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

In the Matter of the Application of	)	
	)	
HAWAIIAN ELECTRIC COMPANY, INC.	)	Docket No. 2019-0085
	)	
	)	
For Approval of a General Rate Increase and Revised Rate Schedules and Rules	)	
	)	

HAWAIIAN ELECTRIC COMPANY, INC.
2020 TEST YEAR

DIRECT TESTIMONIES AND EXHIBITS

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PUBLIC UTILITIES COMMISSION

Book 6

TESTIMONY OF
PATSY H. NANBU

CONTROLLER
HAWAIIAN ELECTRIC COMPANY, INC.

Subject: Accounting Policy and
Other Accounting Matters

EXECUTIVE SUMMARY

Accounting Policy

- Pension and Postretirement benefits other than pension ("OPEB") costs for ratemaking purposes should be based on the pension and OPEB tracking mechanisms that have been approved by the Commission. The pension and OPEB tracking mechanisms are achieving their objectives and benefits, and the tracking mechanisms should continue. The pension and OPEB tracking mechanisms are proposed to be modified slightly to account for the changes in the accounting for pension and OPEB.
- The customer benefit adjustment is based on the methodology agreed to in the 2017 test year rate case and approved by the Commission.
- The Company transitioned to the FERC uniform system of accounts with the implementation of the ERP/EAM system in October 2018, as approved by the Commission.
- The accounting for the Asset Management Division costs is consistent with the accounting for other strategy and planning costs in the company.
- The deferred computer software development costs included in the test year are based on Commission approved projects and the accounting treatment presented in the respective proceedings. The other deferred project costs included in the test year are consistent with prior Commission decisions.
- The test year abandoned capital project costs and preliminary engineering costs are based on the methodology utilized in determining revenue requirements in prior rate cases.
- The accounting treatment for gains on sale of land and Iolani Court Plaza lease premiums is consistent with previous commission decisions.

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INTRODUCTION

Q. Please state your name and business address.

A. My name is Patsy H. Nanbu and my business address is 1003 Bishop Street, Suite 500, Honolulu, Hawaii.

Q. By whom are you employed and in what position?

A. I am Hawaiian Electric Company, Inc.'s ("Hawaiian Electric" or "Company") Controller. My educational background and experience are shown in HECO-1600.

Q. What are your areas of responsibility in this rate case?

A: I am responsible for presenting the accounting policy relating to the following topics:

(1) accounting for pension and post-employment benefits other than pensions ("OPEB");

(2) customer benefits adjustment;

(3) change from NARUC to FERC Uniform System of Accounts;

(4) accounting for Asset Management Division costs;

(5) accounting for software development costs and other deferred project costs;

(6) abandoned project costs and preliminary engineering charges; and

(7) unamortized gain on sale of land.

ACCOUNTING FOR PENSION AND POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

Q. Please briefly explain the Company's qualified pension and postretirement benefit plans.

A. As described by Ms. Claire Cooper in HECO T-18, the Company provides pension benefits to its employees by participating in the "Retirement Plan for Employees of Hawaiian Electric Industries, Inc. and Participating Subsidiaries", a qualified defined benefit pension plan. Hawaiian Electric provides OPEB through participation in the "Postretirement Welfare Benefits Plan for Employees of Hawaiian Electric Company, Inc. and Participating Employers".

Q. Please provide a description of the accounting and ratemaking requirements for pensions and OPEB under accounting principles accepted in the United States ("GAAP").

A. A description of the accounting and ratemaking treatment for the pension and OPEB plans, and the background and history of the establishment of the pension and OPEB tracking mechanisms is provided in HECO-1601 (Accounting for Pension and Postretirement Benefits Other than Pensions). In brief, the Consumer Advocate first introduced the concept of pension and OPEB tracking mechanisms in its testimony in Hawai'i Electric Light 2006 test year rate case, Docket No. 05-0315. In the Hawaiian Electric 2007 test year rate case, Docket No. 2006-0386, the Consumer Advocate, Hawaiian Electric and the Department of Defense agreed on the establishment of the pension and OPEB tracking mechanisms, which the Commission approved in its final decision and order in that proceeding.[1] The Commission also approved the implementation of the pension and OPEB tracking

[1] Decision and Order filed September 14, 2010 in Docket No. 2006-0386 at 3.

mechanisms for Maui Electric and Hawai'i Electric Light, and the three Companies have used these tracking mechanisms since that time.

Objective of the Tracking Mechanisms

Q. What is the objective of the pension tracking mechanism?

A. The objective of the pension tracking mechanism is that, over time, the Company will recover through rates the net periodic pension cost ("NPPC") as defined under Accounting Standards Codification ("ASC") 715, including the amortization of the unrecognized amounts. The pension tracking mechanism has the intended effect of balancing NPPC in rates with actual NPPC over time, but also protects customers from having rates set on a level of NPPC materially higher or lower than the actual NPPC. The customers remain neutral as a result of the NPPC determined for a test year. If the actual NPPC in a future year is less than what was included in rates, the difference is accumulated and returned to the customers through an amortization over five years in the next rate case. If the actual NPPC in a future year is greater than what was included in rates, the difference is accumulated and an amortization over five years is included in the expenses in determining rates in the next rate case. In addition, an amount equal to the actual NPPC and recoverable through rates would be contributed to the pension trust funds.

Q. What is the objective of the OPEB tracking mechanism?

A. Similar to the pension tracking mechanism, the objective of the OPEB tracking mechanism is that, over time, the Company will recover through rates the net periodic benefit cost ("NPBC"), as defined under ASC 715, including the

amortization of the unrecognized amounts. The OPEB tracking mechanism has the intended effect of balancing NPBC in rates with actual NPBC over time, but also protects customers from having rates set on a level of NPBC materially higher or lower than the actual NPBC.

Benefits of Tracking Mechanisms

Q. What are the benefits of the pension tracking mechanism?

A. The benefits of the pension tracking mechanism are that it:

(1) specifies agreement on the ratemaking treatment of pension costs and pension fund contributions, thus reducing disputable items in rate cases,

(2) ensures that neither customers nor the Company gains or loses to the detriment or benefit of the other party, based on the pension cost included in rates in a rate case,

(3) demonstrates rate support for recovery of the Companies' pension costs, and

(4) results in leveling pension costs reported on the financial statements.

Q. What are the benefits of the OPEB tracking mechanism?

A. The OPEB tracking mechanism specifies the ratemaking treatment that allows financial statement treatment of benefit costs to be smoothed based on the amount of NPBC established in a rate case, and addresses potential situations in the future where contributions to OPEB trusts are not equal to the NPBC recognized.

Q. What are the pension and the OPEB estimates reflected in the test year?

A. The table below summarizes the pension and OPEB estimates for the 2020 test year.

Table 1: Pension and OPEB Estimates

Description	Test Year Expense/ Average Rate Base	Exhibit Reference
Pension		
Expenses:		
Estimated NPPC	$36,610,000	HECO-1602
Pension tracking regulatory asset amortization	7,107,000	
Non-service regulatory asset amortization	382,000	
Total pension expense	$44,099,000	
Regulatory assets – test year average:		
Pension tracking regulatory asset	$43,093,000	HECO-1602
Non-service cost regulatory asset	$ 1,645,000	HECO-1602
OPEB:		
Expenses:		
Estimated NPBC	$ -	HECO-1603
OPEB tracking regulatory liability amortization	(230)	HECO-1603
Total OPEB expense	$ (230)	
Regulatory liability – test year average:		
OPEB tracking regulatory liability	$ (1,211)	HECO-1603

Pension Tracking Mechanism

Q. How is the pension tracking mechanism reflected in the test year estimates?

A. As required in the pension tracking mechanism, Hawaiian Electric has reflected in its results of operations, a pension expense based on the estimated ASC 715 based NPPC for 2020 plus the amortization of the net regulatory asset balance estimated as of June 30, 2020, plus the amortization of the non-service cost pension regulatory asset balance estimated as of June 30, 2020, and reflected the unamortized net regulatory asset and non-service cost pension regulatory asset in rate base. This is

1 based on the assumption that interim rates, reflecting the test year estimates, will be
2 effective on July 1, 2020.
3 As discussed by Ms. Cooper in HECO T-18, the employee benefits expense
4 includes a pension expense of $44,099,000, which is the sum of the $36,610,000
5 estimated NPPC for 2019, plus the amortization of the pension net regulatory asset
6 of $7,107,000, and the amortization of the non-service cost regulatory asset of
7 $382,000.
8 Q. How was the estimated pension net regulatory asset as of June 30, 2020 created?
9 A. The net regulatory asset was created as the difference between the NPPC included in
10 rates since the inception of the tracking mechanism, and actual NPPC, less any
11 amortization that has been reflected in rates. See HECO-1602, page 2 for details of
12 roll-forward of the pension tracking regulatory asset and liability balances.
13 Q. What is the test year estimate of the pension net regulatory asset?
14 A. The pension net regulatory asset is estimated as of December 31, 2019 to be
15 $54,202,000. The balance as of the end of December 31, 2020 is estimated to be
16 $31,983,000. These amounts are included in rate base as discussed by Ms. Gayle
17 Ohashi in HECO T-24.
18 Q. What is the non-service cost regulatory asset?
19 A. The Financial Accounting Standards Board ("FASB") issued ASU 2017-07 in March
20 2017, which limited the amount of NPPC and NPBC expense that can be capitalized
21 to only the service cost component, beginning in 2018. The test year revenue
22 requirements established with the 2017 test year rate case, was based on the

accounting that was in effect at that time, which reflected the aggregate NPPC annual NPBC amounts and the amortization of the regulatory asset/regulatory liability (based on the difference between the aggregate NPPC and NPBC in rates and the actual NPPC and NPBC) in determining the employee benefits that are capitalized. (The Company allocates a portion of employee benefits to capital and other projects based on the labor charged to capital and other projects.)

In the November 2017 stipulated agreement in the Hawaiian Electric 2017 test year rate case, the parties in the proceeding agreed to a modification to the pension / OPEB tracking mechanisms to be effective from 2018 until a decision in Hawaiian Electric's next rate case, to set up a separate regulatory asset to accumulate the non-service cost portion of the test year NPPC and NPBC that is included in the transfer to capital in the test year that would be expensed under ASU 2017-07. The regulatory asset would be amortized to expense over fifteen years, beginning with the effective date that rates are effective in the next rate case proceeding. The decision on the full implementation of ASU 2017-07 for rate making would be determined in the next rate case. The Commission approved the stipulated agreement in Final Decision and Order No. 35545 filed on June 22, 2018.

Q. How was the non-service cost regulatory asset determined for the test year?

A. The non-service cost regulatory asset is based on the amounts that have been recorded to the regulatory asset since January 2018 for the non-service cost portion of the NPPC included as part of the employee benefits capitalized in rates. Exhibit HECO-1602, page 3, provides the roll-forward of the non-service regulatory asset

from the beginning of 2018 and recorded through December 31, 2018, and estimated through June 30, 2020. The 2017 test year estimate for NPBC was $0, and accordingly, a non-service component for NPBC has not been recorded as a regulatory asset.

Q. How is the non-service cost regulatory asset amortized for the test year?

A. As part of stipulated settlement agreement, the parties agreed the regulatory asset would be amortized over fifteen years, beginning with the effective date that rates are effective with the next rate proceeding. However, the Consumer Advocate, in its filed testimony in the Hawaii Electric Light 2019 test year rate case, Docket No. 2018-0368, recommended that Hawaii Electric Light's non-service cost regulatory asset be amortized over five years. In light of the Consumer Advocate's recommendation in the Hawaii Electric Light's rate case for Hawaii Electric Light's non-service cost regulatory asset, the Company is proposing a five-year amortization effective as of the estimated date interim rates would be effective as a result of this proceeding. However, the Company is willing to revise the amortization period to the 15-year amortization period agreed to in the stipulated settlement agreement in the 2017 test year rate case.

Q. What is the amortization expense for the non-service cost regulatory asset for the test year?

A. The non-service cost regulatory asset amortization for the test year is $382,000, as reflected in HECO-1602, page 3.

Q. What is the test year estimate of the non-service cost regulatory asset?

A. The non-service regulatory asset is estimated at $1,569,000 as of December 31, 2019 and $1,721,000 as of December 31, 2020, as shown in HECO-1602, page 3. These amounts are included in rate base as discussed by Ms. Gayle Ohashi in HECO T-24.

Q. What is the Company proposing for the non-service portion of the NPPC and NPBC for the 2020 test year?

A. For the 2020 test year and for the period that rates are in effect from this proceeding, the Company is proposing to follow ASU 2017-17 for both ratemaking and financial reporting purposes. The requirement under ASU 2017-07 to limit the amount of pension and OPEB expense that can be capitalized to only the service cost component would apply for financial reporting and ratemaking. As such, all non-service cost portion of NPPC and NPBC would be expensed as required under ASU 2017-07. Doing so simplifies the regulatory accounting process, as it reduces the administrative requirements to maintain separate accounting for financial reporting and ratemaking.

Q. Does this impact the pension and OPEB tracking mechanisms?

A. A slight modification would be made to account for this change to the tracking mechanisms. The proposed revision to the existing pension and OPEB tracking mechanisms in blackline version is provided in HECO-1601 Attachment 1 and HECO-1601 Attachment 2, respectively.

Q. Has the Consumer Advocate taken a position on this proposal?

A. In Hawaii Electric Light's 2019 test year rate case, the Consumer Advocate stated the expensing of non-service costs, as required by ASU 2017-07 for financial reporting purposes, should be adopted for regulatory purposes in determining HELCO's revenue requirement. See CA-T-1, page 45 in Docket No. 2018-0368).

OPEB Tracking Mechanism

Q. How is the OPEB tracking mechanism reflected in the test year estimates?

A. The estimated FASB ASC 715 based NPBC for 2020 is -$3,090,000 as shown at HECO-1902. The tracking mechanism specifies that if the NPBC is negative for the test year, the amount included in rates will be "zero" (i.e. $0). As such, the 2020 test year estimate for NPBC is zero. The NPBC has been negative since 2014 except in 2015. As required by the tracking mechanism, Hawaiian Electric has set up a regulatory liability to offset the OPEB asset created by the negative NPBC. HECO 1603, page 3, provides a roll-forward of the related regulatory liability balance. In accordance with the OPEB tracking mechanism, the regulatory liability created from the negative NPBC has not been included in rate base and is not subjected to amortization. This regulatory liability is separate from the OPEB tracking regulatory liability. In the recorded years that the NPBC was negative (2014 and 2016-2018) and there was a positive NPBC in rates, the OPEB tracking regulatory liability was calculated as the difference between the level of FASB ASC 715 based NPBC in rates and zero.

In accordance with the OPEB tracking mechanism, the balance of the unamortized OPEB tracking regulatory liability is included in rate base and the

amortization of the balance estimated as of June 30, 2020 over five years. This is based on the assumption that interim rates, reflecting the test year estimates, will be effective on July 1, 2020.

Q. How was the estimated OPEB regulatory liability as of June 30, 2020 created?

A. The net regulatory liability was created as the difference between the positive NPBC included in rates since the inception of the tracking mechanism, and the actual NPBC (or zero if actual NPBC is negative), less any amortization that has been reflected in rates. See HECO-1603, page 2, for details of the roll-forward of the OPEB tracking regulatory liability balance.

Q. What is the test year estimate of the OPEB net regulatory liability?

A. The OPEB regulatory net liability estimated as of December 31, 2019 is $1,386,000. The balance as of the end of December 31, 2020 is estimated to be $1,036,000. These amounts are included in rate base as discussed by Ms. Gayle Ohashi in HECO T-24.

<u>Contribution in Excess of NPPC</u>

Q. Please discuss the requirements regarding funding the pension trusts under the pension tracking mechanism.

A. Under the pension tracking mechanism, the Company is required to contribute to the pension trust the amount of the NPPC, unless the minimum required contribution under the law requires an amount greater than the NPPC. The pension tracking mechanism also allows the amount of any contribution to the pension trust in excess of NPPC if the contribution is the minimum level required by law. The tracking

mechanism requires the amounts contributed above the NPPC to be in a regulatory asset account and included in rate base. In the 2017 test year rate case, the pension tracking mechanism was modified to indicate that the contributions in excess of NPPC regulatory asset will reduce contributions below NPPC, when the ERISA minimum required contribution is less than NPPC, until the regulatory asset balance is reduced to zero.

Q. Has the Company been required to fund an amount greater than the NPPC?

A. In 2011, Hawaiian Electric was required to contribute $53,033,000, which was the Company's ERISA minimum funding requirement for the year. The amount was $19,411,000 more than the NPPC of $33,622,000 for the year. That was the only year since the tracking mechanism has been in place that the contribution amount into the pension trust exceeded the NPPC. The $19,411,000 was recorded in a regulatory asset account.

Q. What is the regulatory asset balance for contributions in excess of NPPC?

A. With the modification of the pension tracker such that the Company would make the minimum required contributions under ERISA and reduce the contributions in excess of NPPC by the difference between the minimum required contributions and the NPPC each year, in 2018, the Company applied all of the contributions in excess of NPPC existing from 2011. As such, the contribution in excess of NPPC regulatory asset was zero as of the end of 2018. A roll-forward of the excess of NPPC regulatory asset balance is provided in HECO-1602, page 4. There is no contribution in excess of NPPC amount in rate base for the 2020 test year.

1 Continuation of Pension and OPEB Tracking Mechanisms

2 Q. Should the Pension and OPEB tracking mechanisms continue?

3 A. Yes, the tracking mechanisms should be continued as they are meeting the objective
4 of the tracking mechanisms and provide the benefits described previously in this
5 testimony.

6 Q. Are there concerns if the pension and OPEB tracking mechanisms are terminated?

7 A. Yes. The Company has four primary concerns with eliminating the pension and
8 OPEB tracking mechanisms.

9 First, from a cost recovery perspective, they are inherently fair and
10 reasonable because they adjust rates over time to reflect actual costs. If pension
11 costs are decreasing over time and there is no mechanism to incorporate these lower
12 costs into rates between rate cases, customers will be paying more than they should
13 and the Company would reap a windfall. Conversely, if pension costs are increasing
14 over time, without a mechanism to incorporate these higher costs into rates, the
15 Company would suffer a shortfall. Both results are unfair and are avoided with the
16 tracking mechanisms.

17 Second, pension and OPEB costs are extremely volatile and unpredictable
18 from year to year because they depend to a large extent on market returns and
19 interest rates. This makes them particularly difficult for traditional test year
20 ratemaking. In fact, the Consumer Advocate first proposed a pension tracking
21 mechanism in Hawai‘i Electric Light’s 2006 test year rate case as a result of the

1 volatility and unpredictability of pension costs between rate cases.[2] There is still a
2 fair degree of volatility and unpredictability with respect to pension costs.
3 Moreover, the Hawaiian Electric Companies are now following a three-year rate
4 case cycle, and with the proposed multi-year rate plan ("MYRP") in the pending
5 performance-based regulation ("PBR") proceeding in Docket No. 2018-0088 which
6 would reduce the frequency of rate cases to a five year cycle, it is now more
7 important to track pension costs between rate cases than it was when the Companies
8 could file rate cases as often as needed.
9 Third, tracking mechanisms address the need to recover pension and OPEB
10 costs over time. By making such recovery much more certain, the tracking
11 mechanisms reduce Company earnings volatility and enhances investors'
12 perceptions of the Company's business risk, credit ratings, and cost of debt. They
13 substantially reduce the likelihood of another downgrade of the Company's credit
14 rating, which would place it in the non-investment grade category.
15 Finally, under U.S. generally accepted accounting principles, ASC 715
16 requires that the Companies recognize on their balance sheets the funded status of
17 defined benefit pension and OPEB plans with an offset to accumulated other
18 comprehensive income ("AOCI") in the stockholders' equity (using the projected
19 benefit obligation ["PBO"] for pension plans and the accumulated postretirement
20 benefit obligation ["APBO"] for OPEB plans). The tracking mechanisms allow the
21 Company to establish separate regulatory asset/liability accounts to offset any

[2] Docket No. 05-0315, Direct Testimony of Steven Carver, CA-T-3, pp. 13-49.

charges or credits to equity (i.e. AOCI) that would be required under ASC 715 (excluding amounts for executive life and nonqualified pension plans). If the tracking mechanisms are eliminated, the Company will have to record such amounts that are in the separate regulatory asset related to AOCI to AOCI, which will reduce its equity. In order to maintain its equity ratios, additional equity would be required. The tracking mechanism assists in maintaining the Company's equity ratio and ensures that it would not have to issue additional equity

CUSTOMER BENEFIT ADJUSTMENT

Q. What is the Customer Benefit Adjustment?

A. The Customer Benefit Adjustment relates to the Company's agreement in Hawaiian Electric's 2017 test year rate case to provide the full benefit of the net pension regulatory asset adjustment to customers.

