded to the Consumer Advocate's position statement.[5] On March 1, 2005, HECO responded to the commission's clarifying information request, PUC-IR-101, and on March 4, 2005, the Parties informed the commission that this proceeding is ready for decision-making.[6]

II.

Ford Island Substation Project

Ford Island presently receives electric service from the U.S. Navy's Puuloa distribution network through three (3) 11.5 kV feeders (i.e., submarine cables) from the Public Works Center's: (1) Substation C in the Naval Shipyard; and (2) Substation D at Hospital Point. Substations C and D, in turn, are served by HECO's Puuloa substation.

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[4]Consumer Advocate's position statement, filed on February 11, 2005.

[5]HECO's reply, dated February 25, 2005.

[6]Parties' joint letter, dated March 4, 2005.

There is no HECO distribution system or substation on Ford Island to serve the existing facilities located there.

The Project arises out of the U.S. Navy's need for additional electric service due to its plan "to develop Ford Island into a showplace with new housing and tourist developments."[7] Specifically, the U.S. Navy's plans include the construction of:

> . . . 600 family housing units, 1000 units of Bachelor Quarters, 200 units of Transient Housing, Operational Buildings, Gymnasium/Fitness Center, Bowling Alley, Youth Center, Recreation Center, Child Development Centers, Mini-Mart, Club Complex, Historical/Cultural Centers, Navy Square, and additional Berthing Piers.[8]

The projected load for the new Ford Island expansion is 14.2 megavolt-ampere ("MVA") by the year 2010, and 33.7 MVA by the year 2013.

The Project's geographical scope will encompass Ford Island, the Pearl Harbor Naval Base, Kamehameha Highway, Radford Drive, Bougainville Drive, Lawehana Street, Malaai Street, and Salt Lake Boulevard.

In general, the Project will consist of four (4) phases: (A) the construction of a new dedicated distribution substation on Ford Island; (B) the installation of a new 46 kV breaker and protective relays at the Makalapa substation; (C) 46 kV overhead and underground subtransmission line work; and (D) the installation of fiber optic lines.

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[7]HECO's Application, at 12.

[8]HECO's response to CA-SIR-3(a), at 4.

Exhibits III and IV attached to HECO's Application consist of maps and diagrams that outline the geographical scope of the Project.

HECO will undertake the Project in accordance with a Modification of Contract, dated April 30, 2004 ("MOC"), between HECO and the U.S. Navy.[9] The Project's overall scope of work is based on HECO's "Proposal for New Electric Service to Ford Island, Hawaii[,]" dated April 28, 2004 ("HECO's Proposal"),[10] incorporated by reference in the MOC, as modified slightly by HECO "to simplify the 46 kV line construction."[11] In turn, HECO's Proposal and any subsequent agreement between HECO and the U.S. Navy arising thereof, is contingent upon any and all required approvals by the commission.[12]

A.

Item No. P0000836 - Ford Island Substation

This phase involves the construction of a new dedicated substation on Ford Island, between Lexington Boulevard and Langley Avenue. The U.S. Navy will allow HECO to use this site at no cost.

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[9]Exhibit I of HECO's Application.

[10]Exhibit II of HECO's Application.

[11]HECO's Application, at 8.

[12]See Exhibit II, at 9.

The construction of the new substation will include the installation of:

1. Four (4) 46-11.5 kV, 10/12.5 MVA, low-sound transformers;
2. A relay control house consisting of two (2) sets of primary and back-up microprocessor-based line protection relaying and four (4) sets of microprocessor-based transformer protection relaying;
3. Two (2) sets of 46 kV potential transformers;
4. Four (4) 15 kV metal-clad outdoor switchgear with associated microprocessor-based relay protection equipment;
5. A DC battery bank;
6. Five (5) 46 kV, 1200 amp, circuit breakers;
7. Eleven (11) 46 kV, 1200 amp, group operated, disconnect switches; 46 kV bus conductors and connectors; Supervisory Control and Data Acquisition/Remote Terminal Unit ("SCADA/RTU") equipment; and
8. Associated electrical cables and wiring.

In addition, within the substation boundaries, HECO will install thirteen (13) concrete pads (four (4) for the transformers, four (4) for the switchgear, and five (5) for the circuit breakers), one (1) manhole, a concrete driveway, 2" and 5" underground ductlines, foundations and steel structures to support bus conductors, and an 8' high chain link fence along the

perimeter. The entire site will also "have a ground grid buried 1'-6" deep and covered with 6" thick rock fill."[13]

B.

Item No. P0000837 - the Makalapa 46 KV Breaker Addition

This phase involves the installation of the following equipment and facilities at the Makalapa substation:

1. One (1) 46 kV, 1200 amp, circuit breaker;
2. One (1) set of primary and back-up line protection relaying;
3. One (1) set of 46 kV potential transformers;
4. One (1) 46 kV, 1200 amp, group operated, disconnect switch;
5. 46 kV bus conductors and connectors; and
6. Associated electrical equipment and wiring.

