

FILED

BEFORE THE PUBLIC UTILITIES COMMISSION

2016 DEC 30 A 11: 26

OF THE STATE OF HAWAII

PUBLIC UTILITIES
COMMISSION

In the Matter of the Application of)
)
 HAWAIIAN ELECTRIC COMPANY, INC.)
)
 For Approval to Commit Funds in Excess of)
 \$2,500,000 (excluding customer contributions))
 for the P0003975 – AES-CEIP 2 138 kV)
 Overhead Transmission Line Relocation Project.)
 _____)

Docket No. **2016-0439**

HAWAIIAN ELECTRIC APPLICATION

VERIFICATION

EXHIBITS I TO IX

AND

CERTIFICATE OF SERVICE

Joseph P. Viola
 Vice President
 Regulatory Affairs
 Hawaiian Electric Company, Inc.
 P. O. Box 2750
 Honolulu, Hawai'i 96840

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAI'I

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HAWAIIAN ELECTRIC COMPANY, INC.) Docket No.
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For Approval to Commit Funds in Excess of)
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Overhead Transmission Line Relocation Project.)
_____)

HAWAIIAN ELECTRIC APPLICATION

TO THE HONORABLE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAI'I:

HAWAIIAN ELECTRIC COMPANY, INC. (“Hawaiian Electric” or the “Company”) respectfully requests: (1) Commission approval in accordance with the provisions of Paragraph 2.3(g)(2) of the Commission’s General Order No. 7, as revised in Decision and Order No. 21002 (issued May 27, 2004 in Docket No. 03-0257) (“G.O. 7”), to commit funds in excess of \$2,500,000 (currently estimated at \$3,007,232) for the P0003975 –AES-CEIP 2 138 Kilovolt (“kV”) Overhead Transmission Line Relocation Project (the “Project”); and (2) a Commission determination that the relocated 138 kV transmission line, as described later in this Application, be constructed above the surface of the ground, pursuant to Hawaii Revised Statutes (“HRS”) § 269-27.6.

EXECUTIVE SUMMARY

Hawaiian Electric’s 138 kV transmission and 46 kV sub-transmission systems are an interconnected network of high voltage electrical circuits and substations that span much of O’ahu, and are critical links in the provision of reliable service to customers. The AES-CEIP 2

138 kV transmission line connects the AES 138 kV switching station to the CEIP 138 kV substation, providing a critical path for bulk transmission of power to the grid and ultimately to Hawaiian Electric customers throughout O‘ahu from existing independent power producers AES, H-Power, and Kalaeloa, as well as from Hawaiian Electric’s CIP CT-1 generating unit.

The AES-CEIP 2 138 kV transmission line is a critical component of the transmission system that connects the northern and southern transmission corridors, transmitting bulk energy from the generating stations in the west to the central and eastern loads of O‘ahu. This transmission line also provides redundant networked transmission capacity to provide seamless continuation of power transmission for contingencies, such as outages of other transmission lines. With redundancy, power traveling through a transmission line that is de-energized for maintenance or that unexpectedly trips out of service could immediately flow along the alternative path and customers would not experience any interruption in service.

Hawaiian Electric, Kapolei Properties (“KPD”), and Aina Nui Corporation (“Aina”) had begun negotiations in 2004 for the alignment and required easement for the AES-CEIP 2 138 kV overhead transmission line. During the negotiations, Hawaiian Electric, KPD, and Aina acknowledged that planned mass grading would take place in the proposed location of this 138 kV overhead transmission line, as part of the construction of a regional drainage channel and the Kapolei Harborside development. At the time that this transmission line was required, KPD and Aina were not firm on their development plans. Therefore, in the easement negotiations with KPD and Aina, it was agreed that Hawaiian Electric would relocate the section of the 138 kV overhead line that would conflict with their firm development plans.

As a result of these easement terms, Hawaiian Electric plans to relocate approximately 4,500 feet of the AES-CEIP 2 138 kV transmission line, approximately 250 feet east, in parallel

with the current location. The relocation will include: (1) the installation of nine new 138 kV self-supporting steel poles; (2) the installation of a new section of optical ground wire (“OPGW”) and 138 kV overhead conductors; (3) the removal of six existing 138 kV steel poles; and (4) the removal of an existing section of OPGW and 138 kV overhead conductors between the existing AES and CEIP transmission substations. (See Exhibit I for the Project location.)

I

APPLICANT

Hawaiian Electric, whose principal place of business and whose executive offices are located at 900 Richards Street, Honolulu, Hawai‘i, is a corporation duly organized under the laws of the Kingdom of Hawai‘i on or about October 13, 1891, and is now existing under and by virtue of the laws of the State of Hawai‘i. Hawaiian Electric is an operating public utility engaged in the production, purchase, transmission, distribution and sale of electricity on the island of O‘ahu.

II

CORRESPONDENCE

Correspondence and communications in regard to this Application should be addressed to Daniel G. Brown, Manager, Regulatory Non-Rate Proceedings, whose business address is P.O. Box 2750, Honolulu, Hawai‘i 96840-0001.

III

EXHIBITS

The following exhibits are provided in support of this Application:

- Exhibit I – Project Location Map
- Exhibit II – 138 kV Circuits

- Exhibit III – Project Area Photographs
- Exhibit IV – Settlement Agreement No. A02094200
- Exhibit V – Grant of Easement R/W 2008-002A
- Exhibit VI – Kapolei Properties Request Letter
- Exhibit VII – Hawaiian Electric Proposal Letter
- Exhibit VIII – HRS § 269-27.6, Overhead or Underground Considerations
- Exhibit IX – Cost Recovery

IV

REQUESTED APPROVALS

A. General Order No. 7 – Capital Expenditures

Hawaiian Electric requests Commission approval to commit funds in excess of \$2,500,000, excluding customer contributions, for the purchase, installation and construction of the Project. The Project has a total estimated cost of \$3,007,232, and the request to the Commission is made in accordance with the provisions of Paragraph 2.3(g)(2) of the Commission’s G.O. 7, as revised,¹ which states in part that, “[p]roposed capital expenditures . . . in excess of [\$2,500,000] . . . 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.”

B. HRS § 269-27.6 – Construction of 138 kV Line

Hawaiian Electric also requests a determination by the Commission that the proposed 138 kV overhead transmission line relocation be constructed above the surface of the ground

¹ Pursuant to Decision and Order No. 21002, filed May 27, 2004 in Docket No. 03-0257 (“D&O 21002”), effective July 1, 2004, the G.O. 7 capital expenditures threshold was increased from \$500,000 to \$2.5 million, excluding customer contributions. The capital cost of the subject Project is greater than \$2.5 million (excluding customer contributions); therefore, Commission approval of the capital expenditures is required.

pursuant to HRS § 269-27.6, which provides that:²

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 the public utilities commission may in its determination consider the following factors:

- (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:

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

² See Exhibit VIII for a detailed discussion of each of the consideration set forth in HRS § 269.27.6.

- (D) Other industries particularly dependent on Hawai'i'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.

(c) A public utility making an application to the public utilities commission under this section shall clearly and fully state and support its evaluation of each factor set forth in subsection (b).

C. HRS § 269-27.5 – Public Hearing

It is Hawaiian Electric's position that a public hearing pursuant to HRS § 269-27.5 is not required for this Project. HRS § 269-27.5 provides that:

Construction of high-voltage electric transmission lines; hearing. Whenever a public utility plans to place, construct, erect, or otherwise build a new 46 kilovolt or greater high-voltage electric transmission system above the surface of the ground through any residential area, the public utilities commission shall conduct a public hearing prior to its issuance of approval thereof. Notice of the hearing shall be given in the manner provided in section 269-16 for notice of public hearings.

A public hearing pursuant to HRS § 269-27.5 is not required, as there are no existing homes in the Project area. The nearest existing homes are more than 3,600 feet away. (The closest townhomes are in Ko Olina Fairways and the closest homes are in the Honokai Hale and Makakilo areas.) The Project area is zoned AG-1, which is "Agricultural." In addition, the impact, visual and otherwise, to the existing nearby townhomes and homes should be minimal as there are existing 138 kV overhead transmission lines in the Project area. (Attached as Exhibit III are digital photographs of the Project area.) Further, in Docket No. 2016-0075 (Kahe-CEIP 1&2 138 kV Line Relocation), the Commission found that based on Hawaiian Electric's representations, the public hearing requirement, as set forth under HRS § 269-27.5, has not been triggered as the proposed transmission lines will not pass through any residential area. The section of 138 kV line proposed to be relocated in the subject Project is south of the project that

was the subject of Docket No. 2016-0075, and as such, no public hearing should be necessary. However, should the Commission determine that a public hearing is necessary pursuant to HRS § 269-27.5, Hawaiian Electric requests that the Commission schedule a public hearing.

V

COST ESTIMATE

The subject Project has a total estimated cost of \$3,007,232, excluding customer contributions. Commission approval pursuant to G.O. 7 Paragraph 2.3(g)(2), as modified by Decision and Order No. 21002, filed May 27, 2004, in Docket No. 03-257, is being requested since the estimated capital expenditure is in excess of \$2,500,000, excluding customer contributions.

VI

PROJECT DESCRIPTION

The proposed scope for this Project includes: (1) the installation of nine new 138 kV self-supporting steel poles; (2) the installation of a new section of OPGW and 138 kV overhead conductors; (3) the removal of six existing 138 kV steel poles; and (4) the removal of an existing section of OPGW and 138 kV overhead conductors between the existing AES and CEIP transmission substations.

This Project, at the request of KPD, involves the relocation of five spans of the AES-CEIP 2 138 kV overhead transmission line from existing steel pole P12 to existing steel pole P17, located between the AES and CEIP substations. The overhead electrical work will consist of installing nine new, self-supporting, steel poles to support the OPGW and 138 kV overhead conductors. The materials to be installed are nine, 120-foot tall, steel poles, approximately 4,555 linear feet of OPGW, and approximately 4,555 circuit feet of 1780 KCM ACSS/AW/TW

(aluminum conductor steel supported/alumoweld/trapezoidal) 138 kV overhead conductors. The removal process will involve the removal of six 138 kV steel poles, approximately 4,700 linear feet of OPGW, and approximately 4,700 circuit feet of 138 kV overhead conductors. (See Exhibit II for the existing and relocated 138 kV line.)

VII

PROJECT JUSTIFICATION

At the time that the AES-CEIP 2 138 kV overhead transmission line was required, KPD and Aina were not firm on their development plans. Therefore, in the easement negotiations with KPD and Aina, it was agreed that Hawaiian Electric would relocate the section of the 138 kV overhead line that would conflict with their firm development plans.

In accordance with Settlement Agreement No. A02094200 (“Agreement”) dated October 1, 2008,³ and Grant of Easement, dated December 4, 2009,⁴ by and among Hawaiian Electric, KPD, and Aina, for the original AES-CEIP 2 138 kV overhead transmission line installation,⁵ Hawaiian Electric agreed to relocate a portion (approximately 0.9 mile) of its 138 kV overhead transmission line between the AES and CEIP Substations from its current interim easement to its new permanent perpetual easement after KPD completed their mass grading of the area. KPD completed their mass grading and formally requested by letter, dated November 25, 2014,⁶ that Hawaiian Electric commence with the relocation of its 138 kV overhead line. Subsequent to KPD’s request letter, Hawaiian Electric commenced with preliminary engineering design, working closely with KPD, to identify the preferred permanent alignment for the 138 kV overhead line. The preferred permanent alignment will run adjacent and parallel (on the east side) to a new drainage channel. Hawaiian Electric and KPD have an executed proposal letter,

³ See Exhibit IV for Settlement Agreement No. A02094200 dated October 1, 2008.

⁴ See Exhibit V for Grant of Easement R/W 2008-002A dated December 4, 2009.

⁵ See Docket No. 2005-0145 AES-CEIP 2 138 kV Line Application filed June 17, 2005.

⁶ See Exhibit VI for KPD Request Letter dated November 25, 2014.

dated December 16, 2015,⁷ for this work. Hawaiian Electric will be responsible for 100% of the project cost. Subsequent to the proposal letter, KPD requested modifications to the 138 kV overhead alignment. The final alignment was agreed upon in June 2016.

Per the Agreement, this Project will relocate that section of the 138 kV overhead line that was constructed in an interim easement to its permanent perpetual easement. In anticipation of this relocation, Hawaiian Electric installed the minimum number of steel poles required in the interim easement by increasing the span lengths (approximately 700 feet) between steel poles. The relocated 138 kV line will be designed per the typical span lengths of 500 feet. Therefore, this Project will install nine new steel poles and remove six existing steel poles.

VIII

138 KV LINE

HRS § 269-27.6 provides that whenever a public utility applies for approval to build a new 46 kV or greater transmission line, “either above or below the surface of the ground,” the Commission shall determine whether the line shall be “built above or below the surface of the ground” As a result, Hawaiian Electric requests that the Commission determine that the proposed section of 138 kV transmission line be constructed above the surface of the ground, as described in Section VI of this Application.

Hawaiian Electric considered a number of factors, including the guidelines set forth in HRS § 269-27.6, in concluding that the relocated 138 kV line should be constructed overhead. The route of the proposed relocated AES-CEIP 2 138 kV line, which results from the relocation of existing steel poles P12 to P17, does not change the location of the line significantly. The relocated section of line will shift approximately 250 feet east in parallel from its current location. It decreases the circuit length by approximately 145 feet, and places the new poles

⁷ See Exhibit VII for Hawaiian Electric Proposal Letter dated December 16, 2015.

alongside a new drainage channel where it can be safely and cost-effectively installed and maintained. The relocated line will traverse through an area zoned Agricultural (AG-1).

Attached as Exhibit VIII is Hawaiian Electric's review of the factors stated in HRS § 269-27.6 in determining whether the relocated sections should be placed, constructed, erected, or built above or below the surface of the ground.

IX

SCHEDULE

The construction of Hawaiian Electric's facilities for the Project is expected to start in July 2018 and be completed by September 2018. Hawaiian Electric plans to order the long lead-time materials (e.g., steel poles) by January 2018 in order to start construction in July 2018.

X

NON-TRANSMISSION ALTERNATIVES

Attached as Exhibit A to Decision and Order No. 32052, filed April 28, 2014 in Docket No. 2012-0036 (Regarding Integrated Resource Planning) is the "*Commission's Inclinations on the Future of Hawaii's Electric Utilities*". Included in the exhibit is the following Commission guidance with regard to transmission planning and the future development of new transmission projects on Hawai'i's grids:

New transmission projects must consider non-transmission alternatives – New, replacement or upgrade high-voltage transmission projects generally represent significant, lumpy capital investments that will be given careful scrutiny. Non-transmission alternatives (NTAs) such as local peaking or back-up generators, energy storage, demand response and smart grid resources are technically and commercially available alternatives that must be evaluated as part of any economic justification for new transmission system projects.

The subject Project involves the relocation of five spans of the AES-CEIP 2 138 kV transmission line to facilitate the Kapolei Harborside development, i.e., approximately 4,700 circuit feet out of 2.2 miles. This Project does not involve the rebuilding of the existing 138 kV

line, nor the construction of a new 138 kV line. In this case, the non-transmission alternatives such as new generation, energy storage, demand response or smart grid resources are likely to be more costly than the proposed relocation of the short section of 138 kV line. However, the Company did not conduct or document explicit analyses, cost estimates or projected schedules in support of its evaluation of non-transmission alternatives.

Similar to Docket No. 2014-0149,⁸ involving the relocation of a small section of a much larger transmission line, the existing 138 kV line is necessary for the bulk delivery of power for the Hawaiian Electric system. In that instance, as in this case, the comparison of non-transmission alternatives such as energy storage, demand response or smart grid resources versus the proposed transmission line relocation was less a matter of cost, and more related to the fact that non-transmission alternatives are simply inappropriate for replacing the functionality of a segment of a large transmission line.⁹ The Company does not recommend removing this section of 138 kV line in lieu of the proposed relocation. Therefore, the Company requests that the evaluation of non-transmission alternatives required for transmission projects be waived in this instance.

XI

COST RECOVERY

Through the Rate Adjustment Mechanism (“RAM”), the Commission has provided a mechanism that compensates the Company for certain increases in expenses and plant addition between rate cases. In addition, Order 32735 established a cap on target revenues (“RAM Cap”) but allowed the Company to apply for approval to recover project costs through the RAM above

⁸ See Docket No. 2014-0149 (Halawa-Makalapa P11H and P12H Replacements), Application filed June 23, 2014 at 9-10; see also Company’s response to CA-IR-4, filed December 5, 2014 in Docket No. 2014-0149.

⁹ In Docket No. 2014-0149, the viable non-transmission alternative to relocating the transmission line segment was to remove the transmission line segment and install generating stations at each end of the missing segment. The displacement of the transmission line segment with two firm-power generating stations proved to be a substantially more costly option.

the RAM Cap, or outside the RAM, through the Renewable Energy Infrastructure Program (“REIP”) Surcharge or another adjustment mechanism. Upon approval of the Project, the Company requests Commission approval to recover the revenue requirements of the AES-CEIP 2 138 kV Overhead Transmission Line Relocation Project through the RAM above the RAM Cap, net of any amount that can be recovered under the 2018 RAM Cap, beginning the year that the assets go into service and therefore until the Commission approves the inclusion of these costs in a general rate case, as described in Exhibit IX.

Hawaiian Electric seeks recovery above the RAM Cap only to the extent that room under the cap is not sufficient to cover the plant additions for the Project. This amount will be determined after actual 2018 plant addition amounts have been recorded. However, due to the magnitude of these capital expenditures in relation to the Company’s estimated 2018 cap on plant additions, the Company expects that it will need to recover most or all of the revenue requirements associated with this Project above the annual RAM Cap during the period the assets are in service. Exhibit IX provides the support for this determination.

XII

CONCLUSION

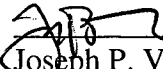
Wherefore, Hawaiian Electric respectfully requests that the Commission:

- 1) Approve the commitment of funds in excess of \$2,500,000 for the Project (currently estimated at \$3,007,232), in accordance with Paragraph 2.3(g)(2) of G.O. 7 (as amended by D&O 21002);
- 2) Determine that the proposed 138 kV transmission line relocation, as described in Section VI of this Application, be constructed above the surface of the ground, pursuant to HRS § 269-27.6; and

3) Grant Hawaiian Electric such other and further relief as may be just and equitable in the premises.

DATED: Honolulu, Hawai'i December 30, 2016.

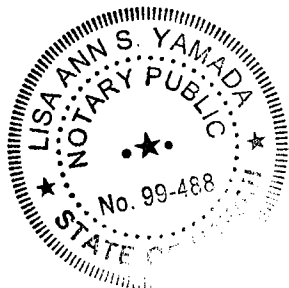
HAWAIIAN ELECTRIC COMPANY, INC.

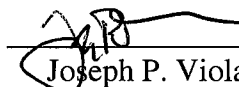
By  _____
Joseph P. Viola
Vice President
Regulatory Affairs

VERIFICATION


STATE OF HAWAII)
) ss.
CITY AND COUNTY OF HONOLULU)

JOSEPH P. VIOLA, being first duly sworn, deposes and says: That he is the Vice President – Regulatory Affairs of Hawaiian Electric Company, Inc. (“Hawaiian Electric”), Applicant in the above proceeding; that he makes this verification for and on behalf of Hawaiian Electric and is authorized so to do; that he has read the foregoing Application, and knows the contents thereof; and that the same are true of his own knowledge except as to matters stated on information or belief, and that as to those matters he believes them to be true.

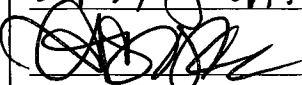


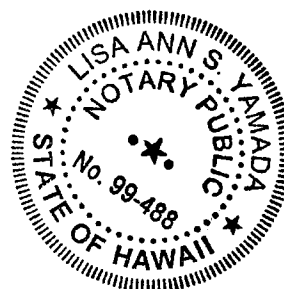

Joseph P. Viola

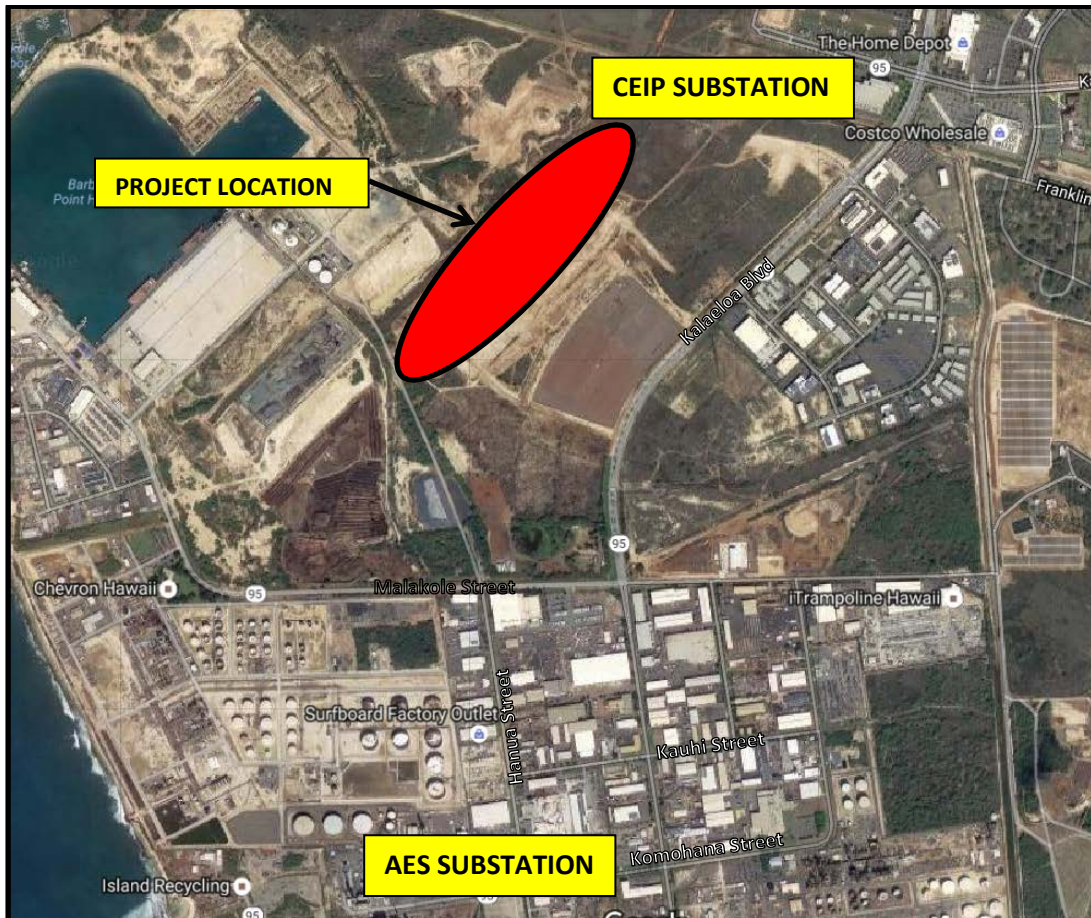
Subscribed and sworn to before
me this 30th of December, 2016

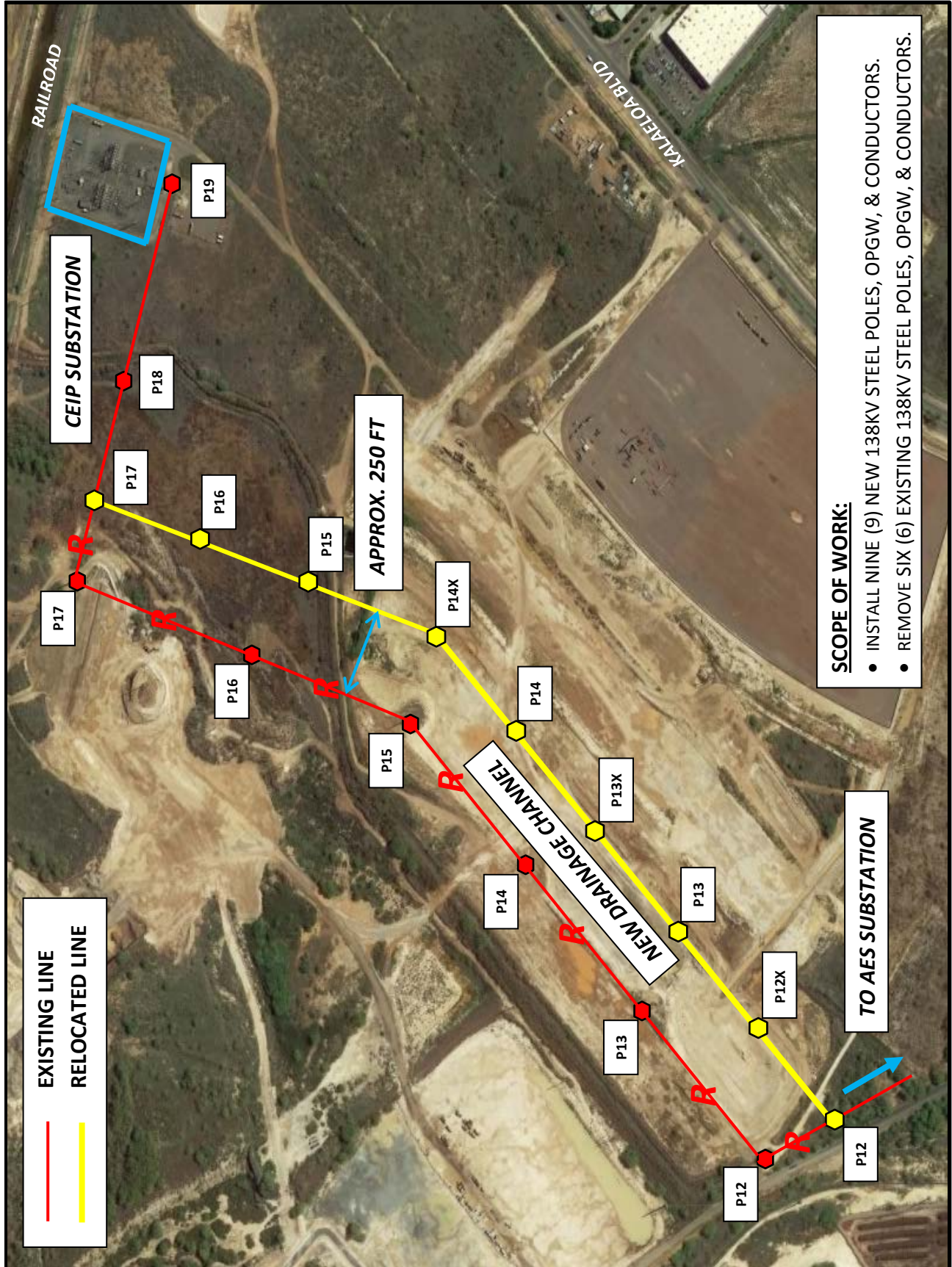

Lisa Ann S. Yamada
Notary Public, First Circuit,
State of Hawai'i

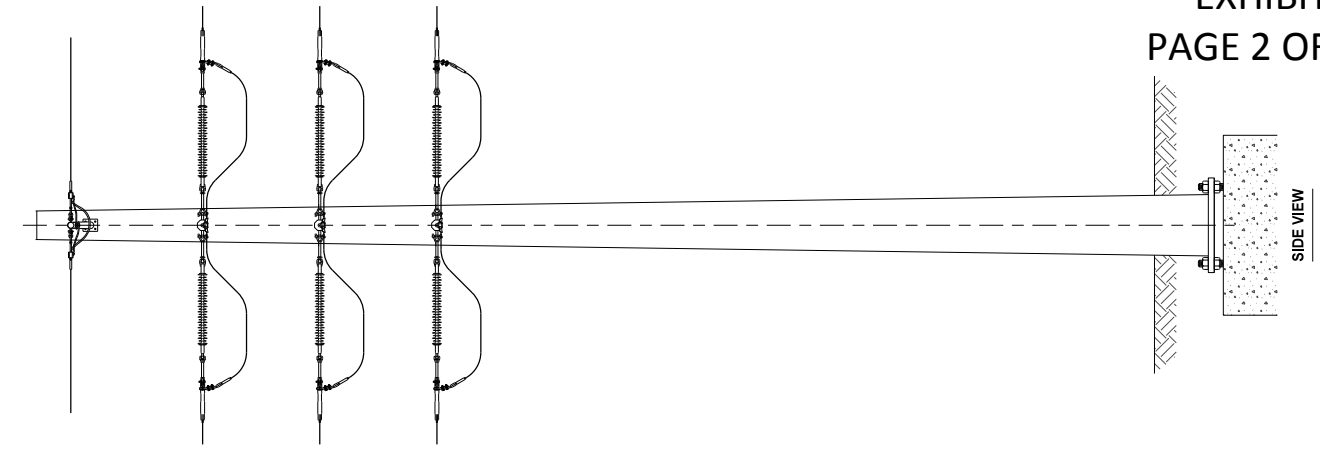
My Commission expires 10/10/2019

STATE OF HAWAII NOTARY CERTIFICATION	
Doc. Date: <u>12/30/16</u>	# of pages <u>119</u>
Notary Name: <u>Lisa Ann S. Yamada</u>	First Circuit
Doc. Description: <u>HECO Appl. Verif Exh I to IX of Cert. of Strc.</u>	
 Notary Signature	<u>12/30/16</u> Date