In Interim Decision and Order No. 35100 ("Interim D&O") in Docket No. 2016-0328, Hawaiian Electric's 2017 test year rate case, the Commission adjusted the Stipulated Settlement agreed to by the parties, by lowering the pension regulatory asset and increasing the OPEB liability ("net pension regulatory asset adjustment"). The net pension regulatory asset adjustment was to disallow the part of the net pension regulatory asset that had been accrued and amortized, if the Company had not forgone a 2014 test year rate case. The Commission subsequently issued Order No. 35229, which reversed the net pension regulatory asset adjustment, but required the Company to provide supporting calculations to demonstrate that the full benefit of the net pension regulatory asset adjustment would be provided to

customers. The Company calculated the full amount of the benefit as $25,395,000, as provided in HECO ST-17 in Docket No. 2016-0328. The Parties in the proceeding agreed with the calculation in the March 5, 2018 Stipulated Settlement, which was approved by the Commission in Order No. 35335 issued on March 9, 2018.

Q. How is the full benefit provided to customers?

A. The Company's proposal, which was agreed to by the Parties, and approved by the Commission, included a customer benefit adjustment as a separate single line item that reduces expenses by $5,467,000 in the Company's results of operations, in determining rates in the 2017 rate case. The customer benefit reduction will remain in place until rates approved in this rate case become effective, and the remaining balance will be included in this rate case as a separate single line item that reduces expenses. The amount of the adjustment in this case would be based on amortization of the balance over three years.

Q. What is the customer adjustment included in the 2020 test year?

A. The test year estimate customer adjustment, as shown in the results of operations as a single separate line to reduce expenses, is $4,425,000. The amount is based on current rates effective from April 13, 2018 through June 30, 2020, and rates based on an interim decision from this proceeding will be effective on July 1, 2020. The remaining balance is estimated to be $13,276,000 on June 30, 2020. HECO-1610 provides the calculation for the test year estimate.

CHANGE OF UNIFORM SYSTEM OF ACCOUNTS

Q. What uniform system of accounts ("USOA") is the company utilizing?

A. Beginning in October 2018, with the implementation of the new ERP/EAM system, SAP, the Hawaiian Electric Companies transitioned from the NARUC USOA to the FERC USOA. The Commission approved the Companies' request to change to FERC's USOA, beginning with the implementation of the Companies' new ERP/EAM, in Decision and Order No. 31757, issued December 19, 2013 in Docket No. 2013-0007.

Q. Were there any significant changes as a result of change to the FERC USOA?

A. The major difference between the NARUC USOA and the FERC USOA is the reporting of contributions in aid of construction ("CIAC"), which was reported under a separate NARUC account 271. Under the NARUC reporting system, account 271 includes donations or contributions in cash, services or property from states, municipalities, or other governmental agencies, individuals and others for construction purposes. CIAC was incorporated as a deduction in the calculation of rate base. Prior to October 2018, and in establishing rates in previous test year rate cases, the Company's presentation of CIAC followed the guidelines of the NARUC USOA.

With a transition to the FERC USOA, contributions in the form of money or its equivalent toward construction of the electric plant will be credited to accounts charged with the cost of construction (reduction to the gross cost of plant constructed).

Q. What was required to transition to FERC?

A. The transition to FERC's USOA, in October 2018, required the net balance of CIAC (original amount of CIAC less amortization) to be credited against the account balances charged with the cost of construction, i.e., gross plant in service and construction work in progress ("CWIP"). The cost basis of the associated assets in the Companies' property records and the balance of projects for electric plant in progress of construction were credited by the net balance of CIAC. With this transition, the account detail and ledger for CIAC was not required. In other words, there was no longer an exclusive account for CIAC as it was moved to reside as a credit against the cost of the associated assets or the cost of projects in process of construction. Any CIAC billed or received thereafter was credited to the appropriate work orders/projects as an offset to the cost for plant construction.

Q. What is the rate base implication for plant in service and CIAC associated with plant in service with the Company's transition to the FERC USOA?

A. There is no change in rate base for plant in service and CIAC associated with plant in service. Under NARUC, in rate base, plant in service was the gross cost of plant (net of accumulated depreciation), and CIAC was a separate reduction to rate base. Under FERC, the plant in service amounts are net of (i.e., already reduced by) CIAC, and presented net of accumulated depreciation in the calculation of rate base. There is no separate CIAC line item reducing rate base because it is already net in utility plant. Therefore, there is no net rate base impact. The difference between

NARUC and FERC for plant in service is a matter of where the costs are classified in rate base, and not a matter of inclusion or exclusion of costs in rate base.

Q. What change in ratemaking treatment is the Company proposing for CIAC related to CWIP in its transition to the FERC USOA?

A. While there is no net rate base impact in the Company's transition from the NARUC USOA to the FERC USOA for CIAC associated with plant in service, there is, however, a change in rate base related to the treatment of CIAC that is associated with projects that are still under construction (i.e., in CWIP). Previously, in its presentation of CIAC aligned with NARUC, all CIAC, including amounts associated with projects in CWIP, were included as a reduction to rate base under account 271. CWIP, however, was not included in rate base and instead, the CWIP net of the related CIAC earned an allowance for funds used during construction ("AFUDC").[3] With the transition to FERC, CIAC is credited when received against the related project costs in CWIP which are excluded from rate base, and therefore, it is proper to also exclude the CIAC amounts related to CWIP (to the extent the funds are invested in CWIP) from rate base. Both the costs in CWIP and the associated CIAC will be excluded from rate base until the projects they relate to are considered plant in service. To the extent funds are not yet expended for a project in CWIP, the CIAC will be classified as developer advances and deducted in the calculation of rate base, which is discussed in the following section. This is a change in the ratemaking treatment of CIAC for this rate case, as previously, all CIAC would have

[3] Projects that were anticipated to be 100% funded by CIAC did not earn any AFUDC.

been included as a reduction of rate base regardless of whether it was related to CWIP or plant in service. Under the proposed changes, only the CIAC related to plant in service and "CIAC not expended", classified as developer advances, will be a reduction in rate base. This proposed change is justified. CWIP net of associated CIAC earns AFUDC, therefore the CWIP and its associated CIAC should be excluded from rate base. Excluding the CIAC, along with the CWIP costs it relates to, better aligns the source of funds with its use in the calculation of rate base. In addition, and as mentioned previously, any material CIAC received in advance of construction expenditures will continue to be deductions in the calculation of rate base as a line item under developer advances.

Q. Please describe the impact to the Company's depreciation expense from its transition to the FERC USOA.

A. Under the NARUC presentation, the depreciation accrual was computed based on the plant in service balances with a separate line subtracting the amortization of CIAC to arrive at depreciation expense. Under the FERC presentation, the depreciation accrual is based on the plant in service balances net of CIAC, and there is no separate CIAC amortization credit as an offset to arrive at depreciation expense. Please refer to exhibit HECO-2203 in Ms. Michelle Koyanagi's testimony at HECO T-22.

Q. How is CIAC presented in the Company's direct testimony in this rate case?

A. Hawaiian Electric's 2020 test year estimate for revenue requirements was calculated based on presenting CIAC consistent with the FERC USOA. The test year net cost

of plant in service estimate is net of CIAC and reflected at HECO-2403, while a summary of 2019 and 2020 plant additions net of CIAC is shown at HECO-1525. In addition, HECO T-22 includes a discussion of depreciation expense calculated based on plant balances net of CIAC.

Q. What approval is Hawaiian Electric seeking from the Commission in this rate proceeding?

A. Although the Commission already approved the Companies' transition to the FERC USOA, with its change to FERC the Company is excluding CIAC associated with CWIP from rate base, which is a different ratemaking treatment for this item compared to how rates were established in previous rate cases. In the abundance of caution, the Company is requesting Commission approval to reflect this change in the results of operations and the determination of the 2020 test year revenue requirement.

Q. How do the Hawaiian Electric Companies propose to treat the CIAC associated with CWIP in the rate base rate adjustment mechanism revenue ("RAM") filings?

A. The Hawaiian Electric Companies propose to exclude the CIAC associated with CWIP in its calculation of rate base in the rate base RAM filings. The Companies propose to reflect this change in each of the Companies' annual decoupling filings in the year following the Commission's approval to set electric rates which are calculated incorporating this change in Hawai'i Electric Light's 2019 test year rate

case proceeding.[4] Implementing this change in the rate base RAM filings at the same time for all three of the Hawaiian Electric Companies will promote efficiencies in the preparation and review of the respective filings.

ACCOUNTING FOR ASSET MANAGEMENT DIVISION COSTS

Q. Please explain the work of the Asset Management Division?

A. Mr. Colton Ching provides a description of the work performed by the Asset Management Division in HECO-309. As described, the Asset Management Division is responsible for developing strategies to manage the Companies' transmission and distribution ("T&D") assets with a balanced perspective of the Company, customers, regulators and employees. Asset management strategies are aimed at maximizing the value of assets through data-driven decision making regarding the maintenance and replacement of assets over time. The Asset Management Division's responsibilities also include reliability reporting and analysis, reliability strategic development, and supporting reliability strategies and reliability strategy implementation to reduce the frequency and duration of electric service interruptions to customers. More recently, Asset Management Division has been tasked with the responsibility for resilience planning.

Q. How are the costs for the Asset Management Division reflected in the 2020 test year?

[4] See HELCO T-12, p.33, in Docket No. 2018-0368.

A. The costs are reflected as O&M expense in test year. Mr. Colton Ching presents the expenses of the Asset Management Division in HECO T-3.

Q. Has the Asset Management Division's cost been reflected in O&M expenses in the past?

A. No. As part of our review and set up of cost centers during the implementation of SAP, and ensuring costs were reflected in the appropriate accounts in the new system, process area charges were reviewed. The work of the Asset Management Division is more consistent with other general planning functions of the company. Under the Company's policies, costs for general planning functions are charged to expense as incurred. As such, the charges for the Asset Management Division are charged to expense effective October 2018. Prior to that time, the Asset Management Division charged their costs to the Energy Delivery Clearing Account, and the costs were included as part of the Energy Delivery overhead. Charging the Asset Management's costs to expense standardizes the treatment with other general planning work across the Company, such as transmission and distribution planning, and long term resource planning costs, which are charged to expense as incurred. In addition, charging these costs to expense allows for better transparency, visibility and management of costs, rather than including such costs as part of an overhead and a component of capital project costs in the future.

Q. What is the impact of considering Asset Management Division's cost as general planning costs, and reflecting the costs as expense as incurred?

A. Mr. Colton Ching explains in HECO T-3 that Planning and Technology's expenses for 2020 are higher than the 2018 expenses by $1,486,000 because Asset Management Division's costs are charged to expense as incurred. However, the overall impact on the Company's expenses is less, as the amounts charged to the clearing account is lower by such amount, and the overheads charged to various projects that are expensed would be lower as there are fewer costs in the clearing account that would need to be allocated. Said another way, if the Asset Management Division's costs were included in the clearing account instead of included in O&M expenses for the test year, the portion of the energy delivery clearing charges that are allocated to expense would be higher than the estimated amounts for the test year.

COMPUTER SOFTWARE DEVELOPMENT COSTS

Q. Please provide a background of the ratemaking treatment of computer software development costs?

A. The background of Hawaiian Electric's accounting policy of software development costs is provided in HECO-1604. As discussed, under the accounting policy certain project costs are deferred, and certain costs are expensed. Costs that are deferred require Commission approval. Upon commission approval, certain software development costs are accumulated and deferred, the deferred costs are amortized over a period of time (e.g., 12 years), and the unamortized costs are included in rate base.

Q. What amounts are included in 2020 test year revenue requirements for computer software development costs?

A. The amounts included in 2020 test year revenue requirements for computer software development costs are as follows:

Table 2: Deferred System Development Costs

Description	2020 Test Year Estimates	
	Average Rate Base	Amortization[5]
Deferred system development costs	$64,140,000	$7,149,000

A summary of the deferred system development costs by project is provided in HECO-1605. Deferred system development costs include costs for the Human Resource Management System, the Budget System Replacement, the Customer Information Services, Interactive Voice Response System, Demand Response Management System ("DRMS"), the ERP/EAM system, and Grid Modernization Phase 1 projects.

Q. Have all system development projects mentioned above been completed?

A. All of the projects have been completed except for the Grid Modernization Phase 1 project. The Commission approved the project on March 25, 2019, and the system development work is expected to be completed in November 2020. See HECO-1605 for the respective docket numbers, decision and order numbers, and the in-service dates.

[5] See HECO-WP-1605. Note that the amounts included in revenue requirements are slightly different as indicated in HECO-WP-1605. Test year amortization amounts included in revenue requirements will be revised at the next opportunity.

OTHER DEFERRED PROJECT COSTS

Q. What are "other deferred project costs" included in the deferred system development and other deferred project costs exhibit?

A. Other deferred costs are costs incurred for certain projects that Hawaiian Electric has requested approval for deferral treatment and that have been approved by the Commission.

Q. What amounts are included in 2020 test year revenue requirements for these projects?

A. Hawaiian Electric 2020 test year estimates for revenue requirements include the deferred costs for the Reverse Osmosis ("RO") Water Pipeline project. This project went into service in 2009, and has been included in rate cases since that time.

Table 3: Other Deferred Costs

	2020 Test Year Estimate	
Description	Average Rate Base	Amortization
RO water pipeline regulatory asset	$4,551,000	$116,000

Q. Which witness includes the average rate base-unamortized deferred system development and other deferred project costs in rate base?

A. The average unamortized system development and other deferred project costs as shown on HECO-1605 are included in rate base as addressed by Ms. Gayle Ohashi in HECO T-24.

ABANDONED CAPITAL PROJECT COSTS & PRELIMINARY ENGINEERING COSTS

Abandoned Capital Project Costs

Q. What is an abandoned capital project?

A. An abandoned capital project is one in which a "no go" decision is made during the time the project costs are classified as Construction Work in Progress, i.e., a "no go" decision is made sometime during the detailed engineering through construction completion stages of the project's life cycle. A project is also considered to be abandoned if the project is significantly delayed at management's discretion, i.e., delayed generally for more than two years.

Q. How are abandoned project costs treated?

A. Under normal circumstances, the costs of abandoned capital projects are charged to appropriate O&M expense account(s), unless the costs result in items that have future value. If any of the costs represent items that have future value, e.g., assets that are usable on another capital project, the related costs are transferred to the other project or to other accounts (e.g., inventory in the case of stock material) as appropriate. If a capital project is abandoned and unusual circumstances exist, e.g., the accumulated costs are significant, the Company may seek Commission approval for special accounting and ratemaking treatment as appropriate under the circumstances.

Q. Is there a more detailed description of how the Company accounts for capital project costs?

A. Yes. The Company's policy is provided at HECO-1606. The policy was clarified in March 2010, to more clearly follow the Company's internal process for initializing and authorizing projects.

Q. Why is an adjustment for abandoned project costs necessary?

A. The Company expects that projects will be abandoned from time to time, and that the related costs incurred will be written off to expense. However, the Company's 2020 O&M expense budget does not include estimates for specific abandoned project costs since forecasters do not generally contemplate that projects will be abandoned. Therefore, an adjustment to the Company's 2020 O&M expense budget is necessary to include in revenue requirements a reasonable amount for abandoned project costs since such costs are expected to be incurred.

Q. How are the adjustment amounts for abandoned project costs determined?

A. The adjustment amounts represent the five-year average of actual abandoned project cost write-offs from 2014 through 2018. The test year estimate for abandoned project costs is $1,301,000 as shown on HECO-1607 and calculated at HECO-WP-1607.

Q. How was the 2020 test year estimate for abandoned project costs of $1,301,000 allocated to the Company's process areas and operations and maintenance expense accounts?

A. The Company allocated the test year estimate to the three process areas with the highest five-year average and across their significant five-year average operations and maintenance expense accounts based on the actual abandoned project cost write-

offs from 2014 through 2018 in the same proportion as the actual costs as calculated at HECO-WP-1607. HECO-1607 shows the distribution to the process areas and various operations and maintenance expense accounts.

Q. How are the adjustment amounts presented in the Company's test year 2020 estimated?

A. The adjustment amounts were provided to the respective witnesses (Mr. Colton Ching, HECO-T-3 for Planning and Technology expenses, Mr. Michael DeCaprio, HECO-T-10 for Power Supply expenses and Mr. Mark Shimabukuro, HECO T-11 for Energy Delivery expenses) for inclusion in their test year estimates, based on the historical account numbers that were charged with the write-offs. In other words, the Company assumed that future abandoned project costs would be written off to the various FERC expense accounts in relatively the same proportions that were recorded from 2014 to 2018.

Q. Have abandoned capital project costs been included in revenue requirements in the past proceedings?

A. Yes. In Hawaiian Electric's test year 2005 rate case, Docket No. 04-0113, Hawaiian Electric proposed to include $294,000 in its test year estimates for abandoned projects, based on an average historical level of abandoned project write-offs. In Decision and Order No. 24171 issued May 1, 2008 in Docket No. 04-0113, the Commission included Hawaiian Electric's estimate for abandoned projects in determining Hawaiian Electric's revenue requirements. Similarly, in Hawaiian Electric's subsequent rate cases, based on a stipulation among the parties in the

proceeding, an estimate for abandoned projects was included in determining Hawaiian Electric's revenue requirements as shown in Table 4 below.

Table 4: Abandoned Project Costs in Previous Rate Cases

Rate Case Test Year	Docket No.	Estimated Abandoned Project Costs in Revenue Requirement
2005	04-0113	$294,000
2007	2006-0386	$130,000
2009	2008-0083	$93,000
2011	2010-0080	$61,000
2017	2016-0286	$1,255,000

Q. Why is the test year estimate for 2020 larger than the amounts in the prior proceedings?

A. Abandoned customer project costs were written off to expense, but were not tracked as abandoned project costs in the earlier years. In addition, there were several large Power Supply and Energy Delivery projects that were abandoned in the last 5 years, including the Kahe Utility Scale PV for $1,146,000 in 2015, Barber's Point Kalaeloa Pipeline for $787,000 in 2014, NEM Clear the Queues for $643,000 in 2017 and Halawa Substation Rehabilitation for $420,000 in 2017.

Preliminary Engineering Costs

Q. Please describe the accounting for preliminary engineering costs related to capital projects?

A. As described in the Accounting for Capital Project Costs, included as HECO-1606, preliminary engineering costs are charges for work associated with potential projects prior to formal approval by management. Some of the potential projects are eventually constructed, while others do not materialize. Preliminary engineering

costs (costs incurred under steps 2-4 of the process described in HECO-1606) are identified with the related potential project, and are temporarily held in a clearing account. If the project is approved for construction, the preliminary engineering costs are transferred to construction work in progress. However, if the related potential project does not materialize, the costs are expensed, which is a change from the Ellipse system, which the Company used until September 2018.

Q. How has the accounting for preliminary engineering costs changed?

A. Preliminary engineering costs are temporarily held in a clearing account. With the Ellipse system, if the related potential project did not materialize, the costs were either expensed or charged to clearing depending on the originating project's department responsibility area code. The costs charged to clearing were then allocated as an overhead, either a power supply overhead or energy delivery overhead, depending on the nature of the project. The overhead then became part of O&M expenses, capital costs or other costs (billable and deferred costs.) With the implementation of SAP, however, preliminary engineering costs related to potential projects that do not materialize are now expensed and not charged to clearing.

Q. Why was the treatment changed to expense all preliminary engineering costs related to potential projects that do not materialize?

A. Capital projects do not benefit from the preliminary engineering costs related to potential projects that do not materialize and therefore it is deemed appropriate to expense these costs instead of burdening capital projects with a portion of these costs.

Q. Historically, what are the amounts of preliminary engineering costs related to potential projects that do not materialize?

A. The amounts of preliminary engineering costs that have not proceeded to a capital project from 2016 through 2018 are shown in HECO-WP-1608.