In addition, the structural components will include the installation of one (1) concrete pad for the circuit breaker, 2" and 5" underground ductlines, and foundation and steel structures to support the bus conductors.

HECO explains that the new 46 kV circuit breaker will deliver the new Makalapa 44 46 kV line (described in sub-section II(C)(1) below) to the Kuahua and Puuloa substations, thus allowing the existing Makalapa 43 46 kV line to become a dedicated 46 kV feeder to the new Ford Island substation.

[13]HECO's Application, at 5.

C.

Item No. P0000838 - Feeders to the Ford Island Substation

This phase involves the: (1) installation of a new 46 kV circuit, Makalapa 44; (2) rearrangement and underground extension of an existing 46 kV circuit, Makalapa 43; and (3) underground extension of an existing 46 kV circuit, Makalapa 41. In addition, the overhead installation and rearrangement work will include the attachment of 46 kV conductors on the existing steel poles that support the Waiau-Makalapa No. 2 138 kV line. "[T]he new Makalapa 44 46 kV circuit is being established to allow HECO to use the Makalapa 43 46 kV circuit to serve the Ford Island [s]ubstation."[14]

1.

Makalapa 44 46 kV Circuit

The new Makalapa 44 46 kV circuit involves the installation of new 46 kV overhead conductors on existing steel poles that support the Waiau-Makalapa No. 2 138 kV line and one (1) new 65-foot steel pole (P.58X),[15] from HECO's Makalapa substation onto Malaai Street, then to Lawehana Street, to the intersection of Lawehana Street and Bougainville Drive. The new conductors will dead-end on the new steel pole (P.58X), then

[14]HECO's response to CA-IR-11.

[15]The new steel pole (P.58X) will be installed on Lawehana Street, near the intersection of Lawehana Street and Bougainville Drive.

mid-span tap to the existing Makalapa 43 46 kV conductors.[16] "This circuit, composed of new 46 kV conductors and existing 46 kV conductors for the Makalapa 43 46 kV circuit, will be identified as the Makalapa 44 46 kV circuit."[17]

2.

Makalapa 43 46 kV Circuit

The Makalapa 43 46 kV circuit work will involve an array of overhead and underground construction.

A new 65-foot steel pole (P.6Y) will be installed on Bougainville Drive between wood pole P.6X and steel pole P.7X, that will intercept the existing Makalapa 43 46 kV conductors running makai out of the Makalapa substation. The section of existing 46 kV conductors between new steel pole P.6Y and existing steel pole P.7X will be cut and removed in order to isolate the two (2) 46 kV overhead circuits that will eventually run along Bougainville Drive - Makalapa 43 and Makalapa 44.

New 46 kV conductors will be installed from P.6Y, tap to the existing Makalapa 43 circuit, cross-over to the west side of Bougainville Drive, attach to existing steel pole P.58, then continue along on other existing steel poles for the Waiau-Makalapa No. 2 138 kV line by running makai on

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[16]The existing Makalapa 43 46 kV conductors run makai on Bougainville Drive, turn right onto Radford Drive, Center Drive, and Kamehameha Highway, respectively, then continues westbound to the existing pole P.43, where the circuit will terminate with a new group-operated switch.

[17]HECO's Application, at 7.

Bougainville Drive, turning right onto Radford Drive and Kamehameha Highway, respectively, then continuing to existing pole P.43.

From pole P.58 to pole P.49, located at the corner of Radford Drive and Kamehameha Highway, the Makalapa 43 46 kV circuit will be the only 46 kV circuit on the existing steel poles for the Waiau-Makalapa No. 2 138 kV line. Along Kamehameha Highway, between poles P.49 and P.43, the existing steel poles for the Waiau-Makalapa No. 138 kV line will be double-circuited with the new Makalapa 43 and the re-named Makalapa 44 (fka Makalapa 43) 46 kV overhead circuits, with a new group-operated switch installed on pole P.44 to enable switching between either circuit.

From pole P.43 to the existing 60-foot wood pole (P.47), located near the Pearl Harbor Bowfin Museum, HECO will continue to use the existing Makalapa 43 46 kV conductors.[18]

The Makalapa 43 46 kV circuit will then extend underground approximately 8,400 linear feet, under the Pearl Harbor channel, near the Admiral Clarey Bridge, then onto Ford Island, to the new Ford Island substation.

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[18]Pole P.47 will be replaced with a new 60-foot wood pole across the road, but still within the Pearl Harbor property. HECO states that it will replace pole P.47 "in order to install the new 46 kV risers in a more desirable permanent location within the concrete sidewalk on [the] mauka side of the road rather than in the middle of an existing parking lot." Id. at 8, footnote 5.

3.

Makalapa 41 46 kV Circuit

The Makalapa 41 46 kV circuit work will involve the underground construction to interconnect the new Ford Island substation.