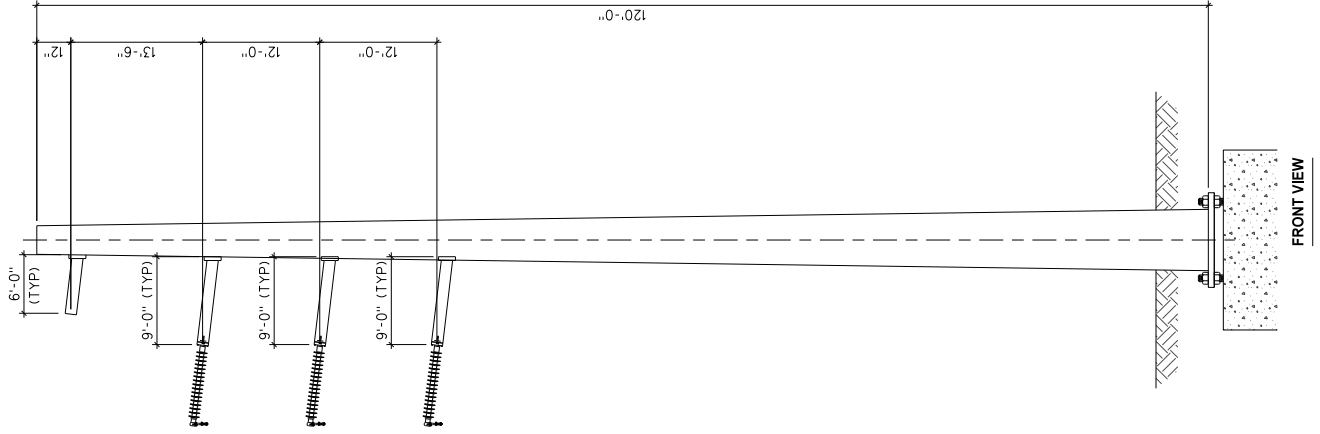




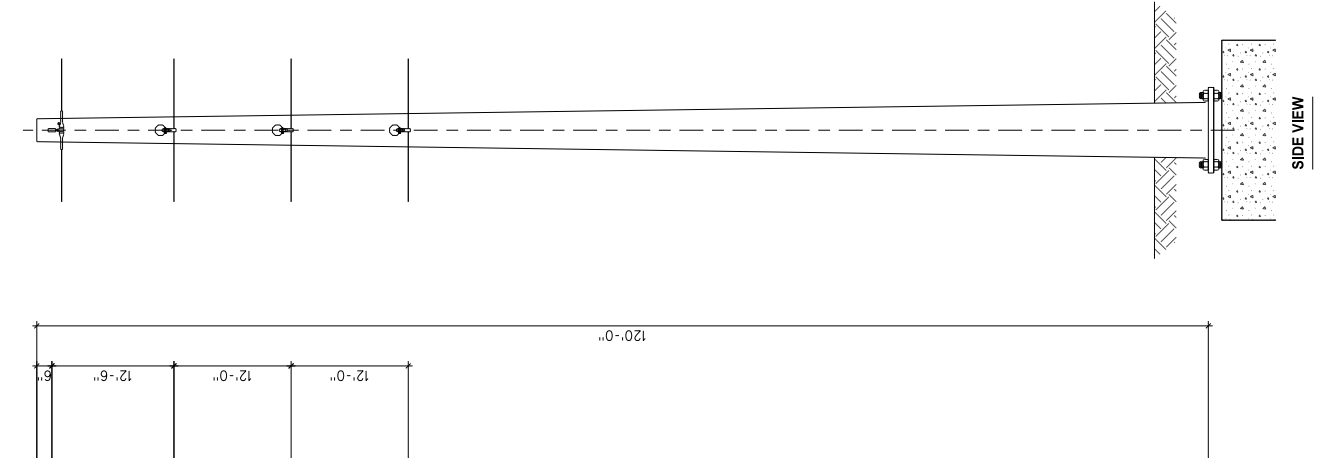




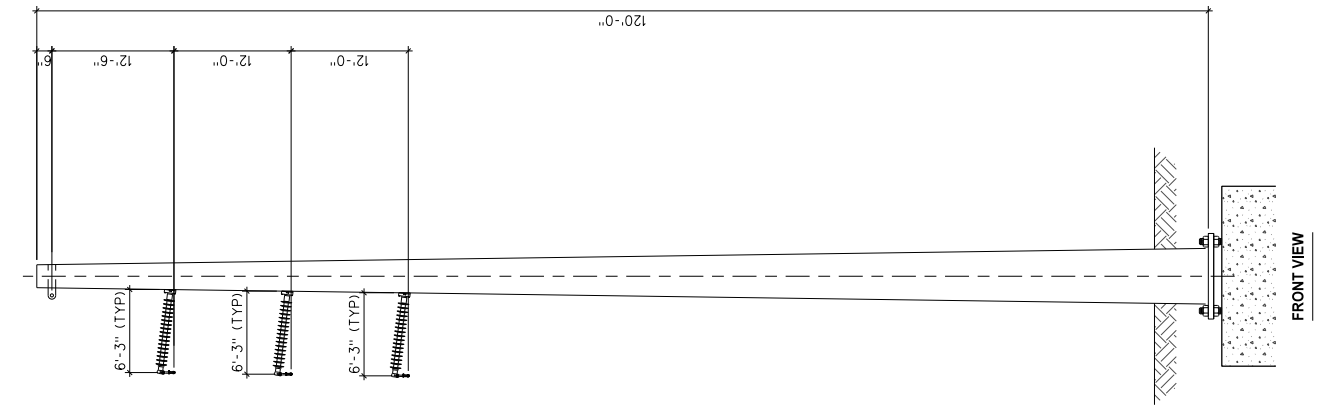
120' 138KV TANGENT STEEL POLE



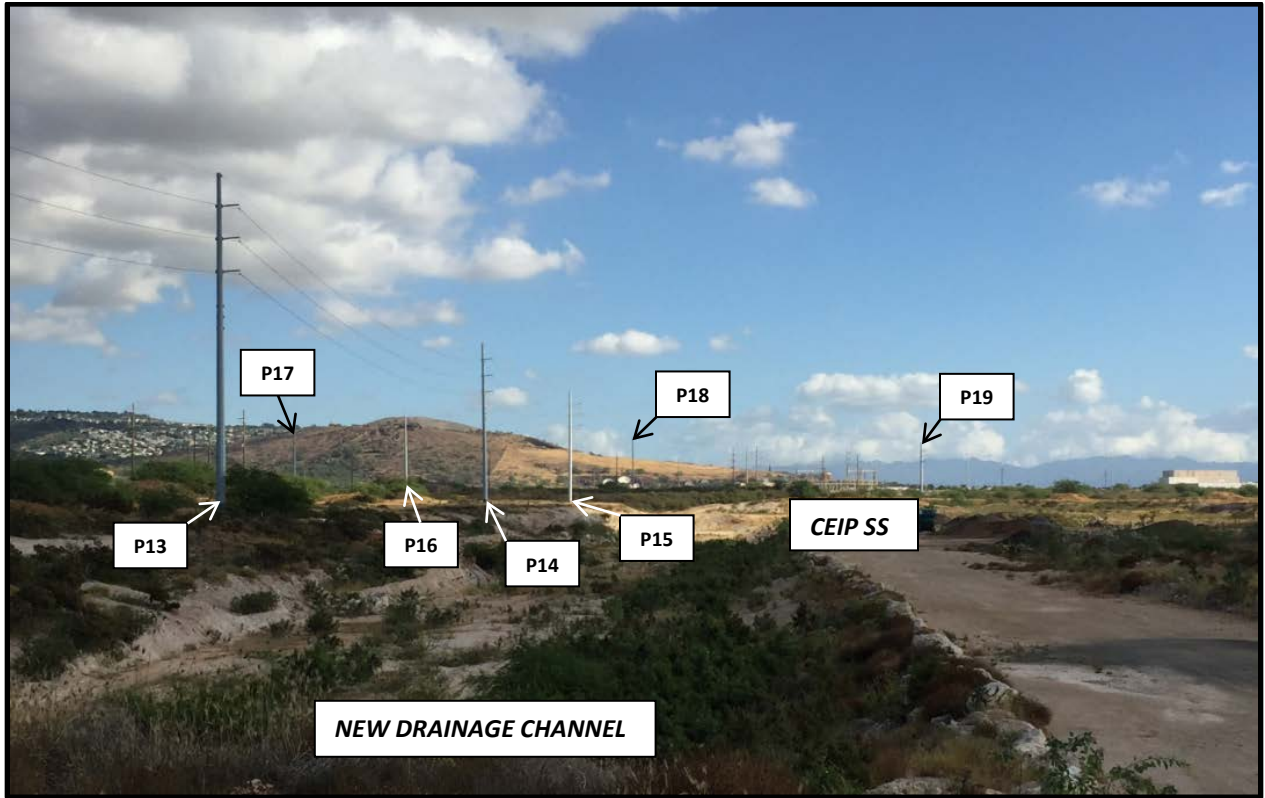
120' 138KV DEADEND STEEL POLE



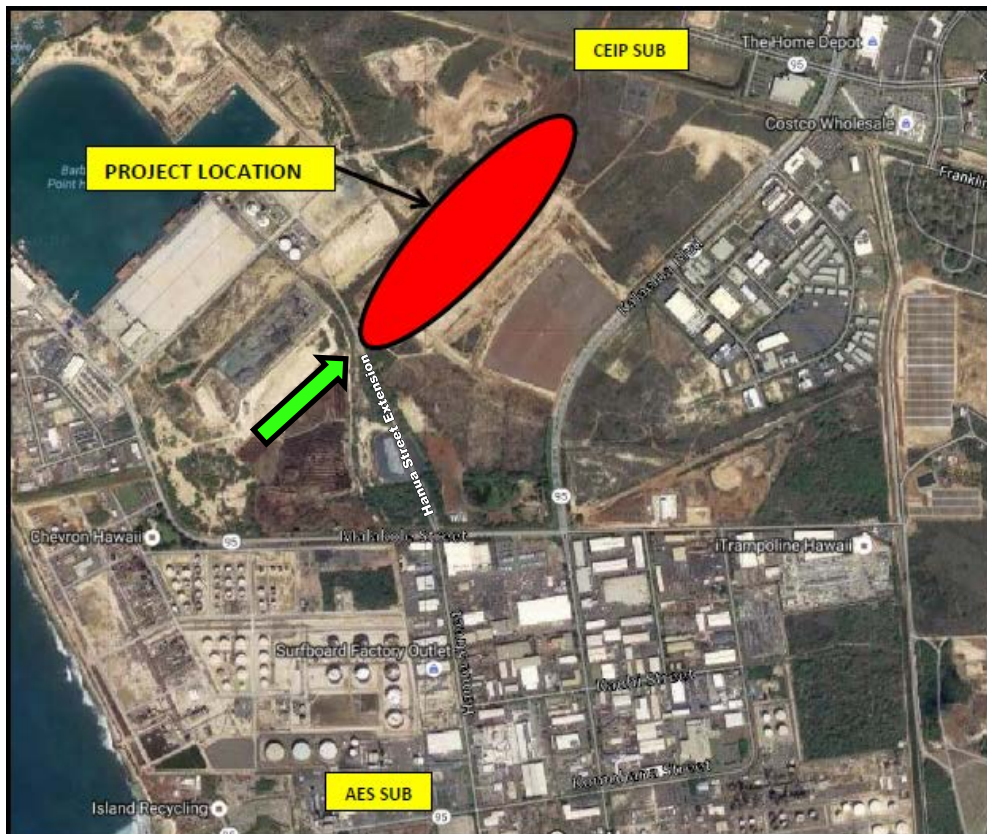
120' 138KV TANGENT STEEL POLE

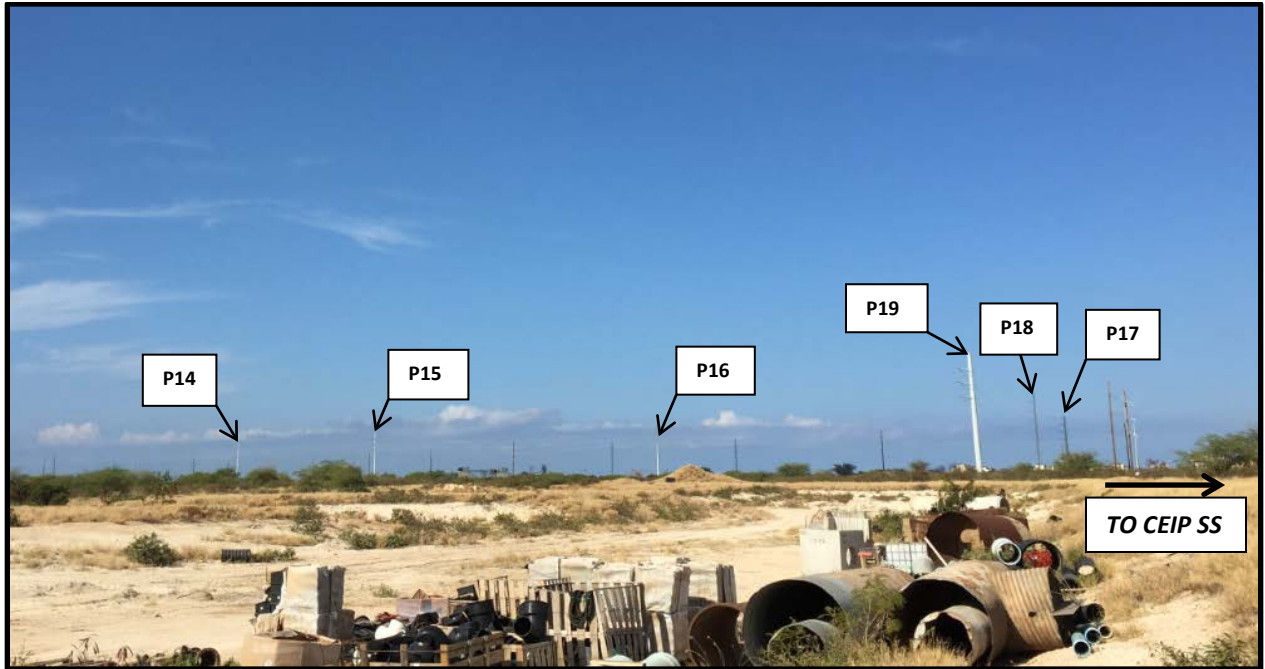


120' 138KV DEADEND STEEL POLE

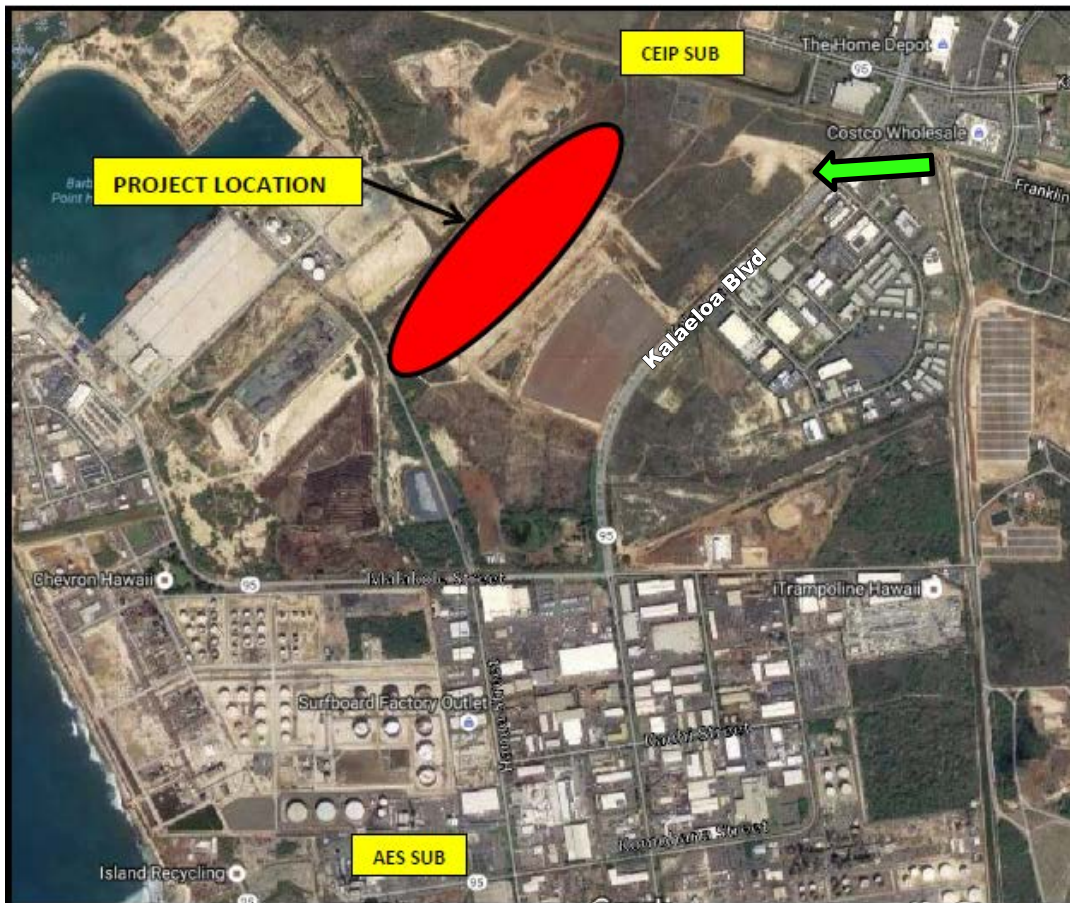


View from Hanua Street Extension.



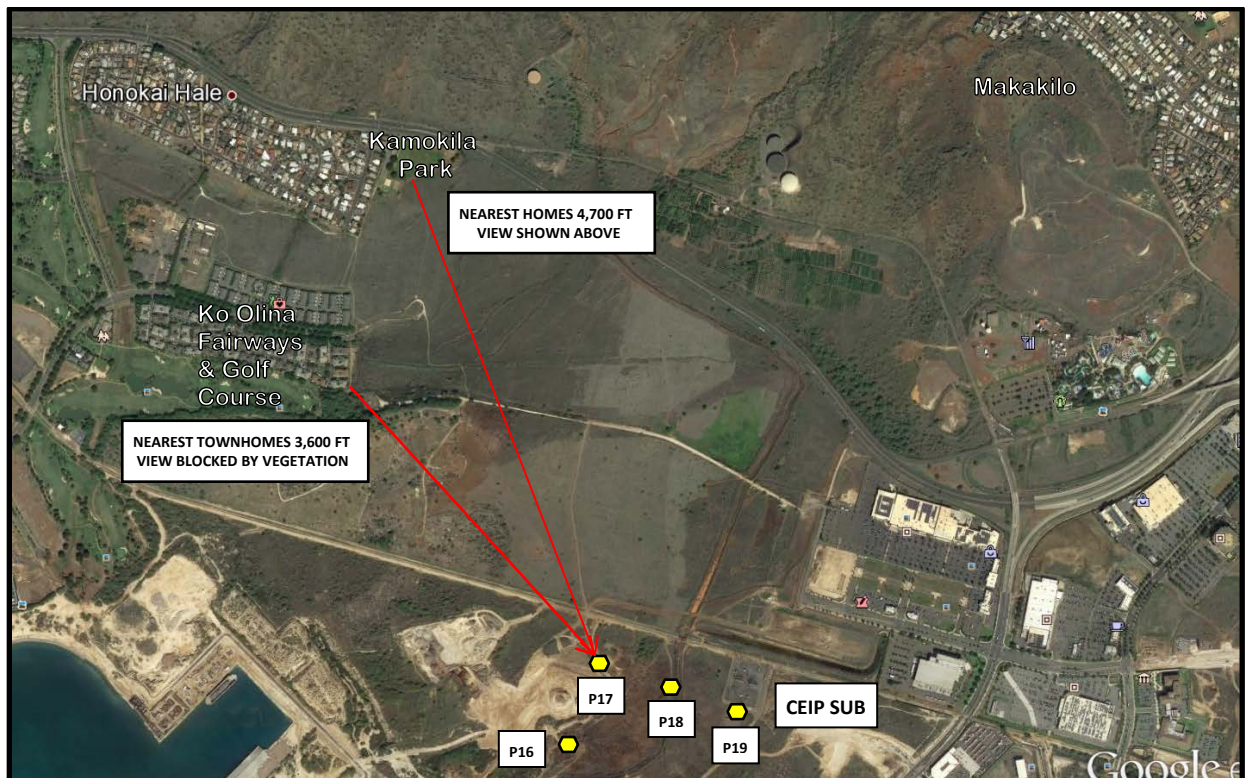


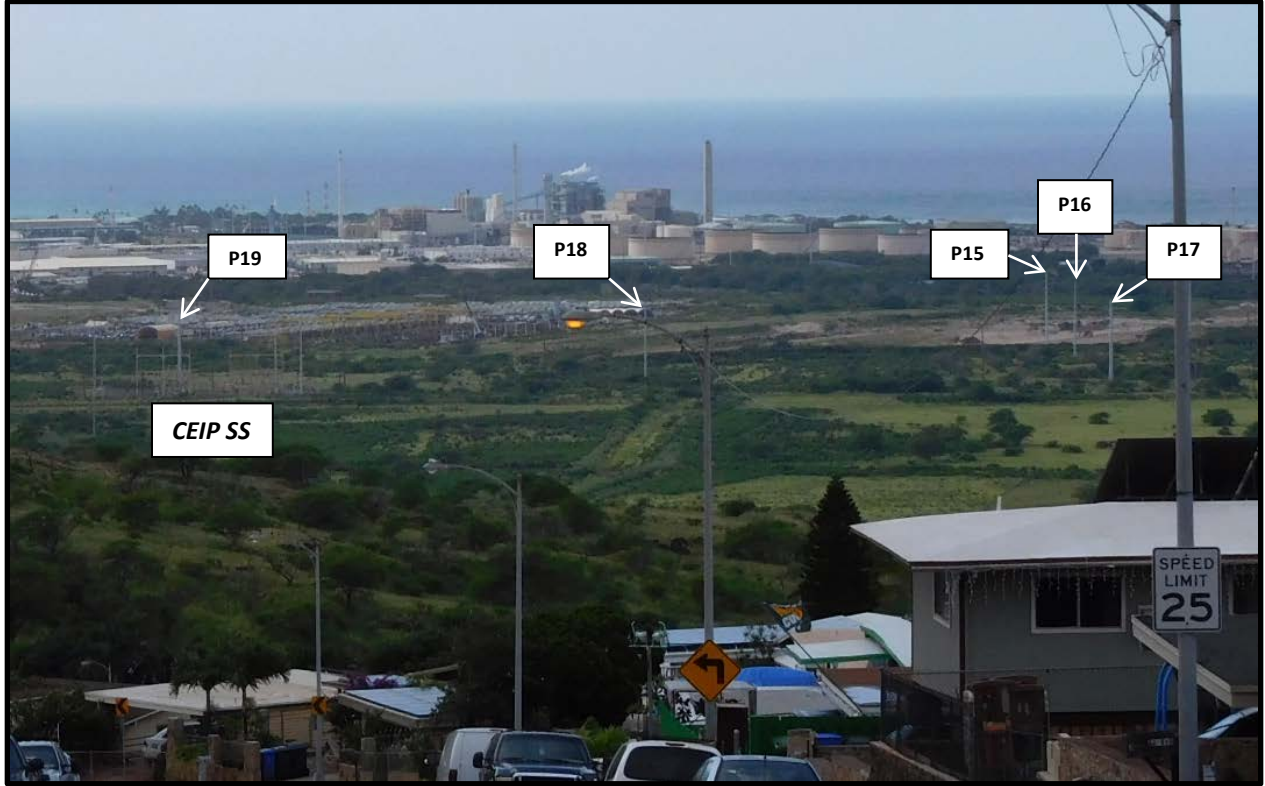
View from Kalaeloa Boulevard.





View from Honokai Hale/Kamokila Community Park to Project Site.



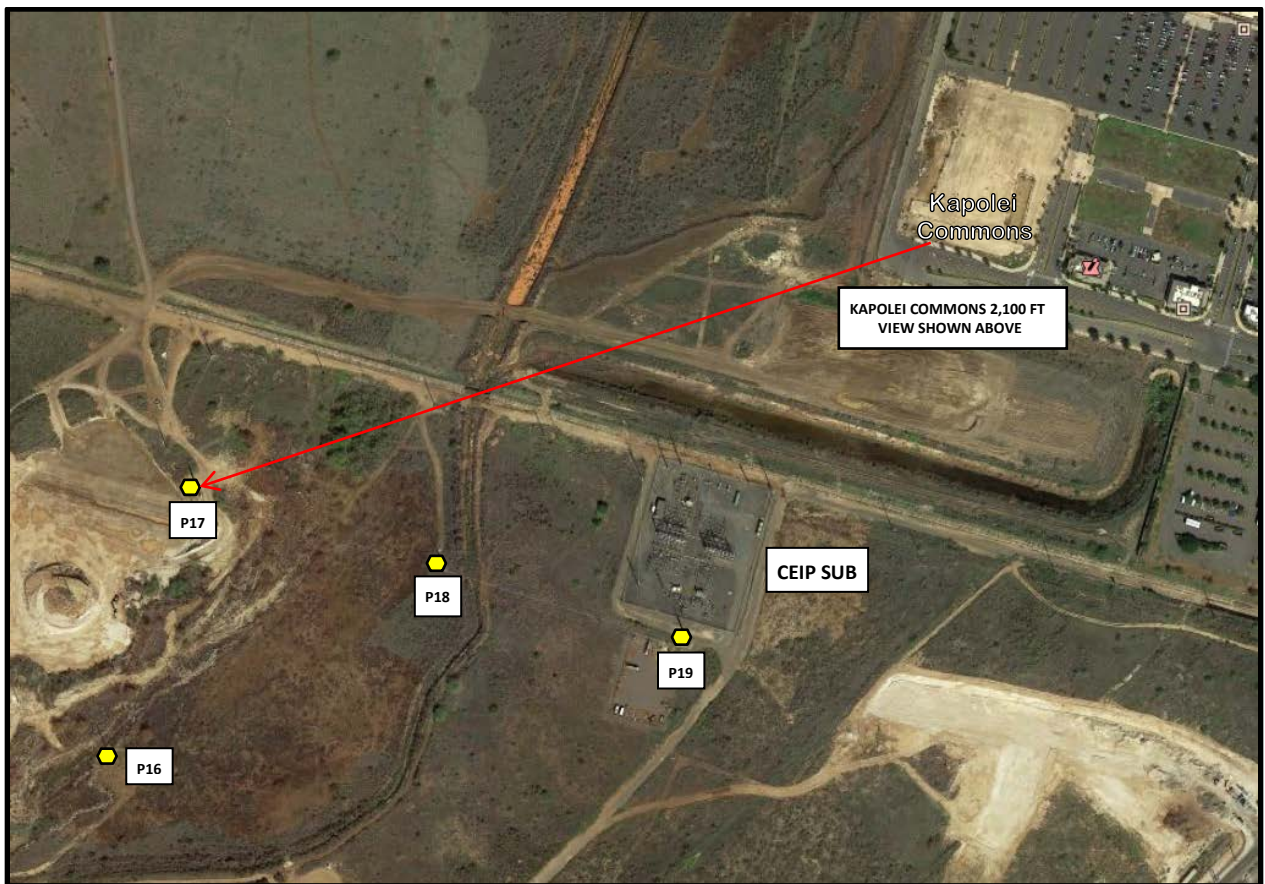


View from Makakilo to Project Site.





View from Kapolei Commons to Project Site.



Agreement No. A02094200

R/W 2008-002A

SETTLEMENT AGREEMENT

On this 1st day of October, 2008, HAWAIIAN ELECTRIC COMPANY, INC., a Hawaii corporation (“HECO”), KAPOLEI PROPERTY DEVELOPMENT LLC, a Hawaii limited liability company (“KPD”), and AINA NUI CORPORATION, a Hawaii corporation (“Aina”), in consideration of the mutual covenants and benefits provided below, agree as follows:

1. **BACKGROUND**

HECO wishes to obtain from KPD and Aina a certain perpetual, non-exclusive easement to install, construct, operate and maintain HECO’s AES-CIP #2 138kV transmission line (the “Transmission Line”) over property currently owned jointly by KPD and Aina in Kapolei, Ewa, Oahu, Hawaii, as shown on Exhibit “B” attached hereto.

Beginning in 2004, HECO, KPD, and Aina have been negotiating the alignment and configuration of the Transmission Line and the compensation and terms and conditions of the requested easement. By letter dated February 7, 2008, HECO provided notice to KPD that HECO would acquire the subject easement by condemnation unless the parties could settle the matter through negotiation. Through negotiations, HECO, KPD, and Aina have reached an agreement on the alignment and configuration of the Transmission Line and the compensation and terms and conditions of the grant document for the easement.

HECO, KPD, and Aina now wish to settle completely all matters between them arising out of or in any way related to the acquisition of this easement under threat of condemnation.

2. **SETTLEMENT PAYMENT; ESCROW ACCOUNT**

Upon execution of this Settlement Agreement and related Escrow Agreement, HECO shall immediately pay into an escrow account established with Title Guaranty Escrow Services, Inc. (“Escrow”) the sum of FOUR MILLION TWO HUNDRED FIVE THOUSAND AND

NO/100 DOLLARS (\$4,205,000.00), as full and complete compensation (the “**Compensation**”) for acquisition of the permanent easement areas shown on **Exhibit “B”** attached hereto. The easement areas shown as Part A, Part B, and Part C on **Exhibit “B”** are referred to as the “**Permanent Easement Areas.**” The Compensation shall be deposited in an interest-bearing account, and it is the intention of the parties that it shall be disbursed, as instructed by the parties in said Escrow Agreement, to provide funds to be contributed for the cost of undergrounding all or portions of the Transmission Line or other overhead power lines in the Kapolei area selected by KPD, or by Aina, for such undergrounding. Any undergrounding under this Settlement Agreement will take place only upon the obtaining of Public Utilities Commission (“**PUC**”) approval of such work and HECO’s expenditure of funds for the same. If the PUC does not approve of such undergrounding and/or expenditure of funds, or at the request of KPD and Aina jointly, the Compensation, plus interest, will be disbursed in accordance with the terms and conditions of the Escrow Agreement.

3. ENTRY PERMIT

Upon the payment of the Compensation into Escrow, KPD and Aina will issue to HECO an entry permit, substantially in the form attached hereto as **Exhibit “D”** allowing for the construction, installation, maintenance and operation of the Transmission Line across Parts A and C of the Permanent Easement Areas shown on **Exhibit “B”** and the Interim Easement Area shown on **Exhibit “A”**. Said Entry Permit will remain in full force and effect until the granting of the Grant of Easement to HECO.

4. INTERIM LOCATION OF TRANSMISSION LINE DUE TO PLANNED MASS GRADING

The parties acknowledge that KPD and others plan to engage in mass grading of the lands over which the Transmission Line will cross as part of the construction of the regional drainage channel through the Kapolei Harborside project as well as preparation of the Kapolei Harborside project for development. This mass grading will entail extensive cutting and filling that may

impact the Transmission Line once constructed. HECO also acknowledges that the grading data provided to it by KPD, which will be a factor in the design of the Transmission Line, is predicated upon City and County of Honolulu and other governmental authorities approving KPD's drainage plan for the Kapolei Harborside area and other lands in Kapolei. If the City and County or such other governmental authorities do not approve KPD's drainage plan, an alternative drainage scheme will have to be implemented that may significantly impact the planned grade of the area. KPD does not warrant the reliability or suitability for HECO's purposes of the grading data heretofore provided, and HECO hereby assumes all risks incident to its use.

HECO has indicated to KPD that HECO desires to have the Transmission Line constructed and in service prior to KPD's and others' planned mass grading of the Kapolei Harborside area, and therefore, if Part B of the Transmission Line were constructed in the location shown on **Exhibit "B"**, such mass grading most likely will result in significant additional costs on the part of HECO to shore up, redesign, or both, the Transmission Line, and therefore HECO has determined that it is best to install Part B of the Transmission Line in an interim location shown on **Exhibit "A"** attached hereto (the "**Interim Easement Area**"). Upon approval of the City and County of Honolulu and other applicable governmental authorities to KPD's and others' planned mass grading, and after KPD and others have completed their respective mass grading, KPD shall notify HECO in writing that such mass grading has been completed. Thereafter, HECO agrees, at HECO's own expense, to relocate the affected portions of the Transmission Line from the Interim Easement Area to Part B of the Permanent Easement Areas.

5. GRANT OF EASEMENT

Upon preparation of the final maps for Part A and Part C of the Permanent Easement Areas shown on **Exhibit "B"**, and the Interim Easement Area shown on **Exhibit "A"**, KPD and

Aina will convey or will cause the then landowner of the land through which the applicable easement areas cross to grant to HECO a grant of easement substantially in the form attached hereto as **Exhibit "C"** (the "**Grant of Easement**"), subject to KPD's and Aina's respective approval of such final easement maps, which approval shall not be unreasonably withheld or delayed. KPD and Aina shall each have the right to request that HECO have all or any portion or portions of the Permanent Easement Areas designated as Land Court Easements, in their respective reasonable discretion, provided that the cost of obtaining subdivision approvals from the Department of Planning and Permitting of the City and County of Honolulu, and obtaining Land Court Order(s) designating such easements in the Land Court shall be borne by the party requesting the Land Court Easement designation(s). KPD and Aina shall not sell, transfer or assign their respective interests in any of the properties identified in **Exhibit "A"** or **Exhibit "B"** prior to the acquisition of the Grant of Easement encumbering said property unless each expressly reserves the right to grant to HECO the easement contemplated under this Settlement Agreement. HECO acknowledges that no such reservation is required if any such transfer is between KPD and Aina.

Upon HECO's relocation of the portion of the Transmission Line from the Interim Easement Area to Part B of the Permanent Easement Areas, the Grant of Easement will be amended to reflect such relocation. If PUC approval of the undergrounding of KPD's selected overhead power lines is obtained, and if a portion of the Transmission Line is included in the undergrounding work, the Grant of Easement will be amended to reflect the alignment and easement width of the underground portion. Each of the foregoing actions is referred to as an "**Easement Amendment**". KPD's and Aina's respective obligation above regarding the sale, transfer or assignment of its interests in any of the properties encumbered by the Grant of Easement shall equally apply to any properties potentially affected by either of the Easement Amendments.

HECO acknowledges that if, due to City and County of Honolulu, or other governmental authority(ies) actions, during the planning and construction of the regional drainage channel through the Kapolei Harborside project, the location of all or a portion of the Permanent Easement Areas need to be modified, that the same will be modified, and the location of HECO's overhead powerline and associated improvements will be moved into such modified Permanent Easement Areas, at HECO's own cost. In addition, KPD, Aina, or any successor landowner(s) shall have the right to relocate the Transmission Line or any portion or portions of the Transmission Line, at such landowner's own cost. The foregoing relocation provisions are incorporated into the form of Grant of Easement attached as **Exhibit "C"**.

6. EASEMENT E00787600 (HECO R/W 89-45)

The parties acknowledge that the Kapolei Harborside area is encumbered by that certain Grant of Easement (undated), in favor of Hawaiian Electric Company, Inc., filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii as Document No. 1833214, known by KPD and Aina as Easement No. E00787600, and by HECO as R/W 89-45 (the "**R/W 89-45**"). Under R/W 89-45, the landowner has the right to request that HECO relocate the easement areas under such grant of easement in accordance with its terms. Given the fact that the Grant of Easement is planned to run along the eastern side of the planned drainage channel through the Kapolei Harborside project and along the southern boundary of the planned Kapolei West golf course to HECO's CIP Substation located on Lot 172-A-2 (Map 275 of Land Court Application No. 1069), the parties agree that it is in their respective best interests to have R/W 89-45 relocated to a mutually satisfactory location to run along the western side of the planned drainage channel and thereafter over to HECO's CIP Substation, and the parties agree to work cooperatively towards this goal.

7. COSTS

HECO, KPD, and Aina shall each bear their respective attorneys' fees and costs for entering into this Settlement Agreement, the Escrow Agreement, the Grant of Easement, and any Easement Amendment. Except as provided in paragraph 5 (Grant of Easement) regarding designation of Land Court easements, HECO shall be responsible for paying all costs associated with acquiring and surveying the easements and recording the Grant of Easement and any Easement Amendment in the Office of the Assistant Registrar of the Land Court of the State of Hawaii and/or in the Bureau of Conveyances of the State of Hawaii, each as applicable.

8. BENEFIT; LIABILITY

The terms, covenants and conditions of this Settlement Agreement shall extend only to the benefit of and be binding upon HECO, KPD, and Aina, and their respective successors, transferees and permitted assigns. No one not a party hereto shall be entitled to assert the possession of any rights or obligations as a consequence of this Settlement Agreement.

9. ENFORCEMENT COSTS

The non-defaulting party shall be entitled to recover all attorneys' fees and costs that may be reasonably incurred in enforcing its rights under this Settlement Agreement.

10. ENTIRE AGREEMENT

This Settlement Agreement and the related Escrow Agreement constitute the entire agreement between the parties regarding the subject easements, and there are no other agreements, understandings or undertakings in addition to those expressly provided herein upon which any party has executed this Settlement Agreement. No Amendment of this Settlement Agreement will be valid unless approved by the parties in writing.

11. GOVERNING LAW

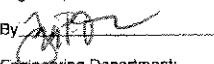
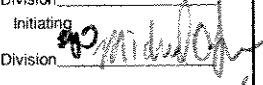

All matters at issue and all questions concerning the interpretation of this Settlement Agreement shall be decided and construed in accordance with Hawaii law.

12. FURTHER EFFORTS


Each party hereto agrees to perform any further acts and to execute and deliver any further documents which may be reasonably necessary to carry out the provisions of this Settlement Agreement.


[Signatures begin on the following pages]

IN WITNESS WHEREOF, the undersigned has executed this Settlement Agreement on
the day and year first above written.

APPROVED	
Legal Form:	
HAWAIIAN ELECTRIC CO., INC.	
Legal Department	
By: 	
Engineering Department:	
Survey	
Division	
Initiating	
Division: 	
Land & Rights of Way	
By: 	

HAWAIIAN ELECTRIC COMPANY, INC.,
a Hawaii corporation

By 
Name: Tayne S. Y. Sekimura
Title: Senior Vice President,
Finance & Administration

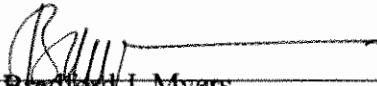
By 
Name: Robert A. Alm
Title: Executive Vice President


“HECO”

IN WITNESS WHEREOF, the undersigned has executed this Settlement Agreement on
the day and year first above written.

KAPOLEI PROPERTY DEVELOPMENT LLC, a
Hawaii limited liability company

By Aina Nui Corporation, a Hawaii corporation, its
member manager


By 
Name: **Bradford J. Myers**
Title: **President**

By 
Name: **D. Charles Hill**
Title: **Vice President**

“KPD”

IN WITNESS WHEREOF, the undersigned has executed this Settlement Agreement on
the day and year first above written.