Q. Why is an adjustment for preliminary engineering costs for potential projects that will not materialize necessary?

A. Similar to abandoned projects, from time to time projects with preliminary engineering costs will not go forward, and the related costs are expensed. However, the Company's 2020 budgeting does not include estimates for preliminary engineering costs for projects that will not go forward, since forecasts do not generally contemplate that projects will not materialize. Therefore, an adjustment should be made to the 2020 O&M expense budget for a reasonable amount of preliminary engineering charges that would be expensed.

Q. How does Hawaiian Electric determine the preliminary engineering costs for a test year?

A. The Company extracts historical data of actual preliminary engineering charges related to potential projects that did not materialize for the most recent five years and calculates the average. As shown on HECO-1608, the test year estimate for preliminary engineering costs is $948,000, allocated to various operation and maintenance expense accounts. However, the Company discovered an error in the analysis documented in HECO-WP-1608 after the completion of the revenue requirement calculation. The data collected was for three years, from 2016 to 2018,

rather than for five years, from 2014 to 2018. The five-year average should have been $1,087,000 rather than $948,000. Hawaiian Electric will correct the amount at the next opportunity.

Q. How are the adjustment amounts presented in the Company's test year 2020 estimates?

A. The adjustment amounts for preliminary engineering were provided to the respective witnesses) for inclusion in their test year estimates, based on the historical process areas (see HECO-1608). In other words, the Company assumed that future preliminary engineering costs that would need to be expensed would be similar to the amounts for preliminary engineering related to potential projects that did not materialize incurred in the last three years.

Q. Was this adjustment included in prior test year estimates?

A. Yes, a similar adjustment was presented in Hawaiian Electric's 2011 test year rate case and in Hawaiian Electric's 2017 test year rate case. The adjustment was included in determining final revenue requirements in the 2011 test year rate case and 2017 test year rate case. As discussed in policy testimonies in this proceeding, the environment in which the Company operates is changing. Pursuing initiatives to obtain renewable resources to meet the 100% renewable energy goals and providing more customer choices require more preliminary engineering for potential projects to determine whether the Company should proceed with the defined projects, as there is little precedent for undertaking many of the potential transformation initiatives. In addition, new analyses and more assessments and periodic reviews will be

1 considered before a decision to move forward would be made, as technologies and
2 the environment in which we are operating are changing at a much faster pace than
3 in the past. Thus, it is important that a reasonable level of expenses for such
4 preliminary engineering is included in the Company's revenue requirements.

5 UNAMORTIZED GAIN ON THE SALE OF LAND

6 Q. What is the test year 2020 amount for gains on the sale of land and the Iolani Court
7 Plaza lease premium?
8 A. As discussed by Mr. Robert Pytlarz in HECO T-5, included in test year 2020 Other
9 Operating Revenue is $50,000 for the amortization of gains on the sale of land and
10 amortization of the Iolani Court Plaza lease premium. In addition, as discussed by
11 Ms. Gayle Ohashi in HECO T-24, subtractions in the calculation of rate base include
12 the unamortized gains on the sale at the beginning of the test year of $50,000 and $0
13 at the end of the year.
14 Q. How did Hawaiian Electric determine the test year amount?
15 A. HECO-1609 provides the detail, showing information by the individual property
16 sold, the docket number and decision and order number approving the sale, and
17 accounting and ratemaking treatment for the sale.
18 Q. What is the Commission approved accounting and ratemaking treatment for the
19 gains on sale of land?
20 A. The accounting and ratemaking treatment approved by the Commission is generally
21 as follows:

1) The net gain is prorated between utility and non-utility based on the period during which the property was classified as utility property and the period during which the property was classified as non-utility property.

2) With respect to the utility portion of the net gain, the gain is amortized to income over a five-year period beginning with the month following the sale.

3) The amount of unamortized gain is deducted in the calculation of rate base.

SUMMARY

Q. Please summarize your testimony.

A. The test year 2020 base case normalized amounts which the Company has demonstrated to be fair and reasonable in this docket include the following:

Table 5: 2017 Base Case Normalized Estimates

Description	2020 Test Year Estimates
Pension:	
Regulatory assets/liabilities – test year average	
Pension tracking	$43,093,000
Contributions in excess of NPPC	-
Non-service cost	1,645,000
Pension costs:	
Net periodic pension costs ("NPPC")	36,610,000
Amortization of:	
Pension tracking regulatory asset	7,107,000
Non-service regulatory asset	382,000
Post-retirement benefits other than pensions ("OPEB"):	
OPEB tracking regulatory liability - test year average	1,211,000
OPEB costs:	
Net periodic benefit costs	-
Amortization of OPEB tracking regulatory liability	(230,000)
Deferred software development and other project costs:	
Unamortized deferred costs - test year average:	
Software development costs:	64,140,000
RO water pipeline regulatory asset	4,551,000

Description	2020 Test Year Estimates
Other operation and maintenance ("O&M") expenses:	
Customer benefits	(4,425,000)
Abandoned project costs	1,301,000
Preliminary engineering charges to O&M	948,000
Gain on Sales of Land:	
Unamortized gain - test year average	25,000
Amortization	$ 50,000

With respect to the pension and OPEB plans, the Commission should continue the pension and OPEB tracking mechanisms, which were approved in Docket No. 2006-0386, and reflected in determining revenue requirements in Decision and Orders in Docket Nos. 2008-0083, 2010-0080, and 2016-0386. The NPPC and the amortization of the pension regulatory asset, amortization of the non-service cost pension asset, and the amortization of the OPEB tracking liability should be included in the test year expenses as they were calculated consistent with the pension tracking mechanisms. The pension regulatory asset, non-service cost regulatory asset, and OPEB regulatory liability reflected in the test year rate base should be included in rate base as they are consistent with the pension and OPEB tracking mechanisms. The pension and OPEB tracking mechanisms should be modified slightly to account for the change in ASC 715, as provided in HECO-1601, Attachment 1 and HECO-1601, Attachment 2, respectively.

The Customer Benefits adjustment of a negative $4,425,000 is based on the March 2018 Settlement Agreement in Docket No. 2016-0328, and approved by the Commission.

The unamortized deferred software development costs and amortization of deferred software development costs are based on projects approved by Commission decisions and consistent with the accounting treatment presented in the proceedings for such projects. The other deferred project costs included in the test year estimates are based on prior Commission decisions.

The $1,301,000 of abandoned capital project costs represents the historical five year average of write-offs (from 2014 through 2018) for abandoned project costs, which would not otherwise be included in the Company's test year estimates as forecasters do not generally contemplate that projects will be abandoned. The $948,000 (which will be updated to $1,087,000 at the next opportunity) of preliminary engineering costs represent the historical average of preliminary engineering costs that did not result in capital projects and were cleared through the overhead process to O&M expense, and would not otherwise be included in the Company's test year estimates as forecasters do not generally contemplate that projects will not materialize.

The test year 2020 amortization amounts and year end 2019 and 2020 unamortized amounts with respect to gains on the sale of land and the Iolani Court Plaza lease premium, which are detailed in HECO-1610, reflect the accounting and ratemaking treatments previously approved by the Commission.

Q. Does this conclude your testimony?

A. Yes, it does.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Accounting Policy and Other Accounting Matters
Index of Exhibits and Workpapers

Exhibits	Description	# Pages
HECO-1600	Educational Background and Experience	1
HECO-1601	Accounting for Pension and Postretirement Benefits Other Than	7
HECO-1601 Att 1	PensionTracking Mechanism - Blacklined	6
HECO-1601 Att 2	OPEB Tracking Mechanism - Blacklined	5
HECO-1602	Pension	4
HECO-1603	Post-Retirement Benefits Other Than Pension (OPEB)	3
HECO-1604	Accounting for the Costs of Computer Software Developed or Obtained for Internal Use	4
HECO-1605	Deferred System Development and Other Deferred Project Costs	1
HECO-1606	General Accounting Guidelines - Accounting for Capital Project Costs	7
HECO-1607	Abandoned Project Costs	1
HECO-1608	Preliminary Engineering Charges Transferred to Expense	1
HECO-1609	Unamortized Gain on Sales of Land	1
HECO-1610	Customer Benefit - Pension and OPEB Tracker Adjustment	1

Workpapers	Description	# Pages
HECO-WP-1605	Deferred System Development and Project Costs Calculations	3
HECO-WP-1607	Abandoned Project Costs	23
HECO-WP-1608	Preliminary Engineering Costs	15

HAWAIIAN ELECTRIC COMPANY, INC.

PATSY H. NANBU

EDUCATIONAL BACKGROUND AND EXPERIENCE

Business Address:	Hawaiian Electric Company, Inc. 1003 Bishop Street, Suite 500, Honolulu, HI 96813
Position:	Controller Hawaiian Electric Company, Inc.
Previous Positions:	Vice President, Regulatory Affairs Controller Director, Regulatory Affairs Director, Internal Audit Senior Regulatory Analyst Budget Administrator Budget Analyst
Years of Service:	33 years
Education:	Bachelor of Business Administration in Accounting with Distinction, University of Hawaii Master of Accountancy, University of Hawaii
Professional Registration:	Certified Public Accountant (not in public practice) State of Hawaii
Other Experience:	Senior Auditor, Arthur Young & Company
Previous Testimony:	Docket No. 2016-0328 – HECO 2017 Test Year Rate Case Docket No. 2013-0373 – HECO 2014 Test Year Rate Case Docket No. 2011-0092 – MECO 2012 Test Year Rate Case Docket No. 2010-0080 – HECO 2011 Test Year Rate Case Docket No. 2010-0053 – HECO Depreciation Study Docket No. 2008-0303 – Advanced Metering Infrastructure Project Docket No. 2008-0083 – HECO 2009 Test Year Rate Case Docket No. 2006-0386 – HECO 2007 Test Year Rate Case Docket No. 05-0315 – HELCO 2006 Test Year Rate Case – Docket No. 05-0146 – Campbell Industrial Park Generation Station Project Community Benefits Package

ACCOUNTING FOR PENSION AND POST-RETIREMENT BENEFITS OTHER THAN PENSIONS

BACKGROUND

As described by Ms. Claire Cooper in her testimony in HECO T-18, Hawaiian Electric provides pension benefits to its employees by participating in the Retirement Plan for Employees of Hawaiian Electric Industries, Inc. and Participating Subsidiaries, a qualified defined benefit pension plan. Hawaiian Electric provides postretirement benefits other than pensions ("OPEB") through participation in the Postretirement Welfare Benefits Plan for Employees of Hawaiian Electric Company, Inc. and Participating Employers.

Under generally accepted accounting principles ("GAAP"), accounting and reporting requirements with respect to its pension and OPEB plans are governed by Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 715 Compensation-Retirement Benefits.[1]

Pension Guidance

Financial statements present pension in the following manner:

- **Income Statement -** The costs of the benefits provided by the Company's pension plan are recognized as net periodic pension costs ("NPPC") over the period the benefits are earned (i.e., as employees provide the related employment services). The NPPC is the annual amount that the Company must recognize on its financial statement as the cost of providing pension benefits to its employees for the year, and includes amounts ultimately charged primarily to both expense and to capital. In addition, a portion of the NPPC is charged to outside third parties for services rendered, i.e., to billable work. The five major components of the NPPC are: service cost, interest cost, actual return on plan assets, amortization of prior service cost, and amortization of gains and losses. A number of factors affect the NPPC, such as the provisions of the plan, the demographic characteristics of the employees, the performance of the pension fund as it is invested over time, and the actuarial assumptions used in the calculations.

- **Balance Sheet -** FASB ASC 715 requires balance sheet recognition of the funded status of defined benefit pension plans measured as the difference between the fair value of the pension assets and the projected benefit obligation ("PBO"). The PBO is an estimate of the pension promise as of a specified date, and is measured using various assumptions including an assumption for future compensation levels. More specifically, Hawaiian Electric is required to (1) recognize the overfunded or underfunded status of its defined benefit pension plan (based on the difference between the fair value of the plan assets and the PBO) in its balance sheet, and (2) recognize as a component of equity, called accumulated other comprehensive income ("AOCI"), net of tax, the actuarial gains and losses, the prior service costs and credits that arise during the period but are not recognized as components of NPPC, and any remaining transition obligation from the initial application of SFAS No. 87.

- **Financial Statement Footnote -** The value of the pension plan assets and the pension obligation are included in the footnotes to the financial statements. Footnote disclosure also includes

[1] Prior to the implementation of FASB ASC beginning with interim and annual period ending September 15, 2009, accounting and financial reporting guidance regarding pension and OPEB were provided in Statement of Financial Accounting Standards ("SFAS") No. 87, "Employers' Accounting for Pensions", SFAS No. 106, "Employers' Accounting for Postretirement Benefits Other Than Pensions", and under SFAS No. 158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans, an amendment of FASB Statements No. 87, 88, 106 and 132 (R)".

descriptions of the plan, items which have in the past or can in the future impact the cost of the pension, and the components of the AOCI.

OPEB Guidance

Financial statements present OPEB in the following manner:

- **Income Statement -** The costs of the benefits provided by the Company's OPEBs are recognized as net periodic benefit costs ("NPBC") over the period the benefits are earned (i.e., as employees provide the related employment services). The NPBC is the annual amount that the Company must recognize on its financial statement as the cost of providing OPEBs to its employees for the year, and includes amounts ultimately charged primarily to both expense and to capital. A portion of the NPBC also is charged to outside third parties for services rendered, i.e., to billable work. Similar to pensions, the five major components of the NPBC are: service cost, interest cost, actual return on plan assets, amortization of prior service cost, and amortization of gains and losses. The factors that impact NPPC, such as the provisions of the plan, the demographic characteristics of the employees, the performance of the plan assets as they are invested over time, and the actuarial assumptions used in the calculations, impact the NPBC as well.

- **Balance Sheet -** FASB ASC 715 requires balance sheet recognition of the funded status of the OPEB plan measured as the difference between the fair value of the OPEB Plan's assets and the accumulated postretirement benefit obligation ("APBO") for the OPEB plan. Hawaiian Electric is required to: (1) recognize the overfunded or underfunded status of its OPEB plan based on the difference between the fair value of the plan assets and the APBO in its balance sheet, and (2) recognize as a component of AOCI, net of tax, the actuarial gains and losses, the prior service costs and credits that arise during the period but are not recognized as components of NPBC, and any remaining transition obligation from the initial application of SFAS No. 106.

- **Financial Statement Footnote -** The value of the OPEB plan assets and the OPEB obligation are included in the footnotes to the financial statements. Footnote disclosure also includes descriptions of the plan, items which have in the past or can in the future impact the cost of the plan, and the components of AOCI.

RATEMAKING TREATMENT

The concept of pension and OPEB tracking mechanisms was first introduced to the Hawaiian Electric Companies [2] in Hawai'i Electric Light's 2006 rate case in Docket 05-0315 ("2006 Rate Case"), by the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs ("Consumer Advocate") in its direct testimony filed on February 21, 2007[3]. In this subject docket, Hawai'i Electric Light and the Consumer Advocate (the parties in the proceeding) agreed on pension and OPEB tracking mechanisms. The Commission issued an interim approval of the adoption of the two tracking mechanisms in its Interim Decision and Order No. 23342, filed on April 4, 2007. The Commission approved the adoption of a pension tracking mechanism and an OPEB tracking mechanism in its Decision and Order filed October 28, 2010.

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[2] The Hawaiian Electric Companies consists of Hawaiian Electric Company, Inc. ("Hawaiian Electric") and its two subsidiaries, Hawai'i Electric Light Company, Inc. ("Hawai'i Electric Light") and Maui Electric Company, Limited.

[3] The Commission approved, on an interim basis, the adoption of pension and OPEB tracking mechanisms in its Interim Decision and Order No. 23342, issued on April 5, 2007.

As a result of the interim approval of the pension and OPEB tracking mechanisms in Hawai`i Electric Light's 2006 rate case, Hawaiian Electric proposed similar tracking mechanisms in the June 2007 Update of HECO T-10 in its 2007 test year rate case in Docket No. 2006-0386. The Parties agreed to the pension and OPEB tracking mechanisms in the Stipulated Settlement Letter filed on September 6, 2007. The commission approved the interim adoption of a pension tracking mechanism and an OPEB tracking mechanism for Hawaiian Electric in its Interim Decision and Order No. 23749, filed October 22, 2007, and accordingly, Hawaiian Electric implemented the tracking mechanisms on an interim basis in 2007. The Commission subsequently issued final approval of the pension and OPEB tracking mechanisms in its Final Decision and Order issued on September 14, 2010. The Commission affirmed the continued used of the pension and OPEB tracking mechanisms in rates cases since its approval.

In its most recent rate case, Hawaiian Electric's 2017 test year rate case ("2017 Rate Case"), the Commission approved the revenue requirements based on the continuation of the pension and OPEB tracking mechanisms in its Decision and Order No. 35545 (D&O 35545) issued on June 22, 2018 in Docket No. 2016-0328. Modifications to the pension and OPEB tracking mechanisms were made as a result of settlements in the 2017 test year rate case proceeding, and approved by the Commission. Copies of the revised pension and OPEB tracking mechanisms were provided in the Company's letter filing on July 23, 2018, prepared in response to ordering paragraph No. 3 of D&O 35545, incorporating necessary revisions to the tracking mechanisms which are discussed further later in this exhibit.[4]

Prior to the implementation of the pension and OPEB tracking mechanisms, pension and OPEB costs included in the test year expenses for rate making purposes were based on the forecasted NPPC and net periodic benefit cost ("NPBC") in a rate case proceeding. The Companies funded the pension plans based on the NPPC. If the Company forecasted a prepaid pension asset (the cumulative NPPC recognized was less than the cumulative amounts contributed to the pension plan), the Company included such amounts in rate base. If the Company forecasted a pension or OPEB liability, it treated the pension or OPEB liability as a deduction in the rate base calculations. Pension costs were treated like other expenses in a rate case, and not evaluated until the next rate case. This approach was fair to both customers and the Company when pension costs (i.e., NPPC) were not volatile.

However, beginning in 1995, the NPPC began to show greater volatility, primarily declines from prior years, and the NPPC actually became negative in several years (between 1999-2002 for Hawaiian Electric and between 2000-2002 for Hawai'i and Maui Electric). With the negative NPPC accruals, the prepaid pension asset grew significantly, and in Hawaiian Electric's 2005 test year rate case, the issue of including the prepaid pension asset became an issue in the rate case.

The volatility of the NPPC made it very difficult to determine test year NPPC amounts for ratemaking that would approximate the NPPC that the utility would actually incur in future periods when rates would be in effect.

The pension tracking mechanism ensures that over time, the pension costs recovered through rates are based on the FASB ASC 715 NPPC as reported for financial reporting purposes, and ensures that all amounts contributed to the pension trust funds are in an amount equal to actual NPPC, subject to certain exceptions. The OPEB tracking mechanism ensures that over time, the OPEB costs recovered through rates are based on the FASB ASC 715 NPBC as reported for financial reporting purposes, and ensures that all amounts contributed to the OPEB trust funds are in an amount equal to the actual NPBC, subject to certain exceptions.

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[4] Ordering paragraph No. 3 required the Company to submit, within 30 days of the D&O 35545, proposed revisions of its pension and OPEB tracking mechanisms, in their entirety, which reflected the approved changes set forth in D&O 35545. In Order No. 35661, issued August 30, 2018, the Commission approved the revised pension and OPEB tracking mechanisms the Company submitted on July 23, 2018.

Pension Tracking Mechanism

The benefits of the pension tracking mechanism are as follows:

(1) it specifies agreement on the ratemaking treatment of pension costs and pension fund contributions, thus reducing disputable items in rate cases,
(2) it ensures that neither customers nor the company gains or loses to the detriment or benefit of the other party, based on the pension cost included in rates in a rate case,
(3) it demonstrates rate support for the Company's pension costs, and
(4) it results in leveling pension costs reported on the financial statements.

Under the pension tracking mechanism, the test year NPPC is identified and incorporated into rates in each rate case ("NPPC in rates"). Once new rates are effective and until rates are changed in a subsequent rate case, the amount of NPPC in rates and the actual NPPC is separately tracked. The difference between the NPPC in rates and the actuarially calculated NPPC for the year is charged/credited to a regulatory asset/liability. This unamortized regulatory asset/liability is included in rate base. When new rates are established in a rate case, the regulatory asset/liability is amortized over a five-year period. The total test year pension cost is the test year NPPC plus or minus the amortization of the regulatory asset/liability. For Hawaiian Electric, the mechanism requires the Company to make fund contributions at the actuarially calculated NPPC as determined under GAAP, subject to certain exceptions (i.e., ERISA laws require a contribution amount greater than NPPC.) The contributions made to the pension fund above NPPC are included in a regulatory asset account. The regulatory asset will reduce contributions below NPPC, when ERISA minimum required contributions are less than NPPC.