Existing overhead conductors will be tapped at pole P.35 and extend underground approximately 9,000 linear feet, under the Pearl Harbor channel, near the Admiral Clarey Bridge, and onto Ford Island, to the new Ford Island substation.[19] The two (2) 46 kV circuits will consist of cables that run approximately 1,000 and 400 linear feet on Oahu (for Makalapa 41 and Makalapa 43, respectively), 5,000 linear feet underwater via horizontal directional drilling, and 3,000 linear feet on Ford Island (for Makalapa 41 and Makalapa 43). No new overhead lines or poles will be installed for this segment.

D.

Item No. P0000839 - Communications Links: Ford Island to Makalapa

This phase involves the installation of approximately 34,500 feet of All-Dielectric Self-Supporting ("ADSS") fiber optic cable to provide a direct connection between the new relays

[19]Pole P.35 is located along Kamehameha Highway, within Pearl Harbor's Richardson Field across from Kohomua Street.

that will be installed at the Ford Island, Kuahua, and Makalapa substations.[20]

One (1) fiber optic line will connect the new Kuahua substation to the Ford Island substation, while the other line will connect the Makalapa substation to the Ford Island substation. The Kuahua-Makalapa fiber optic line segment, meanwhile, will be installed as part of the new Kuahua Substation Project.

A segment of the fiber optic lines will be installed under the Pearl Harbor channel, while the other segments will be installed overhead. In general, the under channel segment will follow the same under channel 46 kV line route that will terminate at the Ford Island substation. The overhead segments, meanwhile, "will be installed approximately 25-feet above ground and below the existing 46 kV conductors on the overhead installations."[21]

HECO states that the fiber optic lines are needed to connect the Ford Island substation to the existing HECO communications infrastructure, and to complete the ring of fiber optic cables connecting the Makalapa, Kuahua, and Ford Island substations. In particular, the fiber ring will: (1) enable ring

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[20]The new Kuahua substation site is located on Pearl Harbor Naval Base, near the Makalapa Gate. The commission approved HECO's expenditure of funds for the new Kuahua Substation Project, scheduled for completion in September 2005. See Section IV of this Decision and Order.

[21]HECO's Application, at 10.

switching protection schemes to be implemented in the communications paths, resulting in a higher reliability for the SCADA system and high-speed protection circuits serving all of the connected substations; and (2) ensure that the microprocessor relays at each of the substations are able to communicate with each other to securely quickly trip for faults on the circuit between the substations.

E.

Project's Cost

The Project's total estimated cost is $21,554,719, which includes CIAC from the U.S. Navy of $12,446,000.[22] The capital cost to HECO is approximately $9,108,719.

HECO's Proposal describes the breakdown of the U.S. Navy's contributions and includes the workpapers used in calculating the estimated amounts of contribution.[23] With respect to the allocation of costs between HECO and the U.S. Navy, HECO is not seeking a waiver of any of its tariff rules.

III.

Project Justification

In support of the Project, HECO succinctly states:

> The Navy plans to develop Ford Island into a showplace with new housing and tourist

[22]The U.S. Navy's total contribution is $12,964,500, which includes a general excise tax amount of $518,500.

[23]See also HECO's Application, at 10 - 11; and HECO's response to CA-IR-12.

> developments. The estimated total load for the new Ford Island expansion is approximately 34 MVA (by the year 2013+). The Navy has indicated that the developed Ford Island will have extensive landscaping and minimum visible electric facilities.[24]

HECO considered three (3) options "to serve the Ford Island ultimate load."[25] Specifically:

1. Alternative 1: Install a low profile 46-11.5 kV dedicated substation on Ford Island, which would be fed from two (2) new 46 kV underground circuits (one primary, one back-up) installed parallel to the Admiral Clarey Bridge.

2. Alternative 2: Serve Ford Island from the new Kuahua substation via eight (8) new 11.5 kV underground conductors installed parallel to the Admiral Clarey Bridge. (*See* Section IV, below.)

3. Alternative 3: Serve Ford Island from the Puuloa substation via eight (8) new 11.5 kV underground conductors installed in the vicinity of the U.S. Navy's existing 11.5 kV submarine cables crossing the channel.[26]

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[24]HECO's Application, at 12. Likewise, the MOC states that the underlying purpose of the Project is to "[d]esign and construct [HECO] facilities to provide new electric service from Pearl Harbor['s] main side to Ford Island to support the existing and planned development of Ford Island. The capacity should be adequate to accommodate the existing load of 6.9 MVA (Oct. 7, 2002 peak) as well as the projected load increase to 14.2 MVA (2010) and final build-out to 33.7 MVA (2013+)." Exhibit I, at 4, of HECO's Application.

[25]HECO's Application, at 12.

[26]HECO eliminated Alternative 3 from the outset, as technically unfeasible. See HECO's Application, at 12 - 13.