AINA NUI CORPORATION, a Hawaii corporation

By 
Name: **Bradford J. Myers**
Title: **President**

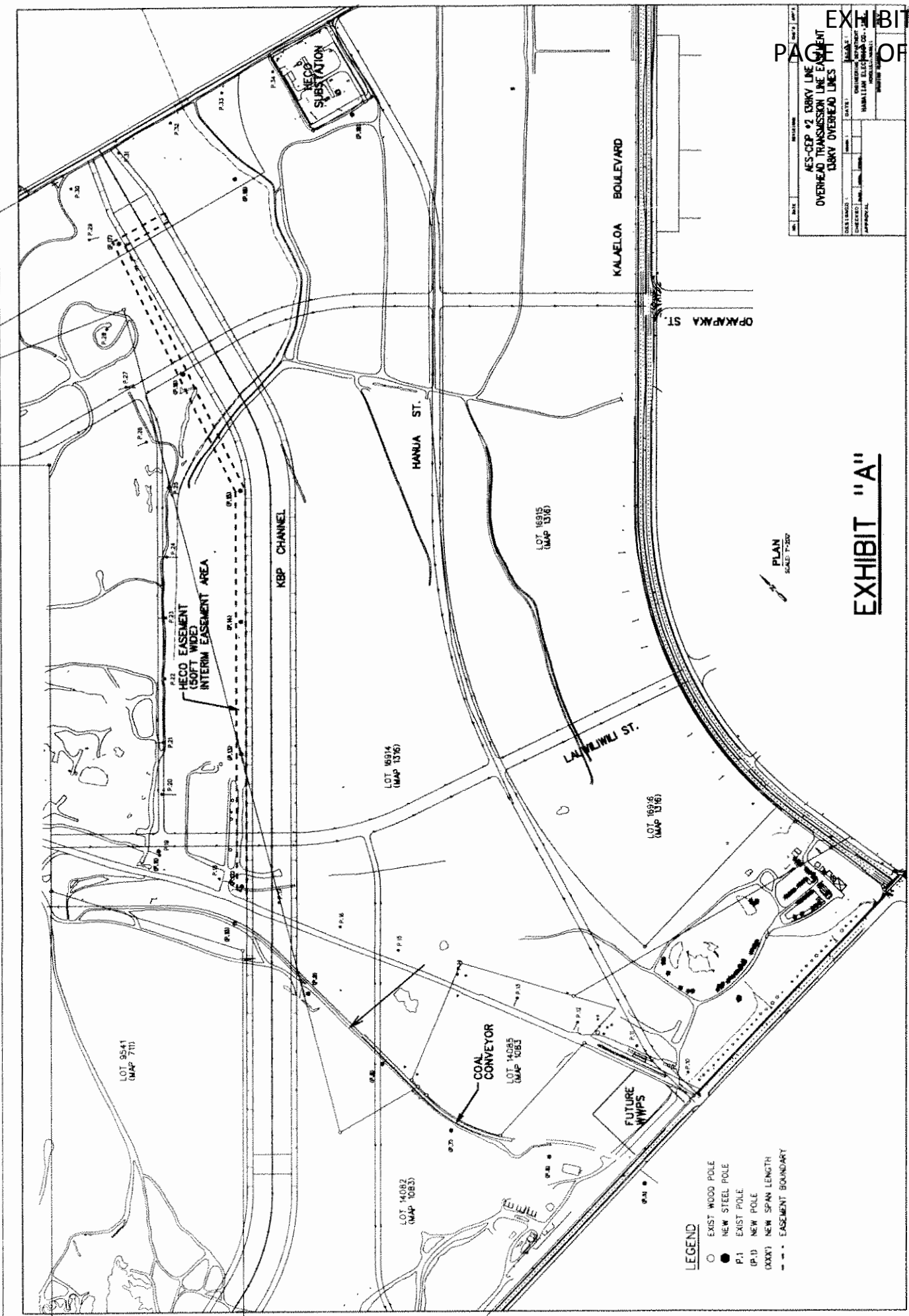
By 
Name: **D. Charles Hill**
Title: **Vice President**

“Aina”

PROJECT INFORMATION	
NO.	DATE
AES-DEP '2' TARRY LINE EAST END OVERHEAD TRANSMISSION LINE EAST TARRY OVERHEAD LINES	
DESIGNED BY	DRAWN BY
CHECKED BY	DATE
APPROVED BY	
DESIGNER'S NAME HAWAIIAN ELECTRIC CO., LTD. 1200 KALANOA BOULEVARD HONOLULU, HAWAII	

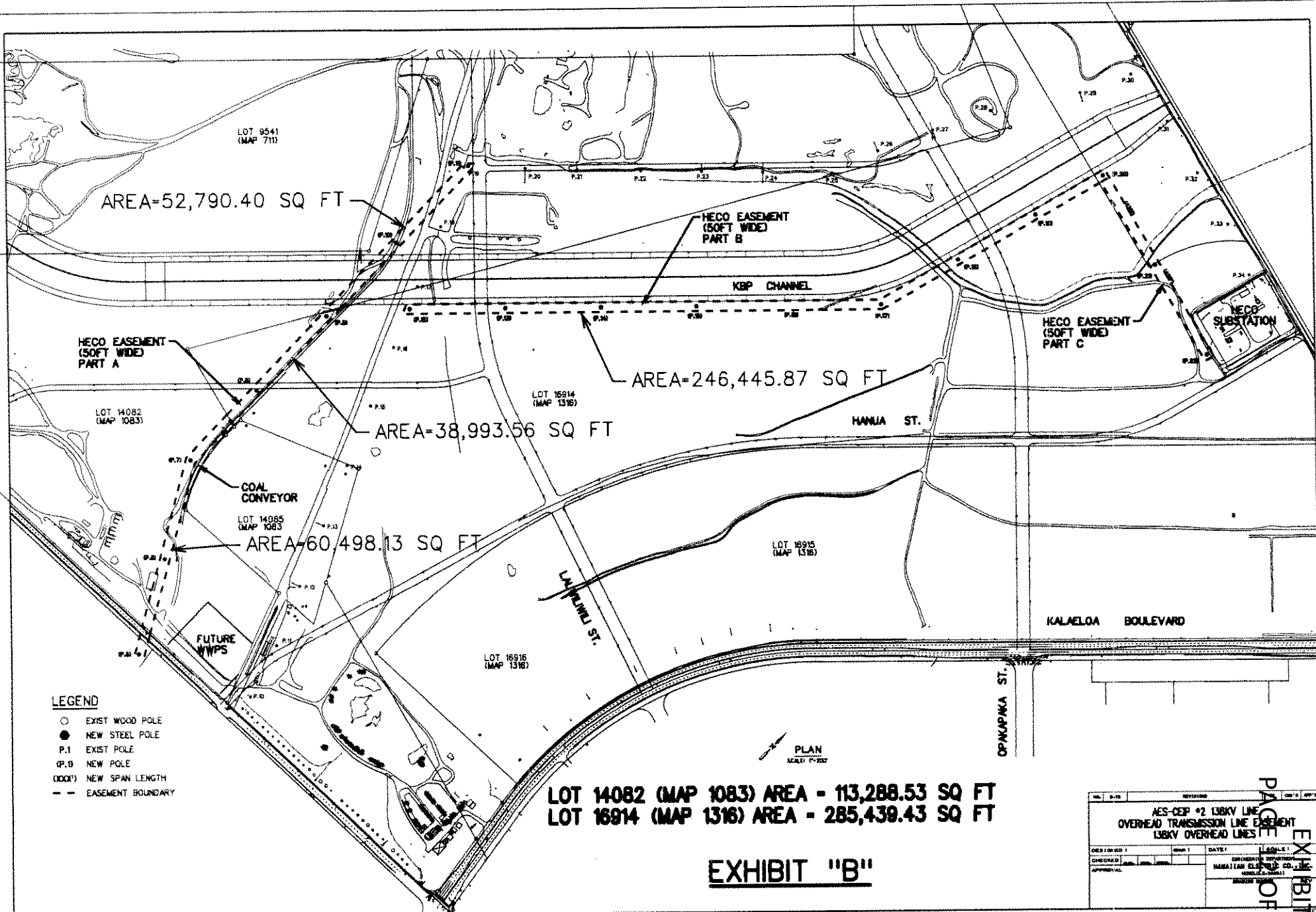
EXHIBIT "A"

PLAN
SCALE 1"=50'



- LEGEND**
- EXIST WOOD POLE
 - NEW STEEL POLE
 - P.1 EXIST POLE
 - P.1.1 NEW POLE
 - (XXX) NEW SPAN LENGTH
 - - - EASEMENT BOUNDARY

B4-AUG-2008 10:32 SHJ c:\Users\Victor\My Documents\AUGUS DEP 2\Drainage Channel\Exhibit A.dgn



LEGEND

- EXIST WOOD POLE
- NEW STEEL POLE
- P.1 EXIST POLE
- P.0 NEW POLE
- (XXX') NEW SPAN LENGTH
- - EASEMENT BOUNDARY

LOT 14082 (MAP 1083) AREA - 113,288.53 SQ FT
LOT 16914 (MAP 1316) AREA - 285,439.43 SQ FT

EXHIBIT "B"

NO. 0-10		REVISED	DATE	BY
AES-CEIP #2 138KV LINE OVERHEAD TRANSMISSION LINE EASEMENT 138KV OVERHEAD LINES				
DESIGNED BY	DATE	CHECKED BY	DATE	SCALE
APPROVED BY		EMPLOYER DEPARTMENT		
		INMATEAN ELECTRIC CO., INC.		

LAND COURT SYSTEM

REGULAR SYSTEM

After Recordation, Return By: Mail Pickup

Hawaiian Electric Company, Inc.
Survey Division
P. O. Box 2750
Honolulu, HI 96840-0001

This document contains ___ page(s)

EE_____/JP# _____

TITLE OF DOCUMENT:

R/W 2008-002A

GRANT OF EASEMENT

PARTIES TO DOCUMENT:

GRANTOR(S): **KAPOLEI PROPERTY DEVELOPMENT LLC**, a Hawaii limited liability company

GRANTEE(S): **HAWAIIAN ELECTRIC COMPANY, INC.**, a Hawaii corporation, 900 Richards Street, Honolulu, Hawaii 96813

Description: Those certain premises situate off Kalaeloa Boulevard, at Honouliuli, Ewa, Oahu, Hawaii, being Lot 14082, as shown on Map 1083, and Lot 16914, as shown on Map 1316, of Land Court Application 1069, noted on Certificate of Title Nos. _____ and _____

TMK(s): (1) 9-1-014:033 and 9-1-015:020 pors.

GRANT OF EASEMENT

THIS GRANT OF EASEMENT, made this ____ day of _____, 20____, by and among **KAPOLEI PROPERTY DEVELOPMENT LLC**, a Hawaii limited liability company (the "Grantor"), and **HAWAIIAN ELECTRIC COMPANY, INC.**, a Hawaii corporation, whose principal place of business is 900 Richards Street, Honolulu, Hawaii and whose post office address is P. O. Box 2750, Honolulu, Hawaii 96840 (the "Grantee"),

WITNESSETH:

The Grantor, in consideration of the sum of Ten Dollars (\$10.00) paid to the Grantor, the receipt of which is acknowledged, and of the covenants herein made by the Grantee, grants and conveys unto the Grantee a perpetual right and easement to construct, reconstruct, operate, maintain, access, repair and remove poles, guys, anchors, overhead and/or underground wire lines and such other appliances and equipment as may be necessary for the transmission and distribution of electricity, including all service lines emanating from the main trunk line, to be used for light and power and/or communications and control circuits, including, without limiting the generality of the foregoing, the right (but not the obligation) to trim, keep trimmed, remove, and/or control any trees and vegetation in the way of its lines, appliances and equipment and a right of entry upon the Grantor's land and appurtenant interests, if any, for the aforesaid purposes, over, under, upon, across and through those certain premises situate off Kalaeloa Boulevard, at Honouliuli, Ewa, Oahu, Hawaii, being Lot 14082, as shown on Map 1083, and Lot 16914, as shown on Map 1316, of Land Court Application 1069, noted on Certificate of Title Nos. _____ and _____; said easements having a width of fifty (50) feet and containing a total area of _____ square feet, as shown on **R/W Map 2008-002A** attached hereto and made a part hereof.

RESERVING, HOWEVER, unto the Grantor, its tenants and licensees, the right to use for all purposes any portions of the granted premises not occupied by the appliances and equipment of the Grantee, including rights of way over, under and across the granted premises, provided, however, that such reserved rights shall be used in a manner that will not unreasonably interfere with the Grantee's lines, appurtenances and clearances, and provided further that except for Grantor's proposed drainage improvements as shown generally on **Exhibit "A" and Exhibit "B"** attached hereto that will not require Grantee's consent, no improvements shall be constructed within the granted premises without the consent of the Grantee, which consent shall not be unreasonably withheld, conditioned, or delayed.

TO HAVE AND TO HOLD the same unto the Grantee, its successors and assigns, forever; provided, however, that should any portion or portions of the granted premises be abandoned by the Grantee or remain unused for a period of one (1) year after installation, then all rights hereby granted shall thereupon cease and terminate as to the portion or portions so abandoned or unused; and further provided said easement will automatically terminate as to any portion of the granted premises upon dedication and conveyance of such portion of the granted premises to, and acceptance by, any governmental authority for use as a public road.

AND the Grantee, in consideration of the foregoing grant, does hereby covenant and agree with the Grantor that:

1. **Due Care and Diligence.** The Grantee will use due care and diligence in the construction and operation of its lines and appurtenances, in keeping and maintaining the same in good and safe condition and repair and in the exercise of its rights hereunder, and will at all times exercise its rights hereunder in a manner that will occasion the least possible interference with or interruption of the use of the premises by the Grantor and its tenants or any other occupants.

2. **Taxes.** The Grantee will pay when and as due all taxes and assessments levied and assessed against the lines and appurtenances or the easement hereby granted, whether assessed to or payable by the Grantor or Grantee, but this covenant shall not require the payment of taxes or assessments levied against any land subject to this easement.

3. **Placement of Lines.** The Grantee will place and maintain the wires of its lines so that the clearance of the wires, conduits and appurtenances will be in accordance with the rules established and/or approved by the Public Utilities Commission of the State of Hawaii.

4. **Indemnity.** The Grantee will indemnify and hold harmless the Grantor, its tenants and all persons occupying the premises, either under lease from or by permission of the Grantor, from any and all claims and demands against them or any of them for injury to or death of persons or damage to property, including the claims of their respective agents and employees, arising out of the use or occupation of the granted premises and the construction, maintenance, operation or removal of the lines and appurtenances not caused by the negligence of the party to be indemnified or their agents or employees acting within the course and scope of their employment, and from and against all damages, costs, counsel fees, expenses and liabilities incurred in or resulting from any such claim or demand or any action or proceeding brought thereon.

5. **No Other Users.** The granted premises may be used by Grantee under this grant of easement for the purposes set forth above, and, except as required by law, Grantee shall not, without the prior written consent of Grantor, permit others to use Grantee's facilities within the granted premises for any purpose whatsoever.

6. **Assignment.** The Grantee will not without the prior written consent of the Grantor assign or mortgage this grant or sublet or part with the control of the easement or interest therein or rights hereby granted or any part thereof, provided, however, that without such consent this grant may be assigned as security to a trustee for the bondholders of the Grantee, and may be assigned by the trustee upon foreclosure to a purchaser thereof.

7. **Restoration of Surface.** After construction or repair or removal of the lines and appurtenances, the Grantee will restore the surface of the land as nearly as is reasonably possible to the condition existing immediately prior thereto.

8. **Removal.** The Grantee shall have the right to, and upon abandonment of the easement it will, remove all of its poles, lines and appurtenances, but not the pole foundations, from the granted premises and will upon such removal restore the surface of the land as nearly as is reasonably possible to its condition immediately prior to the removal of such improvements, the Grantor hereby consenting to such removal.

9. Clear Grantor's Title. In the event of abandonment of the easement the Grantee will prepare, execute and record at its expense an appropriate instrument evidencing the same.

10. Notice of Entry. The Grantee shall give five days' prior notice to the occupants of the land across which this easement passes of its intent to enter upon the land for the purpose of constructing, maintaining, repairing or operating its lines, appliances and equipment, except in the event of an emergency, in which case notice will be given as soon as reasonably possible.

IT IS HEREBY UNDERSTOOD AND AGREED by and between the parties hereto that:

A. Condemnation. If the premises affected by this easement shall be taken or condemned in whole or part by any authority having the power of eminent domain, all compensation and damages awarded on account of the condemnation or taking shall be payable to the Grantor, its lessees and tenants, if any, as their respective interests appear, without any apportionment to the Grantee, except that the Grantee may claim and recover only from the condemning authority full compensation for its lines and equipment and any severance or other damages to its right of way, including the costs of obtaining and relocating to a substitute right of way.

B. Relocation.

Part A and Part C. Upon the Grantor's request, the Grantee shall relocate its lines and appurtenances within "**Part A**" shown on **R/W Map 2008-002A** and its lines and appurtenances within "**Part C**" shown on **R/W Map 2008-002A** to such substitute easement area or areas as may be granted by the Grantor to the Grantee, provided that (1) Grantee shall not bear the costs of any such relocation, and (2) the terms of the grant of easement for the substitute easement area or areas shall be the same as herein except that Grantor shall have no further right to relocate these segments of the granted premises again.

Part B. Upon completion of mass grading for the regional drainage channel that is shown on **Exhibit A and Exhibit B**, Grantee will relocate at its expense the portion of the granted premises identified as "**Interim Easement Area**" on **R/W Map 2008-002A** to "**Part B**" also shown on **R/W Map 2008-002A**. Thereafter, upon the Grantor's request, the Grantee shall relocate its lines and appurtenances within "**Part B**" to such substitute easement area or areas as may be granted by the Grantor to the Grantee, provided that (1) Grantee shall not bear the costs of any such relocation, and (2) the terms of the grant of easement for the substitute easement area or areas shall be the same as herein except that Grantor shall have no further right to relocate this segment of the granted premises again.

C. Landscaping. The Grantee shall not be required to install, maintain or cause to be installed or maintained, any screening or landscaping of the Grantee's facilities.

D. Definitions. All defined terms (words such as Grantor, Grantee, etc.) and pronouns used in the singular shall mean and include the plural and include the masculine, feminine or neuter gender, as the context of this grant shall require. The term "person" shall mean an individual, partnership, association, trust, corporation or other entity as the context may require.

E. Parties in Interest. The covenants contained herein shall inure to the benefit of and be binding upon, the parties and their respective heirs, personal representatives, successors, successors in trust, and assigns.

F. Counterparts. The parties agree that this instrument may be executed in counterparts, each of which shall be deemed an original, and the counterparts shall together constitute one and the same instrument, binding all parties notwithstanding that all of the parties are not signatory to the same counterparts. For all purposes, including, without limitation, recordation, filing and delivery of this instrument, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

[Signatures begin on the following pages]

IN WITNESS WHEREOF the undersigned have executed this instrument as of the day and year first above mentioned.

KAPOLEI PROPERTY DEVELOPMENT LLC,
a Hawaii limited liability company

By AINA NUI CORPORATION, a Hawaii corporation, its member manager

By _____
Name:
Title:

By _____
Name:
Title:

Grantor

STATE OF HAWAII)
CITY AND COUNTY OF HONOLULU) SS.) KAPOLEI PROPERTY DEVELOPMENT LLC

On this ____ day of _____, 20____, before me personally appeared _____ and _____, to me personally known, who, being by me duly sworn or affirmed, did say that such person(s) executed the foregoing instrument as the free act and deed of such person(s), and if applicable, in the capacities shown, having been duly authorized to execute such instrument in such capacities.

Type or print name:
Notary Public, State of Hawaii

My commission expires: _____

APPROVED	
Legal Form:	
HAWAIIAN ELECTRIC CO., INC.	
Legal Department	
By _____	
Engineering Department:	
Survey	
Division _____	
Initiating	
Division _____	
Land & Rights of Way	
By _____	

HAWAIIAN ELECTRIC COMPANY, INC.,
a Hawaii corporation

By _____
Name:
Title:

Grantee

STATE OF HAWAII)
) SS.
CITY AND COUNTY OF HONOLULU)

On this ____ day of _____, 20____, before me appeared _____, to me personally known, who, being by me duly sworn, did say that such person is the _____ of **HAWAIIAN ELECTRIC COMPANY, INC.**, a Hawaii corporation, and that said instrument was signed on behalf of said corporation by authority of its Board of Directors, and said Officer acknowledged said instrument to be the free act and deed of said corporation.

Type or print name:
Notary Public, State of Hawaii

My commission expires: _____

ENTRY PERMIT

This Entry Permit ("Permit") is entered into as of the Effective Date set forth on **Exhibit A** hereto, by and between **KAPOLEI PROPERTY DEVELOPMENT LLC, a Hawaii limited liability company**, whose place of business and post office address is James Campbell Building, Suite 250, 1001 Kamokila Boulevard, Kapolei, Hawaii 96707 and **AINA NUI CORPORATION**, a Hawaii corporation, whose place of business and post office address is James Campbell Building, Suite 255, 1001 Kamokila Boulevard, Kapolei, Hawaii 96707 (collectively "Owner"), and the Permittee named on **Exhibit A** hereto ("Permittee").

RECITALS

A. Owner is the owner of the real property described in **Exhibit A** hereto (the "Property").

B. Permittee desires to enter onto the Property at the location shown by crosshatching on Exhibit B attached hereto and incorporated herein by this reference (the "Premises") for ingress and egress and for the Permitted Uses described on **Exhibit A**.

C. Permittee has requested that Owner grant to Permittee and Permittee's duly authorized employees, agents, consultants, contractors and other representatives (collectively "Representatives"), a license to carry out the Permitted Uses within the Premises.

TERMS AND CONDITIONS

NOW, THEREFORE, the parties hereto agree as follows:

1. **Grant of Permit.**

a. **Purpose.** Owner hereby grants to Permittee and Permittee's Representatives a revocable Permit for the Permitted Uses, and for access to the Premises as necessary for the Permitted Uses, all upon the terms and conditions described herein. ~~The Permitted Uses shall not include any sampling or testing of material at the Premises, and Permittee shall not collect or extract samples of any soil, vegetation, ground water, building materials, or other man-made or natural material or substance from or at the Premises for testing or analysis, or conduct any chemical analysis or other test on such materials, or undertake any similar procedures at the Premises which disturb the soil, vegetation, ground water or other materials at the Premises.~~ Permittee shall not use nor permit any other party claiming by, through or under Permittee, except Permittee's Representatives, to enter the Premises or use the Premises for any other purpose during the term set forth in this Permit. Each provision of this Permit which binds Permittee shall also bind Permittee's Representatives as fully as if such Representatives were party to this Permit.

b. **Term.** The term of this Permit will commence upon the Effective Date hereof and terminate upon the Termination Date set forth on **Exhibit A** hereto.

c. **Reserved Rights.** Owner reserves the right to cross and recross the Premises at any time and for any purpose, to use the Premises for any purpose, and to grant easements or other rights of entry over or within the Premises for any purpose, so long as such

uses and purposes do not unreasonably interfere with Permittee's Permitted Uses of the Premises.

2. **Inspection.** Owner and any authorized representative, employee, agent or independent contractor shall be entitled to enter and inspect the Premises at any time.

3. **Condition of Premises.** Permittee accepts the Premises in their condition as of the date of this Permit and acknowledges that Owner has made no representations concerning the condition of the Premises, including the presence at the Premises of any Hazardous Materials (as defined in Section f(2) of **Exhibit C** hereto), whether currently known or unknown, or the suitability of the Premises for Permittee's intended use. Permittee, for itself and on behalf of its Representatives, hereby releases Owner from any and all liabilities and claims which may arise from the presence or release of Hazardous Materials at or from the Premises.

4. **Permittee's Covenants.**

a. **Rights of Others.** This Permit is subject to the prior rights of any lessees, tenants, and/or prior licensees of Owner, and Permittee shall, prior to entry onto the Premises by Permittee or its Representatives, obtain the written consent of all such parties, if any, to such entry.

b. **Maintaining Premises.** Permittee is responsible for maintaining the Premises in a good and safe condition at all times throughout the term of this Permit. Promptly following completion of any work within the Premises, Permittee shall cause the removal of any tools, debris, or other trash generated by the work performed, repair any damage to the Premises caused by Permittee or its Representatives, and restore the Premises and surrounding areas, to their condition at the time of Permittee's entry onto such areas.

c. **Property Damage.** Without limiting the generality of paragraph 6 below ("Indemnification"), Permittee shall be solely responsible for any damage to the Premises or to the property of other landowners, including but not limited to landowners makai of the Premises, resulting from the use of the Premises by Permittee or its Representatives.

d. **Permittee's Costs.** Permittee shall have sole and complete liability for all costs, fees, and expenses incurred for any activities performed by or on behalf of Permittee and its Representatives in connection with the Permit granted herein, and Owner shall have no liability for any such costs, fees, and expenses.

e. **Observance of Laws.** Permittee shall observe and comply with, and shall cause all of the Representatives to observe and comply with, all laws, ordinances, rules, and regulations now or hereafter made by the federal, state, and local governments affecting or applicable to the Premises and this Permit. Prior to commencement of any work upon the Premises, Permittee shall furnish Owner evidence satisfactory to Owner that all government approvals and permits necessary to commence the Permitted Uses have been obtained.

f. **Prohibited Activities.** Permittee shall not permit or conduct any activities within the Premises which shall in any way be outside the scope of or constitute a default under this Permit. Permittee shall ensure that the Permitted Uses are conducted in a manner that will minimize the raising of dust from the Premises and cause as little interference as reasonably possible with the use of the Premises by Owner and anyone claiming under Owner.

g. **Lien Free Completion.** Permittee shall not suffer or permit to be enforced

against the Premises, or any part thereof, any mechanic's, materialmen's, contractors' or subcontractors' liens or any claim for damage arising from the Permitted Uses. Permittee shall pay or cause to be paid all of said liens, claims or demands before any action is brought to enforce any of them against the Premises. Permittee agrees to indemnify and hold Owner and the Premises free and harmless from all liability for any and all such liens, claims and demands, together with reasonable attorneys' fees and all costs and expenses in connection therewith. Notwithstanding anything to the contrary set forth above, if Permittee in good faith contests the validity of any such lien, claim or demand, then Permittee shall, at its expense, defend itself and Owner (with legal counsel acceptable to Owner in its sole and absolute discretion) and shall pay and satisfy any adverse judgment that may be rendered thereon before the enforcement thereof against Owner or the Premises. Upon demand by Owner, Permittee shall procure and record or furnish to Owner a surety bond or other acceptable security satisfactory to Owner in an amount at least equal to such contested lien, claim or demand indemnifying Owner against liability and holding the Premises free from the effect of any lien or claim. Owner reserves the right at any time and from time to time to post and maintain on the Premises or any portion thereof or improvement thereon such notices of nonresponsibility or otherwise as may be necessary to protect Owner against liability for any such liens and claims.

h. Insurance. Permittee, at Permittee's expense, shall maintain throughout the term, a policy or policies of commercial general liability insurance, automobile liability insurance and umbrella liability insurance covering Permittee and its Representatives and naming Owner as an additional insured, with an insurance company or companies licensed to issue insurance in the State of Hawaii and approved by Owner, with not less than a combined limit of One Million Dollars (\$1,000,000), including premises and operations, products and completed operations, contractual liability, independent contractors coverage and motor vehicle coverage. Such policy or policies or certificate showing the above coverage shall be deposited with Owner concurrently with the execution and delivery of this Permit, and the policy or certificate of insurance shall contain a provision requiring thirty (30) days prior written notice to Owner at Owner's address set forth above, for any cancellation or change to the policy or certificate. Such insurance shall include coverage for all liabilities assumed by the Permittee under this Permit.

i. Hazardous Materials. Permittee shall observe and comply with and shall cause its Representatives to observe and comply with each and every provision of **Exhibit C** hereto, the provisions of which are incorporated herein by this reference.

5. No Construction or Signs. No structure, signs or other improvement or appurtenances of any kind shall be constructed on the Premises by Permittee or its Representatives, without the express prior written approval of Owner in each case, which approval may be withheld in Owner's sole discretion with or without cause.

6. **Indemnification.** As a material part of the consideration for this Permit, Permittee hereby agrees to indemnify, defend (with legal counsel acceptable to Owner in its sole and absolute discretion) and hold harmless Owner from and against any loss, damage, injury (including death), accident, fire or other casualty, liability, claim, cost or expense (including but not limited to attorneys' fees) of any kind or character as to any person or property arising from or caused by (i) any use of the Premises by Permittee or its Representatives, (ii) any act or omission of Permittee or any of its Representatives relating in any way to the Premises or the Permit, (iii) any bodily injury (including death), property damage, accident, fire or other casualty on the Premises, (iv) any violation or alleged violation by Permittee or its Representatives of any law, ordinance, or regulation now or hereafter enacted, (v) any failure of Permittee to maintain the Premises in a safe, clean, and sanitary condition, (vi) any loss or theft whatsoever of any property or anything placed or stored by Permittee or its Representatives on or about the Premises, and (vii) any enforcement by Owner of any provision of this Permit and any costs of duly removing Permittee or its Representatives from the Premises or restoring the same as provided herein.

7. **Termination and Remedies.** Owner may terminate this Permit at any time with or without cause. Permittee acknowledges that this Permit only grants a license and that Permittee has no rights as an owner, purchaser or tenant of the Property or Premises by virtue hereof. No termination or expiration of this Permit shall relieve Permittee of its obligations to perform those acts required to be performed either prior to or after its termination.

8. **Owner's Payment of Claims.** In addition to and not in limitation of Owner's other rights and remedies under this Permit, should Permittee fail within ten (10) days of a written request from Owner either (i) to pay and discharge any lien or claim arising out of Permittee's use of the Premises or to have bonded around such liens or claims as provided above in this Permit, or (ii) to fully indemnify and defend Owner from and against any loss, damage, injury, liability or claim arising out of Permittee's use of the Premises as provided above, then in any such case all costs, expenses and other sums incurred by Owner in connection therewith (including, but not limited to, attorneys' fees) shall be paid to Owner by Permittee upon written demand, together with interest thereon at the rate of twelve percent (12%) per annum from the date incurred or paid. Any failure to comply with Owner's written request given pursuant to this Section shall, at Owner's option, constitute a default under this Permit. The indemnities provided by Permittee in favor of Owner in this Permit shall not require payment by Owner as a condition precedent.

9. **General Provisions.** This Permit shall be governed by the laws of the State of Hawaii. Neither this Permit nor any interest herein may be assigned, sold or transferred by Permittee to any other person, whether voluntarily or as operation of law, except with the prior written consent of Owner, which consent may be withheld by Owner in its sole and absolute discretion. This Permit shall be binding upon and inure to the benefit of Permittee and Owner and their respective successors and permitted assigns. If it becomes necessary for Owner to employ an attorney or other person or commence an action to enforce any of the provisions of this Permit or to remove Permittee or its Representatives from the Premises or Property, Permittee shall pay all costs of enforcement in connection therewith, including but not limited to court costs and attorneys' fees. This Permit and the Exhibits hereto constitute the entire agreement between the parties hereto pertaining to the subject matter hereof and all prior and contemporaneous agreements, representations and understandings of the parties hereto, oral or written, are hereby superseded and merged herein. No supplement, modification or amendment of this Permit shall be binding unless in writing and executed by the parties hereto. No waiver of any of the provisions of this Permit shall be deemed or shall constitute a waiver of any other provisions, whether or not similar, nor shall any waiver be a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver. The headings of this Permit are for purposes of reference only and shall not limit or define the meaning of the provisions hereof. This

Permit may be executed in any number of counterparts, each of which shall be an original and all of which shall constitute one and the same instrument. Neither this instrument nor a short form memorandum or assignment hereof shall be filed or recorded in any public office without Owner's prior written consent, which consent may be withheld by Owner in its sole and absolute discretion. The Exhibits hereto and each and every provision thereof are incorporated by this reference.

IN WITNESS WHEREOF, the parties hereto have executed this Permit on the day and year first above written.

HAWAIIAN ELECTRIC CO., INC.
a Hawaii Corporation

KAPOLEI PROPERTY DEVELOPMENT LLC,
a Hawaii limited liability company

By AINA NUI CORPORATION, a Hawaii corporation, its Member Manager

By: _____
Its

By _____
Name:
Its:

"Permittee"

By _____
Name:
Its:

AINA NUI CORPORATION, a Hawaii corporation

By _____
Name:
Its:

"Owner"

EXHIBIT A

ADDITIONAL TERMS

1. "Permittee": Hawaiian Electric Company, Inc.
Name
Philip Hauret
Name of Permittee's Contact Person
P. O. Box 2750
Street Address
Honolulu, Hi 96840
City
543-4735
Phone – Voice
543-4726
Phone – Fax

2. The "Property": (a) LC Lot(s) 16914 and 14082;
Portions of TMK 9-1-14:33 and 9-1-15:20; or
(b) the area outlined in black on **Exhibit B** hereto located west of Kalaeloa Boulevard, south of the railroad right-of-way, and north of Malakole Road, Kapolei, Hawaii.

(Choose one or both of above.)

3. The "Premises": That portion of the Property indicated by crosshatching on **Exhibit B** hereto.

4. The "Permitted Uses": The construction, installation, maintenance and operation of Permittee's AES-CIP #2 138kV transmission line in the approximate location shown on **Exhibit D** attached hereto.

Notwithstanding the language in Paragraph f.(3) ("Permitted Materials") of **Exhibit C** to this Entry Permit, small amounts of chemicals and other materials necessary for the operation and maintenance of Permittee's construction vehicles and machinery in the ordinary course of implementing the Permitted Uses authorized in **paragraph 4 of this Exhibit A** may be carried on such vehicles and machinery and used when necessary to implement the Permitted Uses. For the purpose of this section C.3, the term "construction vehicle" includes any vehicle necessary to service and maintain the drill rig ("service vehicle") in the ordinary course of implementing

the Permitted Uses. Notwithstanding any other provisions of **paragraph 3 of Exhibit C**, the "service vehicle" may carry and store chemicals and other materials necessary for the routine operation and maintenance of the construction vehicles and machinery, including fuel necessary to refuel such vehicles and machinery.

5. Effective Date: April 1, 2008
6. Termination Date: The date a grant of easement in favor of Permittee for use of the electrical transmission line constructed by Permittee under this Permit is filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii.

EXHIBIT B

THE PROPERTY AND THE PREMISES

[Insert map of Property with Premises
indicated by crosshatching. Any roads
used for access
should also be crosshatched.]