The pension tracking mechanism allows for a separate regulatory asset for the non-service cost portion of the 2017 test year NPPC that is included in the transfer to capital in the 2017 test year that would be expensed under changes to ASC 715 effective January 1, 2018.

The pension tracking mechanism also allows Hawaiian Electric to reverse the pension AOCI charge to equity and create a regulatory asset for financial statement purposes. The mechanism allows the utility to record a regulatory asset, eligible for inclusion in rate base, for the amount of contributions to the pension trust in excess of the FASB ASC 715 NPPC that were made for specific reasons. The mechanism also addresses the situation when the NPPC becomes negative. The objective of the pension tracking mechanism is that, over time, the Company will recover through rates FASB ASC 715 based NPPC, including the amortization of the unrecognized amounts.

As required in the pension tracking mechanism, Hawaiian Electric has reflected in its results of operations, a pension expense based on the estimated ASC 715 based NPPC for 2020 plus the amortization of the net regulatory asset balance and the amortization of the non-service cost regulatory asset as of June 30, 2020, and reflected the net unamortized pension and non-service cost regulatory assets as additions to rate base. See page 2 of HECO-1602 for the roll-forward of the pension tracking regulatory asset and liability balances.

OPEB Tracking Mechanism

Benefits of the OPEB tracking mechanism specifies ratemaking treatment that allows financial statement treatment of benefit costs to be smoothed based on the amount of NPBC established in a rate case, and addresses potential situations in the future where contributions to OPEB trusts are not equal to the NPBC recognized.

Similar to the pension tracking mechanism, an amount for OPEB costs is identified and incorporated into rates in each rate case ("OPEB costs in rates"). Once new rates are effective and until rates are changed in a subsequent rate case, the amount of OPEB costs in rates is separately tracked. The difference

between the OPEB costs in rates and the actuarially calculated NPBC (excluding executive life costs) is charged/credited to a regulatory asset/liability. This unamortized regulatory asset/liability is included in rate base. When new rates are established in a rate case, the regulatory asset/liability is amortized over a five-year period. The total test year OPEB cost is the test year NPBC (excluding executive life costs) plus the SFAS No. 106 amortization plus or minus the amortization of the regulatory asset/liability. The mechanism requires Hawaiian Electric to make fund contributions at the actuarially calculated NPBC as determined under GAAP, subject to certain exceptions. The OPEB tracking mechanism allows for a separate regulatory asset for the non-service cost portion of the 2017 test year NPBC that is included in the transfer to capital in the 2017 test year that would be expensed under changes to ASC 715 effective January 1, 2018. The OPEB tracking mechanism also allows Hawaiian Electric to reverse the OPEB AOCI charge to equity and create a regulatory asset for financial statement purposes. The mechanism allows the Company to recover through rates the amount of contributions to the OPEB trust in excess of the NPBC that were made for specific reasons. The mechanism also addresses the situation when the NPBC becomes negative. The objective of the OPEB tracking mechanism is that, over time, the Company will recover through rates the FASB ASC 715 based NPBC, including the amortization of the unrecognized amounts.

As required by the OPEB tracking mechanism, Hawaiian Electric has reflected in its results of operations, an OPEB expense based on the estimated FASB ASC 715 based NPBC for 2020 less the amortization of the regulatory liability, and the net unamortized regulatory liability in rate base. HECO-1603 provides the roll-forward of the OPEB tracking regulatory asset and liability balances.

The estimated FASB ASC 715 based NPBC for 2020 is -$3,090,000 as shown at HECO-1902. The tracking mechanism specifies that if the NPBC is negative at the time of the next rate case, as is the case for this test year, the amount included in rates will be "zero" (i.e. $0)[5]. As such, the 2020 test year estimate for NPBC is zero. In addition, Hawaiian Electric has set up a regulatory liability to offset the OPEB asset created by the negative NPBC. The NPBC has been negative since 2014 except in 2015 and HECO-1603, page 3 provides a roll-forward of the related regulatory liability balance. In accordance with the OPEB tracking mechanism, the regulatory liability created from the negative NPBC has not been included in rate base and is not subjected to amortization. This regulatory liability is separate from the OPEB tracking regulatory liability. In the recorded years that the NPBC was negative and NPBC in rates was positive (2014 and 2016-2018), the OPEB tracking regulatory liability was calculated as the difference between the level of FASB ASC 715 based NPBC in rates and zero.[6] In accordance with the OPEB tracking mechanism, and as mentioned above, the balance of the unamortized OPEB tracking regulatory liability is included in rate base and the amortization of the balance is included in the results of operations.

Contributions in Excess of NPPC

Under the pension tracking mechanism, contributions in excess of NPPC are recorded in a separate regulatory asset account and are eligible for inclusion in rate base. In 2011, Hawaiian Electric was required to contribute $53,033,000 to the pension trust while the NPPC was $33,622,000. The excess contribution amounting to $19,411,000 was recorded as an addition to contributions in excess of NPPC regulatory asset. There were no other years in which the required contribution amount exceeded the NPPC. In its supplemental testimony in the 2017 Rate Case in HECO ST-17, the Company proposed a slight modification to the pension tracking mechanism to allow for utilization of the contributions in excess of NPPC prior to funding the NPPC amount, after funding the ERISA minimum required contribution, and the Company and the proposed wording. As part of the March 2018 Settlement

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[5] See Procedure Item 5 of the OPEB tracking mechanism shown at HECO-1602, Attachment 2.

[6] See Procedure Item 4 of the OPEB tracking mechanism shown at HECO-1602, Attachment 2.

Agreement that was approved by the Commission, the pension tracker was modified such that the Company would make the minimum required contributions under ERISA and reduce the contributions in excess of NPPC by the difference between the minimum and required contributions and the NPPC each year, until the contributions in excess zero.

HECO-1602 page 3 presents the roll-forward balances of the contributions in excess of NPPC regulatory asset. As shown, Hawaiian Electric reduced its pension contributions in 2018 such that the difference between the minimum required contributions and the actual NPPC fully reduced the contributions in excess of NPPC regulatory asset balance by the end of 2018. As such, the 2020 test year revenue requirements do not include a balance for this regulatory asset in rate base.

Accounting Standards Update 2017-07

On March 10, 2017, the FASB issued Accounting Standards Update ("ASU") 2017-07, which changes the presentation of NPPC and NPBC on the financial statements, and the disclosures required for defined benefit plans. Currently, the NPPC and NPBC for pension and OPEB plans consist of several different components (such as service cost, interest cost, expected return on assets, and the amortization of various deferred items), but are treated and reported in the aggregate amount. Under ASU 2017-07, the recognition and measurement of the accounting of the retirement plans did not change, but the companies are required to:

- Present the service cost portion of the NPPC and NPBC as an operating expense, with remaining components as a separate expense.
- Limit the amount of pension expense that can be capitalized to only the service cost component.

The amendment became effective for annual reporting periods beginning after December 15, 2017. For Hawai'i Electric Light, the amendment went into effect beginning in 2018.

Prior to ASU 2017-07, the accounting requirements and the pension and OPEB tracking mechanisms required that the difference, in aggregate, between the NPPC (and NPBC) that were included in each company's rate case, and the NPPC (and NPBC) for a reporting year be included in a regulatory asset/liability account. The aggregate NPPC and NPBC amounts included in rates were used in determining the employee benefits transferred rate, which is utilized to determine the portion of employee benefits allocated to capital projects or to other projects. In addition, the amortization expense related to the regulatory assets/liabilities for the difference between actual and NPPC and NPBC in rates were included in determining the employee benefits transfer rate. The portion of the employee benefits allocated to capital projects or other projects reduced the amount of employee benefits expense included in the revenue requirements. The portion of employee benefits allocated to the capital projects are included as part of the capital cost of the project and recovered through depreciation expense. Based on ASU 2017-07, only the service cost portion of the NPPC and NPBC can be capitalized (i.e., included in the portion of employee benefit costs allocated to capital or other projects.) This change in accounting became effective in 2018.

In the 2017 test year rate case proceeding, the pension and OPEB tracking mechanisms were modified to allow for a separate regulatory asset/liability for the non-service cost portion of the 2017 test year NPPC that is included in the transfer to capital in the 2017 test year that would be expensed under changes to ASC 715 effective January 1, 2018 until the next rate case. The regulatory asset would be amortized over a fifteen year period beginning when rates are set in the next following rate case.

As such, since the time that ASU 2017-07 became effective in 2018, the Company has recorded a "non-service cost" regulatory asset to capture the 2017 test year NPPC non-service costs that can no longer be capitalized with the changes to ASC 715. The subject regulatory asset has been included in the 2020 test

year rate base and its related amortization has been included in 2020 test year expenses. Please refer to HECO-1602, page 4 for details. No such regulatory asset exists for OPEB expenses as the 2017 test year NPBC was zero. Please see HECO-1603 for details.

For the 2020 test year, the Company is proposing to follow the requirements of ASU 2017-07 for both ratemaking and financial reporting purposes which require a slight modification to the pension and OPEB tracking mechanisms. Proposed revisions to the existing pension and OPEB tracking mechanisms in blackline version is provided in HECO-1601, Attachment 1 and HECO-1601, Attachment 2, respectively.

PENSION AND OPEB SUMMARY

Since its 2007 Rate Case, Hawaiian Electric has incorporated the pension and OPEB tracking mechanisms, originally proposed by the Consumer Advocate in Hawai`i Electric Light's 2006 test year rate case. The Commission has approved the revenue requirements based on the continuation of the pension and OPEB tracking mechanisms, including Hawaiian Electric's most recent 2017 Rate Case. The tracking mechanisms have the intended effect of balancing NPPC and NPBC in rates with actual NPPC and NPBC over time, and protect ratepayers from having rates set on a level NPPC and NPBC materially higher or lower than the actual NPPC and NPBC. Hawaiian Electric proposes the continued use of the pension and OPEB tracking mechanisms. Pension and OPEB costs should be reflected for ratemaking purposes based on the pension and OPEB tracking mechanisms, and accordingly the 2020 test year estimates reflect the continued use of the pension and OPEB tracking mechanisms.

PENSION TRACKING MECHANISM

Purpose: The pension tracking mechanism is designed to achieve the following objectives:

A. Ensure that the pension costs recovered through rates are based on the FAS87 NPPC, as reported for financial reporting purposes;

B. Ensure that all amounts contributed to the pension trust funds (subject to the exceptions in Item 3 below) are in an amount equal to actual NPPC (after the pension asset or contributions in excess of NPPC is reduced to zero as provided in Item 2 below) and are recoverable through rates; and

C. Clarify the future treatment of any charges that would otherwise be recorded to equity (e.g., increases/decreases to other comprehensive income) as required by FAS87, FAS158 or any other FASB statement or procedure relative to the recognition of pension costs and/or liabilities.

Procedure:

1. The amount of FAS87 NPPC included in rates shall be equal to the amount recognized for financial reporting purposes.

2. Until the pension asset or the contributions in excess of NPPC regulatory asset is reduced to zero, the Company would be required to fund the minimum required level under the law. Thereafter, except when limited by the ERISA minimum contributions requirements or the maximum contribution imposed by the IRC, or the contribution exceeds the NPPC for a reason provided in Item 3, the annual contribution to the pension trust fund will be equal to the amount of FAS87 NPPC.

3. The Company will not recover through rates the amount of any contributions to the pension trust in excess of the FAS87 NPPC. Instead, the Company will be allowed to record a regulatory asset for the excess contribution and reduce future contributions below NPPC, when the ERISA minimum required contribution is less than NPPC, until the regulatory asset balance is reduced to zero. This provision applies when the excess contribution was made for the following reasons[1]:

    - the minimum required contribution is greater than the FAS 87 NPPC,

[1] The Company or the Consumer Advocate (jointly, the "Parties") may initiate discussions with the Parties and the Hawaii Public Utilities Commission to modify these provisions between rate cases (with Commission approval) if there are future changes in accounting standards, federal tax law or federal tax regulations that materially impact the costs otherwise recoverable through this tracking mechanism.

- the increased contribution was made to avoid a significant increase in Pension Benefit Guaranty Corporation (PBGC) variable premiums,

- the increased contribution was made to avoid a charge to other comprehensive income, or

- the increased contribution was made to avoid: (i) higher minimum contribution requirements under the Pension Protection Act,[2] or (ii) other adverse funding requirements under federal pension regulations (provided funding does not exceed 100% of the PBO as a result). The reasonableness of any discretionary contributions (as described under this bullet item) shall be subject to review in the Company's next rate case.

The unrecovered balance of –such "excess" contributions shall be recorded in a separate regulatory asset account, which will be eligible for inclusion in rate base consistent with the facts and circumstances of the next rate case.

4. A regulatory asset (or liability) will be established on the Company's books to track the difference between the level of actual FAS87 NPPC during the rate effective period and the level of FAS87 NPPC included in rates during that same period.[3]

   - The amortization of any unamortized cumulative net ratepayer benefit at the end of the test year in the next HECO rate case shall be determined in that rate case proceeding.
   - If the actual FAS87-determined NPPC recorded during a given rate-effective period is greater than the FAS87 NPPC included in rates during the immediately preceding rate case, the Company will establish a separate regulatory asset account to accumulate such difference, but only to the extent that such amount is not used to reduce a regulatory liability recorded pursuant to Item 5.

   - If the actual FAS87-determined NPPC recorded during the rate-effective period, adjusted for any amount of such expense used to reduce a regulatory liability maintained pursuant

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[2] Transitional relief applies under the Pension Protection Act if the plan's target liability funded level meets the prescribed phase-in percentages for 2008 through 2011. The Parties recognize that such transitional relief or related requirements may be subject to change or revision in future years.

[3] ~~In consideration of the changes to Accounting Standards Codification ("ASC") 715 due to the issuance of Accounting Standards Update ("ASU") 2017-07, which limits the amount of pension expense that can be capitalized to only the service cost component, the Parties clarify: 1) the establishment of a net asset (or liability), pursuant to Item 4, will be evaluated based on the aggregate NPPC cost and 2) Item 4 will sequentially take place prior to Item 4a such that the regulatory asset to be established under Item 4a, if applicable, would be based on the NPPC in rates.~~

to Item 5, is less than the expense built into rates, the Company will establish a separate regulatory liability account to accumulate such difference.

- If the actual FAS87 NPPC becomes negative, the regulatory liability will be increased by the difference between the level of FAS87 NPPC included in rates for that period and "zero" (i.e., $0).
- Since this is considered to be a cash item under the tracking mechanism, the regulatory asset or liability will be included in rate base and amortized over a five (5) year period at the time of the next following rate case.
- In consideration of the changes to Accounting Standards Codification ("ASC") 715 due to the issuance of Accounting Standards Update ("ASU") 2017-07, which limits the amount of pension expense that can be capitalized to only the service cost component,
    1. the establishment of a net asset (or liability), pursuant to Item 4, will be evaluated based on the aggregate NPPC cost;
    2. only the service cost component of pension expense will be subject to capitalization via the employee benefits transfer rate;~~,~~
    3. in some circumstances, the service cost portion of NPPC is positive while the non-service cost portion is negative resulting in an aggregate NPPC cost that is lower than the service cost. If the non-service cost portion of NPPC is negative, the Company will limit the service cost portion included in the employee benefit transfer rate to the aggregate NPPC cost. In addition, the negative non-service cost portion of NPPC would be treated as being "zero" (i.e., $0) for the purpose of the employee benefits transfer rate.

4a. A separate regulatory asset/liability will be established on the Company's books, from January 1, 2018, until rates are set in the next rate case, to track the difference in the amounts of NPPC included in determining the employee benefits transfer rate (for capital projects and other projects) during the effective rate period and the level of NPPC included in determining the transfer rate (for capital projects and other projects) during the same period, due to the change as a result of ASC 715 (regarding NPPC costs that cannot be capitalized). In the next rate case, employee benefits transfer rate follows item 4 above.

- This separate regulatory asset/liability will be included in rate base and amortized over a five (5) ~~fifteen (15)~~ year period at the time of the next following rate case.
- ~~The establishment of a separate regulatory asset, as noted above, would only apply when the non-service cost components of NPPC included in rates result in a positive value. In some circumstances, the service cost portion of NPPC is positive while the non-service cost portion is negative, resulting in an aggregate NPPC cost that is lower than the service cost. In this situation, the Company will limit the service cost portion included in the employee benefits transfer rate to the aggregate NPPC cost. In addition, the negative non-service cost portion of NPPC would be treated as being "zero" (i.e. $0) for the~~

~~purpose of the employee benefits transfer rate.~~

5. If the FAS87 NPPC becomes negative, the Company will set up a regulatory liability to offset the prepaid pension asset created by the negative amount. This regulatory liability will increase by the amount of any negative NPPC, or decrease by the amount of positive NPPC, in each subsequent year. Positive NPPC in each subsequent year will be used to reduce the regulatory liability before being used to establish a regulatory asset pursuant to Item 4.
   - If NPPC is negative at the time of the next rate case, the amount included in rates will be "zero" (i.e., $0).
   - If NPPC is positive at the time of the next rate case, the positive expense will not be included in rates and the Company will not be required to make contributions to the trust until any regulatory liability created under this Item 5 has been reduced to "zero" (i.e., $0).
   - Since this regulatory liability is considered to be a non-cash item under the tracking mechanism, it is not subjected to amortization and should not be recognized in determining rate base in future years.

6. The objective of this tracking mechanism is that, over time, the Company will recover through rates FAS87-based NPPC, including the amortization of unrecognized amounts as set forth above.
   - The Company will establish a separate regulatory asset/liability account to offset any charge, or credit, that would otherwise be recorded against equity (e.g., decreases to other comprehensive income) caused by applying the provisions of FAS87, FAS158 or any other FASB statement or procedure that requires accounting adjustments due to the funded status or other attributes of the Company's pension plan.
   - This regulatory asset/liability will not be amortized into rates or included in rate base, because any such charges are expected to be recovered in rates through the valuation of FAS87 NPPC in future accounting periods, which will be subject to the true-up process described herein. In other words, this regulatory asset/liability will automatically be reversed through the mechanics of FAS87 and, pursuant to other provisions of this tracking mechanism, all FAS87-determined NPPC will over time ultimately be recovered from ratepayers.
   - The regulatory asset/liability will increase or decrease each year by the same amount that the equity charge increases or decreases.

7. Recognizing that rate cases do not typically occur on a five-year cycle, the Company will continue to record any amortizations allowed herein throughout the effective term that the approved rates remain in effect, regardless of whether the term is longer or shorter than five years.
   - The Company will be required to establish a separate regulatory asset or liability to

accumulate any excess negative amortization or positive amortization (separate from the pension asset existing at the adoption of the tracking mechanism), which shall be included in rate base and amortized over a five year period in the next following rate case.

8. Any prepaid pension asset or accrued liability recorded pursuant to the terms and conditions of FAS87 (as opposed to regulatory assets arising from the provisions of this tracking mechanism) will not be included in Rate Base in any future rate case, except for the cumulative net ratepayer benefits previously identified is allowed by the Commission. The regulatory assets/liabilities discussed herein specifically identify all rate base includable amounts for pension differences.

Comments & Clarifications

1. The tracking mechanism refers to "NPPC" in explaining how the mechanism operates, which is intended to represent actuarially determined total FAS87 net periodic costs.

2. "NPPC" intentionally encompasses total actuarially determined amounts without regard to any expense allocation or capitalization accounting the Company may recognize on its books and records.

3. Unless limited by IRC maximum contributions or ERISA minimum contributions, the tracking mechanism requires the Company to make annual fund contributions in an amount equal to the total FAS87 net periodic costs determined for each calendar year, except as identified.

4. The tracking mechanism requires the Company to establish a regulatory asset or liability for the difference between the total FAS87 net periodic costs determined for a given year and the amount of such costs included in then-existing utility rates.

5. The provisions of FAS87 may require a Company to record a prepaid pension asset in the normal course of business, without regard to any regulatory agreements or orders adopting a tracking mechanism:

    a. The tracking mechanism would exclude from rate base for ratemaking purposes any future prepaid pension asset resulting from an actuarial study that resulted in "negative" net periodic costs.

    b. The tracking mechanism would exclude, or not recognize, any "negative" net periodic costs for ratemaking purposes, instead setting the amount equal to "zero" (i.e., $0).