HECO selected Alternative 1 as the most cost effective and technically feasible option. HECO states:

1. Its contribution under Alternative 1 is approximately $2,900,781 lower than for Alternative 2.[27]

2. With Alternative 1, it estimates an annual savings of approximately $520,000 (versus Alternative 2) under a transmission loss analysis, when the new Ford Island substation is fully loaded at forty (40) MVA.[28]

3. In addition to the U.S. Navy, the new substation has the potential to serve other customers who retain leasing agreements for Ford Island property.[29]

4. The U.S. Navy concurs with Alternative 1.

The U.S. Navy's requested in-service date for the new Ford Island substation is December 2005.

IV.

The New Kuahua Substation Project

The underlying purpose of the new Kuahua Substation Project is to replace the existing substation that currently

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[27] See HECO's response to PUC-IR-101.

[28] Id.

[29] In one (1) example, HECO states that in July 2003, the U.S. Navy awarded Fluor Island Properties, LLC a contract to commercially develop thirty-four (34) acres of leasehold Ford Island property over the next sixty-five (65) years.

serves the Pearl Harbor Naval Base. In Docket No. 03-0260, the commission approved HECO's commitment of funds for this Project.[30] Concomitantly, in light of the Consumer Advocate's concerns and recommendations expressed in Docket No. 03-0260, the commission instructed HECO and the Consumer Advocate: (1) to discuss and assess HECO's current rules, policies, and procedures, including those affecting the provision of electric service through either a dedicated or system substation; and (2) submit a joint, stipulated filing for the commission's review and approval, that addresses the Consumer Advocate's concerns. The joint, stipulated filing is due March 31, 2005.

V.

Consumer Advocate's Position

The Consumer Advocate examined the reasonableness of: (1) the Project and its costs, including the reasonableness of the U.S. Navy's contributions; and (2) the overhead and underground construction of the 46 kV subtransmission lines, as part of the Project.

[30]Decision and Order No. 21003, filed on May 27, 2004, in Docket No. 03-0260. As part of its review process, HECO considered three (3) options: (1) construct a new substation to replace the existing substation; (2) renovate the existing substation; or (3) continue operating the existing substation in its current configuration, and undertake repairs on an as-needed basis. HECO selected the first option.

A.

The Project

To meet the U.S. Navy's forecasted electrical load for Ford Island, HECO considered three (3) options. (*See* Section III, above.) The Consumer Advocate focused its review on Alternatives 1 and 2.[31] To reiterate:

1. Alternative 1: Install a low profile 46-11.5 kV dedicated substation on Ford Island, which would be fed from two (2) new 46 kV underground circuits (one primary, one back-up) installed parallel to the Admiral Clarey Bridge.

2. Alternative 2: Serve Ford Island from the new Kuahua substation via eight (8) new 11.5 kV underground conductors installed parallel to the Admiral Clarey Bridge.

The Consumer Advocate states that HECO selected Alternative 1 because:

1. Alternative 1 is more cost effective than Alternative 2, as HECO's estimated cost for its share is lower than its share of the cost for Alternative 2.

2. Alternative 1 has less transmission losses than Alternative 2, with a projected annual savings of $520,000 when the new Ford Island substation is fully loaded.

3. The new Ford Island substation has the potential to serve other customers in addition to the U.S. Navy's requirements on Ford Island.

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[31]The Consumer Advocate finds that HECO's decision to eliminate Alternative 3 as a viable option from the outset, "appears reasonable since this alternative is not a practicable option to meet the electrical requirements of Ford Island." Consumer Advocate's position statement, at 6.

That said, the Consumer Advocate notes several deficiencies in HECO's cost analysis:

1. HECO's selection of Alternative 1 is not based on an analysis of the total life cycle costs for Alternatives 1 and 2. Instead, "a net present value or revenue requirement analysis of all costs for each alternative is more appropriate as it considers the life cycle of each alternative over the service life of the facilities."[32]

2. "HECO did not provision each alternative similarly, causing a greater allocation of the costs to HECO in Alternative 2. The basis for this conclusion is because, in Alternative 1, HECO considered a portion of the facilities as 'special facilities' and, in Alternative 2, HECO considered the proposed facilities with equivalent capacity as Alternative 1 to be a 'typical' customer installation."[33]

3. Under this scenario, "since Alternative 1 was the [U.S.] Navy's preferred alternative, the analysis was slanted towards selecting Alternative 1[,] and leaving such discretion to a customer can result in different cost allocations between [HECO] and [the] requesting customer. These different cost allocations might skew the evaluation leading to a subjective or biased selection of a preferred alternative rather than an objective selection that results in the best alternative for HECO, the requesting customer and other ratepayers."[34]

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[32] Id. at 7 (underscore in original).

[33] Id.

[34] Id. at 9.