EXHIBIT C

HAZARDOUS MATERIALS

a. Except for Permitted Materials, Permittee shall not cause nor permit the use, storage, treatment, disposal, discharge or release of any Hazardous Materials in, at or upon the Premises. Permittee shall not discharge nor permit the discharge of any Hazardous Materials, including Permitted Materials, directly or indirectly, into or through any drainage systems or sanitary sewer systems serving or running through the Premises. Permittee agrees that anything produced or brought onto the Premises which is or becomes a Hazardous Material shall only be handled, kept, utilized and stored in accordance with all applicable Environmental Laws. Permittee further agrees, at its cost and expense, to dispose of all waste whether hazardous or non-hazardous, solid, liquid or gaseous, in accordance with the requirements of all applicable laws, including Environmental Laws. Permittee shall not install, use or operate any permanent or temporary above-ground storage tanks or any subsurface transmission lines at the Premises. Permittee shall utilize and store all Permitted Materials in strict compliance with Environmental Laws and in a manner that protects the Premises and the environment from accidental spills and releases of such Permitted Materials. Permittee shall not cause or permit any condition of pollution or nuisance in, at or upon the Premises.

b. If Permittee or Permittee's Representatives cause or permit any of the following: (i) the release of Hazardous Materials (whether or not the same is a Permitted Material) from or upon the Premises or (ii) any violation of applicable Environmental Laws, Permittee shall, at Permittee's sole cost and expense, immediately undertake all remedial measures with respect to such release or violation as required by and in accordance with all applicable laws. Permittee shall use its best efforts to complete such remedial and clean up actions as quickly as is reasonably possible.

c. No environmental testing or sampling of any kind shall be done at the Premises.

d. Except as required by law, ordinance, rule or regulation, Permittee shall not disclose the results of any assessments, investigations, tests, or inspections conducted by or for Permittee to any person, except that Permittee shall provide copies of all such test results to Owner (subject to any confidentiality or use restrictions contained therein), and may, if such disclosure would be useful in evaluating any transaction contemplated by Permittee with regard to the Premises, disclose such test results to Permittee's agents, employees, consultants, lenders, insurers, architects, engineers, and contractors, provided that such persons agree in writing to keep such information confidential. These provisions regarding disclosure shall survive the termination or expiration of this Permit.

e. Permittee shall indemnify, defend (with counsel approved by Owner in its sole and absolute discretion) and hold harmless Owner from and against any and all claims and demands for loss or damage, including claims for property damage, personal injury, or wrongful death, arising at any time during or after the term of this Permit as a direct or indirect result of or in connection with (i) Hazardous Materials caused or permitted by Permittee or by Permittee's Representatives at any time during the term hereof to be released from or at the Premises, or (ii) any other violation of the terms hereof.

f. For the purposes of this Permit, the following definitions shall apply to the following

defined terms:

(1) Environmental Laws. "Environmental Laws" means all federal, state and local laws, statutes, ordinances, codes, rules, regulations, standards, directives, interpretations and conditions of approval, and all legislative, administrative or judicial orders, decrees, requirements, rulings or judgments, which now or in the future may be applicable to the protection of human or animal health or safety, or to the environment, including without limitation the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, the Resource Conservation and Recovery Act as amended by the Solid and Hazardous Waste Amendments of 1984, the Federal Insecticide, Fungicide and Rodenticide Act, as amended, the Hazardous Materials Transportation Act, the Clean Water Act, the Clean Air Act, the Toxic Substances Control Act, the Safe Drinking Water Act, as the same may be amended from time to time, and any similar federal, Hawaii state (including without limitation Hawaii Revised Statutes Chapters 128D and 342B through 342P, inclusive) and local laws and ordinances, and regulations now or hereafter adopted, accomplished and promulgated pursuant thereto applying to the Premises or any portion thereof.

(2) Hazardous Materials. "Hazardous Materials" as used herein, whether or not specifically defined or identified by any Environmental Laws, shall mean and include without limitation, oil or petroleum products or their derivatives, solvents, explosive substances, radioactive materials, asbestos, inflammable explosives, organic compounds (including polychlorinated biphenyl), pollutants, contaminants, hazardous wastes, toxic substances or related materials and any other toxic, ignitable, reactive corrosive or related materials and any substances defined as or included in the definitions for "hazardous substances", "hazardous wastes", "extremely hazardous wastes", "hazardous materials", or "toxic substances" in the Environmental Laws.

(3) Permitted Materials. "Permitted Materials" shall mean only petroleum products and automotive coolant used to cool, lubricate, and fuel Permittee's construction vehicles and machinery at the Premises, so long as such materials are used and stored only in the cooling system, lubricating system, and fuel system of such machinery, including normal on-board fuel, coolant, or lubricant storage which is part of such systems. Permitted Materials shall **not** mean and include such materials stored in containers, including without limitation, portable or permanent storage tanks, drums, cans or 55 gallon or larger drums fitted with pumps, hoses or hose connections, or other containers not part of the on-board fuel, coolant, or lubricating systems of Permittee's construction vehicles and machinery.



L-26 STATE OF HAWAII
OFFICE OF ASSISTANT REGISTRAR
RECORDED
DEC 16, 2009 08:01 AM
Doc No(s) 3924291
on Cert(s) 943,069 & 943,070



20 1/1 Z10

/s/ NICKI ANN THOMPSON
ASSISTANT REGISTRAR

LAND COURT SYSTEM

REGULAR SYSTEM

After Recordation, Return By: Mail Pickup

Hawaiian Electric Company, Inc.
Survey Division
P. O. Box 2750
Honolulu, HI 96840-0001

This document contains 12 page(s)

G0014429/JP# 84765
TWBCO # 1333
R/W 2008-002A

TITLE OF DOCUMENT:
Easement To. ED2118600

GRANT OF EASEMENT

PARTIES TO DOCUMENT:

GRANTOR(S) AINA NUI CORPORATION, a Hawaii corporation, and KAPOLEI
PROPERTY DEVELOPMENT LLC, a Hawaii limited liability company

GRANTEE(S): HAWAIIAN ELECTRIC COMPANY, INC., a Hawaii corporation

DESCRIPTION: Those certain premises situate off Malakole Road, at Honouliuli, Ewa,
Oahu, Hawaii, being Lots 18250 and 18251, both as shown on Map 1415,
of Land Court Application 1069, noted on Certificate of Title Nos. 943,069
and 943,070, respectively

TMK(s): (1) 9-1-014:033 and 9-1-015:020 pors.

GRANT OF EASEMENT

THIS GRANT OF EASEMENT, made this 14th day of December, 2009, by and among **AINA NUI CORPORATION**, a Hawaii corporation, and **KAPOLEI PROPERTY DEVELOPMENT LLC**, a Hawaii limited liability company (collectively the "Grantor"), and **HAWAIIAN ELECTRIC COMPANY, INC.**, a Hawaii corporation, whose principal place of business is 900 Richards Street, Honolulu, Hawaii and whose post office address is P. O. Box 2750, Honolulu, Hawaii 96840 (the "Grantee"),

WITNESSETH:

The Grantor, in consideration of the sum of Ten Dollars (\$10.00) paid to the Grantor, the receipt of which is acknowledged, and of the covenants herein made by the Grantee, grants and conveys unto the Grantee a perpetual right and easement to construct, reconstruct, operate, maintain, access, repair and remove poles, guys, anchors, overhead and/or underground wire lines and such other appliances and equipment as may be necessary for the transmission and distribution of electricity, including all service lines emanating from the main trunk line, to be used for light and power and/or communications and control circuits, including, without limiting the generality of the foregoing, the right (but not the obligation) to trim, keep trimmed, remove, and/or control any trees and vegetation in the way of its lines, appliances and equipment and a right of entry upon the Grantor's land and appurtenant interests, if any, for the aforesaid purposes, over, under, upon, across and through those certain premises situate off Malakole Road, at Honouliuli, Ewa, Oahu, Hawaii, being Lots 18250 and 18251, both as shown on Map 1415, of Land Court Application 1069, and noted on Certificate of Title Nos. 943,069 and 943,070, respectively; said easements having a width of fifty (50) feet and containing a total area of 399,588 square feet, as shown on **R/W Map 2008-002A** attached hereto and made a part hereof.

RESERVING, HOWEVER, unto the Grantor, its tenants and licensees, the right to use for all purposes any portions of the granted premises not occupied by the appliances and equipment of the Grantee, including rights of way over, under and across the granted premises, provided, however, that such reserved rights shall be used in a manner that will not unreasonably interfere with the Grantee's lines, appurtenances and clearances, and provided further that except for Grantor's proposed drainage improvements as shown generally on **Exhibit "A" and Exhibit "B"** attached hereto that will not require Grantee's consent, no improvements shall be constructed within the granted premises without the consent of the Grantee, which consent shall not be unreasonably withheld, conditioned, or delayed.

TO HAVE AND TO HOLD the same unto the Grantee, its successors and assigns, forever; provided, however, that should any portion or portions of the granted premises be abandoned by the Grantee or remain unused for a period of one (1) year after installation, then all rights hereby granted shall thereupon cease and terminate as to the portion or portions so abandoned or unused; and further provided said easement will automatically terminate as to any portion of the granted premises upon dedication and conveyance of such portion of the granted premises to, and acceptance by, any governmental authority for use as a public road.

AND the Grantee, in consideration of the foregoing grant, does hereby covenant and agree with the Grantor that:

1. **Due Care and Dillgence.** The Grantee will use due care and diligence in the construction and operation of its lines and appurtenances, in keeping and maintaining the same in good and safe condition and repair and in the exercise of its rights hereunder, and will at all times exercise its rights hereunder in a manner that will occasion the least possible interference with or interruption of the use of the premises by the Grantor and its tenants or any other occupants.

2. **Taxes.** The Grantee will pay when and as due all taxes and assessments levied and assessed against the lines and appurtenances or the easement hereby granted, whether assessed to or payable by the Grantor or Grantee, but this covenant shall not require the payment of taxes or assessments levied against any land subject to this easement.

3. **Placement of Lines.** The Grantee will place and maintain the wires of its lines so that the clearance of the wires, conduits and appurtenances will be in accordance with the rules established and/or approved by the Public Utilities Commission of the State of Hawaii.

4. **Indemnity.** The Grantee will indemnify and hold harmless the Grantor, its tenants and all persons occupying the premises, either under lease from or by permission of the Grantor, from any and all claims and demands against them or any of them for injury to or death of persons or damage to property, including the claims of their respective agents and employees, arising out of the use or occupation of the granted premises and the construction, maintenance, operation or removal of the lines and appurtenances not caused by the negligence of the party to be indemnified or their agents or employees acting within the course and scope of their employment, and from and against all damages, costs, counsel fees, expenses and liabilities incurred in or resulting from any such claim or demand or any action or proceeding brought thereon.

5. **No Other Users.** The granted premises may be used by Grantee under this grant of easement for the purposes set forth above, and, except as required by law, Grantee shall not, without the prior written consent of Grantor, permit others to use Grantee's facilities within the granted premises for any purpose whatsoever.

6. **Assignment.** The Grantee will not without the prior written consent of the Grantor assign or mortgage this grant or sublet or part with the control of the easement or interest therein or rights hereby granted or any part thereof, provided, however, that without such consent this grant may be assigned as security to a trustee for the bondholders of the Grantee, and may be assigned by the trustee upon foreclosure to a purchaser thereof.

7. **Restoration of Surface.** After construction or repair or removal of the lines and appurtenances, the Grantee will restore the surface of the land as nearly as is reasonably possible to the condition existing immediately prior thereto.

8. **Removal.** The Grantee shall have the right to, and upon abandonment of the easement it will, remove all of its poles, lines and appurtenances, but not the pole foundations, from the granted premises and will upon such removal restore the surface of the

land as nearly as is reasonably possible to its condition immediately prior to the removal of such improvements, the Grantor hereby consenting to such removal.

9. Clear Grantor's Title. In the event of abandonment of the easement the Grantee will prepare, execute and record at its expense an appropriate instrument evidencing the same.

10. Notice of Entry. The Grantee shall give five days' prior notice to the occupants of the land across which this easement passes of its intent to enter upon the land for the purpose of constructing, maintaining, repairing or operating its lines, appliances and equipment, except in the event of an emergency, in which case notice will be given as soon as reasonably possible.

IT IS HEREBY UNDERSTOOD AND AGREED by and between the parties hereto that:

A. Condemnation. If the premises affected by this easement shall be taken or condemned in whole or part by any authority having the power of eminent domain, all compensation and damages awarded on account of the condemnation or taking shall be payable to the Grantor, its lessees and tenants, if any, as their respective interests appear, without any apportionment to the Grantee, except that the Grantee may claim and recover only from the condemning authority full compensation for its lines and equipment and any severance or other damages to its right of way, including the costs of obtaining and relocating to a substitute right of way.

B. Relocation.

Part A and Part C. Upon the Grantor's request, the Grantee shall relocate its lines and appurtenances within "**Part A**" shown on **R/W Map 2008-002A** and its lines and appurtenances within "**Part C**" shown on **R/W Map 2008-002A** to such substitute easement area or areas as may be granted by the Grantor to the Grantee, provided that (1) Grantee shall not bear the costs of any such relocation; and (2) the terms of the grant of easement for the substitute easement area or areas shall be the same as herein except that Grantor shall have no further right to relocate these segments again.

Part B. Upon completion of mass grading for the regional drainage channel that is shown on **Exhibit A and Exhibit B**, Grantee will relocate at its expense the portion of the granted premises identified as "**Interim Easement Area**" on **R/W Map 2008-002A** to "**Part B**" also shown on **Exhibit B**. Thereafter, upon the Grantor's request, the Grantee shall relocate its lines and appurtenances within "**Part B**" to such substitute easement area or areas as may be granted by the Grantor to the Grantee, provided that (1) Grantee shall not bear the costs of any such relocation; and (2) the terms of the grant of easement for the substitute easement area or areas shall be the same as herein except that Grantor shall have no further right to relocate this segment again.

C. Landscaping. The Grantee shall not be required to install, maintain or cause to be installed or maintained, any screening or landscaping of the Grantee's facilities.

D. Definitions. All defined terms (words such as Grantor, Grantee, etc.) and pronouns used in the singular shall mean and include the plural and include the masculine, feminine or neuter gender, as the context of this grant shall require. The term "person" shall mean an individual, partnership, association, trust, corporation or other entity as the context may require.

E. Parties in Interest. The covenants contained herein shall inure to the benefit of and be binding upon, the parties and their respective heirs, personal representatives, successors, successors in trust, and assigns.

F. Counterparts. The parties agree that this instrument may be executed in counterparts, each of which shall be deemed an original, and the counterparts shall together constitute one and the same instrument, binding all parties notwithstanding that all of the parties are not signatory to the same counterparts. For all purposes, including, without limitation, recordation, filing and delivery of this instrument, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

[Signatures begin on the following pages]

IN WITNESS WHEREOF the undersigned have executed this instrument as of the day and year first above mentioned.

KAPOLEI PROPERTY DEVELOPMENT LLC,
a Hawaii limited liability company

By AINA NUI CORPORATION, a Hawaii corporation, its member manager

By *[Signature]*
Name: **Bradford J. Myers**
Title: **President**

By *[Signature]*
Name: **D. Charles Hill**
Title: **Vice President**

Grantor

STATE OF HAWAII)
CITY AND COUNTY OF HONOLULU) SS. KAPOLEI PROPERTY DEVELOPMENT LLC

On this 4th day of December, 2009, before me personally appeared Bradford J. Myers and D. Charles Hill, to me personally known, who, being by me duly sworn or affirmed, did say that such person(s) executed the foregoing instrument as the free act and deed of such person(s), and if applicable, in the capacities shown, having been duly authorized to execute such instrument in such capacities.

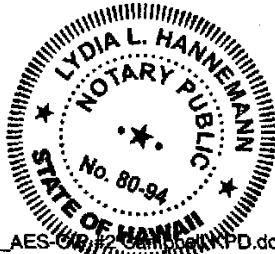
Doc Date: 12/4/2009 # Pages: 12
Name: Lydia L. Hannemann First Circuit

Doc. Description: Grant of Easement
Type or print name: Lydia L. Hannemann
Notary Public, State of Hawaii

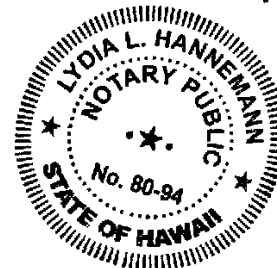
Lydia L. Hannemann 12/4/2009 My commission expires: February 11, 2012
Signature Date

NOTARY CERTIFICATION

[Affix Seal]



[Affix Seal]



AINA NUI CORPORATION, a Hawaii corporation

By *Br J Myers*
Name: Bradford J. Myers
Title: President

By *DCH*
Name: D. Charles Hill
Title: Vice President

Grantor

STATE OF HAWAII)
CITY AND COUNTY OF HONOLULU) SS.

AINA NUI CORPORATION

On this 4th day of December, 2009, before me personally appeared Bradford J. Myers and D. Charles Hill, to me personally known, who, being by me duly sworn or affirmed, did say that such person(s) executed the foregoing instrument as the free act and deed of such person(s), and if applicable, in the capacities shown, having been duly authorized to execute such instrument in such capacities.

Doc Date: 12/4/2009 # Pages: 13

Name: Lydia L. Hannemann First Circuit

Doc. Description: Grant of Easement

Lydia L. Hannemann
Type or print name: Lydia L. Hannemann
Notary Public, State of Hawaii

Lydia L. Hannemann 12/4/2009
Signature Date

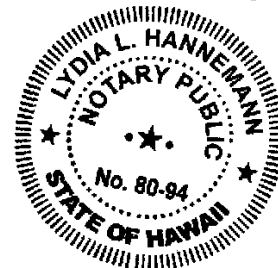
My commission expires: February 11, 2012

NOTARY CERTIFICATION

[Affix Seal]



[Affix Seal]



APPROVED	
Legal Form:	
HAWAIIAN ELECTRIC CO., INC.	
Legal Department	
By	<i>[Signature]</i>
Engineering Department	
Survey	
Division	
Initiating	
Division	<i>Michael [Signature]</i>
Land & Rights of Way	<i>Philip Hauret</i>

HAWAIIAN ELECTRIC COMPANY, INC.,
a Hawaii corporation

By *Susan Ali*
Name: **SUSAN A. LI**
Title: **VICE PRESIDENT**

Grantee

STATE OF HAWAII)
CITY AND COUNTY OF HONOLULU) SS.

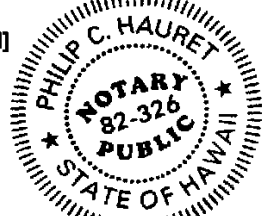
On this 20th day of November, 2009, before me appeared SUSAN A. LI, to me personally known, who, being by me duly sworn, did say that such person is the VICE PRESIDENT of **HAWAIIAN ELECTRIC COMPANY, INC.**, a Hawaii corporation, and that said instrument was signed on behalf of said corporation by authority of its Board of Directors, and said Officer acknowledged said instrument to be the free act and deed of said corporation.

Doc Date: Undated as of Notarization # Pages: 12
Name: PHILIP C. HAURET First Circuit
Doc. Description: Grant of Easement, R/W 2008-002A
Philip C Hauret 11/20/09
Signature Date

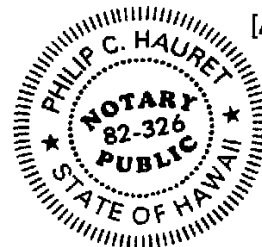
Philip C Hauret
Type or print name: **PHILIP C. HAURET**
Notary Public, State of Hawaii
My commission expires: Dec. 3, 2012

NOTARY CERTIFICATION

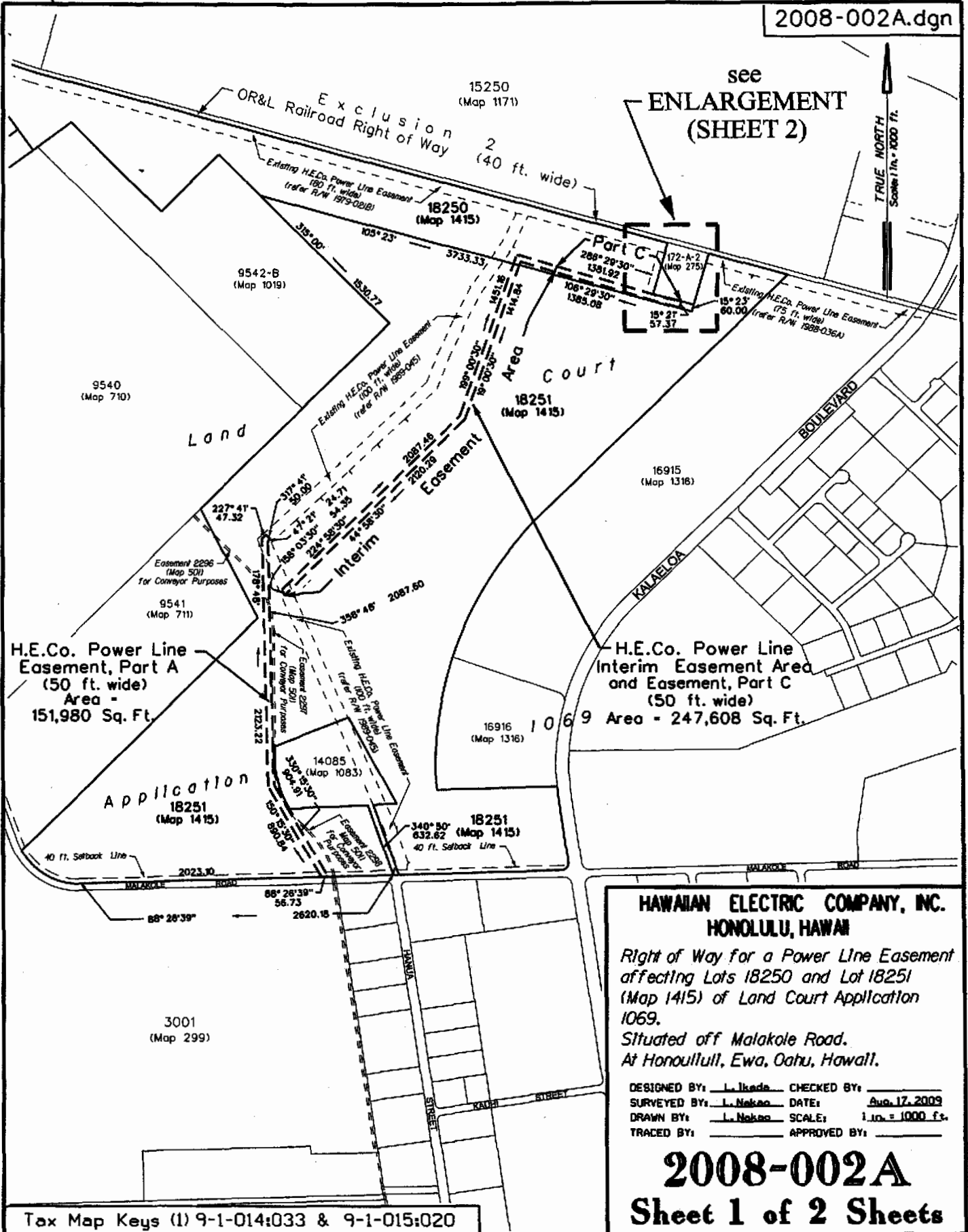
[Affix Seal]



[Affix Seal]



2008-002A.dgn



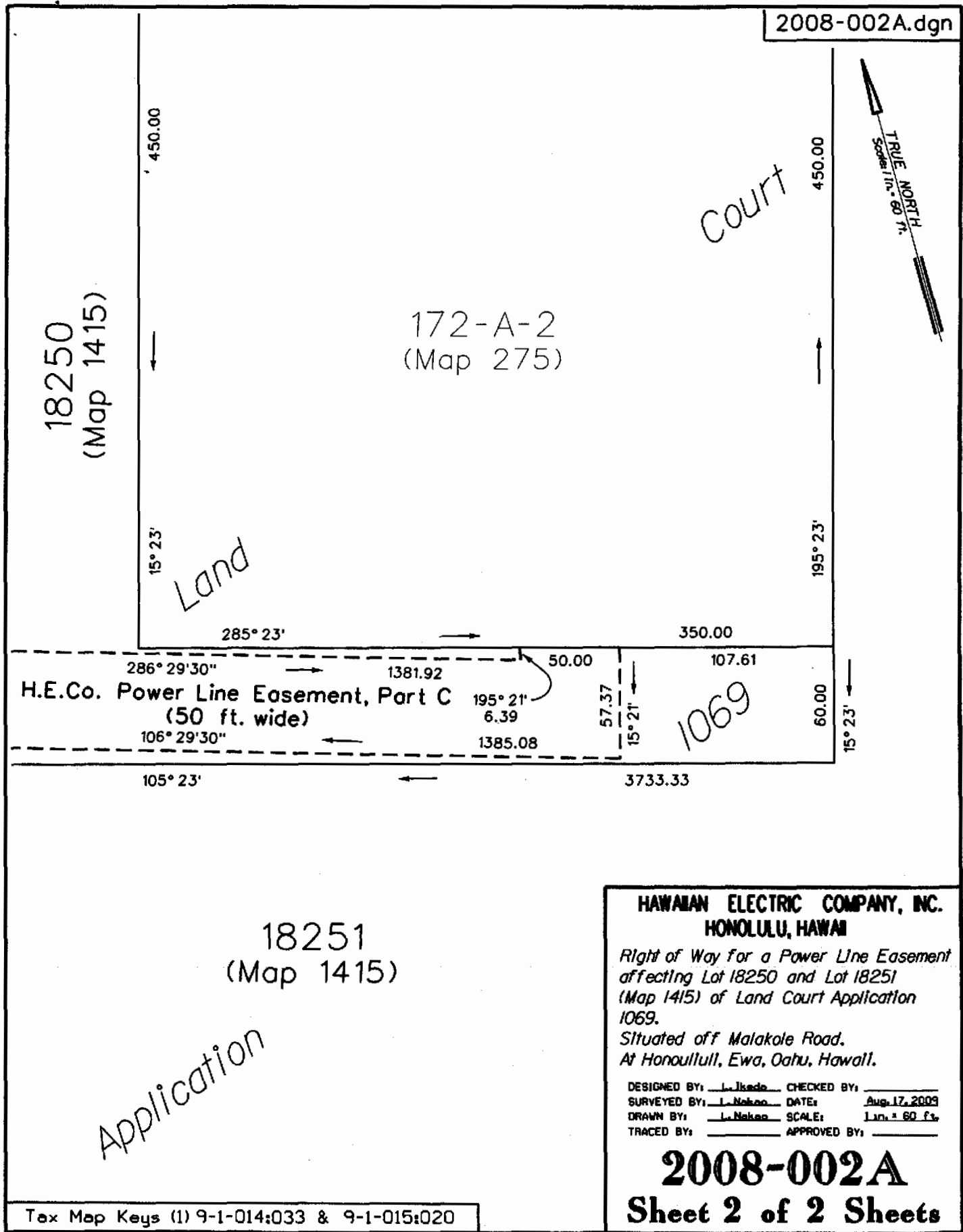
HAWAIIAN ELECTRIC COMPANY, INC.
HONOLULU, HAWAII
Right of Way for a Power Line Easement
affecting Lots 18250 and Lot 18251
(Map 1415) of Land Court Application
1069.
Situated off Malakole Road.
At Honolulu, Ewa, Oahu, Hawaii.

DESIGNED BY: L. Ikeda CHECKED BY: _____
 SURVEYED BY: L. Nakao DATE: Aug. 17, 2009
 DRAWN BY: L. Nakao SCALE: 1 in. = 1000 ft.
 TRACED BY: _____ APPROVED BY: _____

2008-002A
Sheet 1 of 2 Sheets

Tax Map Keys (1) 9-1-014:033 & 9-1-015:020

2008-002A.dgn



18250
(Map 1415)

172-A-2
(Map 275)

Land

Court

H.E.Co. Power Line Easement, Part C
(50 ft. wide)

1069

18251
(Map 1415)

Application

HAWAIIAN ELECTRIC COMPANY, INC.
HONOLULU, HAWAII

*Right of Way for a Power Line Easement
affecting Lot 18250 and Lot 18251
(Map 1415) of Land Court Application
1069.*

*Situated off Malakole Road,
At Honouliuli, Ewa, Oahu, Hawaii.*

DESIGNED BY: L. Ikeda CHECKED BY: _____
SURVEYED BY: L. Nakao DATE: Aug. 17, 2009
DRAWN BY: L. Nakao SCALE: 1 in. = 60 ft.
TRACED BY: _____ APPROVED BY: _____

2008-002A
Sheet 2 of 2 Sheets

Tax Map Keys (1) 9-1-014:033 & 9-1-015:020

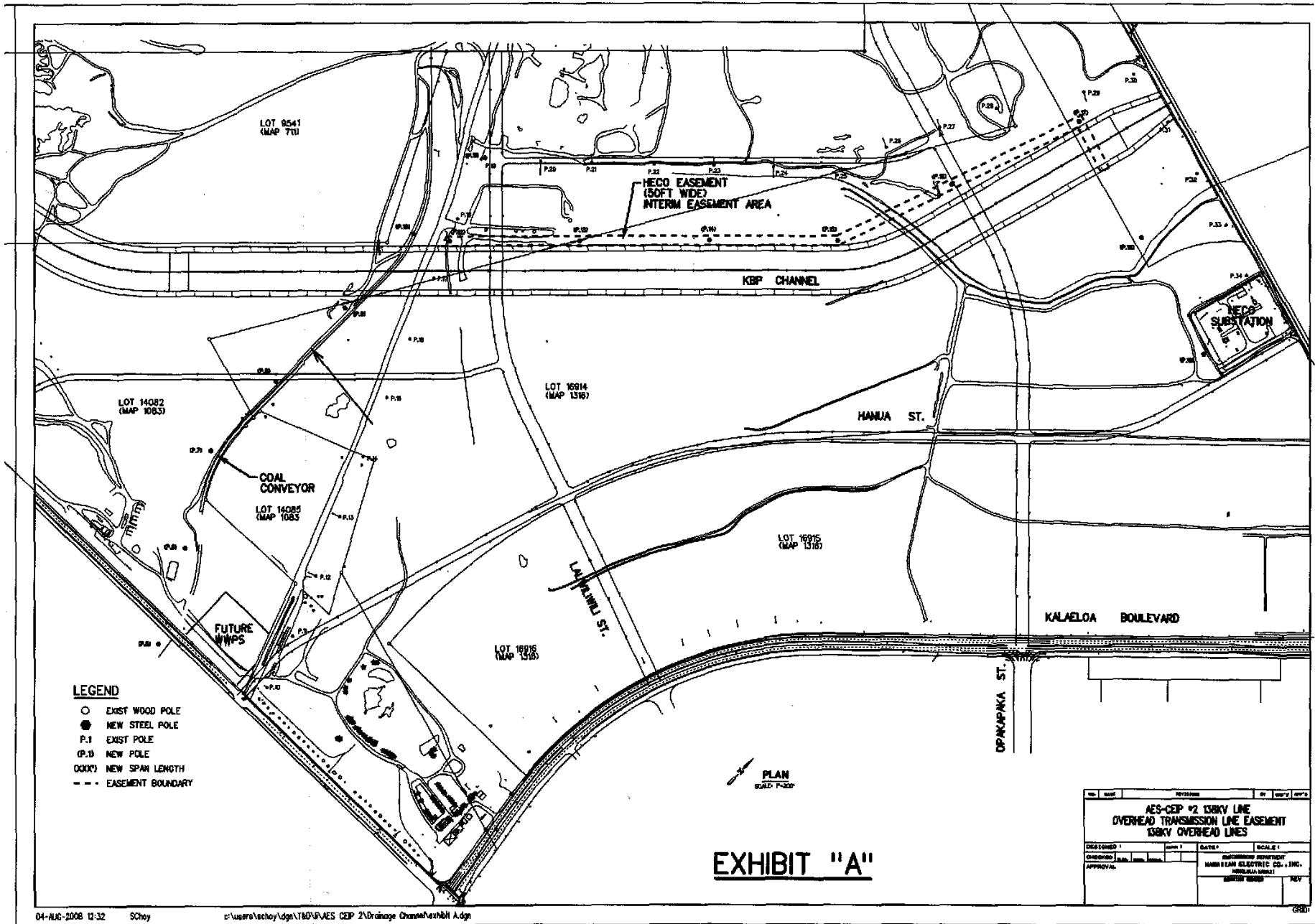
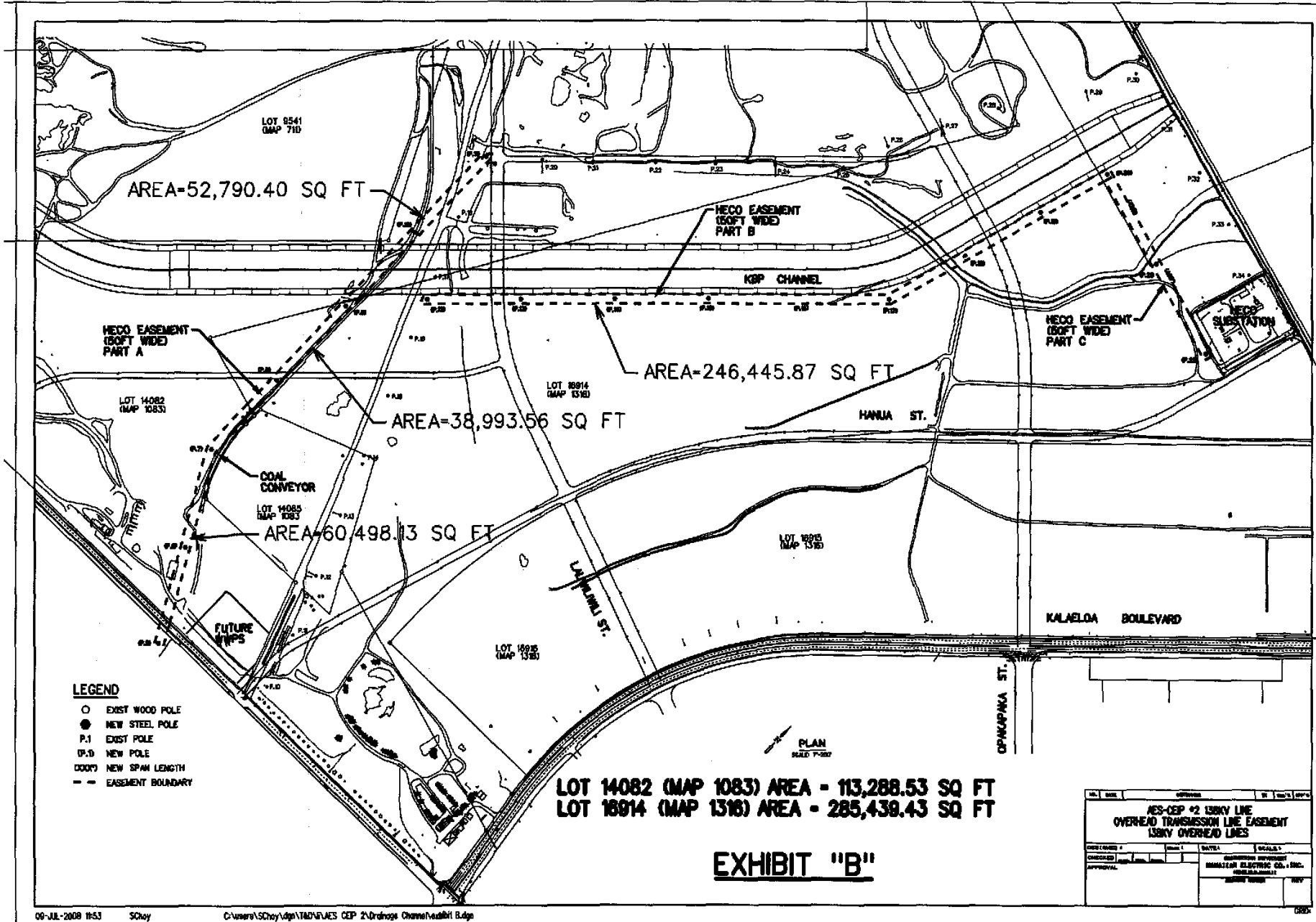


EXHIBIT "A"

DESIGNED BY	DATE	SCALE
CHECKED BY	DATE	SCALE
APPROVAL	ENGINEERING DEPARTMENT HAWAIIAN ELECTRIC CO., INC. HONOLULU, HAWAII SHEET NO. 1011	

04-AUG-2008 13:32 Schoy c:\users\schoy\My Documents\AES CEP 2\Drainage Channel\Exhibit A.dgn



LOT 14082 (MAP 1083) AREA - 113,288.53 SQ FT
 LOT 18914 (MAP 1316) AREA - 285,439.43 SQ FT

EXHIBIT "B"

HES-CEP 42 15KV LINE OVERHEAD TRANSMISSION LINE EASEMENT 15KV OVERHEAD LINES		SCALE: 1" = 200'
DATE: 06-JUL-2008	DESIGNED BY: SCHROY	CHECKED BY: []
APPROVED BY: []	DATE: []	SCALE: []
HAWAIIAN ELECTRIC CO., INC.		REV: []

06-JUL-2008 11:53 SCHROY C:\users\SCHROY\My Documents\HES-CEP 2\Drawings Channel\Exhibit B.dwg



November 25, 2014

Mr. Phil Hauret
Senior Land Agent
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, HI 96840

Dear Mr. Hauret:

This letter is written in reference to that certain Settlement Agreement (“Agreement”) (Agreement No. A02094200) dated October 1, 2008, by and among Hawaiian Electric Company, Inc., a Hawaii corporation (“HECO”), Kapolei Property Development LLC, a Hawaii limited liability company (“KPD”), and Aina Nui Corporation, a Hawaii corporation (“Aina”). Any terms or phrases used in this letter shall have the same meaning as set forth in the Agreement.