6. If the Company is allocated a portion of the FAS87 net periodic costs from an affiliated entity in the normal course of business, when the Company is required to fund the NPPC, the

Company would be required to commit to funding 100% of the FAS87 net periodic costs for both the Company and the affiliate or to maintain segregated pension trust fund accounting for each entity in order to avoid any funding conflicts or issues that might arise in the future.

OPEB TRACKING MECHANISM

Purpose: The OPEB tracking mechanism is designed to achieve the following objectives:

A. Ensure that the OPEB costs recovered through rates are based on the FAS106 NPBC, as reported for financial reporting purposes;

B. Ensure that all amounts contributed to the OPEB trust funds (subject to the exception in Item 3 below) are in an amount equal to actual NPBC and are recoverable through rates; and

C. Clarify the future treatment of any charges that would otherwise be recorded to equity (e.g., increases/decreases to other comprehensive income) as required by FAS106, FAS 158 or any other FASB statement or procedure relative to the recognition of OPEB costs and/or liabilities.

Procedure:

1. The amount of FAS106 NPBC included in rates shall be equal to the amount recognized for financial reporting purposes.

2. Except when limited by material, adverse consequences imposed by federal regulations, the annual contribution to the OPEB trust funds will be equal to the amount of FAS106 NPBC. The Company will use tax advantaged funding vehicles, whenever possible, as specified in D&O 13659, dated November 29, 1994, in Docket Nos. 7243 and 7233 (Consolidated).

3. The Company will be allowed to recover through rates the amount of any contributions to the OPEB trusts in excess of the FAS106 NPBC that were made for the following reason[1]:

   - the increased contribution was made to avoid a charge to other comprehensive income.

   Any such "excess" contributions shall be recorded in a separate regulatory asset account, which will be included in rate base.

4. A regulatory asset (or liability) will be established on the Company's books to track the difference between the level of actual FAS106 NPBC during the rate effective period and the level of FAS106 NPBC included in rates during that same period.~~[2]~~

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[1] The Company or the Consumer Advocate (jointly, the "Parties") may initiate discussions with the Parties and the Hawaii Public Utilities Commission to modify these provisions between rate cases (with Commission approval) if there are future changes in accounting standards, federal tax law or federal tax regulations that materially impact the costs otherwise recoverable through this tracking mechanism.

~~[2] In consideration of the changes to Accounting Standards Codification ("ASC") 715 due to the issuance of Accounting Standards Update ("ASU") 2017-07, which limits the amount of FAS 106 costs that can be capitalized to only the service cost component, the Parties clarify: 1) the establishment of a net asset (or liability), pursuant to Item 4, will be evaluated based on the aggregate NPBC cost; and 2) Item 4 will sequentially take place prior to Item 4a such that the regulatory asset to be established under Item 4a, if applicable, would be based~~

- If the actual FAS106-determined NPBC recorded during a given rate-effective period is greater than the FAS106 NPBC included in rates during the immediately preceding rate case, the Company will establish a separate regulatory asset account to accumulate such difference, but only to the extent that such amount is not used to reduce a regulatory liability recorded pursuant to Item 5.
- If the actual FAS106-determined NPBC recorded during the rate-effective period, adjusted for any amount of such expense used to reduce a regulatory liability maintained pursuant to Item 5, is less than the expense built into rates, the Company will establish a separate regulatory liability account to accumulate such difference.
- If the actual FAS106 NPBC becomes negative, the regulatory liability will be increased by the difference between the level of FAS106 NPBC included in rates for that period and "zero" (i.e., $0).
- Since this is considered to be a cash item under the tracking mechanism, the regulatory asset or liability will be included in rate base and amortized over a five (5) year period at the time of the next following rate case.
- In consideration of the changes to Accounting Standards Codification ("ASC") 715 due to the issuance of Accounting Standards Update ("ASU") 2017-07, which limits the amount of FAS 106 costs that can be capitalized to only the service cost component,

  1. the establishment of a net asset (or liability), pursuant to Item 4, will be evaluated based on the aggregate NPBC cost;
  2. only the service cost component of NPBC will be subject to capitalization via the employee benefits transfer rate;
  3. in some circumstances, the service cost portion of NPBC is positive while the non-service cost portion is negative, resulting in an aggregate NPBC cost that is lower than the service cost. If the non-service cost portion of the annual NPBC is negative, the Company will limit the service cost portion included in the employee benefits transfer rate to the aggregate NPBC cost. In addition, the negative non-service cost portion of the NPBC would be treated as being "zero" (i.e. $0) for the purpose of the employee benefits transfer rate.

4a. A separate regulatory asset/liability will be established on the Company's books from January 1, 2018, until rates are set in the next rate case, to track the difference in the amounts of NPBC included in determining the employee benefits transfer rate (for capital projects and other projects) during the effective rate period and the level of NPBC included in determining the transfer rate (for capital projects and other projects) during the same period, due to the change as a result of ASC 715 (regarding NPBC costs that cannot be capitalized). In the next rate case, employee benefits transfer rate follows item 4 above.

- This separate regulatory asset/liability will be included in rate base and amortized over a five (5) fifteen (15) year period at the time of the next following rate case.

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on the NPBC in rates.]

- ~~The establishment of a separate regulatory asset, as noted above, would only apply when the non-service cost components of NPBC included in rates result in a positive value. In some circumstances, the service cost portion of NPBC is positive while the non-service cost portion is negative, resulting in an aggregate NPBC cost that is lower than the service cost. In this situation, the Company will limit the service cost portion included in the employee benefits transfer rate to the aggregate NPBC cost. In addition, the negative non-service cost portion of NPBC would be treated as being "zero" (i.e. $0) for the purpose of the employee benefits transfer rate.~~

5. If the FAS106 NPBC becomes negative, the Company will set up a regulatory liability to offset the OPEB asset created by the negative amount. This regulatory liability will increase by the amount of any negative NPBC, or decrease by the amount of positive NPBC, in each subsequent year. Positive NPBC in each subsequent year will be used to reduce the regulatory liability before being used to establish a regulatory asset pursuant to Item 4.
   - If NPBC is negative at the time of the next rate case, the amount included in rates will be "zero" (i.e., $0).
   - If NPBC is positive at the time of the next rate case, the positive expense will not be included in rates and the Company will not be required to make contributions to the trust until any regulatory liability created under this Item 5 has been reduced to "zero" (i.e., $0).
   - Since this regulatory liability is considered to be a non-cash item under the tracking mechanism, it is not subjected to amortization and should not be recognized in determining rate base in future years.

6. The objective of this tracking mechanism is that, over time, the Company will recover through rates FAS106-based NPBC, including the amortization of unrecognized amounts as set forth above.
   - The Company will establish a separate regulatory asset/liability account to offset any charge, or credit, that would otherwise be recorded against equity (e.g., increases/decreases to other comprehensive income) caused by applying the provisions of FAS106, FAS158 or any other FASB statement or procedure that requires accounting adjustments due to the funded status or other attributes of the Company's OPEB plans.
   - This regulatory asset/liability will not be amortized into rates or included in rate base, because any such charges are expected to be recovered in rates through the valuation of FAS106 NPBC in future accounting periods, which will be subject to the true-up process described herein. In other words, this regulatory asset/liability will automatically be reversed through the mechanics of FAS106 and, pursuant to other provisions of this tracking mechanism, all FAS106-determined NPBC will over time ultimately be recovered from ratepayers.
   - The regulatory asset/liability will increase or decrease each year by the same amount that the equity charge increases or decreases.

7. Recognizing that rate cases do not typically occur on a five-year cycle, the Company will

continue to record any amortizations allowed herein throughout the effective term that the approved rates remain in effect, regardless whether the term is longer or shorter than five years.

- If the rate effective period is less than five years, the Company will be allowed to recover any unamortized and unrecovered amounts in the next following rate case over a five year period and any unamortized balance shall be included in rate base.
- If the rate effective period is greater than five years, the Company will be required to establish a separate regulatory asset or liability to accumulate any excess amortization, which shall be included in rate base and amortized over a five year period in the next following rate case.

8. Any OPEB asset or accrued liability recorded pursuant to the terms and conditions of FAS106 (as opposed to regulatory assets arising from the provisions of this tracking mechanism) will not be included in Rate Base in any future rate case. The regulatory assets/liabilities discussed herein specifically identify all rate base includable amounts for OPEB differences.

Comments & Clarifications

1. The tracking mechanism refers to "NPBC" in explaining how the mechanism operates, which is intended to represent actuarially determined total FAS106 net periodic costs.

2. "NPBC" intentionally encompasses total actuarially determined amounts without regard to any expense allocation or capitalization accounting the Company may recognize on its books and records.

3. Unless limited by adverse consequences under federal regulations, the tracking mechanism requires the Company to make annual fund contributions in an amount equal to the total FAS106 net periodic costs determined for each calendar year.

4. The tracking mechanism requires the Company to establish a regulatory asset or liability for the difference between the total FAS106 net periodic costs determined for a given year and the amount of such costs included in then-existing utility rates.

5. The provisions of FAS106 may require a company to record an OPEB asset in the normal course of business, without regard to any regulatory agreements or orders adopting a tracking mechanism:
    a. The tracking mechanism would exclude from rate base for ratemaking purposes any future OPEB asset resulting from an actuarial study that resulted in "negative" net periodic costs.
    b. The tracking mechanism would exclude, or not recognize, any "negative" net periodic costs for ratemaking purposes, instead setting the amount equal to "zero" (i.e., $0).

6. If the Company is allocated a portion of the FAS106 net periodic costs from an affiliated entity in the normal course of business, the Company is required to commit to funding 100% of the FAS106 net periodic costs for both the Company and the affiliate or to maintain segregated OPEB trust fund accounting for each entity in order to avoid any funding conflicts or issues that might arise in the future.

Hawaiian Electric Company, Inc.
Pension
Summary of Pension Related Regulatory Assets/Liabilities and Expenses
($ Thousands)

			A	B	C
				=C - A	
	Expenses:		Operating Budget	Adjustment	TY Estimate
1	Net Periodic Pension Cost ("NPPC")	a	42,599	(5,989)	36,610
	Amortizations:				
2	Pension reg asset	b	14,076	(6,968)	7,107
3	Non-service cost regulatory asset	c	108	274	382
4	Total pension expense		56,783	(12,683)	44,100

			D	E	F
					=(D + E)/2
	Regulatory Assets, Net		Beginning	Ending	Average
5	Pension tracking	(see p.2)	54,202	31,983	43,093
6	Contributions in excess of NPPC	(see p.3)	-	-	-
7	Non-service cost ("NSC")	(see p.4)	1,569	1,721	1,645

Notes:
- Totals may not add or tie exactly due to rounding.

A Pension related expenses are reflected in the Human Resources Divison's O&M expenses. See Human Resources' summary schedule of amounts relating to employee benefit at HECO-1850. The operating budget figure for the amortizaiton amounts are shown on HECO-1850, lines 3 and 5.

C The test year estimate for NPPC and the amortization calculation are presented in this exhibit at the following locations:

NPPC	p.2
Pension reg asset	p.2
Non-service cost reg asst	p.3

Hawaiian Electric Company, Inc.

Pension

Calculation of Pension Regulatory Asset/Liability

($ in Thousands)

			Pension Tracking Regulatory Asset/Liability					
		Fraction of Year	NPPC in rates	Actual NPPC	Change in Asset (Liability)	Amortization Basis	Amortization period	Balance
1	Balance as of 12/31/15 [1]							$ 80,598
2	Tracker	1	33,622	50,094	16,472			16,472
3	Amortization							550
4	Balance as of 12/31/16							97,620
5	Tracker	1	33,622	50,983	17,361			17,361
6	Amortization							550
7	Balance as of 12/31/17							115,531
8	Tracker 1/18 -2/15/18	1.5/12	33,622	46,694	13,072			1,673
9	Amortization					550	1.5/12	70
10	Balance as of 2/15/18							117,274
11	Tracker 2/16/18 - 12/31/18	10.5/12	50,983	46,694	(4,289)			(3,753)
12	Amortization					22,957	1.5/12	(20,019)
13	Balance as of 12/31/18							93,502
14	Tracker	1	50,983	34,640	(16,343)			(16,343)
15	Amortization					22,957		(22,957)
16	Balance as of 12/31/19							54,202
17	Tracker [2] 1/1-20-6/30/20	6/12	50,983	36,610	(14,373)			(7,187)
18	Amortization					22,957	6/12	(11,479)
19	Balance as of 6/30/20							35,537
20	Tracker [2] 7/1/20-12/31/20 [3]	6/12	36,610	36,610				-
21	Amortization [4]					7,107	6/12	(3,554)
22	Balance as of 12/31/20							31,983
23	Average 2020							$ 43,093

Notes:

1 See HECO-1702 page 1 from Hawaiian Electric's 2017 test year rate case for presentation of the pension tracking regulatory asset/liability balance roll-forward from 2010 to 2015.

2 Updated 2019 and 2020 NPPC provided in April 2019 by Towers Watson.

3 Assumed 2020 TY interim rate will go into effect July 1, 2020.

4 Amortization based on the balance as of 06/30/20 balance amortized over 5 years.

Hawaiian Electric Company, Inc.
Pension
Pension Non-Service Regulatory Asset

		Fraction of Year			Total	Total In $000	
		Period	Monthly Amount	Mos			
1	Balance as of 12/31/17				-	-	
2	NSC - 2018	1/18 -2/15/18	185,713	1.5	285,202	285	
3		2/16/18 - 12/31 2018	57,170	10.5	598,243	598	
4	Balance as of 12/31/18				883,445	883	
5	NSC - 2019	Jan-Dec	57,170	12	686,040	686	
6	Balance as of 12/31/19				1,569,485	1,569	
7	NSC - 2020	Jan-Jun	57,170	6	343,020	343	
						-	
8	Balance as of 6/30/2020				1,912,505	1,912	(a)
9	NSC -2020	Jul-Dec	-	-		-	
10	Amortization (5 years) [1]		(31,875)	6	(191,251)	(191)	
11	Balance as of 12/31/2020				1,721,255	1,721	
12	Average 2020				1,645,370	1,645	
13	Annualized Amortization (5 year)				(a)/5 =	382	

Note:

1 Assumed 2020 TY interim rate will go into effect July 1, 2020. Amortization based on the balance as of 06/30/20 balance amortized over 5 years.

Hawaiian Electric Company, Inc.
Pension
Contributions in Excess of NPPC
($ in Thousands)

		Balance
1	Balance, 12/31/15	$ 19,411
2	Changes in 2016	-
3	Balance, 12/31/16	19,411
4	Changes in 2017	-
5	Balance, 12/31/17	19,411
6	Changes in 2018	(19,411)
7	Balance, 12/31/18	-
8	Changes in 2019	-
9	Balance, 12/31/19	-
10	Changes in 2020	-
11	Balance, 12/31/20	-
9	Average	$ -

Notes:

line 1 The balance originated in 2011 when the Company was required to contribute $53,033,000 while the NPPC was $33,622,000. In the 2011 test year rate case, Hawaiian Electric Company the amortization of contributions in excess of NPPC regulatory asset balances were not included. Accordingly, there were no amortization recorded in 2011 through 2016.

lines 2&4 See note to line 1 above.

line 6 In Hawaiian Electric's 2017 test year rate case, changes were made to the pension tracking mechanism such that the Company would be required to fund the minimum required level under the law until the pension asset or the contributions in excess of NPPC regulatory asset is reduced to zero. The difference between the contribution amount and the NPPC would be applied to reduce the contributions in excess of NPPC regulatory asset balance. The contributions in excess of NPPC balance that existed as of 12/31/2017 was reduced to zero in 2018 in accordance with the new treatment.

lines 8&10 Since the contributions in excess of NPPC regulatory asset balance was reduced to zero, the Company's annual contribution to the pension trust fund is equal to the amount of NPPC, in accordance with the pension tracking mechanism.

Hawaiian Electric Company, Inc.

Post-Retirement Benefits Other Than Pension (OPEB)

Summary of OPEB Related Regulatory Liability and Expenses

($ Thousands)

		A	B =C-A	C
		Operating Budget	Adjustment	TY Estimate
	Expenses:			
1	Net Periodic Benefit Cost ("NPBC")	-	-	-
2	Annual amortization of regulatory liability OPEB tracker	(335)	105	(230)
3	Total pension expense	(335)	105	(230)

		D	E =F-D	F
	Regulatory Liability	Beginning	Ending	TY Avg
4	NPBC vs. NPBC in rates	(1,386)	(1,036)	(1,211)

Notes:

- Totals may not add or tie exactly due to rounding.

A OPEB related expenses are reflected in the Human Resouces Division's O&M expenses. See Human Resources' summary schedule of amounts relating to employee benefit at HECO-1850. The operating budget figure for the annual amortization of the regulatory liability shown in column A is presented in HECO-1850, line 11.

C See p.2 of this exhibit for the calculation of the annual amortization amount.

B The Company proposes an adjustment for the difference between the final test year estimate and the amount reflected in the operating budget for 2019 as follows. See HECO-WP-1503C (Adj #4) for the adjustment incorporated into Human Resources Division's O&M expense test year estimate.

	Cost Center	Cost Element	FERC	Direct/Overhead	Adj $
Amortization	101203S	60002200	9260	Direct	105

Hawaiian Electric Company, Inc.
Post-Retirement Benefits Other Than Pension (OPEB)
Calculation of OPEB Regulatory Asset/Liability
($ in Thousands)

		Fraction of Year	OPEB Tracking Regulatory Asset/Liability					
			NPBC in rates	Actual NPBC	Change in Asset (Liability)	Amortization Basis	Amortization period	Balance
1	Balance as of 12/31/15 [1]							(3,301)
2	Tracker	1	1,424	-	(1,424)			(1,424)
3	Amortization							1,909
4	Balance as of 12/31/16							(2,816)
5	Tracker	1	1,424	-	(1,424)			(1,424)
6	Amortization							1,909
7	Balance as of 12/31/17							(2,331)
8	Tracker	1/1/18 - 2/15/18	1,424	-	(1,424)			(182)
9	Amortization					1,909		244
10	Balance as of 2/15/18							(2,269)
11	Tracker	2/16/18 - 12/31 2018	-	-	-			-
12	Amortization					470		413
13	Balance as of 12/31/18							(1,856)
14	Tracker	1	-	-	-			-
15	Amortization					470		470
16	Balance as of 12/31/19							(1,386)
17	Tracker [2]	1/1/20-6/30/20	-	-	-			-
18	Amortization					470	6/12	235
19	Balance as of 6/30/20							(1,151)
20	Tracker [2]	7/1/20-12/31/20 [3]	-	-	-			-
21	Amortization [4]					230	6/12	115
22	Balance as of 12/31/20							(1,036)
23	Aveage 2020							(1,211)

Notes:

1 See HECO-1703 page 1 from Hawaiian Electric's 2017 test year rate case for presentation of the OPEB tracking regulatory asset/liability balance roll-forward from 2010 to 2015.

2 Updated 2019 and 2020 NPBC provided in April 2019 by Towers Watson.

3 Assumed 2020 TY interim rate will go into effect July 1, 2020

4 Amortization based on the balance as of 06/30/20 balance amortized over 5 years.

Hawaiian Electric Company, Inc.
Post-Retirement Benefits Other Than Pension (OPEB)
OPEB Tracking Regulatory Asset and Liability
Negative NPBC Regulatory Liability - Not in Rate Base
($ Thousands)

				Not in Rate Base	
Year	NPBC in rates	Actual NPBC	OPEB Tracking Regulatory Asset/(Liability) (HECO-1703, page 1-2)	(Increase) Decrease OPEB Regulatory Liability	Ending Regulatory Liability Balance
	A	B	C=	D=	E=
		If B is positive-->	B - A	zero	Prior Year E + D
		If B is negative-->	zero - A	B	
2013	1,424	830	(594)		$ -
2014	1,424	(562)	(1,424)	(562)	(562)
2015	1,424	846	(578)	-	(562)
2016	1,424	(236)	(1,424)	(236)	(798)
2017	1,424	(266)	(1,424)	(266)	(1,064)
1/1/18-2/15/18	182	(424)	(182)	(424)	(1,488)
2/16/18-12/31/18	-	(2,726)	-	(2,726)	(4,214)
2019	-	(3,208)	-	(3,208)	(7,422) a
2020	-	(3,090)	-	(3,090)	(10,512) b

Notes:

- Totals may not add or tie exactly due to rounding.
- If NPBC is negative, regulatory liability will be increased by the difference between NPBC in rates for the period and zero; negative amount included in a separate regulatory liability
- Negative amount in separate account will increase by any negative NPBC, or decrease by the amount of actual NPBC above amounts in rates. If the actual NPBC is larger than the NPBC in rates in a subsequent year, then the excess of actual NPBC over the NPBC in rates will reduce the separate regulatory liability before being used to establish a regulatory asset.

a Based on estimated NPBC for 2019 provided by Towers Watson in April 2019.

b Based on estimate of NPBC for 2020 provided by Towers Watson in April 2019.