To address these concerns, HECO, at the Consumer Advocate's request, undertook a revenue requirement analysis of Alternatives 1 and 2, including an analysis of Alternative 2, assuming the installation of the four (4) sets of 11.5 kV circuits in the same, non-incremental time frame as Alternative 1 -- i.e., Alternative 2A. HECO's analysis, set forth in its response to CA-SIR-8, is summarized as follows:[35]

Alternative	Total Rev. Requirement ("TRR") Over 60 Years	Net Present Value of TRR at 8.4%
Alternative 1	$209,122,000[36]	$25,120,000
Alternative 2A	$242,083,000	$28,729,000

Following its review of HECO's revenue requirement analysis, the Consumer Advocate concludes:

1. HECO used the SynerGEE Electric software developed by Stoner Associates, Inc. to calculate the transmission losses of both alternatives, based on the five (5) assumptions listed in HECO's response to CA-IR-7. While the SynerGEE Electric software is used by a number of electric utilities, the Consumer Advocate "will be continuing its review of HECO's use of the SynerGEE Electric software to attain a better understanding of the software and its use by HECO."[37]

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[35]The Consumer Advocate expresses its general belief that "the calculations and factors used in the revenue requirement analysis provided in response to CA-SIR-8 are reasonable." Id. at 10.

[36]HECO's revised estimated total revenue requirement over sixty (60) years, under Alternative 1, is $192,412,465. See HECO's response to clarifying PUC-IR-101, Attachment 1.

[37]Consumer Advocate's position statement, at 10.

2. In determining the operations and maintenance ("O&M") expenses for both alternatives, HECO utilized the O&M factors from Docket No. 03-0417, HECO's pending application for commission approval of the East Oahu Transmission Project. The Consumer Advocate's non-objection to the O&M factors used by HECO in Docket No. 04-0278 "does not reflect its approval of the use of the [same] factors in Docket No. 03-0417 in all applications pertaining to the installation of 46 kV or greater transmission lines."[38]

3. "[I]t appears that the total revenue requirement of Alternative 1 is still lower than Alternative 2A. As a result, the Consumer Advocate will not object to HECO's selection of Alternative 1 at this time."[39]

B.

Recommendations and Observations

That said, the Consumer Advocate, on a prospective basis, makes certain recommendations and observations that arise out of its review of the Project:

1. For future capital expenditure applications, HECO should: (A) continue to develop, consider, and discuss alternatives to a proposed capital expenditure project; (B) conduct a net present value or revenue requirement analysis, if the information is available, in its evaluation of the

[38]Id. at 11.

[39]Id.

alternatives, in order to provide comprehensive and comparable results; (C) incorporate such analysis into its application; and (D) "establish written [internal] guidelines to address how its engineers should provision each alternative in a customer's request for service[,] particularly in the cases where a customer requests the implementation of a specific type of equipment to provide its requested electrical service."[40]

2. In its applications, HECO should indicate whether related projects exist, so that the commission and Consumer Advocate can evaluate the reasonableness of the projects with all of the available information, rather than belatedly discovering information that was available at the time of the initial evaluation.[41]

3. HECO and its ratepayers may incur additional costs associated with the Project as the new dedicated Ford Island substation may need to be converted to a system substation in the

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[40]Id. at 12.

[41]The Consumer Advocate references Docket No. 03-0260, the new Kuahua Substation Project. "HECO did not identify in Docket No. 03-0260 that it had considered serving the Ford Island load from the new Kuahua Substation. . . . HECO should have presented this information in Docket No. 03-0260, so that the Commission and Consumer Advocate could have evaluated the reasonableness of constructing both the new Kuahua and new Ford Island substations, jointly." Id. at 13. Ultimately, an alternative to the Ford Island Substation Project was to serve the U.S. Navy's Ford Island increase in demand from the new Kuahua substation.

future.[42] Specifically, to provide electric service to Fluor Island Properties, LLC from the Ford Island substation, HECO may need to convert the dedicated substation to a system substation.

Due to this present uncertainty, HECO did not include the costs of converting the Ford Island substation from a dedicated to a system substation in its analysis. As a result, the Consumer Advocate: (1) will continue its review of whether the Ford Island substation should have been a dedicated or system substation; and (2) "reserves its right to take issue with the capital expenditures included in rate base associated with the proposed project in the rate case proceeding following the in-service date of the proposed project."[43]

4. In previous dockets, including Dockets No. 99-0354 and No. 03-0260, concerns with HECO's decision to provide a dedicated substation were raised. Thus, in Docket No. 03-0260, the commission instructed HECO and the Consumer Advocate to review HECO's procedures associated with the construction of dedicated vs. system substations. "[T]he Consumer Advocate

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[42]The Consumer Advocate notes that HECO defines: (A) a dedicated substation as one (1) that is used to serve the load of a single customer, has only one (1) 46 kV feed into the substation, the distribution system is owned, operated, and maintained by the customer, and the site is normally under the customer's ownership; and (B) a system substation as one (1) that will have at least two (2) 46 kV feeds, and is installed, owned, operated, and maintained by HECO to serve the loads of two (2) or more customers. Id. at 14, footnotes 20 and 21 (citing HECO's responses to CA-IR-12(d) and -12(e), in Docket No. 99-0354).

[43]Consumer Advocate's position statement, at 15 - 16.

expects that this concern will be addressed in the review in Docket No. 03-0260."[44]

C.