In accordance with Paragraph 4, Interim Location of Transmission Line Due to Planned Mass Grading of the Agreement, “...after KPD and others have completed their respective mass grading, KPD shall notify HECO in writing that such mass grading has been completed. Thereafter, HECO agrees, at HECO’s own expense, to relocate the affected portions of the Transmission Line from the Interim Easement Area to Part B of the Permanent Easement Areas.”

This letter shall serve as written notice that KPD has completed the mass grading and is requesting the relocation of the Transmission Line from the Interim Easement Area to Part B of the Permanent Easement Area.

On June 3, 2013, KPD filed a name change with the Department of Commerce and Consumer Affairs of the State of Hawaii (Business Registration) to change its name to Kapolei Properties LLC.

Should you have any questions, please call me at (808) 674-3229.

Sincerely,

John Higham
Vice President, Construction & Engineering

ga:04001300\K10338

cc: Mark Murakami



BE/G

COLTON K. CHING
Vice President
Energy Delivery

December 16, 2015

Mr. John Higham
Kapolei Properties LLC
James Campbell Building, Suite 250
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Higham:

Subject: Relocation of HECO's AES-CEIP #2 138kV Overhead Transmission Line
HECO Proposal Letter

This proposal letter is in response to Kapolei Properties LLC ("KPD" or "Developer") letter dated November 25, 2014, and in reference to Settlement Agreement No. A02094200 ("Agreement") dated October 1, 2008, by and among Hawaiian Electric Company, Inc. ("HECO"), KPD, and Aina Nui Corporation ("Aina").

Pursuant to the Agreement, HECO proposes to relocate a section of its AES-CEIP #2 138kV overhead transmission line from its current interim location to its new permanent location. The overhead relocation work will include the installation of approximately nine (9) new transmission steel poles and approximately 3,700 circuit feet of OPGW, 138kV, and 46kV overhead conductors. Once the relocated lines are in place, HECO will remove six (6) existing transmission steel poles, associated equipment, and approximately 4,200 circuit feet of OPGW, 138kV, and 46kV overhead conductors. The work to install the new poles and lines and the removal of the existing poles and lines is hereinafter referred to as the "Project."

I. SCOPE OF WORK AND RESPONSIBILITIES

A. DEVELOPER's Scope of Work and Responsibilities

1. To expedite the proposed work, HECO may request the Developer and/or its consultant(s)/contractor(s) to provide whatever support for the Project that is reasonably available to them, which may include, but not be limited to, provisioning for any necessary surveys and identification of property lines; removing or trimming of vegetation; grading the areas to finish grade prior to accommodate HECO's facilities; providing a staging area for construction; and providing necessary vehicular access to the area as needed for the installation and maintenance of the Project.
2. Cooperate with HECO regarding scheduling of HECO's field inspections of all electrical facilities and infrastructure relevant to the Project.



AES-CEIP #2 138kV Overhead Transmission Line Relocation
Proposal Letter
December 16, 2015
Page 2

B. HECO's Scope of Work and Responsibilities

Plan, design, procure materials and equipment, construct and install all HECO-owned electrical facilities for the Project.

II. CHANGES TO THE SCOPE OF WORK

The Developer acknowledges and agrees that any changes in the scope of work by the Developer may subject the Developer to additional costs, and necessitate the execution of a new proposal letter reflecting such upward cost adjustment.

III. DEPRECIATION AND SALVAGE VALUE

Credits for depreciation and salvage value of all existing electrical facilities that are to be replaced within the scope of the Project shall not be considered nor included in any determination of the cost or value of either party's scope of work.

IV. PROJECT CANCELLATION

The Developer shall provide prompt notice within (5) five days to HECO of cancellation of this Project. **If for any reason the project is cancelled, then the Developer shall be responsible for reimbursing HECO for all costs and expenses incurred by HECO (including, but not limited to planning, engineering, and other labor costs; costs to purchase necessary equipment and materials; any cancellation or interest charges incurred thereto; reasonable demobilization and administrative costs necessary to close out the Project) up to the time that HECO receives written notice that the Project is cancelled, as well as costs reasonably incurred thereafter to close out the Project.** The Project shall be deemed cancelled if delayed for six (6) or more months due to action or inaction by the Developer, or its consultants, contractors, employees or agents.

V. PROJECT DELAY(S)

If for any reason not caused by HECO, the Project is delayed, the Developer shall provide prompt notice to HECO of such delay and the Developer shall be responsible for other costs or expenses incurred by HECO in the performance of its obligations related to this Project, including such reasonable carrying or inventory costs used to hold, reserve, maintain, and store materials purchased for the Project, the cost of funds for expenses incurred (i.e., Allowance for Funds Used During Construction), and costs to re-engineer or re-mobilize construction crews due to the delay.



AES-CEIP #2 138kV Overhead Transmission Line Relocation
Proposal Letter
December 16, 2015
Page 3

VI. SCHEDULE

This Project will require an estimated lead-time of approximately twenty-four (24) months to complete the design and construction of the requested relocation work as indicated below and will be subject to prioritization and scheduling involving other Hawaiian Electric work requests.¹ The following is a breakdown of the estimated time to complete the various stages of the Project:

HECO Design (follows proposal accepted by Developer)	6 months
PUC Approval (concurrent with HECO design)	12 months
Ordering of Materials	6 months
Construction of HECO Facilities (follows acquisition of materials and completion of design)	6 months
Total Estimated HECO Time Required	24 months

VII. DEVELOPER'S CONTRIBUTION

HECO's relocation work is required pursuant to the Agreement, as stated above. Therefore, HECO shall be responsible for the cost to relocate its facilities.

The Developer understands and agrees that, if HECO does not receive a response to this proposal letter by January 31, 2016, or, if HECO is unable to proceed with the proposed construction by July 1, 2017, this proposal letter shall automatically expire; however, the Developer's obligation to reimburse HECO for planning, engineering, labor, materials, and other costs incurred as referenced above, is absolute and unqualified, and shall survive any expiration of this proposal letter. HECO shall give the Developer ten (10) days written notice prior to termination of this letter.

Please signify your acceptance and agreement of this proposal by having a duly authorized representative or representatives, delegated with proper signature/approval authority, sign in the space provided below. To expedite the processing, we have enclosed an additional hard copy of

¹ Please note that Hawaiian Electric's on-going prioritization process may result in project deferral. Additionally, the proposed schedule may be subject to change due to system emergencies, weather conditions, etc.



AES-CEIP #2 138kV Overhead Transmission Line Relocation
Proposal Letter
December 16, 2015
Page 4

this letter and request that the signed original be mailed to HECO in the enclosed self-addressed envelope. This proposal letter, upon acceptance by the Developer, constitutes the entire understanding between the parties regarding the project. The Developer shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions, including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortious acts caused or contributed to by the Developer or anyone acting under its direction or control or on its behalf; provided the Developer's indemnity shall not be applicable to any liability arising from to the sole negligence of HECO.

Lisa Ikeda is the Engineer assigned to this Project. If you have any questions, please contact her at 543-7977.

Sincerely,

Colton K. Ching

Enclosures

Approved:
Signature in Ink

Name of Signer: John L Higham
Type or Print

Title: Vice President, Construction & Date: December 29, 2015
Engineering

Name of Company: Kapolei Properties LLC Phone: 674-3229

HRS § 269-27.6
Overhead or Underground Considerations

In planning the replacement of the section of the 138 kV transmission line between the AES and CEIP Substations, Hawaiian Electric looked at the guidelines set forth in HRS § 269-27.6 to determine whether the relocated sections should be placed, constructed, erected, or built above or below the surface of the ground. In making its determination to build the relocated section of the AES-CEIP 2 138 kV transmission line overhead, Hawaiian Electric considered the following:

(1) Whether a benefit exists that outweighs the costs of placing the electric transmission system underground;

Installing the relocated section of the AES-CEIP 2 138 kV transmission line underground is estimated to cost approximately \$11.1 million more than the overhead alternative (i.e., \$14.1 million versus \$3.0 million, excluding removal costs). (See Attachment 1 to this Exhibit for the underground and overhead lines capital cost estimates.) The proposed relocated transmission poles will be in a commercial area and not within high-density population areas. The existing and relocated line passes through property that is zoned AG-1 Agricultural. The visual impact will not be significantly increased, and the benefits of undergrounding, if any, do not outweigh the costs.

See Attachment 2 to this Exhibit for a visual simulation of the existing and proposed relocation of the AES-CEIP 2 138 kV overhead transmission line.

This project involves the installation of nine steel poles, P12, P12X, P13, P13X, P14, P14X, P15, P16 and P17, and the installation of eight spans of overhead conductor of the existing AES-CEIP 2 138 kV overhead transmission line. The rest of the existing 138 kV line outside of the Project area (i.e., approximately 1.3 miles) will remain overhead.

(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;

Hawaiian Electric is not aware of any governmental public policy requiring the relocated sections of the 138 kV to be constructed underground in the area.

(3) Whether any governmental agency or other parties are willing to pay for the additional costs of undergrounding;

The new steel poles P12, P12X, P13, P13X, P14, P14X, P15, P16, and P17 of the AES-CEIP 2 138 kV transmission line will be located along a future drainage channel within Lot bearing Tax Map Key: 9-1-014:033 owned by KPD. Hawaiian Electric asked KPD if they would be willing to pay for the additional costs of undergrounding the 138 kV. KPD responded that

they are not willing to pay for the additional undergrounding costs (see Attachment 3 to this Exhibit).

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

The estimated cost difference between the overhead and underground installations of the relocated section of the AES-CEIP 2 138 kV transmission line is due to the cost of poles and conductors and their installation for an above ground line versus the cost of duct lines and conductors and their installation for an underground line.

The estimated initial capital cost of the overhead and underground transmission line options are summarized as follows:

	<u>Overhead</u>	<u>Underground</u>
Initial Capital Cost	\$3.0 million	\$14.1 million

The overhead and underground initial capital costs are shown in Attachment 1 to this Exhibit.

The combined capital and O&M estimated rate impacts (cents/kWh) for Hawaiian Electric customers for the overhead and underground installations are as follows:

	<u>2019</u>	<u>2020</u>	<u>2021</u>
Overhead	0.0059	0.0057	0.0056
Underground	0.0257	0.0252	0.0247

For a Hawaiian Electric customer that uses 500 kWh of electricity per month, the estimated bill impacts (\$/month) for overhead and underground installations are as follows:

	<u>2019</u>	<u>2020</u>	<u>2021</u>
Overhead	\$0.03	\$0.03	\$0.03
Underground	\$0.13	\$0.13	\$0.12

The combined capital and O&M amortized cost calculations for the overhead and underground alignments are shown in Attachment 4 to this Exhibit.

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

Historical operating and maintenance (“O&M”) costs for both overhead and underground transmission lines are shown in the table below:

	<u>Annual Operating and Maintenance Costs (per mile)</u>	
<u>Year</u>	<u>Overhead Cost</u>	<u>Underground Cost</u>
2011	\$17,858	\$4,556

2012	\$14,865	\$3,178
2013	\$18,041	\$20,476
2014	\$17,607	\$17,707
2015	\$18,743	\$8,998
Average	\$17,423	\$10,983

These historical maintenance costs over the last five years show that the average operation and maintenance costs of overhead and underground transmission lines are about the same.

See the response to item (4) above for the combined capital and O&M rate and bill impacts.

The combined capital and O&M amortized cost calculations for the overhead and underground alignments are shown in Attachment 4 to this Exhibit.

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

There are tradeoffs in the reliability of underground and overhead systems. Overhead lines are subject to more frequent outages, but they tend to be of shorter duration than outages for underground lines. When faults occur in underground systems, repairs can take weeks instead of days. When lines are underground, they are not exposed to faults from insulator and shield wire failure. However, underground lines experience their own host of problems from construction, heat and ground movement.

When developing wind pressure designs for the proposed transmission line, Hawaiian Electric follows Hawaii Administrative Rules (“HAR”) Chapter 6-73 (Installation, Operation, and Maintenance of Overhead and Underground Electrical Supply and Communication Lines), including the National Electric Safety Code, 2002 Edition (“NESC”). The formulas used to develop the wind pressures take wind effects (such as gusts, conductor drag, and terrain) into consideration. The poles and conductors would be designed to survive the anticipated wind loads of an Iniki-class hurricane. It is unlikely that the proposed poles or lines would be knocked down or cause hazards during storms (e.g., high winds, rains, hurricanes).

As for the lateral loads due to earthquakes, the City and County Building Code requires that structures be designed in accordance with the seismic design provisions of the 2006 International Building Code. The magnitude of the design loading is a function of the structure’s mass, and is a site specific calculation that varies according to the characteristics of the soils onsite. Because an overhead transmission line is a flexible system generally constructed out of materials that do not have large concentrations of mass, the lateral loads are governed by the wind pressure on the exposed surface area. Accordingly, Hawaiian Electric does not anticipate a significant risk of damage to, or destruction of, the above ground transmission line due to seismic activity.

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

No long-term health-related impacts are expected in association with either the proposed underground or overhead options for this project. Specifically, Hawaiian Electric's transmission lines are built and operated in accordance with numerous health and safety guidelines, including design and operation standards contained within the NESC, and worker health and safety standards determined by the Federal Occupational Safety and Health Administration ("OSHA").

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

The "Hawaiian Electric Company, AES-CEIP 2 138 kV Transmission Line Relocation, Electric and Magnetic Field Evaluation" ("EMF") study was prepared by Sargent and Lundy LLC. The EMF study evaluated the electric and magnetic fields from the proposed above-ground system and the alternate underground system. A copy of the EMF study and electric and magnetic field comparisons is attached as Attachment 5 to this Exhibit.

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

(A) High density population areas;

The relocated portion of the AES-CEIP 2 138 kV transmission line is away from high-density population areas. The closest townhomes are located in Ko Olina Fairways (approximately 0.7 mile away) and the closest homes are located in Honokai Hale (approximately 0.9 mile away) and in Makakilo (approximately 1.3 miles away). (See Exhibit III for digital photographs of the Project area.) The existing and relocated portion of the line will pass through property that is zoned AG-1 Agricultural.

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

The relocated portion of the AES-CEIP 2 138 kV transmission line is not located in conservation areas, or areas with other valuable natural resources.

The nearest area used for public recreation is Ko Olina golf course. This golf course is located next to Ko Olina Fairways (approximately 0.7 mile from the nearest point, P17, on the Project site). The views from Ko Olina Fairways and the golf course are blocked by vegetation. See Exhibit III, Page 3 of 5.

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

The nearest area that may be important to the visitor industry is Kapolei Commons (approximately 0.4 mile from the nearest point, P17, on the Project site). The visual impact should be minimal as there are existing 138 kV overhead transmission line in the Project area. See Exhibit III, Page 5 of 5.

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

The relocated section of the AES-CEIP 2 138 kV transmission line that Hawaiian Electric proposes to construct and operate would not adversely affect industries that are dependent upon Hawaii's natural environment.

(10) The length of the system;

The length of both the proposed overhead relocation and the alternative underground relocation are approximately 4,555 circuit feet in length. This represents 39% of the overall length of the AES-CEIP 2 138 kV line, i.e., approximately 4,555 circuit feet out of 2.2 miles.

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

A public hearing pursuant to HRS § 269-27.5 is not being requested because the relocated line will pass through property that is zoned AG-1 Agricultural and not zoned for residential use. (See Application, Section IV.)

Hawaiian Electric will inform the Makakilo/Kapolei/Honokai Hale Neighborhood Board (the Neighborhood Board closest to the Project site) regarding the proposed transmission project. Hawaiian Electric will not request formal action by the Neighborhood Board.

Subsequent to the filing of the subject Application, Hawaiian Electric will take steps to publicize the subject Project, and to seek public comments. These steps may include publishing a public notice of the filing of the Application and/or including notification about the subject Project on the Company's website.¹

Hawaiian Electric does not expect that there is a substantial desire on the part of the community for undergrounding the relocated sections of the AES-CEIP 2 138 kV transmission line. The public hearing and public notices of the subject Application should help in determining the breadth and depth of public sentiment with respect to an above-ground versus underground relocation for the subject Project.

¹ Similar actions were taken by the Company for the 138kV project that was the subject of Docket No. 2014-0159 (Halawa-Makalapa 138 kV P11H and P12H Replacement).

COST ESTIMATE OVERHEAD

PROJECT TITLE: AES-CEIP 2 138 KV OVERHEAD RELOCATION

BUDGET ITEM: P0003975

TOTALS

LABOR	\$445,938
MATERIALS	\$1,236,314
OUTSIDE SERVICES	\$577,490
ON-COSTS	\$678,246
OTHER	\$0
LAND	\$0
ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	\$69,244
<u>TOTAL CAPITAL COST OF PROJECT</u>	<u>\$3,007,232</u>
Estimated Contributions	(\$0)
<u>NET PROJECT COST</u> (Less Cash and In-Kind Contributions)	<u>\$3,007,232</u>

COST ESTIMATE OVERHEAD

Labor hours and projected loaded rates are as follows:

	<u>GROUP</u>	<u>HOURS</u>	<u>DOLLARS</u>
ENGINEERING			
Transmission & Distribution	(BE)	913	\$89,394
Structural & Survey	(BT)	360	\$35,455
Substation & Telecom	(BY)	48	\$4,407
Reg Rate Proceedings	(NP)	24	\$1,847
CONSTRUCTION & MAINTENANCE			
Planning	(DP)	240	\$23,709
Operations	(DS)	8,270	\$741,878
Field Operation	(DF)	72	\$8,334
TEST & SUBSTATION			
Communications Division	(RC)	216	\$24,245
TOTAL		10,143	\$929,269

The breakdown of materials and outside services and their estimated costs for each item costing \$1,000 or more are shown below.

MATERIAL COSTS:

<u>QTY</u>	<u>ITEM</u>	<u>TOTAL COST</u>
9	Pole, Steel, 120 FT	\$1,226,837
3	Deadend Steel Pole Framing	\$7,424
6	Tangent Steel Pole Framing	\$14,640
4,555'	Shield Wire, OPGW, 48 Fiber	\$23,843
13,665'	Conductor, ACSS/AW/TW, 1780 KCM	\$46,212
1,350'	Ground Wire, Bare, Cu, #2	\$11,180
2	Splice, Enclosure, OPGW	\$2,738

OUTSIDE CONSULTANT SERVICES COSTS:

<u>QTY</u>	<u>ITEM</u>	<u>TOTAL COST</u>
1 Lot	Sargent & Lundy	\$245,835

OUTSIDE CONSTRUCTION SERVICES COSTS:

<u>QTY</u>	<u>ITEM</u>	<u>TOTAL COST</u>
9	Foundation, 120 FT, Steel Pole	\$401,459

COST ESTIMATE UNDERGROUND

PROJECT TITLE: AES-CEIP 2 138 KV UNDERGROUND RELOCATION
BUDGET ITEM: P0003975

TOTALS

LABOR	\$135,572
MATERIALS	\$254,288
OUTSIDE SERVICES	\$12,095,600
ON-COSTS	\$1,542,868
OTHER	\$0
LAND	\$0
ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	\$79,197
<u>TOTAL CAPITAL COST OF PROJECT</u>	<u>\$14,107,525</u>
Estimated Contributions	(\$0)
<u>NET PROJECT COST</u> (Less Cash and In-Kind Contributions)	<u>\$14,107,525</u>

COST ESTIMATE UNDERGROUND

Labor hours and projected loaded rates are as follows:

	<u>GROUP</u>	<u>HOURS</u>	<u>DOLLARS</u>
ENGINEERING			
Transmission & Distribution	(BE)	1081	\$105,780
Structural & Survey	(BT)	424	\$43,076
Substation & Telecom	(BY)	96	\$8,899
Reg Rate Proceedings	(NP)	24	\$1,847
CONSTRUCTION & MAINTENANCE			
Planning	(DP)	144	\$14,225
Operations	(DS)	690	\$76,001
Field Operation	(DF)	144	\$16,669
TEST & SUBSTATION			
Communications Division	(RC)	216	\$24,245
TOTAL		2,819	\$290,742

The breakdown of materials and outside services and their estimated costs for each item costing \$1,000 or more are shown below.

MATERIAL COSTS:

<u>QTY</u>	<u>ITEM</u>	<u>TOTAL COST</u>
2	Pole, Steel, 120 FT	\$269,892
2	Riser, Underground, Steel Pole Framing	\$4,905
300'	Ground Wire, Bare, Cu, #2	\$2,487
2	Splice, Enclosure, OPGW	\$2,738

OUTSIDE CONSULTANT SERVICES COSTS:

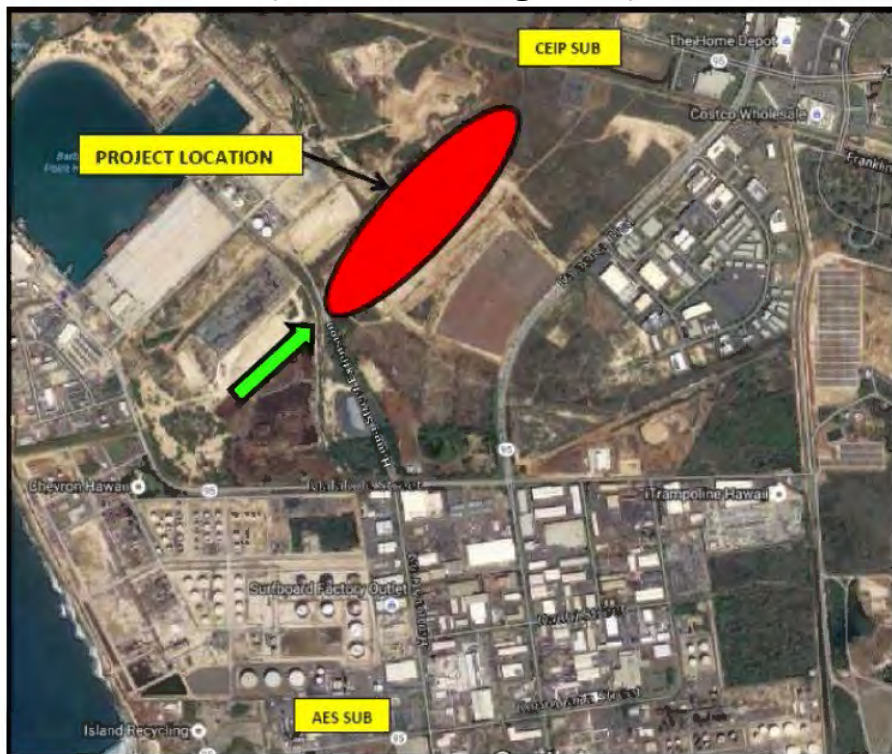
<u>QTY</u>	<u>ITEM</u>	<u>TOTAL COST</u>
1 Lot	Sargent & Lundy	\$661,825
1 Lot	Soils Investigation	\$77,920
1 Lot	Construction Management	\$59,270

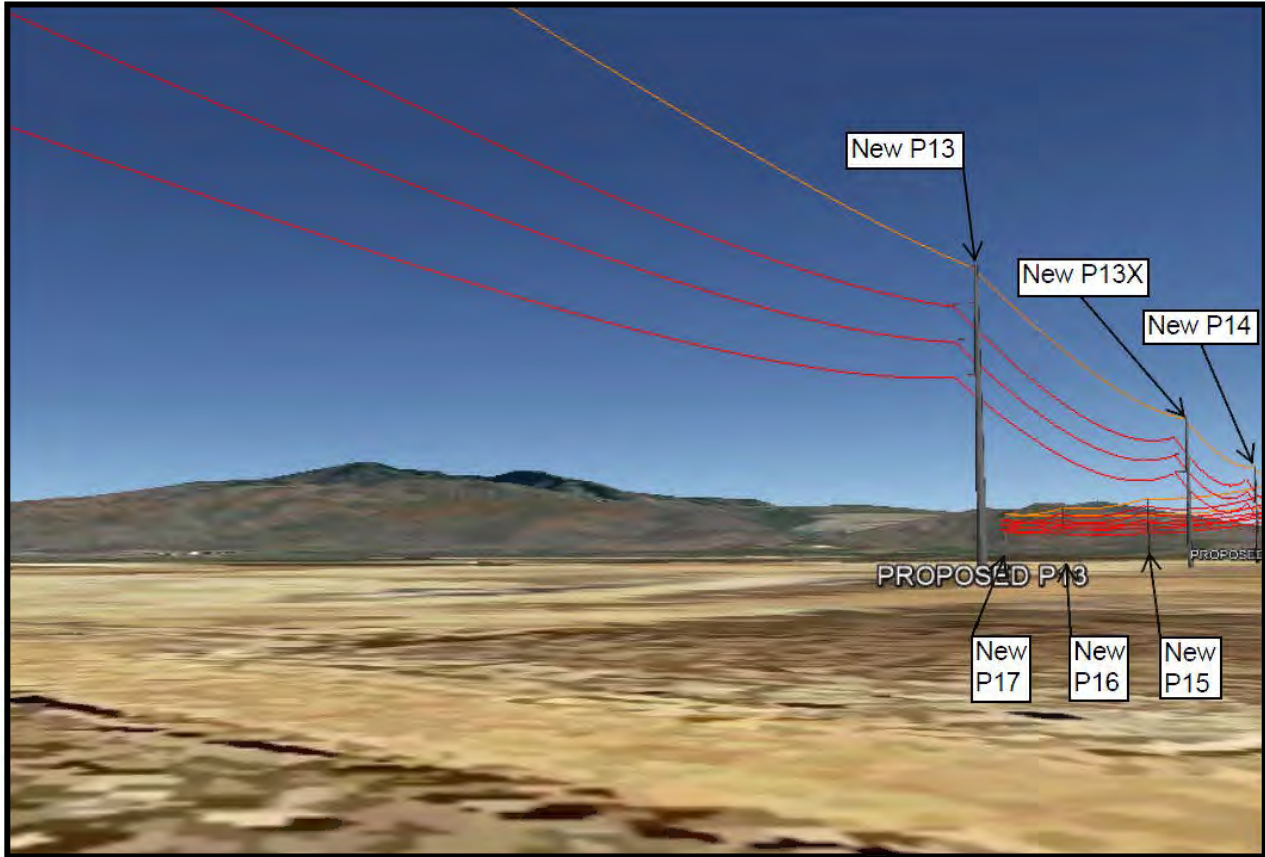
OUTSIDE CONSTRUCTION SERVICES COSTS:

<u>QTY</u>	<u>ITEM</u>	<u>TOTAL COST</u>
2	Foundation, 120 FT, Steel Pole	\$89,809
1 Lot	Duct Line Construction	\$8,062,710
1 Lot	Furnish and Install Cable/Splices/Terminations	\$4,506,030



Simulation of Proposed View from Hanua Street Extension.
(With Existing Line)





Simulation of Proposed View from Hanua Street Extension.
(Existing Line Relocated)



From: [Higham, John](#)
To: [Ikeda, Lisa Y. M.](#)
Cc: [Kelly, Steve](#); [Hill, Chuck](#); [Field, Robby](#)
Subject: AES-CEIP 2 138kV Overhead Transmission Line Relocation
Date: Friday, October 14, 2016 2:32:14 PM

Lisa

Kapolei Properties in not willing to pay for the additional cost to underground the relocated portion of the AES-CEIP 2 138 KV overhead transmission line.



John L Higham | Vice President, Construction & Engineering
Kapolei Properties Division
Aina Nui Corporation | Kapolei Properties LLC | Fort Street Investment Corporation
Affiliates of the James Campbell Company LLC
James Campbell Building, Suite 250; 1001 Kamokila Boulevard; Kapolei, HI 96707
[REDACTED]
www.kapolei.com | www.jamescampbell.com

From: Ikeda, Lisa Y. M. [REDACTED]
Sent: Friday, October 14, 2016 2:29 PM
To: Higham, John
Cc: Kelly, Steve; Hill, Chuck; Field, Robby
Subject: AES-CEIP 2 138kV Overhead Transmission Line Relocation

Hi John,

We are seeking approval from the PUC for Kapolei Properties' request to relocate a portion of the AES-CEIP 2 138kV overhead transmission line. We are required to comply with HRS §269-27.6 by identifying whether any government agency or other parties are willing to pay for the additional costs of undergrounding.

We have estimated the differential cost for an underground alignment to the proposed overhead alignment be approximately \$11,660,025.

Please let me know if Kapolei Properties is willing to pay for the additional cost to underground the relocated portion of the AES-CEIP 2 138kV overhead transmission line.

Should you have any questions, please feel free to contact me.

Regards,
Lisa Ikeda
Engineering Department
Hawaiian Electric Company, Inc.

Note: Personal email addresses and/or telephone and facsimile numbers are considered confidential due to privacy concerns and have been redacted from this Attachment.

AES-CEIP 2 138KV OH vs UG
 Bill Impact

Estimated Typical Residential Bill Impact					
Line	Description	2019	2020	2021	
a	Overhead Revenue Requirement (Current Year \$)	390,334	379,744	369,631	
b	Estimated HE Sales (MWh) ¹	6,663,975	6,628,286	6,580,286	
c = (a/b)/10	Estimated Bill Impact (cents/kwh in Current Year \$)	0.0059	0.0057	0.0056	
d = (500*c)/100	Estimated Typical Residential Bill Impact of 500 kwh (Current Year \$)	\$ 0.03	\$ 0.03	\$ 0.03	
e	Underground Revenue Requirement (Current Year \$)	1,715,148	1,667,646	1,622,360	
f	Estimated HE Sales (MWh) ¹	6,663,975	6,628,286	6,580,286	
g = (e/f)/10	Estimated Bill Impact (cents/kwh in Current Year \$)	0.0257	0.0252	0.0247	
h = (500*g)/100	Estimated Typical Residential Bill Impact of 500 kwh (Current Year \$)	\$ 0.13	\$ 0.13	\$ 0.12	

Notes:

1. Sales Forecast from the PSIP filing in April 2016 - Theme 3 scenario and is subject to change for updates as part of the Company's 2016 Budget process.