ACCOUNTING FOR THE COSTS OF COMPUTER SOFTWARE DEVELOPED OR OBTAINED FOR INTERNAL USE

(Updated as of April 1, 2006)

Introduction

The following guidelines are provided to assist in the accounting for computer hardware and software costs (acquired, internally developed, or modified solely to meet the entity's needs). This is not meant to be all-inclusive, however we will continue to add or revise the information below, as needed, to provide additional clarification. Questions with respect to these guidelines should be addressed to the Controller or Director of Corporate and Property Accounting.

As a general rule, the costs of computer software, including applicable labor to install the software, and ongoing maintenance are generally charged to the appropriate functional operation and maintenance (O&M) expense account(s), i.e. expensed as incurred, based on the benefiting organization unless:

1. Deferrable software costs have been identified in accordance with applicable accounting standards AND approval has been obtained from the PUC allowing the Company to defer those costs,
2. The computer software is an operating system-type (e.g., Windows XP) software needed to render the new computer hardware "used or useful",
3. Specific overhead costs allowed to be applied to deferrable software costs,
4. AFUDC on deferrable software costs.

Costs for software development projects less than $500K would generally be expensed as incurred. (The $500K threshold refers to the amount of costs that would be deferred during the application development stage described below. It does not refer to the total costs that would be incurred during all three project stages described below.) Please notify the Controller or Director of Corporate and Property Accounting of projects that are less than $500K that will be expensed.

Accounting for Computer Software Guidelines

The costs of software upgrades and enhancements that do not provide additional functionality to the existing software (i.e., modifications to the existing software that would enable the software to perform tasks that it was previously incapable of performing) should be charged to the appropriate functional O&M expense account(s), i.e. expensed as incurred, based on the benefiting organization.

Software that is acquired, internally developed, or modified solely to meet the entity's needs should adhere to the guidance set forth below. In general, software development can be segregated into three stages as follows (also summarized in Exhibit 1):

- Preliminary Project Stage. This stage includes conceptual formulation of software alternatives, evaluation of the alternatives, determination of the existence of needed technology, and final selection of alternatives. Internal and external costs incurred during this stage should be charged as incurred to the appropriate functional O&M expense account(s), based on the benefiting organization, i.e. expensed as incurred.

- Application Development Stage. This stage includes the design of a chosen path, including software configuration and software interface, coding, software installation, and testing, including parallel processing. Certain internal and external costs incurred during this stage should be deferred, including costs to develop or obtain software that allows for access of old data by new systems. Certain applicable overhead and AFUDC costs on the deferrable software costs is also deferred.

  The process of data conversion from old to new systems may include purging or cleansing of existing data, reconciliation or balancing of the old data and the old/new system, creation of new/additional data, and conversion of old data to the new system. Data conversion often occurs during the Application Development Stage; however, data conversion costs, other

ACCOUNTING FOR THE COSTS OF COMPUTER SOFTWARE DEVELOPED OR OBTAINED FOR INTERNAL USE

(Updated as of April 1, 2006)

than the costs to develop or obtain software that allows for access of old data by new systems, should be charged as incurred to the appropriate functional O&M expense account(s), based on the benefiting organization, i.e. expensed as incurred.

- Post-Implementation/Operation Stage. This stage includes training and application maintenance. Internal and external costs incurred during this stage should be charged as incurred to the appropriate functional O&M expense account(s), based on the benefiting organization, i.e. expensed as incurred.

Further, costs of activities typically associated with business process reengineering should be charged as incurred to the appropriate functional O&M expense account(s), based on the benefiting organization, i.e. expensed as incurred. Note that these activities can occur during any stage above. Examples include the following:

- Preparation of a request for proposal
- Current state assessment – The process of documenting the entity's current business process, except as it relates to current software structure. Often referred to as *mapping, developing an "as-is" baseline, flow charting,* and *determining current business process structure*.
- Process reengineering – The effort to reengineer the entity's business process to increase efficiency and effectiveness. This activity is sometimes referred to as *analysis, determining "best-in-class," profit/performance improvement development,* and *developing "should-be" processes*.
- Restructuring the work force – The effort to determine what employee is necessary.

Accounting for Computer Hardware Guidelines:
Any computer hardware costs incurred relative to the development or acquisition of software should be capitalized following existing Company policies and procedures. Computer operating system software which is acquired in connection with new hardware should be capitalized together with the hardware under the basis that the operating system is needed to deem the hardware "used or useful".

ACCOUNTING FOR THE COSTS OF COMPUTER SOFTWARE DEVELOPED OR OBTAINED FOR INTERNAL USE

(Updated as of April 1, 2006)

Exhibit 1

The following table sets forth the accounting for typical components of a software development project based on whether the item should be expensed, deferred, or capitalized. Please note that some of the activities listed below may occur in multiple stages.

	Internal or Third Party		
Steps	**Expensed**	**Deferred**	**Capitalized**
Business process reengineering and information technology transformation (these activities primarily occur, but not limited to, prior to preliminary project stage):			
Preparation of request for proposal (RFP)	X		
Current state assessment (*i.e., mapping, developing an "as-is" baseline, flow charting, determining current business process structure.*)	X		
Process reengineering (*i.e., analysis, determining "best-in-class," profit/ performance improvement development, developing "should-be" processes.)*	X		
Restructuring work force	X		
Preliminary software project stage activities:			
Conceptual formulation of alternatives	X		
Evaluation of alternatives	X		
Determination of existence of needed technology	X		
Final selection of alternatives	X		
Examples of the preliminary project stage include: • Strategic decisions to allocate resources between alternative projects at a given point in time (e.g., should programmers develop a new payroll system or direct their efforts toward correcting existing problems in an operating payroll system?) • Determine the performance requirements (i.e., what the software needs to do) and systems requirements for the project • Invite vendors to perform demonstrations of how their software will fulfill an entity's needs • Explore alternative means of achieving specified performance requirements (e.g., should an entity	X		

ACCOUNTING FOR THE COSTS OF COMPUTER SOFTWARE DEVELOPED OR OBTAINED FOR INTERNAL USE

(Updated as of April 1, 2006)

	Internal or Third Party		
Steps	**Expensed**	**Deferred**	**Capitalized**
make or buy the software? Should the software run on a mainframe or a client server system?) • Determine that the technology needed to achieve performance requirements exists • Select a vendor if an entity chooses to obtain software • Select a consultant to assist in the development or installation of the software			
Application development stage activities:			
Design of chosen path, including software configuration and software interface		X	
Coding		X	
Installation to hardware		X	
Testing, including parallel processing phase		X	
Data conversion costs: a. Costs to develop or obtain software that allows for access of old data by new system		X	
b. Process of converting data from old to new systems (e.g., purging or cleansing of existing data), reconciliation or balancing of the old data and the new data in the new system, creation of new/additional data, and conversion of the old data to the new system.	X		
Training	X		
Post-implementation/ operation stage activities:			
Training	X		
Application maintenance	X		
Ongoing support	X		
Acquisition of fixed assets:			
Purchase of hardware, office furniture, or work stations, including operating system			X
Reconfiguration of work area - architect fees and hard construction costs			X

Hawaiian Electric Company, Inc.
Deferred System Development and Other Deferred Project Costs
($ Thousands)

Deferred System Development Costs

	A	B	C	D	E	F	G	H
								= sum(A to G)
Docket No.	2006-0003	2010-0339	04-0268	2012-0331	2015-0441	2014-0170	2018-0141	
In-service Date	12/15/09	2/1/12	5/29/12	9/9/14	2/23/19	10/1/18	Nov 2020 (est)	
Decision & Order	No. 23413	11/2/2011	No. 21798	No. 33082	No. 34884	No.33861	No. 36334	
	HR Suite	Budget System	CIS	IVR	DRMS	ERP	Grid Mod Phase 1	Total
Estimated Balance 12/31/18	$ 1,334	$ 739	$ 7,827	$ 884	$ 2,890	$ 41,839	$ -	$ 55,513
Changes in 2019:								
Deferred Project Cost					1,000	738		1,738
Amortization	(484)	(145)	(1,220)	(117)	(265)			(2,231)
Estimated Balance 12/31/19	850	594	6,607	767	3,625	42,577	-	55,020
Changes in 2020:								
Deferred Project Cost						374	22,100	22,474
Amortization	(484)	(145)	(1,220)	(117)	(325)	(1,790)	(153)	(4,234)
Estimated Balance 12/31/20	366	449	5,387	650	3,300	41,161	21,947	73,260
Average 2020 Balances	$ 608	$ 522	$ 5,997	$ 709	$ 3,463	$ 41,869	$ 10,974	$ 64,140

Other Deferred Project Costs

	I	J = I
Docket No.	05-0146	
Decision & Order No.	23514	
	RO Pipeline	Total
Estimated Balance 12/31/18	$ 4,725	$ 4,725
Changes in 2019:		
Deferred Project Cost		-
Amortization	(116)	(116)
Estimated Balance 12/31/19	4,609	$ 4,609
Changes in 2020:		
Deferred Project Cost		-
Amortization	(116)	(116)
Estimated Balance 12/31/20	4,493	4,493
Average 2020 Balances	$ 4,551	$ 4,551

Notes:

- Totals may not add or tie exactly due to rounding.
- See description of other deferred project costs at HECO-1605 Attachment 1.
- See calculation of annual amortization and reconciliation/roll-forward of deferred cost balances at HECO-WP-1605.

A, B, C, D, & I

Human Resources System ("HR Suite"), Budget System Replacement ("Budget System"), Customer Information System ("CIS"), Interactive Voice Response ("IVR"),and Reverse Osmosis ("RO") Pipeline were included in rate base in Hawaiian Electric's 2017 test year rate case. No changes to the total deferred cost or the amortization have been made.

E The deferral treatment of the Demand Response Management System ("DRMS") development costs was approved in Decision and Order No. 34884 issued on October 18, 2017. The system was placed into service on February 23, 2019. The rate balance reflects the total deferred cost less 10 months of amortization in 2019 and a full year of amortization in 2020. See HECO-1415 for details on the implementation and HECO-WP-1402H for details on the amortization budget entry.

F In the 2017 test year rate case (Dkt No. 2016-0328), Hawaiian Electric and the Consumer Advocate agreed to delay the commencement of the amortization of the ERP/EAM deferred project costs until such amounts are included in Hawaiian Electric Companies' future rate cases subsequent to the go-live date. The system was placed into service on October 1, 2018. The rate base balance reflects 6 months of amortization in 2020, starting the amortization in the month after the assumed interim decision and order issuance in 06/2020, while the test year O&M expense incorporates the annual amortization amount of $3,579,000 based on a 12-year amortization period of the total deferred cost.

G The Commission issued On May 28, 2019, Order No. 36334, *Clarifying Decision and Order No. 36230, filed March 25, 2019* , approving the Company's recovery of deferred Phase 1 Grid Modernization system development costs via the MPIR adjustment mechanism if HECO's meter headend and MDMS components are not in service in it's 2020 test year. The estimated in-service date of the Grid Mod Phase 1 deferred costs is November 2020 and will be amortized over a 12-year period beginning the month following the go-live date. See description of the project in HECO T-9 and breakdown of costs at HECO-902.

GENERAL ACCOUNTING GUIDELINES
ACCOUNTING FOR CAPITAL PROJECT COSTS

(CLARIFIED as of March 19, 2010)

The purpose of this document is to describe the general policies and procedures with respect to accounting for capital project costs. This document does not address how to account for the costs of non-capital projects. There may be facts and circumstances unique to a given project (e.g. a new generating unit addition project) that may not be specifically or adequately addressed by the following discussion. When in doubt as to the proper accounting treatment for capital project costs, please consult with the Controller or the Director of Corporate and Property Accounting of the General Accounting Department.

USUAL CAPITAL PROJECT LIFE CYCLE

The following summarizes the typical sequence of activities, approval procedures, and accounting treatment in a capital project's life cycle:

Step	Project Life Cycle Activities & Approval Procedures	Accounting Treatment
1.	General planning Study problems Consider possible solutions	Expense or clearing
2.	Proposed solution probably resulting in capital project Estimate scope and cost	PEWON
3.	Initialize project	PEWON
4.	Refine scope and updating cost estimate	PEWON
5.	Obtain authorization	CWIP
6.	Construction Work-In-Progress:	
	• Develop detailed design	CWIP
	• Obtain permits and external approvals	CWIP
	• Purchase equipment and materials	CWIP
	• Construct plant facilities	CWIP
7.	Project deemed used or useful	Plant Addition

ACCOUNTING FOR CAPITAL PROJECT COSTS – USUAL PROJECT LIFE CYCLE

STEP 1: General Planning (Expense or Clearing)
General planning involves activities to determine system requirements, current state assessments, identifying problems and identifying potential solutions to problems. For example, planning, analyses, feasibility studies, investigations, requests for engineering assistance, studies of alternative solutions, etc. to determine if there is sufficient

justification to propose solutions, are considered general planning activities. After this step is completed, a proposed solution in which either a proposed capital project, proposed O&M project or no further action would result. Since the costs of these general planning activities cannot be directly attributable to a specific project at this time, these costs are functionally charged to expense or charged to clearing[1] accounts, depending on the RA of the individual incurring the costs.

STEP 2: Propose Solution; Estimate Scope and Cost (Preliminary Engineering)
In general, when a proposed solution is determined, the scope of the solution and rough cost estimates are prepared. If it is probable that a proposed solution will result in a capital project, a preliminary engineering work order number (PEWON) should be created. The PEWON captures the preliminary engineering costs of developing the potential capital project's scope and its cost estimate. Also, appropriate management approval should be obtained depending on the level of preliminary engineering charges to be incurred. Refer to the Company's approval policy on preliminary engineering charges. Costs during this phase are usually intermittent as decisions have not been made regarding which potential projects will move forward. The results of this phase are refined as the project develops and used as support for project evaluation by management. The costs of these activities charged to the proposed project's PEWON are temporarily held in the clearing account and do not accrue AFUDC. These PEWON charges are transferred to clearing or expense (depending on the RA of the department that created the workorder) account workorders if a capital project does not evolve from this phase or transferred to the approved capital project.

See special treatment explained in Customer Service Requests Projects discussion below.

STEP 3: Initializing a Project (Preliminary Engineering)
When the Process Area determines that the project merits consideration for inclusion in the annual capital expenditure budget, initialization should be requested. The project is initialized on a Project Identification Form (PIF). The PIF is required in order to have a project number assigned to the project. Only projects with permanent project numbers can be considered for incorporation into the respective process area's capital budget. Initialized projects are then prioritized and considered in determining the annual capital expenditure budget. Please see "Project and Program Initialization and Authorization Procedures Manual" for detailed instructions.

STEP 4: Refining Scope and Updating Costs Estimate as Needed (Preliminary Engineering)

[1] Charges to clearing accounts are allocated as an on-cost (overhead) charge to projects during the activities of steps 5 and 6 of the project's life cycle. Note, that a portion of the costs are actually charged to expense or other accounts as a result of the clearing process.

After a project is initialized, additional work may be needed in order to refine cost estimates and scope before management can make a decision whether or not the project is justified. Some examples of the activities in this step may include more detailed studies, additional investigations and site visits, updating cost estimates and/or determining estimate project schedules. Costs in this phase continue to be charged to PEWON. Appropriate management approval should be obtained depending on the level of preliminary engineering charges to be incurred. Refer to the Company's approval policy on preliminary engineering charges. Costs during this phase may continue to be intermittent as decisions may not have been made regarding which potential projects will move forward.

STEP 5: Authorizing a Project

When the project justification is complete, authorization from management should be requested. The project may be authorized for engineering only or authorized in total. The authorization (management approval) of a project typically occurs after the proposed project's scope and costs are refined and updated, respectively, and after initialization. Sometimes, a project's authorization may occur concurrently with its initialization. After obtaining management approval, the project number is activated in Ellipse and costs can be charged to the project. Project Managers/Engineers or others can then set up project hierarchies in Ellipse. Please see "Project and Program Initialization and Authorization Procedures Manual" for detailed instructions.

As a general rule, management's approval should not be obtained until work on the project needs to begin in order to meet the project's required "in service" date. Management's approval normally means that work on the project should start now and should continue until completion. Once a project is started, the activities in step 6 should be completed on a *planned progressive basis*, i.e. without delay, except for the delays that are inherent in the asset acquisition process such as the ordering, purchasing and delivering of long lead time material, and delays due to permitting and external approval processes.

Subsequent to its authorization and project number activation in Ellipse, the proposed project is deemed a capital project and enters into its construction work-in-progress (CWIP) phase where costs are charged to the project. The Property Accountants must be advised when preliminary engineering costs incurred need to be transferred to the approved capital project. At this time, all accumulated costs in the project's PEWON are transferred to the activated project number. In addition, an allowance for funds used during construction (AFUDC)[2] is applied on the capital project's costs while in CWIP.

STEP 6: Construction Work-In-Progress

[2] AFUDC represents the cost to finance the project during the construction period.

Subsequent to its authorization, a capital project enters into its CWIP phase. This phase includes developing detailed project designs, permitting and securing external approvals[3], incurring costs for equipment, materials, contractors and all components of construction costs and/or direct costs necessary to install the assets. Abandoned CWIP projects in this phase are written off to expense.

STEP 7: Facilities Declared Used or Useful (Plant Addition)
Capital projects which are deemed used or useful are considered completed and placed into service. Facilities become useful generally when: 1) construction is for the most part complete, 2) the facilities have been tested (if testing is possible and appropriate), and 3) the facilities are ready for use (i.e. they are able to perform their intended function, and can be energized, pending completion of a related facility(ies), without a significant amount of additional costs incurred). As a general rule, it is expected that facilities will become used within a reasonable period of time after they become useful.

To facilitate the proper and timely closing of capital project costs, projects will generally close at the authorized project number (controlled fifth segment) level. Therefore, the project(s) hierarchy should be scoped/structured with the following in mind: 1) the facilities included in a project should represent full units of property as defined in the Company's property unit catalog[4], 2) the planned completion dates for all of the facilities should be approximately the same and 3) the facilities should be used or useful (see guidelines in the previous paragraph) at the time the facilities are completed. With respect to item 2) in the previous sentence, if the planned completion dates for the facilities included in a fifth segment project (each of which represent full property units) become significantly different, the cost of any facilities which are completed and ready for service (used or useful) should be closed.

When the capital project is deemed used or useful, accrual of AFUDC is stopped and the costs of the project are placed in-service (a date in-service is entered into Ellipse). The costs are then transferred to plant-in-service. Typically, late or subsequent invoices and charges to closed projects will be recorded to plant-in-service (no AFUDC will be accrued on these late or subsequent charges). Once all charges have been submitted and all work has been completed on the project, the project should be inactivated in Ellipse. This will prevent any further costs from being charged to the project.

Customer Service Requests Projects:

[3] In certain instances, the process of permitting and securing external approvals may commence during the preliminary engineering phase depending on the project's scope and requirements, however AFUDC will not accrue on these costs during the preliminary engineering phase.

[4] A copy of the Company's Property Unit Catalogue can be downloaded from the General Accounting intranet page under Policies and Procedures.

The Customer Installations Department (CID) receives a significant amount of customer service requests for various types of utility-related work (e.g., new service, underground service, etc.) on an annual basis. The estimated project costs of these service requests are typically under $20,000. The task of transferring these service request project costs from PEWONs to clearing or O&M, for projects that do not materialize, or to CWIP for projects that do materialize represents a significant administrative burden to the CID department. To address this issue, the CID department will account for customer service request projects that are less than $20,000 in the following manner.

Accounting for step 1 general planning costs will remain unchanged. General planning costs of CID will be charged to the clearing account. Since the majority of these customer service requests result in capital projects, PEWONs will not be utilized for preliminary engineering as described in steps 2-4 above. Rather, CID will charge the costs of preliminary engineering activities directly to CWIP workorders. This will eliminate the administrative burden of transferring PEWON costs. However, once these charges are in a CWIP workorder, the accounting guidelines for CWIP costs in the step 6 and 7 will remain unchanged or if project is not developed as described below.