Project's Cost and Contributions Thereto

The Consumer Advocate notes that, of the Project's total estimated cost, approximately 95 per cent are for the following items:[45]

Materials	$2,775,615
Outside Services	$16,030,805
On-Costs	$1,274,404
Allowance for Funds Used During Construction (aka AFUDC)	$484,510

The Consumer Advocate states:

1. The cost for materials is, or will be, based on a competitive bid process, and a significant portion of the outside services will likewise be selected through a competitive bid process. "As such, there may be lower costs to the consumer since the bid process is intended to obtain the outside materials and services at the best price. Thus, the Consumer Advocate

[44]Id. at 16. The commission, in Docket No. 03-0260, instructed HECO to: (1) review all of its existing rules, policies, and procedures on the provisioning of electric service through either a dedicated or system substation; (2) solicit the Consumer Advocate's comments and approval; and (3) file its new guidelines for the commission's review and approval. See Section IV, above; and Decision and Order No. 21003, filed on May 27, 2004, at 14 - 15, and 20 - 23.

[45]The remaining five (5) per cent, $989,385, constitutes labor costs.

finds that the procurement process to obtain its materials and services in the instant project is reasonable."[46]

2. While it has questions and concerns related to HECO's calculations of the on-costs and AFUDC estimates, it recognizes that these concerns are more appropriately addressed in HECO's rate case proceeding, following: (A) the Project's in-service date; and (B) HECO's submission its final cost report that incorporates the actual costs incurred.

3. The U.S. Navy's contributions for the Project are based on HECO's applicable tariff rules, and appear to have been calculated correctly. The Consumer Advocate does not object to the U.S. Navy's CIAC amount, as calculated.

D.

HRS § 269-27.6(a)

The Consumer Advocate also reviewed the proposed overhead and underground installation of the 46 kV subtransmission lines, as mandated by HRS § 269-27.6(a)(4).

1.

Underground Work

The underground extension of: (1) the Makalapa 43 46 kV circuit includes the installation of an underground 46 kV extension of approximately 8,400 linear feet under the Pearl Harbor channel, near the Admiral Clarey Bridge, then onto Ford Island, to the new Ford Island substation; and (2) the

[46]Consumer Advocate's position statement, at 25.

Makalapa 41 kV circuit includes the installation of an underground 46 kV extension of approximately 9,000 linear feet under the Pearl Harbor cannel, near the Admiral Clarey Bridge, onto Ford Island, to the new Ford Island substation.

The Consumer Advocate does not object to the underground placement (i.e., under the channel) of these 46 kV facilities, reasoning that:

1. These segments will be placed under the channel for engineering reasons; and

2. The U.S. Navy is paying for the cost of placing the remaining underground sections on Ford Island and Oahu, in accordance with HECO's tariff Rule 13(D)(1).

2.

Overhead Work

The Consumer Advocate finds that the above ground installation of the overhead segments of the Makalapa 43 and Makalapa 44 46 kV lines is reasonable and consistent with HRS § 269-27.6(a):

1. Subsection (a)(1): HECO estimates that it will cost approximately $3,233,983 more to install the subject 46 kV lines underground instead of overhead. The net visual impact of the subject 46 kV lines upon the surrounding area will be minimal, as there are currently three (3) existing overhead circuits in the same area: the Waiau-Makalapa No. 2 138 kV line, Makalapa 41 46 kV line, and Makalapa 43 46 kV line. In addition, "there were no comments given at the public hearing to indicate

that the current project area would be visually impacted by the addition of the overhead 46 kV lines."[47]

Moreover: (A) there are no immediate plans by the State of Hawaii ("State"), Department of Transportation ("DOT"), to proceed with any road widening projects in the Project's surrounding area;[48] (B) there is a need to proceed with the Project to meet the U.S. Navy's requested in-service date of December 2005; and (C) there appears to be no significant or immediate cost benefit to placing the subject 46 kV lines underground.

For these reasons, "[t]he benefits of undergrounding the 46 kV lines do not appear to outweigh the additional costs that would be incurred to place the line underground."[49]

2. Subsection (a)(2): It does not appear that there is any governmental public policy (federal, State, or County) requiring the placement or construction of electric transmission systems underground, for this Project. Thus, there is no governmental mandate requiring the underground placement of the subject 46 kV lines.

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[47]Id. at 19.

[48]The Consumer Advocate reasons that if road widening projects were planned for the areas surrounding the Project, "HECO may be able to relocate the existing overhead facilities in underground circuits at a lower cost since the State DOT would share in the cost of excavating the roads." Id. at 20.

[49]Id. at 23.

3. Subsection (a)(3): There is no governmental agency willing to pay for the additional costs to underground the overhead portions of the subject 46 kV lines.[50]

4. Subsection (a)(5): While the difference in the amounts assessed to HECO's ratepayers for an overhead versus underground placement of the subject 46 kV lines may be nominal for most customers (based on an average monthly billing cycle), "since there will still be existing overhead transmission lines in the area, there does not appear to be a meaningful benefit to undergrounding only a 7,000-foot section (approximately 1.3 miles) of transmission lines associated with this [P]roject."[51]

E.