AES-CEIP 2 138KV OH vs UG
Summary

Year	Overhead	Underground	Difference
	Revenue Requirement	Revenue Requirement	
	A	B	C=A-B
1	173,712	747,929	(574,217)
2	390,334	1,715,148	(1,324,813)
3	379,744	1,667,646	(1,287,902)
4	369,631	1,622,360	(1,252,729)
5	359,962	1,579,125	(1,219,163)
6	350,704	1,537,787	(1,187,084)
7	341,826	1,498,206	(1,156,380)
8	333,300	1,460,248	(1,126,948)
9	324,974	1,423,200	(1,098,225)
10	316,684	1,386,285	(1,069,601)
11	308,402	1,349,376	(1,040,974)
12	300,127	1,312,471	(1,012,344)
13	291,860	1,275,572	(983,711)
14	283,602	1,238,678	(955,075)
15	275,352	1,201,789	(926,437)
16	267,111	1,164,905	(897,794)
17	258,878	1,128,027	(869,149)
18	250,654	1,091,154	(840,500)
19	242,439	1,054,287	(811,848)
20	234,233	1,017,426	(783,193)
21	227,047	985,307	(758,260)
22	221,888	962,663	(740,775)
23	217,749	944,760	(727,012)
24	213,619	926,864	(713,245)
25	209,500	908,975	(699,474)
26	205,392	891,092	(685,700)
27	201,293	873,215	(671,922)
28	197,206	855,345	(658,139)
29	193,130	837,483	(644,353)
30	189,065	819,627	(630,562)
31	185,011	801,779	(616,768)
32	180,970	783,938	(602,968)
33	176,940	766,105	(589,165)
34	172,922	748,279	(575,357)
35	168,917	730,461	(561,544)
36	164,924	712,651	(547,727)
37	160,945	694,850	(533,905)
38	156,979	677,056	(520,078)
39	153,026	659,271	(506,246)
40	149,086	641,495	(492,409)
41	145,161	623,728	(478,566)
42	141,250	605,969	(464,719)
43	137,354	588,220	(450,866)
44	133,473	570,480	(437,008)
45	129,606	552,750	(423,144)
46	125,755	535,029	(409,274)
47	121,920	517,319	(395,398)
48	118,101	499,618	(381,517)
49	114,299	481,928	(367,629)
50	110,513	464,248	(353,735)
51	55,735	527,772	27,963
52	1,224,167	631,666	592,500
53	1,183,565	607,353	576,213
54	1,145,139	583,441	561,699
55	1,108,728	559,901	548,826
56	1,074,182	536,708	537,474
57	1,041,363	513,835	527,528
58	1,010,144	491,260	518,883
59	979,826	468,858	510,968
60	949,656	446,491	503,164
Total	21,349,075	53,499,408	(32,150,333)
NPV at 3.0%	8,485,291	29,332,627	(20,847,337)
NPV at 7.2%	4,065,497	16,905,755	(12,840,259)
NPV at 12.0%	2,552,903	11,090,709	(8,537,806)

**AES-CEIP 2.138KV OH vs UG
Revenue Requirements Model
Assumptions**

Manual Input

Cost of Capital Assumptions	Weight	Rate	Weighted Average	Alter-Tax Weighted Average	Weighted Average Revenue Requirement	Weighted Average Gross-up for Income Taxes
Short Term Debt	2.35%	1.75%	0.04%	0.03%	0.045%	0.04%
Long Term Debt (Taxable Debt)	38.36%	5.86%	2.25%	1.37%	2.467%	2.25%
Hybrids	1.72%	7.36%	0.13%	0.08%	0.139%	0.13%
Preferred Stock	1.28%	5.46%	0.07%	0.07%	0.125%	0.11%
Common Stock	56.25%	10.00%	5.63%	5.63%	10.113%	9.21%
	100.00%		8.11%	7.175%	12.590%	11.745%

Tax Assumptions	
Federal Income Tax Rate	35.00%
State Income Tax Rate	6.40%
State Investment Tax Credit (ITC)	4.00%
Public Service Company Tax	5.885%
PUC Fee	0.500%
Franchise Tax	2.500%
Composite Revenue Tax Rate	8.885%
	1.09751

Project Assumptions
Sources: Lisa Ikeda, Engineer III - Engineering

Overhead	Initial Capital	In Service Yr.	Ann. Escalation	Replacement Capital	Ann. Escalation	In Service Yr.
UG Conduit	\$ -	1	2.0%	\$ 8,599,835	2.0%	1
UG Conductors and Devices	\$ -	1	2.0%	\$ 4,973,885	2.0%	1
Poles & Fixtures	\$ 2,255,424	1	2.0%	\$ 543,805	2.0%	1
OH Conductors and Devices	\$ 751,808	1	2.0%	\$ -	2.0%	1
DIST: UG Conduit	\$ -	1	2.0%	\$ -	2.0%	1
DIST: UG Conductors and Devices	\$ -	1	2.0%	\$ -	2.0%	1
	3,007,232			14,107,525		
Replacement Capital						
UG Conduit	\$ -	61	2.0%	\$ 28,747,183	2.0%	61
UG Conductors and Devices	\$ -	61	2.0%	\$ 16,645,859	2.0%	61
Poles & Fixtures	\$ 6,192,086	51	2.0%	\$ 1,492,973	2.0%	51
OH Conductors and Devices	\$ 2,064,029	51	2.0%	\$ -	2.0%	51
DIST: UG Conduit	\$ -	61	2.0%	\$ -	2.0%	61
DIST: UG Conductors and Devices	\$ -	52	2.0%	\$ -	2.0%	52
Land	\$ 51	1		\$ -		1
CIAC	\$ -	1		\$ -		1
O&M	\$ 17,423	0.86		\$ -		0.86
O&M Inputs	\$ 15,031	0.86		\$ 10,983		0.86
	2.0%			2.0%		

Depreciation - Overhead	Initial Capital						Replacement Capital					
	UG Conduit	UG Conductors and Devices	Poles & Fixtures	OH Conductors and Devices	UG Conduit	UG Conductors and Devices	UG Conduit	UG Conductors and Devices	Poles & Fixtures	OH Conductors and Devices	UG Conduit	UG Conductors and Devices
Expected Useful Life	60	60	60	50	60	60	60	60	50	60	60	60
MACRS Tax Life ("Tax Life") *	20	20	20	20	20	20	20	20	20	20	20	20
Tax Class Life ("Class Life") +	30	30	30	30	30	30	30	30	30	30	30	30

Depreciation - Underground	Initial Capital						Replacement Capital					
	UG Conduit	UG Conductors and Devices	Poles & Fixtures	OH Conductors and Devices	UG Conduit	UG Conductors and Devices	UG Conduit	UG Conductors and Devices	Poles & Fixtures	OH Conductors and Devices	UG Conduit	UG Conductors and Devices
Expected Useful Life	60	60	60	50	60	60	60	60	50	60	60	60
MACRS Tax Life ("Tax Life") *	20	20	20	20	20	20	20	20	20	20	20	20
Tax Class Life ("Class Life") +	30	30	30	30	30	30	30	30	30	30	30	30

* half-year convention, table A-1
+ half-year convention, table A-8

AES-GEIP 2 138KV OH vs UG		Bonus Depreciation																															
Tax Depreciation Factors		Tax Depreciation																															
Manual Input	Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Tax Depreciation Rates (Straight Line)																																	
	3	16.670%	33.330%	33.330%	16.670%																												
	5	10.000%	20.000%	20.000%	20.000%	10.000%																											
	7	7.140%	14.280%	14.280%	14.280%	14.280%	10.000%	14.280%	7.140%																								
	10	5.000%	10.000%	10.000%	10.000%	10.000%	10.000%	10.000%	10.000%	10.000%	10.000%	5.000%																					
	15	3.330%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.660%	6.670%	6.660%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	6.670%	
	20	2.500%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	
	25	2.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	4.000%	
	28	1.786%	3.571%	3.571%	3.571%	3.571%	3.571%	3.571%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	3.571%	3.572%	
	30	1.667%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	
	35	1.429%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	2.857%	
	50	1.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	
Sources: IRS Publication 946, Table A-8																																	
Tax Depreciation Rates (MACRS)																																	
	3	33.330%	44.450%	14.810%	7.410%																												
	5	20.000%	32.000%	19.200%	11.520%	5.760%																											
	7	14.290%	24.490%	17.480%	12.480%	8.920%	8.920%	8.920%	4.460%																								
	10	10.000%	18.000%	14.400%	11.520%	9.220%	7.370%	6.550%	6.550%	6.550%	6.550%	3.280%																					
	15	5.000%	9.500%	8.550%	7.700%	6.830%	6.230%	5.900%	5.900%	5.900%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	5.900%	5.910%	
	20	3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	4.888%	4.522%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%	
Sources: IRS Publication 946, Table A-1																																	

Revenue Requirements Model - Calculations																				
Manual input	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deferred Tax Base	1,150,266	71,338	61,559	52,537	44,165	36,442	29,279	22,675	21,592	21,574	21,592	21,574	21,592	21,574	21,592	21,574	21,592	21,574	21,592	21,574
Deferred Taxes - Federal	378,377	23,466	20,250	17,282	14,528	11,988	9,631	7,459	7,103	7,097	7,103	7,097	7,103	7,097	7,103	7,097	7,103	7,097	7,103	7,097
Deferred Taxes - State excluding credit	69,189	4,291	3,703	3,160	2,657	2,192	1,761	1,364	1,299	1,298	1,299	1,298	1,299	1,298	1,299	1,298	1,299	1,298	1,299	1,298
Change in Deferred Taxes	447,566	27,757	23,952	20,442	17,184	14,180	11,392	8,823	8,402	8,395	8,402	8,395	8,402	8,395	8,402	8,395	8,402	8,395	8,402	8,395
Accumulated Deferred Taxes	447,566	475,323	499,276	519,718	536,902	551,082	562,474	571,297	579,698	588,093	596,494	604,889	613,291	621,685	630,087	638,481	646,883	655,277	663,679	672,073
Change in Deferred ITC	120,289	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
check	120,289	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
Rate Base and Financing																				
Investment: (Rate Base)																				
Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Plant	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232
Accumulated Depreciation	-	61,372	122,744	184,116	245,488	306,860	368,232	429,605	490,977	552,349	613,721	675,093	736,465	797,837	859,209	920,581	981,953	1,043,325	1,104,697	1,166,070
CIAC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated Deferred Taxes	447,566	475,323	499,276	519,718	536,902	551,082	562,474	571,297	579,698	588,093	596,494	604,889	613,291	621,685	630,087	638,481	646,883	655,277	663,679	672,073
Accumulated Deferred ITC	120,289	117,834	115,380	112,925	110,470	108,015	105,560	103,105	100,650	98,195	95,740	93,286	90,831	88,376	85,921	83,466	81,011	78,556	76,101	73,646
Ending Net Investment	-	2,439,377	2,352,702	2,269,833	2,190,473	2,114,372	2,041,275	1,970,966	1,903,226	1,835,907	1,768,595	1,701,276	1,633,965	1,566,646	1,499,334	1,432,015	1,364,704	1,297,385	1,230,073	1,162,754
Average Net Investment	1,219,688	2,396,039	2,311,267	2,230,153	2,152,423	2,077,823	2,006,120	1,937,096	1,869,566	1,802,251	1,734,936	1,667,620	1,600,305	1,532,990	1,465,675	1,398,359	1,331,044	1,263,729	1,196,414	1,129,098
Average Financing:																				
Short Term Debt	2.35%	28,624	56,231	54,241	52,338	50,513	48,763	47,080	45,460	43,875	42,296	40,716	39,136	37,556	35,976	34,397	32,817	31,237	29,657	28,078
Long Term Debt (Taxable Debt)	38.36%	467,915	919,204	886,683	855,564	825,744	797,125	769,618	743,137	717,231	691,406	665,582	639,757	613,933	588,108	562,284	536,459	510,635	484,810	458,986
Hybrids	1.72%	20,971	41,197	39,739	38,344	37,008	35,725	34,492	33,306	32,145	30,987	29,830	28,672	27,515	26,358	25,200	24,043	22,885	21,728	20,571
Preferred Stock	1.28%	15,586	30,619	29,535	28,499	27,505	26,552	25,636	24,754	23,891	23,031	22,170	21,310	20,450	19,590	18,730	17,869	17,009	16,149	15,289
Common Equity	56.29%	686,593	1,348,790	1,301,069	1,255,408	1,211,652	1,169,658	1,129,294	1,090,439	1,052,425	1,014,531	976,638	938,745	900,851	862,958	825,064	787,171	749,277	711,384	673,491
Total Financing		1,219,688	2,396,039	2,311,267	2,230,153	2,152,423	2,077,823	2,006,120	1,937,096	1,869,566	1,802,251	1,734,936	1,667,620	1,600,305	1,532,990	1,465,675	1,398,359	1,331,044	1,263,729	1,196,414
Return on Investment																				
Short Term Debt	1.75%	501	984	949	916	884	853	824	796	768	740	713	685	657	630	602	574	547	519	491
Long Term Debt (Taxable Debt)	5.86%	27,420	53,865	51,960	50,136	48,389	46,712	45,100	43,548	42,030	40,516	39,003	37,490	35,976	34,463	32,950	31,437	29,923	28,410	26,897
Hybrids	7.36%	1,543	3,032	2,925	2,822	2,724	2,629	2,539	2,451	2,366	2,281	2,195	2,110	2,025	1,940	1,855	1,770	1,684	1,599	1,514
Total Interest Expense		29,464	57,881	55,834	53,874	51,996	50,194	48,462	46,795	45,163	43,537	41,911	40,285	38,659	37,033	35,407	33,780	32,154	30,528	28,902
Preferred Dividends	5.46%	851	1,672	1,613	1,556	1,502	1,450	1,400	1,352	1,304	1,257	1,211	1,164	1,117	1,070	1,023	976	929	882	835
Net Income on Common	10.00%	68,659	134,879	130,107	125,541	121,165	116,966	112,929	109,044	105,242	101,453	97,664	93,874	90,085	86,296	82,506	78,717	74,928	71,138	67,349
Income Taxes																				
Income Before Pref Dividends		69,510	136,551	131,720	127,097	122,667	118,416	114,329	110,395	106,547	102,711	98,874	95,038	91,202	87,365	83,529	79,693	75,856	72,020	68,184
Income Before Taxes (including ITC)		113,783	223,523	215,615	208,048	200,796	193,837	187,148	180,709	174,409	168,129	161,850	155,570	149,290	143,010	136,731	130,451	124,171	117,891	111,612
Investment Tax Credit		-	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455
Income Before Taxes (excluding ITC)		113,783	221,068	213,160	205,593	198,341	191,382	184,693	178,254	171,954	165,674	159,395	153,115	146,835	140,556	134,276	127,996	121,716	115,437	109,157
Federal Income Tax		37,429	73,527	70,926	68,437	66,051	63,762	61,562	59,444	57,371	55,306	53,240	51,174	49,109	47,043	44,977	42,911	40,846	38,780	36,714
State Income Tax		6,844	13,445	12,969	12,514	12,078	11,659	11,257	10,870	10,491	10,113	9,735	9,358	8,980	8,602	8,224	7,847	7,469	7,091	6,713
State Investment Tax Credit		-	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
Total State Tax		6,844	10,990	10,514	10,059	9,623	9,204	8,802	8,415	8,036	7,658	7,280	6,903	6,525	6,147	5,770	5,392	5,014	4,636	4,259
Total Taxes		44,273	84,517	81,440	78,496	75,675	72,967	70,364	67,859	65,407	62,964	60,520	58,077	55,634	53,190	50,747	48,303	45,860	43,416	40,973
Revenue Requirement Calculation																				
Revenue Requirement		173,712	390,334	379,744	369,631	359,962	350,704	341,826	333,300	324,974	316,684	308,402	300,127	291,860	283,602	275,352	267,111	258,878	250,654	242,439
Revenue Taxes		15,434	34,681	33,740	32,842	31,983	31,160	30,371	29,614	28,874	28,137	27,401	26,666	25,932	25,198	24,465	23,733	23,001	22,271	21,541
Income Before Depr, Int, Inc Tax		158,278	355,653	346,003	336,790	327,980	319,544	311,454	303,686	296,100	288,547	281,000	273,461	265,929	258,404	250,887	243,378	235,876	228,383	220,898
Depreciation Expense		-	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372
CIAC Amortization		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M		15,031	15,331	15,638	15,951	16,270	16,595	16,927	17,265	17,611	17,963	18,322	18,689	19,062	19,444	19,833	20,229	20,634	21,047	21,467
Interest Expense		29,464	57,881	55,834	53,874	51,996	50,194	48,462	46,795	45,163	43,537	41,911	40,285	38,659	37,033	35,407	33,780	32,154	30,528	28,902
Income Before Income Taxes		113,783	221,068	213,160	205,593	198,341	191,382	184,693	178,254	171,954	165,674	159,395	153,115	146,835	140,556	134,276	127,996	121,716	115,437	109,157
Income Taxes - Federal		37,429	73,527	70,926	68,437	66,051	63,762	61,562	59,444	57,371	55,306	53,240	51,174	49,109	47,043	44,977	42,911	40,846	38,780	36,714
Income Taxes - State		6,844	13,445	12,969	12,514	12,078	11,659	11,257	10,870	10,491	10,113	9,735	9,358	8,980	8,602	8,224	7,847	7,469	7,091	6,713
State ITC		-	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
Total Income Taxes		44,273	84,5																	

Revenue Requirements Model - Calculations																					
Manual input	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Deferred Tax Base	(18,662)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	
Deferred Taxes - Federal	(6,139)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	
Deferred Taxes - State excluding credit	(1,123)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	
Change in Deferred Taxes	(7,261)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	
Accumulated Deferred Taxes	664,812	641,887	618,963	596,038	573,114	550,189	527,265	504,340	481,416	458,491	435,566	412,642	389,717	366,793	343,868	320,944	298,019	275,095	252,170	229,245	206,321
check	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0
Change in Deferred ITC	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
Rate Base and Financing																					
Investment: (Rate Base)																					
Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gross Plant	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	
Accumulated Depreciation	1,227,442	1,288,814	1,350,186	1,411,558	1,472,930	1,534,302	1,595,674	1,657,046	1,718,418	1,779,790	1,841,162	1,902,535	1,963,907	2,025,279	2,086,651	2,148,023	2,209,395	2,270,767	2,332,139	2,393,511	2,454,883
CIAC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated Deferred Taxes	664,812	641,887	618,963	596,038	573,114	550,189	527,265	504,340	481,416	458,491	435,566	412,642	389,717	366,793	343,868	320,944	298,019	275,095	252,170	229,245	206,321
Accumulated Deferred ITC	71,192	68,737	66,282	63,827	61,372	58,917	56,462	54,007	51,553	49,098	46,643	44,188	41,733	39,278	36,823	34,368	31,913	29,459	27,004	24,549	22,094
Ending Net Investment	1,043,787	1,007,794	971,802	935,809	899,816	863,824	827,831	791,838	755,846	719,853	683,860	647,868	611,875	575,882	539,890	503,897	467,904	431,912	395,919	359,926	323,934
Average Net Investment	1,069,615	1,025,791	989,798	953,805	917,813	881,820	845,827	809,835	773,842	737,849	701,857	665,864	629,871	593,879	557,886	521,893	485,901	449,908	413,915	377,923	341,930
Average Financing:																					
Short Term Debt	25,102	24,073	23,229	22,384	21,539	20,695	19,850	19,005	18,161	17,316	16,471	15,627	14,782	13,937	13,093	12,248	11,403	10,559	9,714	8,869	8,024
Long Term Debt (Taxable Debt)	410,341	393,529	379,721	365,913	352,105	338,297	324,489	310,681	296,873	283,065	269,257	255,449	241,641	227,833	214,025	200,216	186,408	172,600	158,792	144,984	131,176
Hybrids	18,391	17,637	17,018	16,399	15,781	15,162	14,543	13,924	13,305	12,686	12,067	11,449	10,830	10,211	9,592	8,973	8,354	7,736	7,117	6,498	5,879
Preferred Stock	13,668	13,108	12,648	12,189	11,729	11,269	10,809	10,349	9,889	9,429	8,969	8,509	8,049	7,589	7,129	6,669	6,209	5,749	5,289	4,829	4,369
Common Equity	602,112	577,443	557,182	536,920	516,659	496,398	476,137	455,876	435,615	415,354	395,092	374,831	354,570	334,309	314,048	293,787	273,525	253,264	233,003	212,742	192,481
Total Financing	1,069,615	1,025,791	989,798	953,805	917,813	881,820	845,827	809,835	773,842	737,849	701,857	665,864	629,871	593,879	557,886	521,893	485,901	449,908	413,915	377,923	341,930
Return on Investment																					
Short Term Debt	439	421	407	392	377	362	347	333	318	303	288	273	259	244	229	214	200	185	170	155	140
Long Term Debt (Taxable Debt)	24,046	23,061	22,252	21,442	20,633	19,824	19,015	18,206	17,397	16,588	15,778	14,969	14,160	13,351	12,542	11,733	10,924	10,114	9,305	8,496	7,687
Hybrids	1,354	1,298	1,253	1,207	1,161	1,116	1,070	1,025	979	934	888	843	797	752	706	660	615	569	524	478	433
Total Interest Expense	25,839	24,780	23,911	23,041	22,172	21,302	20,433	19,563	18,694	17,824	16,955	16,085	15,216	14,346	13,477	12,607	11,738	10,868	9,999	9,130	8,260
Preferred Dividends	746	716	691	665	640	615	590	565	540	515	490	465	439	414	389	364	339	314	289	264	239
Net Income on Common	60,211	57,744	55,718	53,692	51,666	49,640	47,614	45,588	43,561	41,535	39,509	37,483	35,457	33,431	31,405	29,379	27,353	25,326	23,300	21,274	19,248
Income Taxes																					
Income Before Pref Dividends	60,958	58,460	56,409	54,358	52,306	50,255	48,204	46,153	44,101	42,050	39,999	37,948	35,896	33,845	31,794	29,743	27,692	25,640	23,589	21,538	19,487
Income Before Taxes (including ITC)	99,783	95,695	92,337	88,979	85,621	82,264	78,906	75,548	72,191	68,833	65,475	62,117	58,760	55,402	52,044	48,687	45,329	41,971	38,614	35,256	31,898
Investment Tax Credit	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455
Income Before Taxes (excluding ITC)	97,328	93,240	89,882	86,524	83,167	79,809	76,451	73,093	69,736	66,378	63,020	59,663	56,305	52,947	49,589	46,232	42,874	39,516	36,159	32,801	29,443
Federal Income Tax	32,823	31,478	30,374	29,269	28,165	27,060	25,956	24,851	23,747	22,642	21,538	20,433	19,329	18,224	17,120	16,015	14,911	13,806	12,702	11,597	10,493
State Income Tax	6,002	5,756	5,554	5,352	5,150	4,948	4,746	4,544	4,342	4,140	3,938	3,736	3,534	3,332	3,130	2,929	2,727	2,525	2,323	2,121	1,919
State Investment Tax Credit	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)
Total State Tax	3,547	3,301	3,099	2,897	2,695	2,493	2,291	2,089	1,887	1,685	1,483	1,282	1,080	878	676	474	272	70	(132)	(334)	(536)
Total Taxes	36,370	34,780	33,473	32,167	30,860	29,554	28,247	26,941	25,634	24,328	23,021	21,715	20,408	19,102	17,795	16,489	15,183	13,876	12,570	11,263	9,957
Revenue Requirement Calculation																					
Revenue Requirement	227,047	221,888	217,749	213,619	209,500	205,392	201,293	197,206	193,130	189,065	185,011	180,970	176,940	172,922	168,917	164,924	160,945	156,979	153,026	149,086	145,161
Revenue Taxes	20,173	19,715	19,347	18,980	18,614	18,249	17,885	17,522	17,160	16,798	16,438	16,079	15,721	15,364	15,008	14,654	14,300	13,948	13,596	13,246	12,898
Income Before Depr, Int, Inc Tax	206,874	202,173	198,402	194,639	190,886	187,142	183,409	179,684	175,970	172,266	168,573	164,890	161,219	157,558	153,909	150,271	146,645	143,031	139,429	135,840	132,264
Depreciation Expense	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372
CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M	22,335	22,781	23,237	23,702	24,176	24,659	25,153	25,656	26,169	26,692	27,226	27,770	28,326	28,892	29,470	30,060	30,661	31,274	31,900	32,537	33,188
Interest Expense	25,839	24,780	23,911	23,041	22,172	21,302	20,433	19,563	18,694	17,824	16,955	16,085	15,216	14,346	13,477	12,607	11,738	10,868	9,999	9,130	8,260
Income Before Income Taxes	97,328	93,240	89,882	86,524	83,167	79,809	76,451	73,093	69,736	66,378	63,020	59,663	56,305	52,947	49,589	46,232	42,874	39,516	36,159	32,801	29,443
Income Taxes - Federal	32,823	31,478	30,374	29,269	28,165	27,060	25,956	24,851	23,747	22,642	21,538	20,433	19,329	18,224	17,120	16,015	14,911</				

AES-CEIP 2 138KV OH vs UG																					
Revenue Requirements Model - Calculations																					
Manual input	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	Total	
O&M																					
Escalation Rate	2.25	2.30	2.34	2.39	2.44	2.49	2.54	2.59	2.64	2.69	2.75	2.80	2.86	2.91	2.97	3.03	3.09	3.15	3.22		
O&M	33,852	34,529	35,220	35,924	36,643	37,375	38,123	38,885	39,663	40,456	41,265	42,091	42,933	43,791	44,667	45,560	46,472	47,401	48,349	1,714,267	
Plant Asset Depreciation																					
Book Depreciation																					
Book Depreciation Rates - UG Conduit	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	100.000%	
Book Depreciation Rates - UG Cond. & Dev.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	100.000%	
Book Depreciation Rates - Poles & Fix.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Book Depreciation Rates - OH Cond. & Dev.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Book Depreciation Rates - DIST: Poles, Towers & Fix.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	100.000%	
Book Depreciation Rates - DIST: OH Cond. & Dev.	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
R Book Depreciation Rates - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Book Depreciation Rates - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Book Depreciation Rates - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	18.367%	
R Book Depreciation Rates - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	18.367%	
R Book Depreciation Rates - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Book Depreciation Rates - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	16.000%	
Depreciation Expense	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	-	168,492	168,492	168,492	168,492	168,492	168,492	168,492	168,492	168,492	4,523,661	
Accumulated Depreciation	2,516,255	2,577,627	2,639,000	2,700,372	2,761,744	2,823,116	2,884,488	2,945,860	3,007,232	3,007,232	3,175,724	3,344,216	3,512,708	3,681,201	3,849,693	4,018,185	4,186,677	4,355,169	4,523,661		
Bonus																					
Tax Depreciation																					
Tax Depreciation Rates (SL) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (SL) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (SL) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (SL) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (SL) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (SL) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
R Tax Depreciation Rates (SL) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Tax Depreciation Rates (SL) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Tax Depreciation Rates (SL) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	1.667%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	31.664%	
R Tax Depreciation Rates (SL) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	1.667%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	31.664%	
R Tax Depreciation Rates (SL) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Tax Depreciation Rates (SL) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	1.667%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	28.331%	
Revenue Bond Financed Tax Basis (S/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tax Depreciation Rates (MACRS) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (MACRS) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (MACRS) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (MACRS) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (MACRS) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
Tax Depreciation Rates (MACRS) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
R Tax Depreciation Rates (MACRS) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Tax Depreciation Rates (MACRS) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Tax Depreciation Rates (MACRS) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	4.888%	4.522%	4.462%	4.461%	53.154%
R Tax Depreciation Rates (MACRS) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	4.888%	4.522%	4.462%	4.461%	53.154%
R Tax Depreciation Rates (MACRS) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
R Tax Depreciation Rates (MACRS) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	48.693%	
NonRB Financed Tax Basis (MACRS)	-	-	-	-	-	-	-	-	-	309,604	596,009	551,261	509,980	471,672	436,336	403,559	373,341	368,388	368,305	7,395,687	
Tax Depreciation	-	-	-	-	-	-	-	-	-	309,604	596,009	551,261	509,980	471,672	436,336	403,559	373,341	368,388	368,305	7,395,687	
Accumulated Tax Depreciation	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,316,836	3,912,845	4,464,106	4,974,086	5,445,758	5,882,094	6,285,652	6,658,994	7,027,382	7,395,687		
State Investment Tax Credit (ITC)																					
Book																					
State ITC Amortization Rate - UG Conduit	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	100.000%	
State ITC Amortization Rate - UG Cond. & Dev.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	100.000%	
State ITC Amortization Rate - Poles & Fix.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	
State ITC Amortization Rate - OH Cond. & Dev.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	0.000%	0.000%	0.000%	0.000%	0.						

Revenue Requirements Model - Calculations																				
	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	Total
Manual input																				
Deferred Tax Base	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(58,917)	(20,640)	434,256	389,508	348,228	309,919	274,583	241,806	211,589	206,635	206,553	
Deferred Taxes - Federal	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(19,381)	(6,790)	142,848	128,128	114,549	101,947	90,323	79,542	69,602	67,972	67,945	
Deferred Taxes - State excluding credit	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(3,544)	(1,242)	26,121	23,429	20,946	18,642	16,516	14,545	12,727	12,429	12,424	
Change in Deferred Taxes	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(22,925)	(8,031)	168,968	151,557	135,495	120,589	106,840	94,086	82,329	80,401	80,369	
Accumulated Deferred Taxes	183,396	160,472	137,547	114,623	91,698	68,774	45,849	22,925	0	(8,031)	160,937	312,494	447,989	568,577	675,417	769,504	851,832	932,234	1,012,603	
check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change in Deferred ITC	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	-	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	
	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	-	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	
Rate Base and Financing																				
Investment: (Rate Base)																				
Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Plant	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	3,007,232	11,263,346	11,263,346	11,263,346	11,263,346	11,263,346	11,263,346	11,263,346	11,263,346	11,263,346	11,263,346	
Accumulated Depreciation	2,516,255	2,577,627	2,639,000	2,700,372	2,761,744	2,823,116	2,884,488	2,945,860	3,007,232	3,007,232	3,175,724	3,344,216	3,512,708	3,681,201	3,849,693	4,018,185	4,186,677	4,355,169	4,523,661	
CIAC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated Deferred Taxes	183,396	160,472	137,547	114,623	91,698	68,774	45,849	22,925	0	(8,031)	160,937	312,494	447,989	568,577	675,417	769,504	851,832	932,234	1,012,603	
Accumulated Deferred ITC	19,639	17,184	14,729	12,274	9,820	7,365	4,910	2,455	(0)	330,245	323,505	316,765	310,026	303,286	296,546	289,806	283,067	276,327	269,587	
Ending Net Investment	287,941	251,949	215,956	179,963	143,971	107,978	71,985	35,993	(0)	7,933,901	7,603,180	7,289,871	6,992,624	6,710,282	6,441,690	6,185,852	5,941,770	5,699,616	5,457,495	
Average Net Investment	305,938	269,945	233,952	197,960	161,967	125,974	89,982	53,989	17,996	3,966,950	7,768,540	7,446,525	7,141,247	6,851,453	6,575,986	6,313,771	6,063,811	5,820,693	5,578,556	
Average Financing:																				
Short Term Debt	7,180	6,335	5,490	4,646	3,801	2,956	2,112	1,267	422	93,097	182,313	174,756	167,592	160,791	154,326	148,173	142,307	136,601	130,918	
Long Term Debt (Taxable Debt)	117,368	103,560	89,752	75,944	62,136	48,328	34,520	20,712	6,904	1,521,860	2,980,283	2,856,746	2,739,631	2,628,456	2,522,777	2,422,182	2,326,289	2,233,021	2,140,128	
Hybrids	5,260	4,641	4,022	3,404	2,785	2,166	1,547	928	309	68,206	133,569	128,033	122,784	117,801	113,065	108,557	104,259	100,079	95,916	
Preferred Stock	3,910	3,450	2,990	2,530	2,070	1,610	1,150	690	230	50,693	99,273	95,158	91,257	87,553	84,033	80,683	77,488	74,382	71,287	
Common Equity	172,220	151,959	131,697	111,436	91,175	70,914	50,653	30,392	10,131	2,233,094	4,373,102	4,191,832	4,019,984	3,856,851	3,701,784	3,554,177	3,413,468	3,276,611	3,140,306	
Total Financing	305,938	269,945	233,952	197,960	161,967	125,974	89,982	53,989	17,996	3,966,950	7,768,540	7,446,525	7,141,247	6,851,453	6,575,986	6,313,771	6,063,811	5,820,693	5,578,556	
Return on Investment																				
Short Term Debt	126	111	96	81	67	52	37	22	7	1,629	3,190	3,058	2,933	2,814	2,701	2,593	2,490	2,391	2,291	
Long Term Debt (Taxable Debt)	6,878	6,069	5,259	4,450	3,641	2,832	2,023	1,214	405	89,181	174,645	167,405	160,542	154,028	147,835	141,940	136,321	130,855	125,412	
Hybrids	387	342	296	251	205	159	114	68	23	5,020	9,831	9,423	9,037	8,670	8,322	7,990	7,673	7,366	7,059	
Total Interest Expense	7,391	6,521	5,652	4,782	3,913	3,043	2,174	1,304	435	95,830	187,666	179,887	172,512	165,512	158,857	152,523	146,484	140,611	134,762	
Preferred Dividends	213	188	163	138	113	88	63	38	13	2,768	5,420	5,196	4,983	4,780	4,588	4,405	4,231	4,061	3,892	
Net Income on Common	17,222	15,196	13,170	11,144	9,118	7,091	5,065	3,039	1,013	223,309	437,310	419,183	401,998	385,685	370,178	355,418	341,347	327,661	314,031	
Income Taxes																				
Income Before Pref Dividends	17,435	15,384	13,333	11,282	9,231	7,179	5,128	3,077	1,026	226,077	442,731	424,379	406,981	390,466	374,767	359,823	345,578	331,722	317,923	
Income Before Taxes (including ITC)	28,540	25,183	21,825	18,467	15,110	11,752	8,394	5,037	1,679	370,071	724,716	694,676	666,197	639,162	613,464	589,003	565,684	543,004	520,415	
Investment Tax Credit	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	2,455	-	6,740	6,740	6,740	6,740	6,740	6,740	6,740	6,740	6,740	
Income Before Taxes (excluding ITC)	26,086	22,728	19,370	16,012	12,655	9,297	5,939	2,582	(776)	370,071	717,976	687,936	659,457	632,422	606,725	582,263	558,944	536,264	513,676	
Federal Income Tax	9,388	8,284	7,179	6,075	4,970	3,866	2,761	1,657	552	121,734	238,393	228,512	219,144	210,251	201,797	193,751	186,080	178,620	171,189	
State Income Tax	1,717	1,515	1,313	1,111	909	707	505	303	101	22,260	43,592	41,785	40,072	38,446	36,900	35,429	34,026	32,662	31,303	
State Investment Tax Credit	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	-	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	
Total State Tax	(738)	(940)	(1,142)	(1,344)	(1,546)	(1,748)	(1,950)	(2,152)	(2,354)	22,260	36,852	35,045	33,332	31,706	30,160	28,689	27,286	25,922	24,563	
Total Taxes	8,650	7,344	6,037	4,731	3,424	2,118	811	(495)	(1,802)	143,994	275,246	263,557	252,476	241,957	231,958	222,440	213,367	204,542	195,753	
Revenue Requirement Calculation																				
Revenue Requirement	141,250	137,354	133,473	129,606	125,755	121,920	118,101	114,299	110,513	555,735	1,224,167	1,183,565	1,145,139	1,108,728	1,074,182	1,041,363	1,010,144	979,826	949,656	21,349,075
Revenue Taxes	12,550	12,204	11,859	11,516	11,173	10,833	10,493	10,155	9,819	49,377	108,767	105,160	101,746	98,510	95,441	92,525	89,751	87,058	84,377	1,896,865
Income Before Depr, Int, Inc Tax	128,700	125,150	121,614	118,091	114,582	111,088	107,608	104,143	100,694	506,358	1,115,399	1,078,405	1,043,394	1,010,217	978,741	948,838	920,392	892,769	865,279	
Depreciation Expense	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	61,372	-	168,492	168,492	168,492	168,492	168,492	168,492	168,492	168,492	168,492	4,523,661
CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M	33,852	34,529	35,220	35,924	36,643	37,375	38,123	38,885	39,663	40,456	41,265	42,091	42,933	43,791	44,667	45,560	46,472	47,401	48,349	1,714,267
Interest Expense	7,391	6,521	5,652	4,782	3,913	3,043	2,174	1,304	435	95,830	187,666	179,887	172,512	165,512	158,857	152,523	146,484	140,611	134,762	2,755,235
Income Before Income Taxes	26,086	22,728	19,370	16,012	12,655	9,297	5,939	2,582	(776)	370,071	717,976	687,936	659,457	632,422	606,725	582,263	558,944	536,264	513,676	
Income Taxes - Federal	9,388	8,284	7,179	6,075	4,970	3,866	2,761	1,657	552	121,734	238,393	228,512	219,144	210,251	201,797	193,751	186,080	178,620	171,189	3,499,998
Income Taxes - State	1,717	1,515	1,313	1,111	909	707	505	303	101	22,260	43,592	41,785	40,072	38,446	36,900	35,429	34,026	32,662	31,303	640,000
State ITC	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	(2,455)	-	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(6,740)	(180,946)
Total Income Taxes	8,650	7,344	6,037	4,731	3,424	2,118	811	(495)	(1,802)	143,994	275,246	263,557	252,476	241,957	231,958	222,440	213,367	204,542	195,753	
Preferred Dividends	213	188	163	138	113	88	63	38	13	2,768	5,420	5,196	4,983	4,780	4,588	4,405	4,231	4,061	3,892	79,579
Net Income for Common	17,222	15,196	13,170	11,144	9,118	7,091	5,065	3,039	1,013											