ACCOUNTING FOR CAPITAL PROJECT COSTS – DELAYED OR ABANDONED PROJECTS

A chart summarizing the discussion below is attached.

Projects Not Developed
If a capital project does not evolve from steps 2-4, PEWON charges are transferred to either clearing account workorders (and the costs are eventually allocated as an on-cost) or expense account workorders, depending on the originating project's department RA.

Delayed Projects
The accounting for delayed project costs depends on the cause and length of the delay. As a general rule, if the delay is imposed upon the company by external factors (i.e. the delay is unavoidable and beyond the company's control), project costs are treated as described under the Usual Project Life Cycle scenario above, provided that the costs are recoverable from ratepayers. If cost recoverability is uncertain, the appropriate accounting treatment (which is beyond the scope of this discussion) depends on the facts and circumstances of the situation. In these situations, the Controller should be consulted regarding the appropriate accounting treatment.

If a project is delayed at management's discretion rather than by external factors, the treatment of costs will generally depend on the length of the delay. As a general

rule, costs related to projects delayed for two years or less will be treated as described under the Usual Project Life Cycle scenario above, except that AFUDC will not be applied during the period(s) of project delay. If the delay is for more than two years, the costs will be treated as though the project were abandoned as described below.

Regardless of the reason for the delay (e.g. external factors or internal management decisions), project costs need to be analyzed when delays of more than one or two months are anticipated. If any of the facilities included in the project scope are used or useful at the time of such project delays, it will generally be necessary to close (capitalize) the costs related to the facilities that are used or useful.

Please note: the determination that a delay has occurred does not necessarily require a complete stoppage of work. A delay generally means that work on the project is no longer proceeding on a planned progressive basis, i.e. is no longer proceeding without delay, except for the delays that are inherent in the asset acquisition process. In other words, if construction is not proceeding as fast as would normally be expected for the type of construction involved, a delay in the project may have occurred.

Abandoned Projects

An abandoned project is one in which a "no go" decision is made during the time the project costs are classified as CWIP. Under normal circumstances, the costs of abandoned capital projects are charged to appropriate operation and maintenance expense account(s), unless the costs result in items that have future value. If any of the costs represent items that have future value, e.g. assets that are usable on another capital project, the related costs are transferred to the other project or accounts (e.g. inventory in the case of stock material) as appropriate. If a capital project is abandoned and unusual circumstances exist, e.g. the accumulated costs are significant, the Company will seek PUC approval for special accounting and ratemaking treatment as appropriate under the circumstances.

REQUIRED COMMUNICATIONS

The policies and procedures described above with respect to accounting for capital project costs are administered by the General Accounting Department, based on input from Project Managers or other appropriate individuals. Project Managers or other appropriate individuals must provide, on a timely basis, the Property Accountants with all the information necessary to properly account for capital project costs. For example, the Property Accountants must be advised when preliminary engineering costs incurred in step 5 need to be transferred to the approved capital project. The Property Accountants must also be advised as soon as projects are completed and/or facilities become used or useful, and as soon as projects are delayed, re-started, or abandoned.

GENERAL ACCOUNTING GUIDELINES
ACCOUNTING FOR CAPITAL PROJECT COSTS

(CLARIFIED as of March 19, 2010)

Usual Treatment of Costs Under Various Delayed or Abandoned Project Scenarios (Please consult with Controller or Property Accounting Division)		
Scenario	Cost Treatment	AFUDC Treatment
1. PEWON projects not developed	Transfer costs to clearing or O&M expense – depending on the originating project's department RA	N/A
2. Delays due to external factors and cost recovery is probable	Hold in CWIP	Continue
3. Delays ≤ 2 years at management's discretion	Hold in CWIP	Stop until work resumes
4. Work PERMANENTLY stopped (project is abandoned)	a. Transfer costs to replacement project, inventory, etc. only if costs represent items with value	Continue or stop depending on status of new project
	b. If no replacement project or items have not value, write-off costs to various appropriate O&M expense accounts	Stop and write-off AFUDC
	c. After performing a and b above, if costs are significant, seek PUC determination of cost treatment	PUC decides treatment
5. Delays > 2 years at management's discretion	Same as 3 above	Same as 3 above

Hawaiian Electric Company, Inc.
Abandoned Projects Cost
2020 Test Year Estimate

	A	B	C
	Average Write-off 2014-2018 Data		
	Block of Accounts	$ 000	Reference to Budget Adjustment Posting
PV26 VP-Energy Delivery	Production operation	39	HECO-WP-1103
	Transmission maintenance	192	
	Distribution operation	335	
	Distribution maintenance	221	
PV27 Planning & Technology	Production operation	2	HECO-WP-303
	Transmission operation	1	
	Transmission maintenance	2	
	Distribution operation	6	
PV46 VP-Power Supply	Production operation	391	HECO-WP-1003
	Production maintenance	112	
	Total	1,301	

Notes:

- Totals may not add or tie exactly due to rounding.
- The Company does not include in its operating budget the estimated cost of projects that would be written off as abandoned. Accordingly, the Company proposes a budget adjustment to incorporate the estimated amount of write-off in the test year estimate. See HECO-WP-1607 for the data downloaded from the Ellipse and SAP systems relating to the historical write-offs between 2014 and 2018, calculation of the 5-year average, and distribution of the test year estimate to the Company's major process areas and operations and maintenance expense block of accounts.

Columns A & B

See HECO-WP-1607 for the summary of the average write-offs by process area by NARUC block of accounts and the distribution of the test year estimate to the Company's major process areas and operations and maintenance expense block of accounts.

Column C

See the exhibits or workpapers referenced for the budget adjustments relating to the estimated abandoned projects cost being incorporated into the test year estimate.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Preliminary Engineering Charges Transferred To Expense

Summary of Adjustments ($ 000)

	FERC	Process Areas				
	Acct	PV26	PV27	PV46	Total	Reference
Production Maintenance	512	-	-	(367)	(367)	HECO-WP-1608 p.7
Distribution Operation	588	-	(488)	-	(488)	HECO-WP-1608 p.7
Distribution Maintenance	598	(93)	-	-	(93)	HECO-WP-1608 p.7
		(93)	(488)	(367)	(948)	

Notes:

- Total may not add exactly due to rounding.
- Process area codes:
  PV26 Energy Delivery
  PV27 Planning & Technology
  PV46 Power Supply

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Unamortized Gain on Sales of Land

Property:	Iolani Court Plaza [1]	Lauula Street Jointly Owned Property [1]	Total Utility Gain on Sales	
Docket No.:	98-0170	2015-0039		
Decision and Order No.:	16833	32979		
Gain on Sales:				
Balance12/31/18	78,467	37,896	116,363	
Additions	-	-	-	
Amortize	44,236	21,655	65,891	
Balance12/31/19	34,231	16,241	50,472	A
Additions	-	-	-	
Amortize	34,231	16,241	50,472	
Balance12/31/20	(0)	(0)	(0)	B
Average Test Year			25,236	(A+B)/2

Notes:
(1) Amortized to 60011000

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Customer Benefit - Pension and OPEB Tracker Adjustment
($ Thousands)

	Source		Expense	Revenue
	D&O No. 35545 (note 1)		**A**	**B = A*1.0975**
Adjustment to Return to Customers	p.35-37	a	25,395	
Annualized Reduction in 2017 TY rates	p.37	b	5,467	6,000
Monthly Reduction in 2017 TY rates		c=b/12	456	
# of months 2017 Reduction in effect 4/13/18 - 6/30/20 (months)		d	26.6	
Reduction reflected in rates 4/13/18 - 6/30/20		e=c*d	12,119	
Remaining Adjustment to be Returned to Customers		f=a-e	13,276	
Assume 3 year amortization	p.37	g	3	
Annualized Reduction in 2020 TY rates		h=f/g	4,425	4,857

Notes:

1 Decision and Order No. 35545 issued on June 22, 2018 in Hawaiian Electric's 2017 test year rate case in Docket No. 2016-0328.

TESTIMONY OF
JASON E. BENN

CHIEF INFORMATION OFFICER AND
VICE PRESIDENT INFORMATION TECHNOLOGY & SERVICES
HAWAIIAN ELECTRIC COMPANY, INC.

Subject: Chief Information Officer Process Area ("CIOPA")
CIOPA Operations and Maintenance Expense;
ERP/EAM Net Application and Support Costs (Benefit Category No. 10);
CIOPA Headcounts;
Efficiency And Cost Containment Measures;
CIOPA Capital Expenditures.

EXECUTIVE SUMMARY

- The Chief Information Officer Process Area ("CIOPA") of Hawaiian Electric Company plays an integral role in the Companies'[1] ongoing strategic transformation to achieve a 100% Renewable Portfolio Standard ("RPS") future and attain industry leading customer service, while combating the very real cyber security threats that are growing at an exponential rate. The CIOPA is responsible for the enterprise-wide backbone of Information Technology ("IT"), Operational Technology ("OT"), Telecommunications, process improvement, project and portfolio management, and cyber security risk management functions and services.
- The CIOPA adjusted Test Year 2020 O&M expense estimate is approximately $39.56 million, consisting of $4.06 million in deferred software project amortizations and $35.5 million in core operating expenses. The CIOPA also estimates Test Year 2020 capital expenditures of $6.01 million. The CIOPA test year estimates reflect an increased reliance on IT and other services provided by the CIOPA ("CIOPA services") to deliver reliable and resilient electric service, conduct core business operations and to deliver on the Companies' strategic transformation for the benefit of customers and the community. This level of expenditure is needed in response to several critical IT, operational and business drivers, including:

[1] Hawaiian Electric Company, Inc. ("Hawaiian Electric" or the "Company"), Hawaii Electric Light Company, Inc. ("Hawaii Electric Light") and Maui Electric Company, Limited ("Maui Electric") are collectively referred to as the "Companies".

- Continuing and accelerating its Cyber Security Program to strengthen its cyber security for critical systems, operations, and customers to address rising threat levels.
- Grid Modernization and the convergence of IT/OT/Telecommunications.
- The increased reliance on information systems including the Customer Information System ("CIS") and Enterprise Resource Planning/Enterprise Asset Management ("ERP/EAM") systems to enable new customer programs, improved customer engagement, and operational efficiencies.

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INTRODUCTION

Q. Please state your name and business address.

A. My name is Jason E. Benn and my business address is 900 Richards Street, Honolulu, Hawai‘i.

Q. By whom are you employed and in what position?

A. I am the Chief Information Officer and Vice President of Information Technology & Services ("ITS") for Hawaiian Electric Company, Inc. ("Hawaiian Electric" or the "Company"). My educational background and experience are provided in HECO-1700.

Q. What will your testimony cover?

A. My testimony will discuss:

1. An overview of the CIOPA;
2. Importance of the CIOPA activities and services;
3. CIOPA adjusted 2020 test year O&M estimate;
4. CIOPA core operating budget;
5. ERP/EAM Net Application support costs (ERP/EAM benefit category 10);
6. CIOPA headcounts;
7. Efficiency and cost containment measures; and
8. Capital expenditures.

CHIEF INFORMATION OFFICE PROCESS AREA OVERVIEW

Q. What is the CIOPA responsible for?

A. The CIOPA of Hawaiian Electric Company, plays a crucial role in the Companies' ongoing strategic transformation to achieve a 100% Renewable Portfolio Standard ("RPS") future and attaining industry leading customer service, while combating the very real cyber security threats that are growing at an exponential rate. The CIOPA provides a platform for managing the full lifecycle of the Companies' business processes from design, implementation, and secure enablement in support of the Companies' Strategic Transformation Plan ("STP") and its desired outcomes. As explained more fully in this testimony, exhibits and workpapers, the CIOPA accomplishes its mission through:

1) IT Service Management. Planning, developing, maintaining and updating an evolving portfolio of IT applications and infrastructure that: (A) provides employees with efficient access to the right information at the right time and place to make effective business decisions; (B) enables cost-effective communication and collaboration across distances; and (C) improves efficiency and service quality by automating business processes with technology. This includes approximately 1,020 Windows and Unix servers housed in one primary and 3 distributed data centers, 700 routers and switches supporting voice, data, and video communications, and approximately 8,000 end point devices supporting internal users and customer services across the 5 islands in their service territory. The application portfolio includes the Companies' Enterprise Information Systems ("EIS"), peripheral systems and workgroup applications, that support customer services, core business processes, and operational support systems.

2) Oversight of the Enterprise Cyber security Program. The Companies' cyber security program encompasses people, process and technology (both IT and OT) and is based on the National Institute of Standards and Technology ("NIST") Cyber security Framework for continuous risk assessment and treatment, defense in depth, and layered security.

3) Enterprise and IT Project and Portfolio Management. The practice of enterprise project and portfolio management are core capabilities needed to ensure the successful delivery of initiatives/projects/programs.[2] CIOPA plays a key role in setting enterprise project and portfolio management standards and tools, as well as direct project management of enterprise-wide initiatives/projects/programs that cut across multiple process areas and Companies (such as the ERP/EAM Benefits Realization Program, Meter Data Management System Implementation Project, Demand Response Management System Implementation Project, One Company Initiative, and Enterprise Data Analytics & Governance Initiative), coordinating with other project management offices throughout the Companies, and providing knowledge management support for this practice.

4) Enterprise Business Analysis and Continuous Improvement ("BA/CI"). The BA/CI practice supports the Companies' ongoing efforts to improve business processes and operational efficiencies. This includes directly conducting BA/CI events and/or supporting other process areas in their CI activities, providing facilitated support and training for BA/CI practitioners throughout the

[2] For the purpose of this testimony, project management and portfolio management may be used interchangeably or referenced as the general industry practice of project management (that includes program and portfolio management).

Companies, as well as supporting IT business case and requirements development.

5) Oversight of the Business Continuity Program ("BCP"). This program provides the necessary business continuity management framework needed to plan and coordinate across all incidents and to handle major crises as they occur. The BCP unifies and coordinates the individual incident management plans and capabilities that protect against various threats (e.g., cyber-attacks, electrical outage, office facility outages) across the Companies.

6) Office Services. These services include customer bill print production and mailing, interoffice mailing services, production print shop, and records management.

7) Operational Technology Systems. Overseeing the planning, management and monitoring of the daily operations of OT systems including the Energy Management Systems, Power Supply Distributed Control Systems and Smart Grid Technologies across the three Companies.

8) Telecommunications. Overseeing the planning, management and monitoring of the Telecommunications that support IT networks and Operational needs.

Q. What are the key business drivers impacting the CIOPA?

A. Through the Companies' business transformation, there are currently three key business drivers that are impacting the CIOPA. This includes the: 1) the evolving Cyber security threat environment; 2) Grid Modernization and the convergence of IT/OT/Telecommunications; and 3) increased reliance on information systems including the CIS and ERP/EAM systems to enable new customer programs,

improved customer engagement, and operational efficiencies. All three drivers increase the complexity and scale of technologies and services supported, and therefore, the need for increased investment in CIOPA activities.

Q. What are the significant organizational changes to the CIOPA since the 2017 Test year?

A. There have been three significant organizational changes since the 2017 test year. In 2017, the CIOPA consisted of the Enterprise Performance Excellence ("EPE"), the Information Technology & Services ("ITS"), and the Information Assurance ("IA") Departments. Since then it has now evolved into six divisions as detailed below and in exhibits HECO-1701 to 1706. In summary, there are three major changes since the 2017 test year:

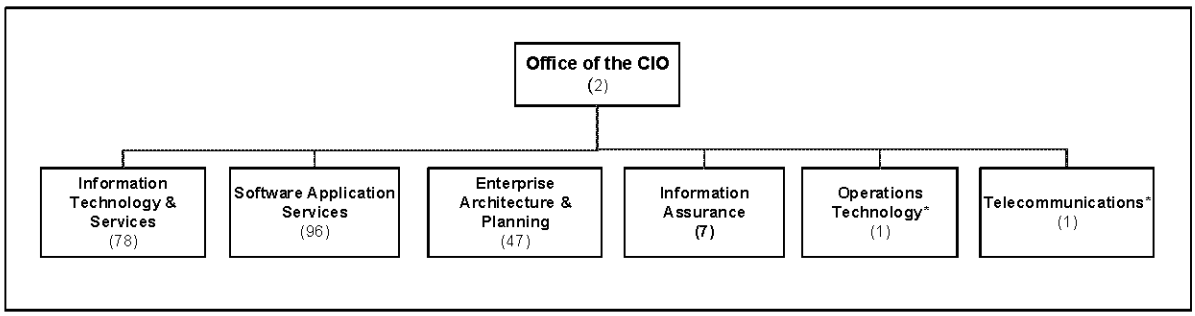
1) The addition of the two additional division directors in response to the IT/OT/Telecommunications convergence mentioned above and explained further below.
2) The consolidation of business analysis and continuous improvement, project and portfolio management, and internal CIO shared services (including Finance, Vendor and License Management) within the CIOPA, into the Enterprise Architecture & Planning division ("EAPD" formerly EPE).
3) The consolidation of application support services (both functional and technical support) from multiple process areas in expanding the pre-existing CIS SAP Customer Center of Excellence ("SAP CCOE") to encompass ERP/EAM system support, consistent with SAP best practices. The SAP CCOE exists within the Software Application Service Division which was formed by carving out the

former Enterprise Application and Integrations Service department from the ITS division.

These changes were made to more effectively support the Companies' STP and to better align its services and optimize CIOPA functions.

Q. What are the current organizational elements of the CIOPA?

A. As show in the figure below, CIOPA consists of the Office of the Chief Information Officer which oversees six divisions (see HECO-1711 CIO org charts):



1) **The Office of the Chief Information Officer ("CIO")** - responsible for oversight of the CIOPA, including the Companies' overall Enterprise Architecture & Planning, IT Infrastructure, Information Systems, OT Systems, Telecommunications and Cyber security strategies.

2) **The Enterprise Architecture & Planning division ("EAPD")** - responsible for Enterprise Architecture ("EA"), BA/CI services, Enterprise and IT Project Management ("PM"), Enterprise Portfolio Management ("PfM"), PM and BA/CI Knowledge Management, CIO Business Services, Enterprise Vendor and License Management, and Business Continuity Program. See exhibit HECO 1701 – Enterprise Architecture & Planning Overview.

3) **The Information Technology & Services ("ITS") division** - responsible for managing and supporting the Hawaiian Electric Companies' IT infrastructure, including its data centers, servers, data storage, wide area and local networks, Internet service, end user desktop and mobile computing devices, security administration, Network and Security Operations Center ("NOC") monitoring, general IT productivity tools, and printing and imaging. In addition, ITS is responsible for the utility bill production and mailing, physical mail room services, and records management. See exhibit HECO 1702 - ITS Overview.

4) **The Software Application Services ("SAS") Division** – responsible for the development, integration, lifecycle management, and support for the Companies' EIS, their peripheral applications, workgroup applications and related platforms. This includes enterprise systems like the SAP CIS/ERP/EAM platform, the Demand Response Management System ("DRMS"), the Outage Management System ("OMS"), the consolidated enterprise Geospatial Information System ("eGIS") and emerging application technologies in support of data analytics. See exhibit HECO 1703 – SAS Overview.

5) **The Information Assurance ("IA") Division** – responsible for the Companies' enterprise Cyber security Program defending the Companies against the vast scope and scale of cyber security threats, which are rapidly evolving in diverse form and function. IA is responsible for the overall Cyber security risk management, maintenance of Cyber security policies and plans, Cyber security architecture (in collaboration with EA), threat intelligence, incident response (in collaboration with

ITS), network and system testing, and end user training and awareness program. See exhibit HECO 1704 – IA Overview.

6) **The Operational Technology ("OT") Division** - responsible for the planning, implementation, integration, operations and maintenance for OT systems. OT systems include the Industrial Control Systems, such as the Energy Management Systems / Supervisory Control and Data Acquisition ("EMS/SCADA") and Power Plant Distributed Control Systems ("DCS") that control the operation of the 5 island electric grids across the Companies. In the future, this will also include the Advanced Distribution Management System that is intended to be implemented as part of the Companies' Grid Modernization effort. See exhibit HECO 1705 – OT Overview.

7) **The Telecommunications Division** - responsible for planning, implementation, integration, operations and maintenance for the mission critical telecommunications infrastructure that provides data and voice communication services between the Companies' physical locations (including 43 generation plants (both Companies and IPP), 64 transmission and 243 distribution substations and line devices, 17 office buildings, baseyards, and field/crew devices). This includes over 200 miles of fiber, 56 licensed microwave connections, 150 licensed and unlicensed radio links, 300 miles of leased lines, and connecting over 110 physical locations across the Companies. See exhibit HECO 1706 – Telecommunications Overview.