Conclusion

In conclusion, the Consumer Advocate does not object to the commission's approval of HECO's Application. Concomitantly, it "recommends that HECO be required to work with the Consumer Advocate to address the concerns with the overall evaluation process performed by [HECO] to support future requests to commit funds for capital improvement projects," as described in its position statement.[52]

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[50]See footnote 62, below.

[51]Consumer Advocate's position statement, at 23.

[52]Id. at 26.

VI.

HECO's Rebuttal

HECO expresses its willingness to work with the Consumer Advocate to address its stated concerns. HECO then responds:

1. A revenue requirement analysis is an analysis of a project's life cycle costs, which, in some instances, may not be the major consideration in deciding whether to proceed with the project.

2. While the project's costs, including its life cycle costs, are an essential consideration in deciding whether to proceed with a capital expenditure project, costs are not the sole consideration. Thus, if the benefits of a project are worthwhile, HECO and its ratepayers should be willing to pay more for the option that offers those benefits, in lieu of the option that does not. The relative benefits of a project should not be ignored or rejected if the benefits are not easily translated into dollars.

3. For future capital expenditure applications, HECO, at its discretion, is willing to include a revenue requirement analysis for viable alternatives to the recommended plan, to the extent that the cost information is available.[53] HECO is not willing to perform a revenue requirement analysis on non-viable alternatives that are eliminated "early" in the evaluation process. It appears that the Consumer Advocate agrees that a

[53]HECO objects to including a revenue requirement analysis in all of its capital expenditure projects.

revenue requirement analysis is not necessary for non-viable alternatives.[54]

4. Its Electric Service Installation Manual and tariff rules are the established written policies and procedures that address the majority of requests for electric service. However, certain requests, like this Project, are not clearly addressed in HECO's policies and procedures, and thus, must be addressed on a case-by-case basis. HECO's expectation is that the Consumer Advocate's concern on this matter will be addressed in the joint, stipulated filing in Docket No. 03-0260.

5. HECO presently identifies related projects in its capital expenditure applications. With respect to its application for the New Kuahua Substation Project, "by the time HECO filed its application in Docket No. 03-0260, serving the new Ford Island load from the New Kuahua Substation was no longer being considered."[55] Nonetheless, it included the new Kuahua substation alternative in its Application in Docket No. 04-0278, to described one (1) of the alternatives it had considered in serving the projected increase in Ford Island's load.

6. As appropriate, it will continue to include information on future related projects in its capital expenditures applications. However, due to circumstances, the need to implement a future related project may be revised, or the scope of the future related project may change. "HECO does not

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[54]See footnote 31, above.

[55]HECO's reply, at 4.

believe that any future action is necessary regarding this issue."[56]

7. HECO has never converted a dedicated substation to a system substation. There are many legal and contractual issues HECO and the U.S. Navy will need to resolve if such a conversion were to take place, and any such decision must be mutual. HECO: (A) has not had any discussions with the U.S. Navy on converting the substation to a system substation; and (B) is uncertain of the U.S. Navy's position on this matter. "HECO does not believe any further action is required on this issue at this time."[57]

8. If, or when, it receives requests for electric service from any non-government lessees situated on Ford Island, HECO will discuss with the U.S. Navy the best means of providing service. HECO is willing to keep the commission and Consumer Advocate informed of the plans for serving these Ford Island non-government lessees.

VII.

Commitment of Funds

While the commission encourages the Parties to reach consensus on the contents of future capital expenditure applications filed by HECO and its affiliated utilities, ultimately, it is the applicant's responsibility to develop an

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[56] Id. at 5.

[57] Id. at 6.

adequate record and meet its requisite burdens of proof. Within this context, the Consumer Advocate has the "full rights to participate as a party in interest in all proceedings before the . . . commission." HRS § 269-51. The commission finds that Docket No. 04-0278 is ready for decision-making on the merits, and will proceed accordingly.[58]

HECO is implementing the Project at the U.S. Navy's request to develop Ford Island with additional military housing and related facilities and infrastructure, including those of historical and cultural significance. HECO and the U.S. Navy concur that the Ford Island substation is the preferred alternative for meeting the forecasted increase in electrical demand there. Moreover: (1) the U.S. Navy is contributing its share of the costs for the Project, in accordance with HECO's tariff rules; and (2) HECO, in its responses to the numerous information requests, demonstrates that the Project is the least cost alternative for meeting the forecasted demand.

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.

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[58]The Parties agree to: (1) work together on resolving the Consumer Advocate's concerns, "which pertain to issues that go beyond" HECO's Application; and (2) keep the commission informed on the Parties' progress. Parties' joint letter, dated March 4, 2005.

VIII.