Revenue Requirements Model - Calculations																			
Manual input	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Deferred Tax Base	5,396,128	379,701	333,824	291,501	252,226	215,998	182,394	151,413	146,335	146,250	146,335	146,250	146,335	146,250	146,335	146,250	146,335	146,250	146,335
Deferred Taxes - Federal	1,775,042	124,902	109,810	95,889	82,969	71,052	59,998	49,807	48,136	48,109	48,136	48,109	48,136	48,109	48,136	48,109	48,136	48,109	48,136
Deferred Taxes - State excluding credit	324,579	22,839	20,080	17,534	15,171	12,992	10,971	9,108	8,802	8,797	8,802	8,797	8,802	8,797	8,802	8,797	8,802	8,797	8,802
Change in Deferred Taxes	2,099,621	147,741	129,890	113,422	98,140	84,044	70,969	58,915	56,939	56,906	56,939	56,906	56,939	56,906	56,939	56,906	56,939	56,906	56,939
Accumulated Deferred Taxes	2,099,621	2,247,362	2,377,252	2,490,675	2,588,815	2,672,859	2,743,828	2,802,743	2,859,682	2,916,587	2,973,526	3,030,431	3,087,370	3,144,275	3,201,214	3,258,119	3,315,058	3,371,963	3,428,902
Change in Deferred ITC	check	564,301	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
		564,301	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
Rate Base and Financing																			
Investment: (Rate Base)																			
Land																			
Gross Plant	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525
Accumulated Depreciation		240,992	481,983	722,975	963,966	1,204,958	1,445,950	1,686,941	1,927,933	2,168,925	2,409,916	2,650,908	2,891,899	3,132,891	3,373,883	3,614,874	3,855,866	4,096,858	4,337,849
CIAC																			
Accumulated CIAC Amortization																			
Accumulated Deferred Taxes	2,099,621	2,247,362	2,377,252	2,490,675	2,588,815	2,672,859	2,743,828	2,802,743	2,859,682	2,916,587	2,973,526	3,030,431	3,087,370	3,144,275	3,201,214	3,258,119	3,315,058	3,371,963	3,428,902
Accumulated Deferred ITC	564,301	554,661	545,022	535,382	525,742	516,103	506,463	496,823	487,184	477,544	467,904	458,265	448,625	438,985	429,346	419,706	410,066	400,427	390,787
Ending Net Investment	-	11,443,603	11,064,510	10,703,268	10,358,493	10,029,001	9,713,605	9,411,284	9,121,017	8,832,727	8,544,469	8,256,179	7,967,921	7,679,631	7,391,373	7,103,083	6,814,825	6,526,535	6,238,277
Average Net Investment		5,721,801	11,254,056	10,883,889	10,530,881	10,193,747	9,871,303	9,562,444	9,266,151	8,976,872	8,688,598	8,400,324	8,112,050	7,823,776	7,535,502	7,247,228	6,958,954	6,670,680	6,382,406
Average Financing:																			
Short Term Debt	2.35%	134,280	264,112	255,425	247,140	239,229	231,661	224,413	217,460	210,671	203,905	197,140	190,375	183,610	176,844	170,079	163,314	156,549	149,783
Long Term Debt (Taxable Debt)	38.36%	2,195,082	4,317,448	4,175,439	4,040,012	3,910,676	3,786,975	3,668,486	3,554,818	3,443,841	3,333,249	3,222,657	3,112,065	3,001,473	2,890,881	2,780,289	2,669,697	2,559,105	2,448,513
Hybrids	1.72%	98,378	193,498	187,133	181,064	175,267	169,723	164,413	159,319	154,345	149,388	144,432	139,475	134,519	129,562	124,606	119,650	114,693	109,737
Preferred Stock	1.28%	73,118	143,814	139,083	134,572	130,264	126,144	122,197	118,410	114,714	111,030	107,346	103,662	99,979	96,295	92,611	88,927	85,243	81,560
Common Equity	56.29%	3,220,943	6,335,185	6,126,809	5,928,092	5,738,311	5,556,799	5,382,935	5,216,144	5,053,302	4,891,026	4,728,749	4,566,473	4,404,196	4,241,919	4,079,643	3,917,366	3,755,090	3,592,813
Total Financing		5,721,801	11,254,056	10,883,889	10,530,881	10,193,747	9,871,303	9,562,444	9,266,151	8,976,872	8,688,598	8,400,324	8,112,050	7,823,776	7,535,502	7,247,228	6,958,954	6,670,680	6,382,406
Return on Investment																			
Short Term Debt	1.75%	2,350	4,622	4,470	4,325	4,186	4,054	3,927	3,806	3,687	3,568	3,450	3,332	3,213	3,095	2,976	2,858	2,740	2,621
Long Term Debt (Taxable Debt)	5.86%	128,632	253,002	244,681	236,745	229,166	221,917	214,973	208,312	201,809	195,328	188,848	182,367	175,886	169,406	162,925	156,444	149,964	143,483
Hybrids	7.36%	7,241	14,241	13,773	13,326	12,900	12,492	12,101	11,726	11,360	10,995	10,630	10,265	9,901	9,536	9,171	8,806	8,441	8,077
Total Interest Expense		138,222	271,866	262,924	254,396	246,252	238,462	231,001	223,844	216,856	209,892	202,928	195,964	189,000	182,036	175,072	168,108	161,145	154,181
Preferred Dividends	5.46%	3,992	7,852	7,594	7,348	7,112	6,887	6,672	6,465	6,263	6,062	5,861	5,660	5,459	5,258	5,057	4,855	4,654	4,453
Net Income on Common	10.00%	322,094	633,519	612,681	592,809	573,831	555,680	538,294	521,614	505,330	489,103	472,875	456,647	440,420	424,192	407,964	391,737	375,509	359,281
Income Taxes																			
Income Before Pref Dividends		326,087	641,371	620,275	600,157	580,944	562,567	544,965	528,080	511,594	495,165	478,736	462,307	445,878	429,450	413,021	396,592	380,163	363,734
Income Before Taxes (including ITC)		533,779	1,049,875	1,015,342	982,411	950,960	920,879	892,067	864,426	837,439	810,547	783,654	756,761	729,869	702,976	676,083	649,191	622,298	595,405
Investment Tax Credit			9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640
Income Before Taxes (excluding ITC)		533,779	1,040,235	1,005,702	972,771	941,320	911,240	882,427	854,786	827,800	800,907	774,014	747,122	720,229	693,336	666,444	639,551	612,658	585,766
Federal Income Tax		175,585	345,353	333,994	323,161	312,816	302,921	293,443	284,351	275,473	266,627	257,781	248,935	240,088	231,242	222,396	213,550	204,703	195,857
State Income Tax		32,107	63,150	61,073	59,092	57,201	55,391	53,658	51,996	50,372	48,755	47,137	45,519	43,902	42,284	40,667	39,049	37,431	35,814
State Investment Tax Credit			(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
Total State Tax		32,107	53,511	51,434	49,453	47,561	45,752	44,018	42,356	40,733	39,115	37,497	35,880	34,262	32,645	31,027	29,409	27,792	26,174
Total Taxes		207,692	398,864	385,428	372,614	360,377	348,672	337,461	326,706	316,206	305,742	295,278	284,814	274,351	263,887	253,423	242,959	232,495	222,031
Revenue Requirement Calculation																			
Revenue Requirement		747,929	1,715,148	1,667,646	1,622,360	1,579,125	1,537,787	1,498,206	1,460,248	1,423,200	1,386,285	1,349,376	1,312,471	1,275,572	1,238,678	1,201,789	1,164,905	1,128,027	1,091,154
Revenue Taxes		66,454	152,391	148,170	144,147	140,305	136,632	133,116	129,743	126,451	123,171	119,892	116,613	113,335	110,056	106,779	103,502	100,225	96,949
Income Before Depr, Int, Inc Tax		681,476	1,562,757	1,519,475	1,478,213	1,438,820	1,401,155	1,365,090	1,330,505	1,296,748	1,263,114	1,229,484	1,195,858	1,162,237	1,128,621	1,095,010	1,061,403	1,027,802	994,205
Depreciation Expense			240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992
CIAC Amortization																			
O&M		9,475	9,664	9,858	10,055	10,256	10,461	10,670	10,884	11,101	11,323	11,550	11,781	12,016	12,257	12,502	12,752	13,007	13,267
Interest Expense		138,222	271,866	262,924	254,396	246,252	238,462	231,001	223,844	216,856	209,892	202,928	195,964	189,000	182,036	175,072	168,108	161,145	154,181
Income Before Income Taxes		533,779	1,040,235	1,005,702	972,771	941,320	911,240	882,427	854,786	827,800	800,907	774,014	747,122	720,229	693,336	666,444	639,551	612,658	585,766
Income Taxes - Federal		175,585	345,353	333,994	323,161	312,816	302,921	293,443	284,351	275,473	266,627	257,781	248,935	240,088	231,242	222,396	213,550	204,703	195,857
Income Taxes - State		32,107	63,150	61,073	59,092	57,201	55,391	53,658	51,996	50,372	48,755	47,137	45,519	43,902	42,284	40,667	39,049	37,431	35,814
State ITC			(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
Total Income Taxes		207,692	398,864	385,428															

Revenue Requirements Model - Calculations																				
Manual input	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Deferred Tax Base	146,250	(42,509)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)	(231,352)
Deferred Taxes - Federal	48,109	(13,983)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)	(76,103)
Deferred Taxes - State excluding credit	8,797	(2,557)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)	(13,916)
Change in Deferred Taxes	56,906	(16,540)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)	(90,019)
Accumulated Deferred Taxes	3,485,807	3,469,267	3,379,249	3,289,230	3,199,212	3,109,193	3,019,175	2,929,156	2,839,138	2,749,119	2,659,101	2,569,082	2,479,064	2,389,045	2,299,027	2,209,008	2,118,990	2,028,971	1,938,953	1,848,934
check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change in Deferred ITC	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
Rate Base and Financing																				
Investment: (Rate Base)																				
Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Plant	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525
Accumulated Depreciation	4,578,841	4,819,832	5,060,824	5,301,816	5,542,807	5,783,799	6,024,791	6,265,782	6,506,774	6,747,765	6,988,757	7,229,749	7,470,740	7,711,732	7,952,723	8,193,715	8,434,707	8,675,698	8,916,690	9,157,682
CIAC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accumulated Deferred Taxes	3,485,807	3,469,267	3,379,249	3,289,230	3,199,212	3,109,193	3,019,175	2,929,156	2,839,138	2,749,119	2,659,101	2,569,082	2,479,064	2,389,045	2,299,027	2,209,008	2,118,990	2,028,971	1,938,953	1,848,934
Accumulated Deferred ITC	381,147	371,508	361,868	352,228	342,589	332,949	323,309	313,670	304,030	294,390	284,751	275,111	265,471	255,832	246,192	236,552	226,913	217,273	207,633	197,994
Ending Net Investment	5,661,729	5,446,917	5,305,584	5,164,251	5,022,917	4,881,584	4,740,250	4,598,917	4,457,583	4,316,250	4,174,917	4,033,583	3,892,250	3,750,916	3,609,583	3,468,249	3,326,916	3,185,583	3,044,249	2,902,916
Average Net Investment	5,805,858	5,554,323	5,376,251	5,234,917	5,093,584	4,952,250	4,810,917	4,669,584	4,528,250	4,386,917	4,245,583	4,104,250	3,962,916	3,821,583	3,680,250	3,538,916	3,397,583	3,256,249	3,114,916	2,973,582
Average Financing:																				
Short Term Debt	136,253	130,350	126,171	122,854	119,537	116,220	112,903	109,587	106,270	102,953	99,636	96,319	93,002	89,686	86,369	83,052	79,735	76,418	73,101	69,785
Long Term Debt (Taxable Debt)	2,227,329	2,130,832	2,062,517	2,008,296	1,954,076	1,899,856	1,845,635	1,791,415	1,737,194	1,682,974	1,628,754	1,574,533	1,520,313	1,466,092	1,411,872	1,357,651	1,303,431	1,249,211	1,194,990	1,140,770
Hybrids	99,824	95,499	92,437	90,007	87,577	85,147	82,717	80,287	77,857	75,427	72,997	70,567	68,137	65,707	63,277	60,847	58,417	55,987	53,557	51,127
Preferred Stock	74,192	70,978	68,702	66,896	65,090	63,284	61,478	59,672	57,866	56,060	54,254	52,447	50,641	48,835	47,029	45,223	43,417	41,611	39,805	37,999
Common Equity	3,268,260	3,126,665	3,026,424	2,946,864	2,867,304	2,787,744	2,708,184	2,628,623	2,549,063	2,469,503	2,389,943	2,310,383	2,230,823	2,151,263	2,071,703	1,992,143	1,912,583	1,833,023	1,753,463	1,673,903
Total Financing	5,805,858	5,554,323	5,376,251	5,234,917	5,093,584	4,952,250	4,810,917	4,669,584	4,528,250	4,386,917	4,245,583	4,104,250	3,962,916	3,821,583	3,680,250	3,538,916	3,397,583	3,256,249	3,114,916	2,973,582
Return on Investment																				
Short Term Debt	2,384	2,281	2,208	2,150	2,092	2,034	1,976	1,918	1,860	1,802	1,744	1,686	1,628	1,569	1,511	1,453	1,395	1,337	1,279	1,221
Long Term Debt (Taxable Debt)	130,521	124,867	120,863	117,686	114,509	111,332	108,154	104,977	101,800	98,622	95,445	92,268	89,090	85,913	82,736	79,558	76,381	73,204	70,026	66,849
Hybrids	7,347	7,029	6,803	6,625	6,446	6,267	6,088	5,909	5,730	5,551	5,373	5,194	5,015	4,836	4,657	4,478	4,299	4,121	3,942	3,763
Total Interest Expense	140,253	134,177	129,875	126,461	123,046	119,632	116,218	112,804	109,390	105,975	102,561	99,147	95,733	92,319	88,904	85,490	82,076	78,662	75,247	71,833
Preferred Dividends	4,051	3,875	3,751	3,653	3,554	3,455	3,357	3,258	3,159	3,061	2,962	2,864	2,765	2,666	2,568	2,469	2,371	2,272	2,173	2,075
Net Income on Common	326,826	312,667	302,642	294,686	286,730	278,774	270,818	262,862	254,906	246,950	238,994	231,038	223,082	215,126	207,170	199,214	191,258	183,302	175,346	167,390
Income Taxes																				
Income Before Pref Dividends	330,877	316,542	306,394	298,339	290,284	282,230	274,175	266,120	258,066	250,011	241,957	233,902	225,847	217,793	209,738	201,683	193,629	185,574	177,520	169,465
Income Before Taxes (including ITC)	541,620	518,155	501,543	488,358	475,173	461,988	448,803	435,619	422,434	409,249	396,064	382,880	369,695	356,510	343,325	330,140	316,956	303,771	290,586	277,401
Investment Tax Credit	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640	9,640
Income Before Taxes (excluding ITC)	531,980	508,515	491,903	478,718	465,533	452,349	439,164	425,979	412,794	399,609	386,425	373,240	360,055	346,870	333,685	320,501	307,316	294,131	280,946	267,762
Federal Income Tax	178,164	170,446	164,981	160,644	156,307	151,970	147,633	143,296	138,959	134,621	130,284	125,947	121,610	117,273	112,936	108,599	104,262	99,925	95,587	91,250
State Income Tax	32,579	31,167	30,168	29,375	28,582	27,789	26,996	26,203	25,410	24,616	23,823	23,030	22,237	21,444	20,651	19,858	19,065	18,272	17,479	16,686
State Investment Tax Credit	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)	(9,640)
Total State Tax	22,939	21,528	20,528	19,735	18,942	18,149	17,356	16,563	15,770	14,977	14,184	13,391	12,598	11,805	11,011	10,218	9,425	8,632	7,839	7,046
Total Taxes	201,103	191,973	185,509	180,379	175,249	170,119	164,989	159,859	154,728	149,598	144,468	139,338	134,208	129,078	123,947	118,817	113,687	108,557	103,427	98,297
Revenue Requirement Calculation																				
Revenue Requirement	1,017,426	985,307	962,663	944,760	926,864	908,975	891,092	873,215	855,345	837,483	819,627	801,779	783,938	766,105	748,279	730,461	712,651	694,850	677,056	659,271
Revenue Taxes	90,398	87,545	85,533	83,942	82,352	80,762	79,173	77,585	75,997	74,410	72,824	71,238	69,653	68,068	66,485	64,901	63,319	61,737	60,156	58,576
Income Before Depr, Int, Inc Tax	927,028	897,763	877,130	860,818	844,512	828,212	811,918	795,630	779,348	763,072	746,803	730,541	714,285	698,036	681,794	665,560	649,332	633,112	616,900	600,695
Depreciation Expense	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992
CIAC Amortization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M	13,803	14,079	14,361	14,648	14,941	15,240	15,545	15,855	16,173	16,496	16,826	17,163	17,506	17,856	18,213	18,577	18,949	19,328	19,714	20,109
Interest Expense	140,253	134,177	129,875	126,461	123,046	119,632	116,218	112,804	109,390	105,975	102,561	99,147	95,733	92,319	88,904	85,490	82,076	78,662	75,247	71,833
Income Before Income Taxes	531,980	508,515	491,903	478,718	465,533	452,349	439,164	425,979	412,794	399,609	386,425	373,240	360,055	346,870	333,					

AES-CEIP 2 138KV OH vs UG																			
Revenue Requirements Model - Calculations																			
Manual input	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
O&M																			
Escalation Rate	2.16	2.21	2.25	2.30	2.34	2.39	2.44	2.49	2.54	2.59	2.64	2.69	2.75	2.80	2.86	2.91	2.97	3.03	3.09
O&M	20,511	20,921	21,339	21,766	22,202	22,646	23,098	23,560	24,032	24,512	25,003	25,503	26,013	26,533	27,064	27,605	28,157	28,720	29,294
Plant Asset Depreciation																			
<u>Book Depreciation</u>																			
Book Depreciation Rates - UG Conduit	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%
Book Depreciation Rates - UG Cond. & Dev.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%
Book Depreciation Rates - Poles & Fix.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%
Book Depreciation Rates - OH Cond. & Dev.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%
Book Depreciation Rates - DIST: Poles, Towers & Fix.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%
Book Depreciation Rates - DIST: OH Cond. & Dev.	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%
R Book Depreciation Rates - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Book Depreciation Rates - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Book Depreciation Rates - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Book Depreciation Rates - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Book Depreciation Rates - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Book Depreciation Rates - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%
Depreciation Expense	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	240,992	229,894	260,362	260,362	260,362	260,362	260,362	260,362	260,362
Accumulated Depreciation	9,398,673	9,639,665	9,880,656	10,121,648	10,362,640	10,603,631	10,844,623	11,085,615	11,326,606	11,567,598	11,808,589	12,038,483	12,298,845	12,559,208	12,819,570	13,079,933	13,340,295	13,600,657	13,861,020
<u>Bonus</u>																			
<u>Tax Depreciation</u>																			
Tax Depreciation Rates (SL) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (SL) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (SL) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (SL) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (SL) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (SL) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Revenue Bond Financed Tax Basis (S/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax Depreciation Rates (MACRS) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (MACRS) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (MACRS) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (MACRS) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (MACRS) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Tax Depreciation Rates (MACRS) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - UG Conduit	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - UG Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - Poles & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - DIST: OH Cond. & Dev.	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
NonRB Financed Tax Basis (MACRS)	-	-	-	-	-	-	-	-	-	-	-	55,986	107,778	99,686	92,221	85,294	78,904	72,977	67,512
Tax Depreciation	-	-	-	-	-	-	-	-	-	-	-	55,986	107,778	99,686	92,221	85,294	78,904	72,977	67,512
Accumulated Tax Depreciation	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,107,525	14,163,511	14,271,289	14,370,975	14,463,196	14,548,490	14,627,393	14,700,370	14,767,882
<u>State Investment Tax Credit (ITC)</u>																			
<u>Book</u>																			
State ITC Amortization Rate - UG Conduit	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%
State ITC Amortization Rate - UG Cond. & Dev.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%
State ITC Amortization Rate - Poles & Fix.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%
State ITC Amortization Rate - OH Cond. & Dev.	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%	2.041%
State ITC Amortization Rate - DIST: Poles, Towers & Fix.	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%	1.695%
State ITC Amortization Rate - DIST: OH Cond. & Dev.	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	2.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
R State ITC Amortization Rate - UG Conduit	0.000%	0.000%	0																

AES-CEIP 2 138KV OH vs UG			
Revenue Requirements Model - Calculations			
Manual input	59	60	Total
O&M			
Escalation Rate	3.15	3.22	
O&M	29,880	30,478	1,080,629
Plant Asset Depreciation			
Book Depreciation			
Book Depreciation Rates - UG Conduit	1.695%	1.695%	100.000%
Book Depreciation Rates - UG Cond. & Dev.	1.695%	1.695%	100.000%
Book Depreciation Rates - Poles & Fix.	0.000%	0.000%	100.000%
Book Depreciation Rates - OH Cond. & Dev.	0.000%	0.000%	100.000%
Book Depreciation Rates - DIST: Poles, Towers & Fix.	1.695%	1.695%	100.000%
Book Depreciation Rates - DIST: OH Cond. & Dev.	0.000%	0.000%	100.000%
R Book Depreciation Rates - UG Conduit	0.000%	0.000%	0.000%
R Book Depreciation Rates - UG Cond. & Dev.	0.000%	0.000%	0.000%
R Book Depreciation Rates - Poles & Fix.	2.041%	2.041%	18.367%
R Book Depreciation Rates - OH Cond. & Dev.	2.041%	2.041%	18.367%
R Book Depreciation Rates - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%
R Book Depreciation Rates - DIST: OH Cond. & Dev.	2.000%	2.000%	16.000%
Depreciation Expense	260,362	260,362	14,381,745
Accumulated Depreciation	14,121,382	14,381,745	
Bonus			
Tax Depreciation			
Tax Depreciation Rates (SL) - UG Conduit	0.000%	0.000%	100.000%
Tax Depreciation Rates (SL) - UG Cond. & Dev.	0.000%	0.000%	100.000%
Tax Depreciation Rates (SL) - Poles & Fix.	0.000%	0.000%	100.000%
Tax Depreciation Rates (SL) - OH Cond. & Dev.	0.000%	0.000%	100.000%
Tax Depreciation Rates (SL) - DIST: Poles, Towers & Fix.	0.000%	0.000%	100.000%
Tax Depreciation Rates (SL) - DIST: OH Cond. & Dev.	0.000%	0.000%	100.000%
R Tax Depreciation Rates (SL) - UG Conduit	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - UG Cond. & Dev.	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - Poles & Fix.	3.333%	3.333%	31.664%
R Tax Depreciation Rates (SL) - OH Cond. & Dev.	3.333%	3.333%	31.664%
R Tax Depreciation Rates (SL) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%
R Tax Depreciation Rates (SL) - DIST: OH Cond. & Dev.	3.333%	3.333%	28.331%
Revenue Bond Financed Tax Basis (S/L)	-	-	-
Tax Depreciation Rates (MACRS) - UG Conduit	0.000%	0.000%	100.000%
Tax Depreciation Rates (MACRS) - UG Cond. & Dev.	0.000%	0.000%	100.000%
Tax Depreciation Rates (MACRS) - Poles & Fix.	0.000%	0.000%	100.000%
Tax Depreciation Rates (MACRS) - OH Cond. & Dev.	0.000%	0.000%	100.000%
Tax Depreciation Rates (MACRS) - DIST: Poles, Towers & Fix.	0.000%	0.000%	100.000%
Tax Depreciation Rates (MACRS) - DIST: OH Cond. & Dev.	0.000%	0.000%	100.000%
R Tax Depreciation Rates (MACRS) - UG Conduit	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - UG Cond. & Dev.	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - Poles & Fix.	4.462%	4.461%	53.154%
R Tax Depreciation Rates (MACRS) - OH Cond. & Dev.	4.462%	4.461%	53.154%
R Tax Depreciation Rates (MACRS) - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%
R Tax Depreciation Rates (MACRS) - DIST: OH Cond. & Dev.	4.522%	4.462%	48.693%
NonRB Financed Tax Basis (MACRS)	66,616	66,602	14,901,100
Tax Depreciation	66,616	66,602	14,901,100
Accumulated Tax Depreciation	14,834,498	14,901,100	
State Investment Tax Credit (ITC)			
Book			
State ITC Amortization Rate - UG Conduit	1.695%	1.695%	100.000%
State ITC Amortization Rate - UG Cond. & Dev.	1.695%	1.695%	100.000%
State ITC Amortization Rate - Poles & Fix.	0.000%	0.000%	100.000%
State ITC Amortization Rate - OH Cond. & Dev.	0.000%	0.000%	100.000%
State ITC Amortization Rate - DIST: Poles, Towers & Fix.	1.695%	1.695%	100.000%
State ITC Amortization Rate - DIST: OH Cond. & Dev.	0.000%	0.000%	100.000%
R State ITC Amortization Rate - UG Conduit	0.000%	0.000%	0.000%
R State ITC Amortization Rate - UG Cond. & Dev.	0.000%	0.000%	0.000%
R State ITC Amortization Rate - Poles & Fix.	2.041%	2.041%	18.367%
R State ITC Amortization Rate - OH Cond. & Dev.	2.041%	2.041%	18.367%
R State ITC Amortization Rate - DIST: Poles, Towers & Fix.	0.000%	0.000%	0.000%
R State ITC Amortization Rate - DIST: OH Cond. & Dev.	2.000%	2.000%	16.000%
Amortization of State ITC	10,414	10,414	575,270
Accumulated Amortization	564,855	575,270	
Deferred ITC	59,165	48,750	
Tax			
CIAC			
Book Amortization Rate	0.000%	0.000%	100.000%
Book Amortization	-	-	
Accumulated book amortization	-	-	
Tax Recognition	-	-	
Book/Tax Difference	-	-	
Deferred Taxes - Federal	-	-	
Deferred Taxes - State	-	-	
Change in deferred taxes	-	-	
Accumulated deferred tax asset	-	-	
Deferred Tax Calculation - Depreciation			
Book Accumulated Depreciation	14,121,382	14,381,745	
Tax Accumulated Depreciation	14,834,498	14,901,100	
Book/Tax Acc Depr Difference	(713,116)	(519,355)	
Deferred ITC	59,165	48,750	
Net Deferred Tax Asset (Liability)	(254,451)	(183,111)	

Revenue Requirements Model - Calculations			
Manual input	59	60	Total
Deferred Tax Base	(183,331)	(183,346)	
Deferred Taxes - Federal	(60,306)	(60,311)	
Deferred Taxes - State excluding credit	(11,027)	(11,028)	
Change in Deferred Taxes	(71,334)	(71,340)	
Accumulated Deferred Taxes	254,451	183,111	
Change in Deferred ITC	check 0	0	
	(10,414)	(10,414)	
	(10,414)	(10,414)	
Rate Base and Financing			
Investment: (Rate Base)			
Land	-	-	
Gross Plant	15,600,498	15,600,498	
Accumulated Depreciation	14,121,382	14,381,745	
CIAC	-	-	
Accumulated CIAC Amortization	-	-	
Accumulated Deferred Taxes	254,451	183,111	
Accumulated Deferred ITC	59,165	48,750	
Ending Net Investment	1,165,500	986,892	
Average Net Investment	1,254,807	1,076,196	
Average Financing:			
Short Term Debt	29,448	25,256	
Long Term Debt (Taxable Debt)	481,388	412,866	
Hybrids	21,575	18,504	
Preferred Stock	16,035	13,753	
Common Equity	706,362	605,817	
Total Financing	1,254,807	1,076,196	
Return on Investment			
Short Term Debt	515	442	
Long Term Debt (Taxable Debt)	28,209	24,194	
Hybrids	1,588	1,362	
Total Interest Expense	30,313	25,998	
Preferred Dividends	876	751	
Net Income on Common	70,636	60,582	
Income Taxes			
Income Before Pref Dividends	71,512	61,333	
Income Before Taxes (including ITC)	117,059	100,397	
Investment Tax Credit	10,414	10,414	
Income Before Taxes (excluding ITC)	106,645	89,982	
Federal Income Tax	38,506	33,025	
State Income Tax	7,041	6,039	
State Investment Tax Credit	(10,414)	(10,414)	
Total State Tax	(3,373)	(4,376)	
Total Taxes	35,133	28,650	
Revenue Requirement Calculation			
Revenue Requirement	468,858	446,491	53,499,408
Revenue Taxes	41,658	39,671	4,753,422
Income Before Depr, Int, Inc Tax	427,200	406,820	
Depreciation Expense	260,362	260,362	8,193,715
CIAC Amortization	-	-	-
O&M	29,880	30,478	1,080,629
Interest Expense	30,313	25,998	6,964,358
Income Before Income Taxes	106,645	89,982	
Income Taxes - Federal	38,506	33,025	8,846,883
Income Taxes - State	7,041	6,039	1,617,716
State ITC	(10,414)	(10,414)	(327,749)
Total Income Taxes	35,133	28,650	
Preferred Dividends	876	751	201,149
Net Income for Common	70,636	60,582	16,228,776
	-	-	

PSIP Sales Forecast
Theme 3 - No LNG/Low Fuel
April 2016

GWh	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Hawaiian Electric	6,526.1	6,511.3	6,624.6	6,664.0	6,628.3	6,580.3	6,512.6	6,465.3	6,446.5	6,394.2	6,363.1	6,330.4	6,315.1	6,248.1	6,214.3	6,223.3	6,300.3	6,343.0	6,407.5	6,473.2	6,563.4	6,613.6	6,686.1	6,756.6	6,841.7	6,891.5	6,962.9	7,029.1	7,110.4	7,156.2
Hawaii Electric Light	1,015.5	1,000.9	1,005.0	1,012.9	1,022.3	1,023.6	1,009.9	995.9	984.5	966.5	956.6	941.1	932.0	908.0	869.7	862.1	856.8	852.2	853.2	856.7	864.6	867.3	873.5	879.4	887.5	891.0	898.2	905.9	917.3	921.4
Maui Electric - Consolidated	1,117.5	1,117.0	1,137.4	1,147.5	1,156.2	1,159.6	1,165.9	1,177.0	1,190.2	1,198.7	1,207.6	1,208.3	1,202.6	1,184.1	1,171.5	1,165.4	1,174.2	1,196.3	1,222.4	1,245.5	1,268.7	1,291.6	1,312.9	1,333.7	1,354.9	1,374.5	1,394.2	1,413.3	1,433.9	1,454.3
Maui Division	1,061.9	1,062.4	1,081.5	1,091.2	1,104.2	1,105.5	1,119.3	1,126.9	1,140.1	1,154.3	1,162.9	1,163.7	1,157.8	1,139.4	1,127.5	1,122.1	1,129.8	1,152.1	1,177.7	1,201.8	1,224.7	1,250.4	1,273.8	1,294.3	1,297.1	1,318.0	1,338.6	1,359.5	1,381.1	1,401.7
Lanai Division	26.8	27.2	28.7	29.1	29.3	28.7	28.9	29.2	29.5	29.7	29.9	30.1	30.4	30.6	30.9	31.2	31.6	31.8	32.1	32.4	32.8	33.0	33.3	33.8	34.3	34.5	34.9	35.2	35.6	35.8
Molokai Division	26.0	25.5	25.3	25.2	25.1	24.8	24.4	24.0	23.7	23.2	22.9	22.5	22.2	21.7	21.3	21.0	20.7	20.3	20.0	19.7	19.5	19.2	19.0	18.8	18.6	18.4	18.2	18.1	18.0	17.8

Notes:
1. Sales Forecast from the PSIP filing in April 2016 - Theme 3 scenario and is subject to change for updates as part of the Company's 2016 Budget process.

Hawaiian Electric Company

AES – CEIP 2 138kV Transmission Line Relocation

Electric and Magnetic Field Evaluation

Prepared For:

Hawaiian Electric Company

Honolulu, Hawaii 96840

Prepared By:

Sargent and Lundy, LLC

December 1, 2016

Executive Summary

Hawaiian Electric Company, Inc., (“Hawaiian Electric”) proposes to relocate a portion of an existing overhead power line, the AES-CEIP 2 138kV transmission line. This project involves the relocation of the existing 138kV overhead power line by the removal of six (6) steel structures P.12-P.17 and the installation of nine (9) steel structures P.12-P.17. This relocation is at the request of Kapolei Properties (“KPD”). The existing line is in conflict with KPD’s development plans.

Based upon this evaluation, the following conclusions were reached:

Calculated electric fields for the proposed relocations for the project line:

Calculated electric field levels for the proposed overhead relocation ranged from about 0.044 kV/m to 0.526 kV/m. Calculated electric fields from the proposed overhead relocation are lower primarily due to the increased ground clearance of the proposed relocation configuration. Calculated electric field levels for the underground alternative relocation are 0.000 kV/m, due to the electric field shielding of the earth.

Calculated magnetic fields for the proposed relocation for the project line:

Calculated magnetic field levels for the proposed overhead relocation ranged from about 16.21 mG to 111.17 mG. Calculated magnetic fields from the proposed overhead relocation are lower primarily due to the increased ground clearance of the proposed relocation configuration. Calculation magnetic field levels for the underground alternative relocation ranged from about 33.77 mG to 1189.83 mG. Calculated magnetic fields from the underground alternative are further reduced due to the increased magnetic field cancellation from unlike phasing of the two phase subconductors and the closer proximity of the phase conductors within the underground duct.