HRS § 269-27.6(a)

HRS § 269-27.6(a) provides:

> **Construction of high-voltage electric transmission lines; overhead or underground construction.** (a) Notwithstanding any law to the contrary, whenever a public utility applies to the public utilities commission for approval to place, construct, erect, or otherwise build a new forty-six kilovolt or greater high-voltage electric transmission system, either above or below the surface of the ground, the public utilities commission shall determine whether the electric transmission system shall be placed, constructed, erected, or built above or below the surface of the ground; provided that in its determination, the public utilities commission shall consider:
>
> (1) Whether a benefit exists that outweighs the costs of placing the electric transmission 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 division of consumer advocacy of the department of commerce and consumer affairs, which shall be based on an evaluation of the factors set forth under this subsection; and
>
> (5) Any other relevant factors.

The new 46 kV subtransmission lines, HECO notes, are being installed overhead and underground at the U.S. Navy's request. That said, HECO asserts that the proposed installation

of the 46 kV lines above and below the surface of the ground is consistent with HRS § 269-27.6(a).[59]

With respect to the overhead segments of the new 46 kV lines, HECO states:

1. Subsection (a)(1): The benefits, if any, of undergrounding the proposed overhead portions of the Makalapa 43 and Makalapa 44 46 kV lines do not outweigh the costs.[60] In addition, the visual impact of the overhead lines will not significantly increase, "as there are existing 138 kV and 46 kV overhead lines in the area, i.e., the existing Waiau-Makalapa No. 2 138 kV line and the Makalapa 41 and Makalapa 43 46 kV lines, respectively."[61]

2. Subsections (a)(2) and (3): To HECO's knowledge, there is no governmental public policy requiring the undergrounding of the proposed 46 kV overhead lines, and there is no governmental agency willing to pay for the additional costs of

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[59]HECO notes that the portion of the Makalapa 43 46 kV line extension from pole P.47 to the Ford Island substation, and the Makalapa 41 46 kV line from pole P.35 to the Ford Island substation, will be installed underground (i.e., under the Pearl Harbor channel).

[60]HECO estimates that it will cost "approximately eight times more to underground the 46 kV line than to construct it overhead." See Exhibit VIII of HECO's Application. See also Exhibit VII, at 1 - 9, of HECO's Application.

[61]HECO's Application, at 14 - 15.

undergrounding the proposed overhead portions of the Makalapa 43 and Makalapa 44 46 kV lines.[62]

3. Subsection (a)(4): The Consumer Advocate does not object to the overhead installation of the subject 46 kV lines.

4. Subsection (a)(5): HECO is unaware of any other relevant factors that "could affect the Commission's determination for the proposed 46 kV lines to be constructed underground."[63]

The commission finds that the underground (i.e., under the channel) construction of the portion of the Makalapa 43 46 kV line extension from pole P.47 to the Ford Island substation, and the Makalapa 41 46 kV line from pole P.35 to Ford Island, is consistent with HRS § 269-27.6(a).

The commission further finds that the above ground construction of the proposed overhead portions of the Makalapa 43 and Makalapa 44 46 kV lines is consistent with HRS § 269-27.6(a).

Specifically:

1. The commission is: (A) not convinced that a benefit exists that outweighs the estimated eight (8)-fold costs of undergrounding the proposed overhead portions of the 46 kV lines; and (B) unaware of any governmental policy either

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[62]Specifically, HECO, by correspondence, asked the State DOT, City and County of Honolulu, Department of Design and Construction ("City"), and U.S. Navy, if they were willing to pay for the additional costs to underground the proposed 46 kV overhead lines. The State, City, and U.S. Navy, all declined to pay for the additional undergrounding costs. See Exhibit VII of HECO's Application.

[63]HELCO's Application, at 15.

requiring the undergrounding or committal of funds for the costs of undergrounding the proposed overhead portions of the 46 kV lines.

2. No governmental agency or other entity has expressed a willingness to pay for the cost differential of undergrounding the proposed overhead portions of the 46 kV lines. In effect: (A) it will cost approximately eight (8) times more to underground the proposed overhead portions of the 46 kV lines; and (B) the State DOT, City, and U.S. Navy, all declined to pay for the additional undergrounding costs.

3. The Consumer Advocate does not object to the overhead installation of the subject 46 kV lines.

4. The visual impact of the new overhead 46 kV lines will not significantly increase, as there are existing 138 kV and 46 kV lines in the same areas, and the new overhead lines will utilize, in part, some of the poles that already support these existing overhead lines.

IX.

Orders

THE COMMISSION ORDERS:

1. HECO's request to expend an estimated $9,108,719 for Item Y00040, the Ford Island Substation 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.

2. HECO's request to construct and install 46 kV subtransmission lines above and below the surface of the ground, as part of the Project, is approved, pursuant to HRS § 269-27.6(a).

3. HECO shall submit a report within sixty (60) days of the Project's commercial operation, with an explanation of any deviation of ten (10) per cent or more in the Project's cost 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.

4. HECO shall conform to the commission's order set forth in paragraph 3, above. The 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 MAR 10 2005.

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:

_____
Michael Azama
Commission Counsel

04-0278.sl

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 21692 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

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DATED: MAR 10 2005