There are no Federal or State of Hawaii health standards for 60 Hertz electric or magnetic fields

Over the past two decades, there has been research investigating exposure to EMF. Although there are no Federal health standards in the United States or in the state of Hawaii specifically for 60 Hertz electric and magnetic fields, there are at least six states that have adopted engineering-based guidelines or standards for higher voltage transmission line electric fields; two of these states also have standards for magnetic fields. The purpose of most of these standards is to make the field levels from new power lines similar to the field levels from existing lines or to avoid nuisance effects due to spark discharge from large vehicles in the electric fields of 345-765 kV transmission lines. The project line is a much lower voltage line (138kV) than the power line voltages described in these guidelines, and the measured and calculated electric and magnetic field levels associated with the project line are below these other state standards.

Graphical comparisons of the electric and magnetic field results for the proposed overhead relocation calculation and proposed underground relocation calculation results.

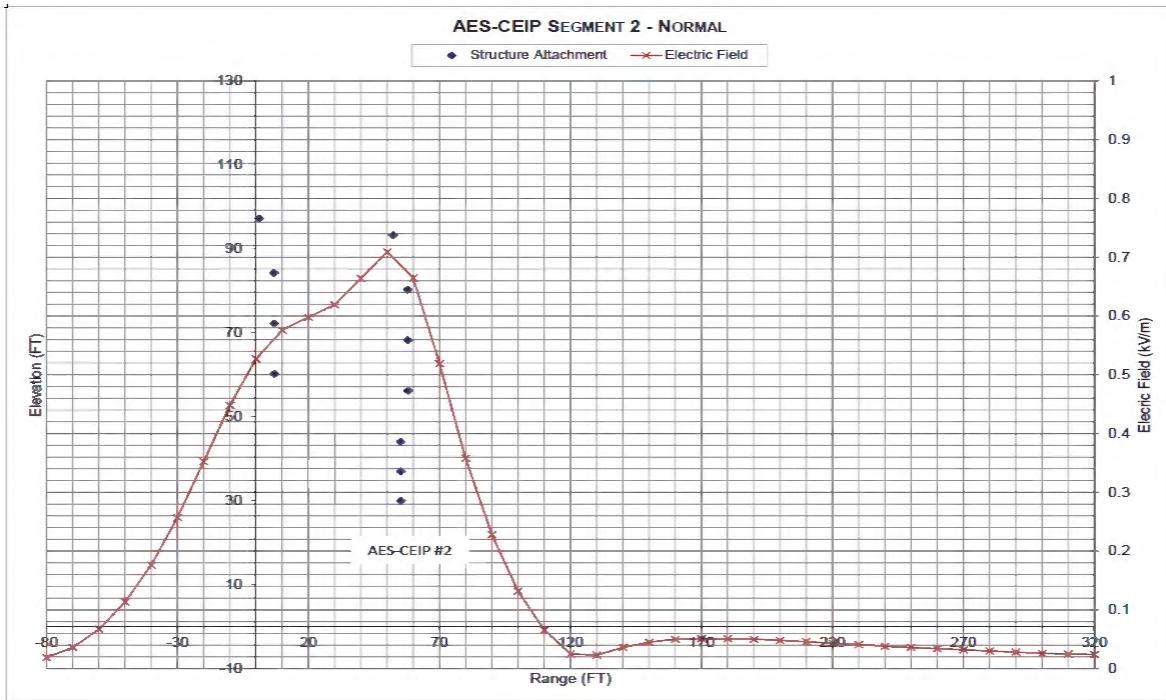


Figure 1. Normal Overhead Electric Fields

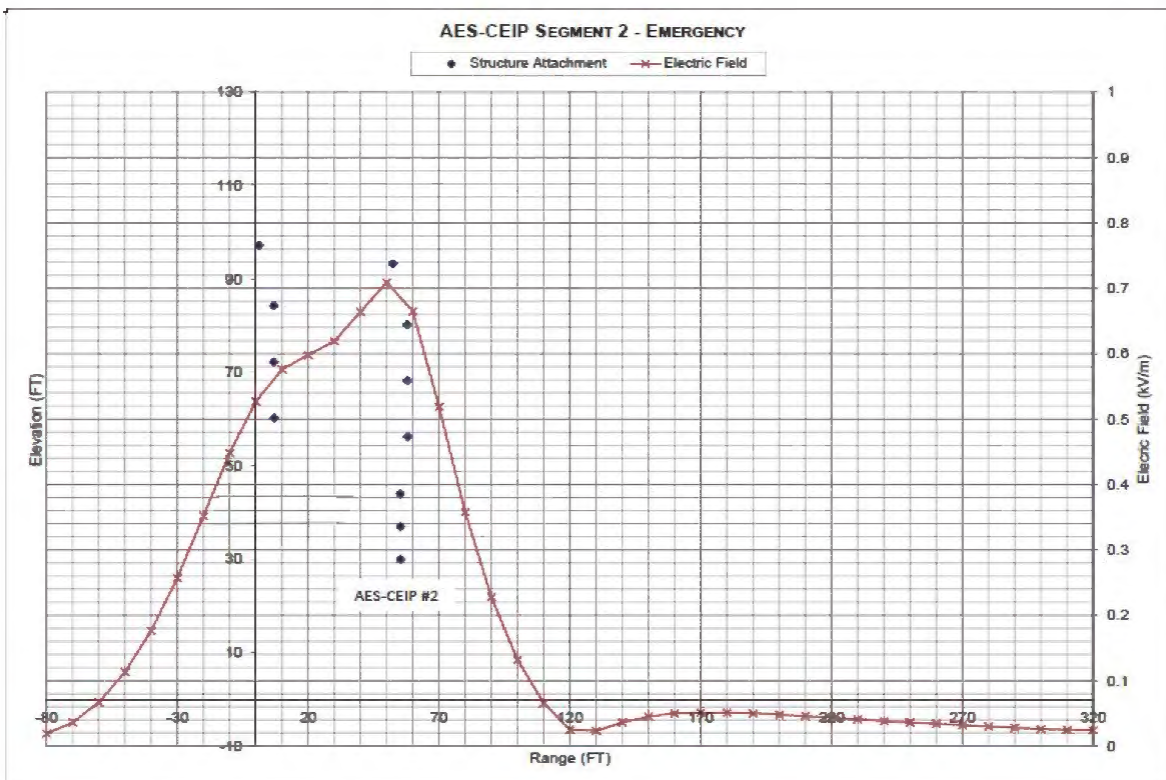


Figure 2. Emergency Overhead Electric Fields

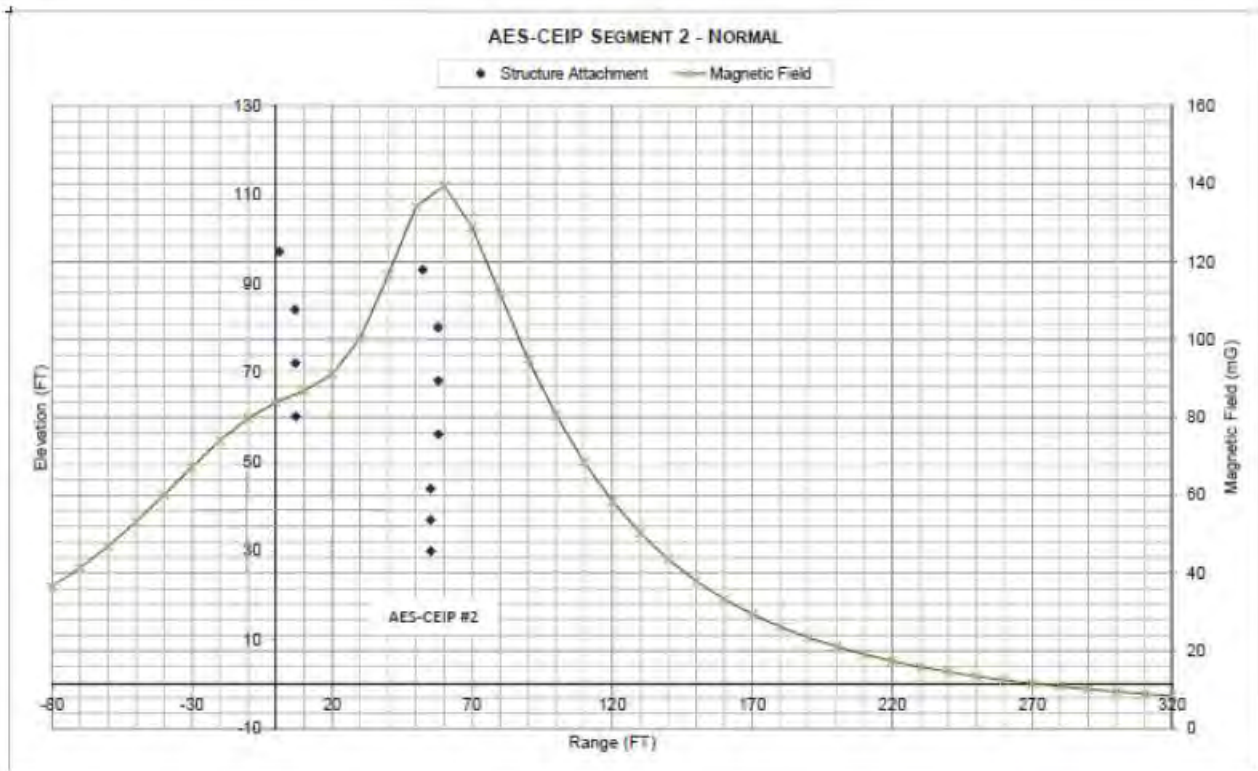


Figure 3. Normal Overhead Magnetic Fields

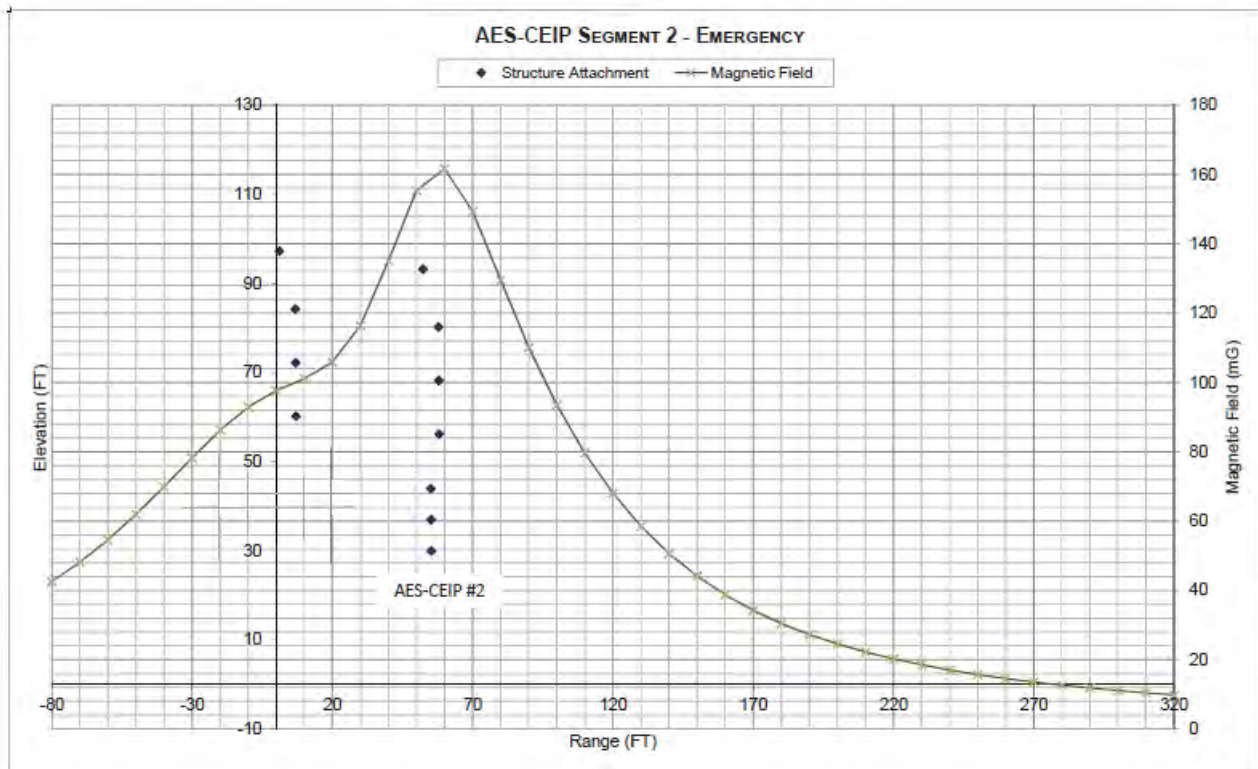


Figure 4. Emergency Overhead Magnetic Fields

Study: 138kV Underground T Line Study 1
Execution: 138kV Underground T Line Study 1

Date: 11/22/16

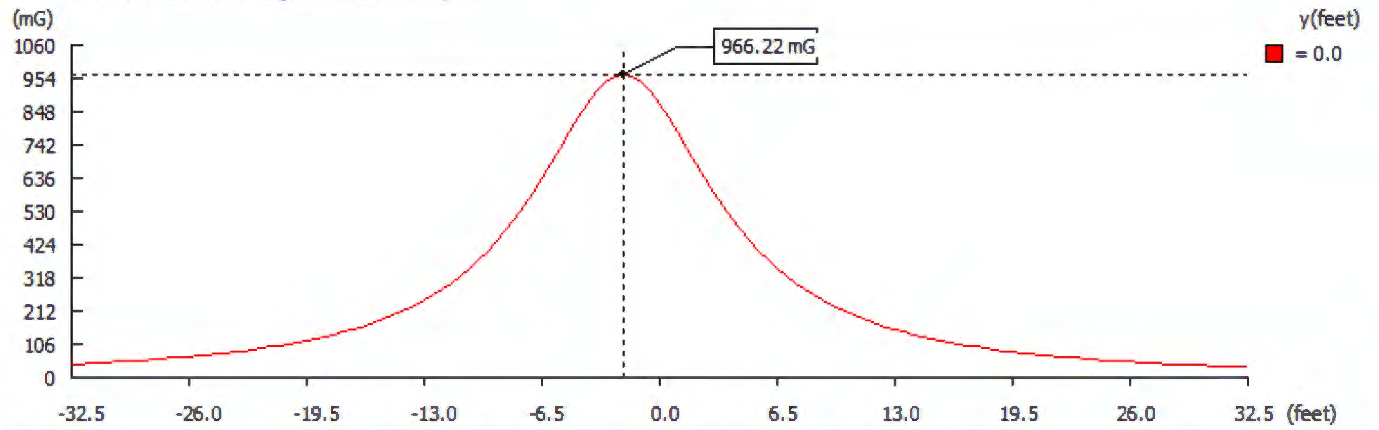


Figure 5. Normal Underground Magnetic Fields

Study: 138kV Underground T Line Study 1
Execution: 138kV Underground T Line Study 1 - 24 hr emergency

Date: 11/22/16

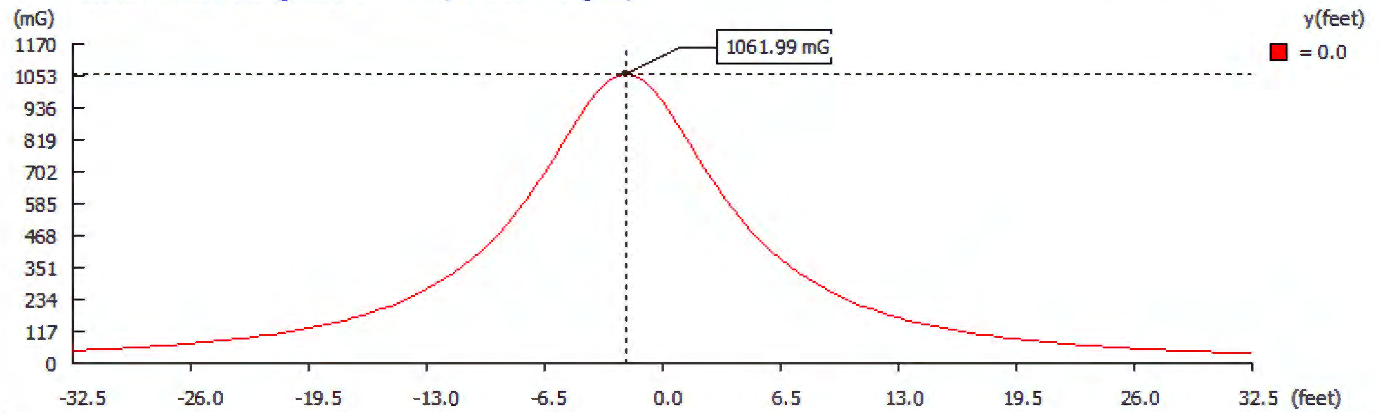


Figure 6. Emergency Underground Magnetic Fields

ABOVE RAM CAP RECOVERY

A. **Order No. 32735**

On May 31, 2013, the Commission opened an investigative docket (Docket No. 2013-0141) to review whether the decoupling mechanisms are functioning as intended, are fair to the Hawaiian Electric Companies and their customers, and are in the public interest.

On March 31, 2015, the Commission issued Order No. 32735 (“Order 32735”) in Docket No. 2013-0141. Among other things, Order 32735 limited the amount of unapproved capital project net plant additions that automatically can be incorporated into effective rates through the RAM (i.e., RAM Revenue Adjustment) for a particular RAM period.¹ However, the Commission stated:

This Order does not deprive the HECO Companies of the opportunity to recover any prudently incurred expenditures or limit orderly recovery for necessary expanded capital programs. Instead, the Order limits the amount of unapproved capital project expenditures that can automatically be incorporated into effective rates through the RAM without timely prior regulatory review.²

The Commission also “remained mindful of cautions expressed by the parties regarding the possible consequences of implementing caps or limits on RAM revenue recovery” and recognized the Companies’ “need to finance necessary capital investment[,]” while sharing concerns expressed by the Companies that increasing the revenue requirement by inflation alone is unlikely to provide the Companies with sufficient revenue to invest as needed to meet

¹ Order 32735 at 81. The “RAM Revenue Adjustment” is the revenue requirement calculated for a particular calendar year, to be flowed through the RAM for recovery through the RBA Rate Adjustment. The “RAM period” is defined as the calendar year containing the Annual Evaluation Date (i.e., the date the Company files its annual decoupling transmittal). It is also the calendar year upon which the RAM Revenue Adjustment is based and calculated.

² Id. at 7 (emphasis in original).

Hawai'i's goals while also providing the Companies a fair opportunity to earn their cost of capital.³ Thus, the Commission provided that:

The Companies may apply to the Commission for approval of recovery of revenues for Major Projects through the RAM above the RAM cap, outside of the RAM through the REIP, or other adjustment mechanism. Approval for such recovery will be made on a case by case basis. Any such application shall identify and support the specific means and extent of proposed cost recovery.

Eligibility for recovery above the RAM cap or by adjustment mechanism outside of the RAM will be restricted to revenues for projects that HECO, MECO, or HELCO demonstrate to be prudent and reasonable, to provide customer value, to enhance the affordability of energy services, and which are not explicitly or implicitly included in otherwise effective utility target revenues or other effective means of revenue recovery.⁴

Order 32735 does not prohibit the type of capital expenditures (including baseline plant additions) that may be recovered above the RAM Cap. Nor does it establish an arbitrary or absolute limit on recovery above the RAM Cap. Rather, Order 32735 explicitly states that “[t]he amendments to the RAM are not designed to limit the Companies’ recovery of necessary and reasonable revenue requirements.”⁵

The Commission further stated that the Companies may use a programmatic approach to categorizing and consolidating related baseline projects for consideration as Major Projects (i.e., “Major Baseline Projects”). Specifically, multiple baseline projects that serve a related purpose

³ Id. at 85-87.

⁴ Id. at 97-98.

⁵ Order 32735 at 80. Order 32735 further states: “The intent and purpose of the commission’s amendments to the RAM are to: (a) maintain the current functions of the RAM to provide timely recovery of appropriate revenues between general rate cases; (b) ensure that sizeable capital expenditures are examined by timely review prior to automatic inclusion in effective rates through the RAM; (c) avoid adding further complexity to the decoupling mechanisms; and (d) fundamentally ensure that the RAM results in rates that are just and reasonable.” Id.

or are part of a specific program may be consolidated as a Major Project for purposes of application and review.⁶

B. Proposed Modified REIP and Above RAM Cap Standards and Guidelines

Order 32735 directed the Companies and the Consumer Advocate to develop standards and guidelines for eligibility of projects and determination of the amount of eligible cost recovery above the RAM Cap or outside of the RAM mechanism through the REIP or other adjustment mechanism; however, notwithstanding this directive, the Companies may file an application for approval of a Major Project⁷ at any time consistent with Order 32735.⁸

As directed by Order 32735, on June 15, 2015, the Companies⁹ filed a letter transmitting their proposed Standards and Guidelines for Eligibility of Projects for Cost Recovery through the RAM above the RAM Cap (“Above RAM Cap Standards and Guidelines”). These Standards would apply to applications for recovery of investments for Major Projects and Major Baseline Projects primarily intended to promote safety and sustain, improve, and/or prevent deterioration of service reliability. On the same date, the Companies and the Consumer Advocate jointly filed their *Joint Proposed Modified REIP Framework/Standards and Guidelines* (“Proposed Modified REIP Framework”) to update and broaden the application of the REIP Framework approved by the Commission in Docket No. 2007-0416 (“Current REIP Framework”) to reflect current energy policies, goals and objectives.

⁶ Order 32735 at 98.

⁷ “Major Projects” are capital projects subject to Rule 2.3.g.2. in General Order No. 7. “Baseline Projects” are capital projects that are not “Major Projects.” See the Hawaiian Electric Rate Adjustment Mechanism Provision tariff, Revised Sheet No. 93A, effective June 1, 2013.

⁸ Order 32735 at 114-115.

⁹ Hawaiian Electric Company, Inc. Hawai‘i Electric Light Company, Inc., and Maui Electric are collectively referred to as the “Hawaiian electric Companies” or “companies”

In the meantime, the Commission made clear that the Companies may file an application for approval of a Major Project¹⁰ at any time consistent with Order No. 32735, under specified circumstances on a case-by-case basis.^{11 12} Indeed, in Decision and Order No. 33178 in Docket No. 2014-0113, the Commission confirmed:

64. In Order No. 32735, the commission further directed the HECO Companies and the Consumer Advocate to “develop standards and guidelines for eligibility of projects and determination of the amount of eligible cost recovery above the RAM Cap or outside of the RAM mechanism through the REIP or other adjustment mechanism,” and to file these proposals with the commission on or before June 15, 2015. Other parties were permitted to comment on these proposals on or before June 30, 2015.

65. The commission is currently in the process of reviewing these proposals and comments. However, the commission also made it clear that prior to its approval of any such proposals “the HECO Companies may file an application for approval of a Major Project at any time consistent with this Order.”¹³

II. PROPOSED METHOD OF RECOVERY

A. Recovery of the Net Amount Above the RAM Cap

The Company recognizes that depending on the level of net plant additions for other projects in 2018, there may be room under the RAM Cap to recover a portion of the projects’ cost under the RAM Cap. Thus, in this Application, the Company requests Commission approval to recover the revenue requirements associated with the AES-CEIP 2 138 kV Overhead Transmission Line Relocation Project through the RAM above the RAM Cap, net of any amount

¹⁰ “Major Projects” are capital projects subject to Rule 2.3.g.2. in General Order No. 7. “Baseline Projects” are capital projects that are not “Major Projects.” See the Hawaiian Electric Rate Adjustment Mechanism Provision tariff, Revised Sheet No. 93A, effective June 1, 2013.

¹¹ Order No. 32735 at 114-115.

¹² Order No. 33840, page 17, in Docket No. 2015-0375, filed on August 3, 2016.

¹³ Decision and Order No. 33178 at 60 (emphasis added) (citations omitted).

that can be recovered under the 2018 RAM Cap, beginning the year the assets are placed in service, and thereafter until the Commission approves the inclusion of these costs in the test year rate base in a rate case for the Company.

The Company will file a listing of projects that it anticipates will be recovered under the 2018 RAM Cap and those that will require above RAM Cap recovery.¹⁴ At that time, it will be able to estimate what amount of the AES-CEIP 138 kV Relocation Project net plant additions, if any, it will be able to recover under the 2018 RAM Cap, and the net plant additions, reduced by this amount, that it will propose for recovery through the RAM above the RAM Cap.

In addition, as explained below, in March of 2019, Hawaiian Electric will file its annual Capital Project Completion Report in Docket No. 03-0257, which will show on a recorded basis the amounts of net plant additions for the AES-CEIP 138kV Relocation Project that was incorporated into revenue requirements recovered above the RAM Cap and the amounts, if any, that were recovered under the RAM Cap. The Company will adjust in the annual decoupling tariff transmittals the amount of recovery for this project, if necessary, so that the total amount incorporated in the RAM that year is limited to the dollar amounts previously approved by the Commission in this application or at the level of recorded costs if recorded costs are lower than the budget amounts approved by the Commission.

B. Recovery of Project Costs through the RAM above the RAM Cap is Appropriate

As set forth in Order 32735, the Company may “recover certain revenue requirements above what is allowed for automatic revenue adjustment for additional capital projects through the RAM, REIP, or other mechanisms, by obtaining prior approval from the Commission on a

¹⁴ The Company will also include such a project listing in its annual five-year capital expenditures budget report due by January 1, 2018, in accordance with Rule 2.3.g.1. of General Order No. 7.

case by case basis.” As discussed herein, the Company is not seeking recovery through the REIP Framework. Rather, recovery of the revenue requirements for this through the RAM above the RAM Cap is appropriate.

In particular, this project to relocate approximately 4,700 circuit feet of 138 kV cables does not meet the eligibility criteria in either the Proposed Modified REIP Framework or the Current REIP Framework for recovery of project costs through the REIP surcharge, as the purpose of the Project is to relocate five spans of the AES-CEIP 2 138 kV transmission line approximately 250 feet east in parallel from its current location, to facilitate the Kapolei Harborside development. The Project was initiated at the request of Kapolei Properties pursuant to a relocation clause in the easement..

The Company requests Commission approval to include in its 2018 annual decoupling filing the 2018 revenue requirements associated with the AES-CEIP 138 kV Relocation Project , through the RAM mechanism above the RAM Cap. Hawaiian Electric proposes to include the revenue requirements associated with the capital costs for the Project in the RAM above the RAM Cap until it is able to fully include these costs in the test year revenue requirements in a future rate case.

C. The Company Will Include the AES-CEIP 138 kV Relocation Project Costs as Part of Its Annual Decoupling Filing and its Capital Project Completion Report

In its annual decoupling tariff transmittals, the Company will include the revenue requirements associated with the AES-CEIP 138 kV Relocation Project, net of any amounts that can be recovered under the RAM Cap in the calculation of the RAM Revenue Adjustment as described in Exhibit A (pages 4-5) of the proposed Above RAM Cap Standards and Guidelines. In addition, the Company will separately identify this Project as a Major Project in the

calculation of the RAM Revenue Adjustment under the “existing” tariffs and procedures (“Original RAM Methodology”), as Order 32735 directs the Companies to provide in their annual tariff transmittals.

In the Capital Project Completion Report filed annually in or around March in Docket No. 03-0257,¹⁵ the Company will include a list of projects, with recorded net plant addition amounts, that were completed and recovered under the RAM Cap, and those that were recovered above the RAM Cap in the preceding year.¹⁶ These lists will show on a recorded basis the amounts of net plant additions for this Project that were incorporated into revenue requirements recovered above the RAM Cap and the amounts, if any, that were recovered under the RAM Cap. Consistent with the provisions of the RAM Provision tariff, the Company will adjust in the annual decoupling tariff transmittals the amount of recovery for the Project that went into service, if necessary, so that the total amount incorporated in the RAM that year is limited to the dollar amounts previously approved by the Commission in this application or at the level of recorded costs if recorded costs are lower than the budget amounts approved by the Commission.

D. Recovery for the Projects Will Adhere to the Proposed Guidelines

Recovery of the purchase, installation and construction of the Project through the RAM above the RAM Cap will adhere to the principles in the proposed Above RAM Cap Standards and Guidelines as follows:¹⁷

Cost Basis –The cost basis for the RAM calculation shall be the lower of actual cost or approved cost.

¹⁵ The Final Decision and Order, issued on August 31, 2010 in Docket No. 2008-0274, required the Companies to file by March 31 of each year certain information on major and baseline projects in the same format as the project information that the Companies were providing in their annual Capital Project Completion Report filed by May 31 of each year in Docket No. 03-0257. To comply, the Companies include the information required by the Final Decision and Order in the Capital Project Completion Reports which they now file by March 31 of each year.

¹⁶ See Above RAM Cap Standards and Guidelines, Exhibit A, pages 2-3.

¹⁷ See Above RAM Cap Standards and Guidelines, Exhibit A at 4-5.

Rate Base Impact — The Rate Base Impact shall be limited to the changes to Plant in Service, Accumulated Depreciation, Accumulated Deferred Income Taxes (“ADIT”), and Contributions in Aid of Construction (“CIAC”) impacts from the projects. The Rate Base impact shall be a two-point average of estimated values at December 31 of the Evaluation Period (year prior to the RAM Year), plus estimated values at December 31 of the RAM Year. Estimated values shall be calculated based on the lower of approved cost or actual cost of the Projects. The Company will keep separate records of these rate base items for the Projects for the purpose of calculating Additional RAM.

Additional RAM – The components of Additional RAM shall be the Depreciation and Amortization RAM Adjustment and Rate Base RAM – Return on Investment Adjustment (at the pretax rate of return which includes related income taxes on the equity components of the Return on Investment rate approved by the Commission in the last issued Decision and Order in each of the Company’s most recent test year general rate case). In the forecast RAM year in service, Projects will recover only Rate Base RAM, and that will reflect only the plant addition/CIAC/deferred taxes in only the end of year rate base, as it does now. In years subsequent to being placed in service, projects will recover a full year of Depreciation RAM, and will recover a Rate Base RAM calculated on the average rate base impact of Plant in Service, Accumulated Depreciation, ADIT, and CIAC impacts from the project.

E. Safeguards to Protect Customers

To ensure the proper level of cost recovery and to protect customer interests, the Above RAM Cap Standards and Guidelines propose certain safeguards such that if the Project does not go into service by December 31 of the RAM period or if the Commission disallows all or a

portion of the project costs in a subsequent rate case proceeding, the Company will credit customers with interest for the applicable amount through the RBA. The current RAM Provision tariff includes similar provisions for Major Capital Project and Baseline Capital Project Credits.¹⁸

The Commission stated in its Final Decision and Order in Docket No. 2008-0274, that the credit mechanisms for Major Capital Projects and Baseline Capital Projects will result in just and reasonable rates, and should be implemented in the RAM Provision tariff.¹⁹ In addition, the Companies' annual decoupling tariff transmittals are subject to an established review process in which the Commission and Consumer Advocate have the opportunity to review extensive, detailed work papers and information.

Another customer safeguard is the Earnings Sharing Revenue Credit (i.e., Earnings Sharing Mechanism) in the Companies' RAM Provision tariff. In Docket No. 2008-0274, the Companies and the Consumer Advocate proposed the Earnings Sharing Mechanism to ensure that the total amount of revenues recovered through base rates, RBA/RAM adjustments and other surcharges do not contribute to excessive earnings by the utility, while retaining some incentive for management to seek cost reductions and productivity gains beyond what are recognized within the RAM formulas.²⁰ If an excess in earnings occurs, customers would be credited with the revenue equivalent of return on common equity ("ROE") levels actually achieved within the earnings sharing grid as shown in the table below:

¹⁸ The current Rate Adjustment Mechanism Provision tariff includes a cutoff date of September 30 for the installation of Major Projects.

¹⁹ Final Decision and Order, Docket No. 2008-0274 at 108-110.

²⁰ Final Decision and Order, Docket No. 2008-0274 at 59.

ROE at or below the Authorized ROE	Retained entirely by shareholders - no customer credits
First 100 basis points (one percent) over Authorized ROE	25% share credit to customers
Next 200 basis points (one to three percent) over Authorized ROE	50% share credit to customers
ROE exceeding 300 basis points (three percent) over Authorized ROE	90% share credit to customers

All of the Parties in Docket No. 2008-0274 supported the Earnings Sharing Mechanism and the Commission ultimately ruled that the Earnings Sharing Mechanism will allow both the Hawaiian Electric Companies and their customers to benefit from any earnings experienced by the Hawaiian Electric Companies' shareholders above the authorized ROEs and will result in just and reasonable rates.²¹

In its annual decoupling tariff transmittals, filed every March, the Company will keep separate records for the Major Projects and Major Baseline Projects approved by the Commission for cost recovery through the RAM above the RAM Cap and separate those projects from projects recovered under the RAM Cap or projects recovered through mechanisms outside the RAM. The Companies plan to reflect such projects in the annual decoupling tariff transmittal templates in a manner similar to that of the "Exceptional and Other Matters" category that the Companies reflected on Schedule K, and K1 of the 2015 annual decoupling tariff transmittals filed on June 3, 2015 and approved by the Commission.²²

The Company will separately track each Major Project and Major Baseline Project recovered through the RAM above the RAM Cap. Year 1 (the year in which the project is placed into service) will have an estimated ending balance not to exceed the Commission authorized amount, and the Year 1 revenue requirement will incorporate estimated applicable

²¹ Final Decision and Order, Docket No. 2008-0274 at 107-108.

²² Order No. 32883 issued June 8, 2015.

CIAC and ADIT but not include depreciation or amortization.²³ The beginning balance of Year 2 will be trued-up to actuals, not to exceed the Commission authorized amount, and include an adjustment for ADIT and accumulated depreciation and amortization.

²³ The Companies start depreciation and amortization in the calendar year following the date the investment is placed in service.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAI'I

In the Matter of the Application of)
)
HAWAIIAN ELECTRIC COMPANY, INC.) Docket No.
)
For Approval to Commit Funds in Excess of)
\$2,500,000 (excluding customer contributions))
for the P0003975 – AES-CEIP 2 138 kV)
Overhead Transmission Line Relocation Project.)
_____)


CERTIFICATE OF SERVICE

I hereby certify that I have this date served two copies of the foregoing Application and Exhibits I to IX, together with this Certificate of Service, by making personal service and/or mailing a copy by United States mail, postage paid, to the following and at the following address:

Division of Consumer Advocacy (two copies via hand delivery)
Department of Commerce and Consumer Affairs
335 Merchant Street, Room 326
Honolulu, Hawai'i 96813

DATED: Honolulu, Hawai'i December 30, 2016.

HAWAIIAN ELECTRIC COMPANY, INC.



Marisa Chun