Q. Please explain the convergence of IT, OT and Telecommunications, its impacts and opportunities?

A. Since the 2017 rate case, the Companies are witnessing a convergence of IT, OT and Telecommunications. In discussing IT/OT/Telecommunications convergence it is useful to provide some high level definitions. While different enterprises may delineate between IT, OT, and Telecom systems differently, the following definitions are generally accepted for the purpose of this testimony. Generally, IT has historically included the computing applications and technology infrastructure that support business functions, including transactional business systems (e.g. ERP, CIS), decision support systems (e.g. business intelligence), productivity tools (including e-mail and collaboration), as well as engineering and operational support systems that do not provide material, realtime electrical process control functions (e.g. enterprise Geospatial Information Systems ("eGIS"), Outage Management Systems ("OMS"), and Demand Response Systems ("DRMS")). Conversely, OT systems are those industrial control systems that control technical processes through devices and sensors used to manage energy production and delivery and are characterized by their event driven nature, supported by "real time" software applications and/or devices with embedded software. With respect to IT networks and Telecommunications, IT networks primarily support the voice, data, and video communications used by the business and are generally characterized as logical layer packet networks based on TCP/IP, leveraging physical circuits provisioned by third parties or utility owned telecommunications. Telecommunications within the Utility have historically been focused on providing the physical communications circuits between facilities, electrical infrastructure, and needed for OT systems process control and field operations (e.g., Land Mobile Radio).

At a high level "IT/OT/Telecommunications convergence" describes the confluence of two factors. First, the technology and platforms underlying OT applications and the telecommunications they rely on is increasingly based on industry standard IT infrastructure, operating systems and communication protocols, such as x86 hardware, Microsoft Windows, Linux, and TCP/IP.

Secondly, the transformation of the utility and the modernization of the grid are blurring the lines between the functional purposes of IT and OT and increasingly requiring integration between these traditionally siloed environments. As an example, demand response systems provide control over loads that affect the operation of the grid, but also integrate with IT systems to support program participation and bill settlement. Likewise, advanced metering infrastructure supports both business functions (i.e., inform the volumetric usage of electricity for billing purposes) and control functions (i.e., turning electric service on/off at a residential or commercial site).

Concurrently, the importance, scale, and complexity of OT and Telecom systems are growing rapidly in support of the Companies' Grid Modernization efforts. The growth in the number of converged OT assets that rely on IT standard technology platforms and integrate with IT systems requires the extension of enhanced cyber security measures and IT management functions, where they were not required previously in proprietary and siloed environments. As an example, the projected 175K advanced meters alone represents a more than 10x increase in the number of IP (Internet Protocol) addressed devices as well as new servers, routers, switches and applications that need to be secured and managed.

Q. How is the Company aligning the CIOPA services and functions to address IT/OT/Telecommunications convergence?

A. The Companies have elected to take a step-wise approach to consolidating responsibility for IT/OT/Telecommunications, beginning with the establishment of two Director positions with matrixed authority in the CIOPA. All other labor and non-labor budgets related to the operations and maintenance of OT systems and Telecom remain within each respective business unit. This approach was deemed prudent because certain day to day operational responsibilities for OT and Telecom systems is not easily separated from other operational duties. This is particularly true for MECO and HELCO personnel, whereby a single position may have multiple responsibilities. By starting with a matrix approach, the OT and Telecom Directors are afforded the opportunity to best determine how to address that situation in the long term without disrupting critical operations, while being enabled to immediately begin rationalizing processes, policies, and technology strategy and leveraging synergies with other units within the CIOPA and operations.

In addition, as the Company integrates an increasing number of distributed energy resources, new systems and increased two-way communications are needed to enable grid services that allow the operations of these resources by both technical and economic signals. The consolidation of responsibility for IT, OT, and Telecom under the CIO, positions the Companies to more effectively and efficiently execute its grid modernization efforts by leveraging expertise in EA, IT operations, network technology, and cyber security. This approach is consistent with industry guidance as expressed by EPRI in its Utility Planning Framework and Reference Guide 2018

1 Technical Report, *"As communication systems migrate ultimately to all IPv6*
2 *networks, siloed ownership of systems will become more and more problematic*
3 *leading to increasing inefficiencies and degraded reliability in systems. A utility*
4 *should strive to integrate all communications teams into a common organization that*
5 *is at an equal organizational peer to Distribution, Transmission, Customer Care,*
6 *and other such organization units effectively treating the Communications System as*
7 *the 3rd Grid."*

8 IMPORTANCE OF THE CIOPA ACTIVITIES AND SERVICES

9 Q. What benefits are derived from the functions and services provided by CIOPA?

10 A. The CIOPA and its activities directly contribute to the Companies' ability to deliver
11 reliable and resilient electric service and benefit customers by enabling operational
12 efficiencies that ultimately lower the cost of service. In addition, the activities of the
13 CIOPA directly support and plays an integral role in achieving the key outcomes of
14 the Companies' STP in support of State Policy. These key outcomes include:

15 • Achieving a 100% Renewable Portfolio Standard ("RPS") future; and
16 • Attaining industry leading customer service through:
17 – Being easy to do business with; and
18 – Stable and Fair Pricing.

19 The CIOPA's support for the STP comes both through direct project and operational
20 support of new business processes and services to customers and through
21 foundational support for the requisite business capabilities to execute business
22 transformation.

Q. In what ways is the CIOPA supporting the Companies' efforts to achieve a 100% RPS future?

A. With respect to supporting the Companies' goal and state energy policy to achieve 100% RPS, the CIOPA (in collaboration with various business units within the Companies) has and continues to provide essential services in key focus areas including, for example:

1) The business process design, enablement, and system implementation of new customer programs and services for the integration of Distributed Energy Resources ("DER"), such as Community Based Renewable Energy (CBRE), new tariffs such as Smart Export & CGS+ & electric buses, and Customer Interconnection Tool ("CIT").

2) The integration and support of existing and planned systems and telecommunications that enable DER integration, such as the Demand Response Management Systems ("DRMS") and Grid Modernization systems (e.g., Advanced Meter Infrastructure, Meter Data Management System, Advanced Distribution Management System).

Q. In what ways is the CIOPA supporting the Companies' efforts to achieve industry-leading customer service?

A. The Companies' efforts to improve customer service are characterized by two key focus areas:

1. Being easy to do business with; and
2. Fair and stable pricing.

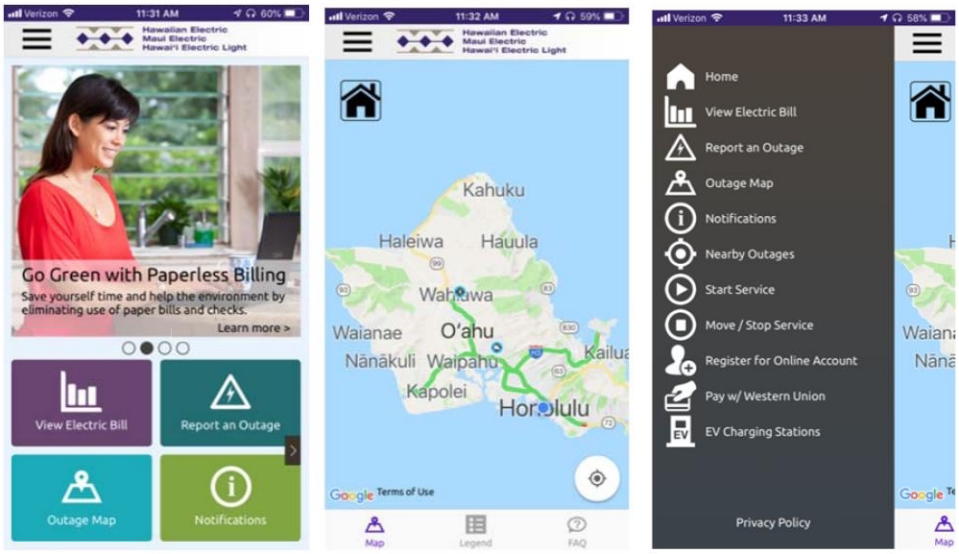
The CIOPA supports both of these focus areas through the customer engagement systems and programs it supports (e.g., internet informational websites, online and mobile interactive applications, automated voice recognition system) and operational efficiencies gained through the foundational IT, process improvement, and project management services and activities of the CIOPA.

Q. In what ways does the CIOPA contribute to helping Hawaiian Electric become "easy to do business with"?

A. With respect to "being easy to do business with", the CIOPA provides a critical role in supporting the implementation and ongoing support of customer programs that strive to fit our customers' needs, empower customers with choices about the energy usage and engage our customers when, where, and how they prefer. This includes ongoing activities designed to enhance the customer experience, both customer engagement and the interconnection experience. Some examples include:

- Supporting the implementation, integration and ongoing maintenance of systems and process improvements that improve the customer interconnection experience in customer program enrollment and participation. This includes the aforementioned CBRE, DRMS, and CIT.
- Supporting the Companies' customer experience improvement efforts through multi-channel customer engagement. This includes existing and new systems and platforms for customers to engage with the Companies to manage their account and obtain information that help customers interact with the Companies on the platform of their choice (e.g. Interactive Voice Response ("IVR"), a high-volume outage reporting system, and the internally

developed mobile customer application (shown below)).

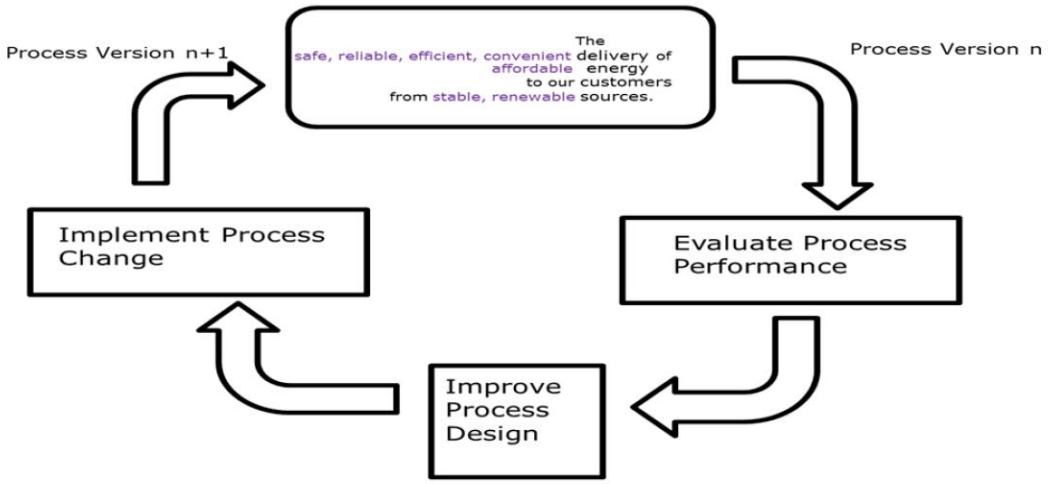


- Providing data to inform customers and key stakeholders including support for the data analytics and web site presentment of key performance indicators (shown below) as directed by the Commission.[3]

[3] See, https://www.hawaiianelectric.com/about-us/key-performance-metrics

Q. In what ways does the CIOPA contribute to helping the Companies achieve more fair and stabling pricing for its customers?

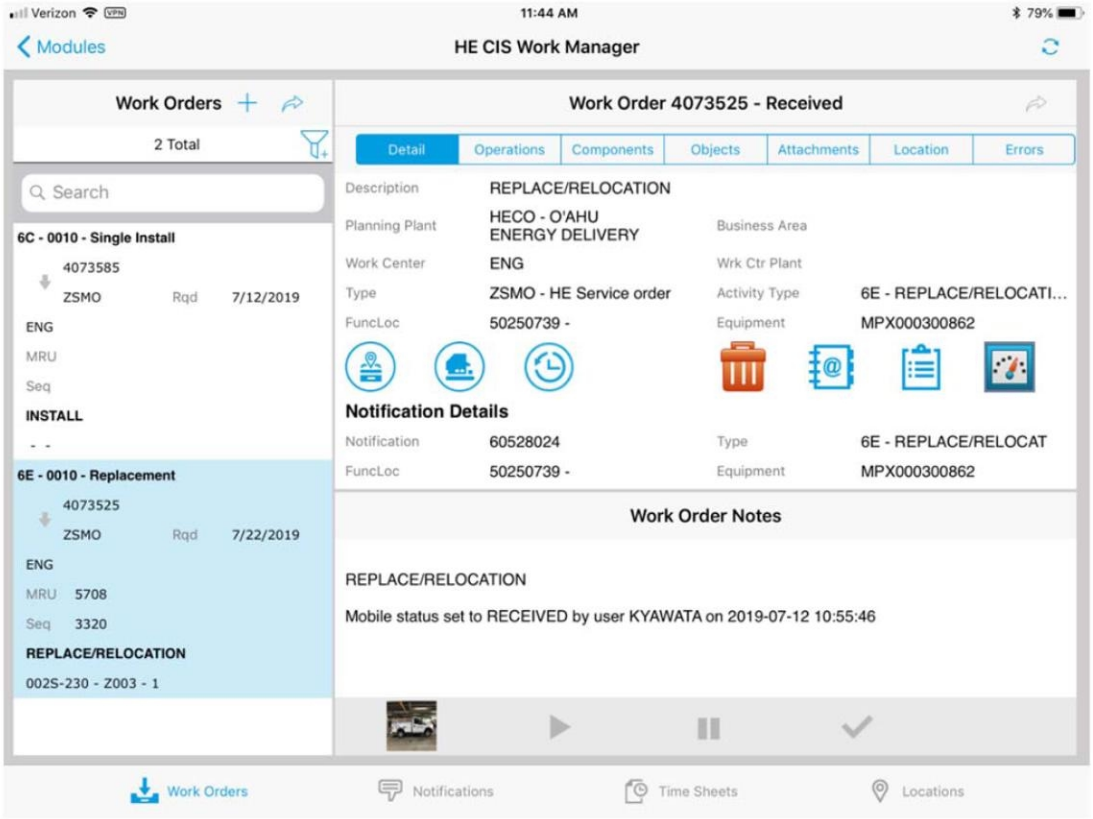
A. As mentioned earlier in this testimony, the CIOPA provides a platform for managing the full lifecycle of the Companies' business processes from design, implementation, and secure enablement (automation) in support of the Companies STP and the desired long-term outcomes of the Companies, its customers and stakeholders. As shown in the diagram below, the work of the CIOPA is a dynamic, continuous process improvement cycle that includes the evaluation of process performance, process improvement design, implementation of process change, and the execution of higher performing processes.



The efforts of the CIOPA help to reduce or contain costs through business process automation, effective project management and through the provisioning of technology that provides efficient access to the right information. This in turn helps remove or reduce labor costs, lowering the unit cost of business processes and

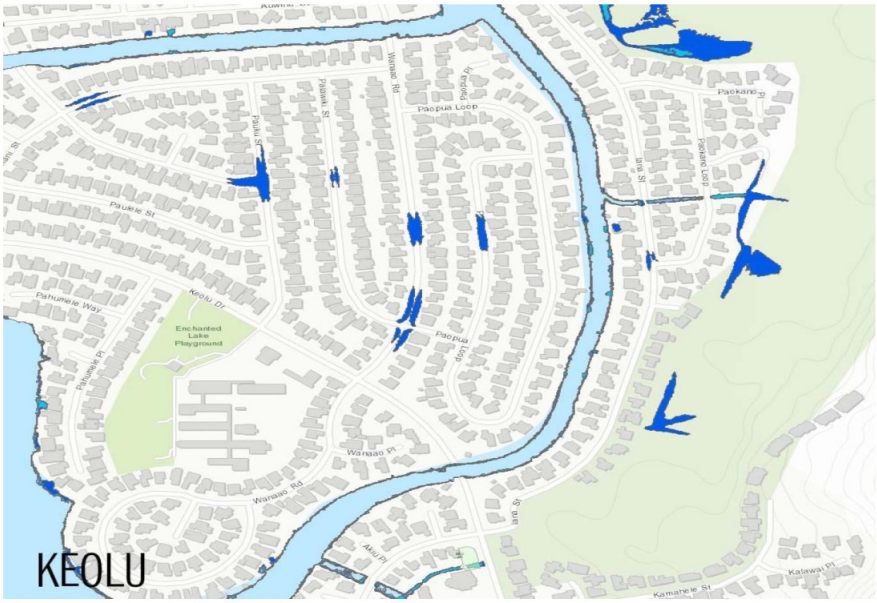
improving the cycle time of a business process to enable more responsiveness to customers and higher stakeholder efficiency, thereby reducing cost of service.

Services provided by the CIOPA, also enable access to data at the right time, by the right people at the right location, further enabling improved customer service, operational efficiencies and timely decision making. For example, the SAP Work Manager application, screen shot below, improves work efficiencies by providing real time information to crews in the field and allows them to associate pertinent information with the job such as notes, pictures, time spent working, etc.



The internally developed mobile map application does this by assisting the Companies' first responders and construction crews to locate and review distribution circuits when restoring service or performing maintenance work.

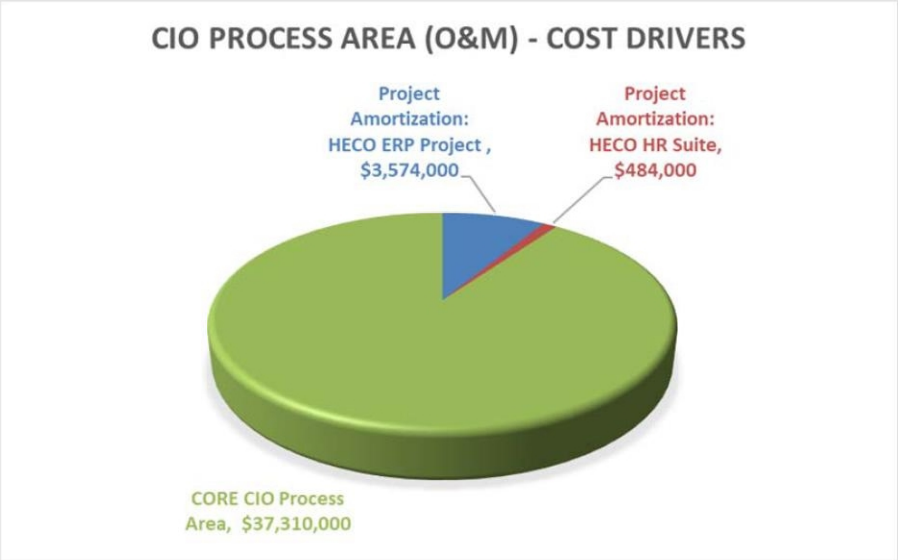
In addition the CIOPA, in collaboration with System Operations, supports the eGIS platform that enables the rapid development of other web applications that integrate external data sources with Company electrical facilities for employees, customers, and stakeholders. One example is the recently developed Sea Level Rise modelling map that provides information to employees that can be used when siting new facility locations or evaluating risk to existing facilities.



CIOPA TEST YEAR O&M EXPENSE ESTIMATE

Q. What is the 2020 test year O&M expense estimate for the CIOPA?

A. As shown in the figure below, the $41,368,000 (prior to -$1,812,000 in downward adjustments explained further below) in CIOPA costs for the 2020 test year for the Company consists solely of operations and maintenance ("O&M") expense in three major tranches:[4]



O&M - Core vs Amortization	Amount
Project Amortization: HECO ERP Project	$ 3,574,000
Project Amortization: HECO HR Suite	$ 484,000
CORE CIO Process Area	$ 37,310,000
Unadjusted 2020 Test Year O&M Estimate	**$ 41,368,000**

1) CIOPA Core Operating Budget: $37,310,000 in support of the core operating budgeting for the CIOPA (labor and non-labor)

2) Deferred Software Project Amortizations of $4,058,000 for the Hawaiian Electric portion of the amortization expense of previously approved and

[4] While CIOPA covers all of the Companies, Hawaiian Electric is only presenting its costs for the CIOPA area in this 2020 test year rate case.

completed Deferred Software projects. This includes $3,574,000 for the ERP/EAM Implementation Project ("ERP Project") (Docket 2014-0170) and $484,000[5] for the HRMS Project (Docket 2006-003).

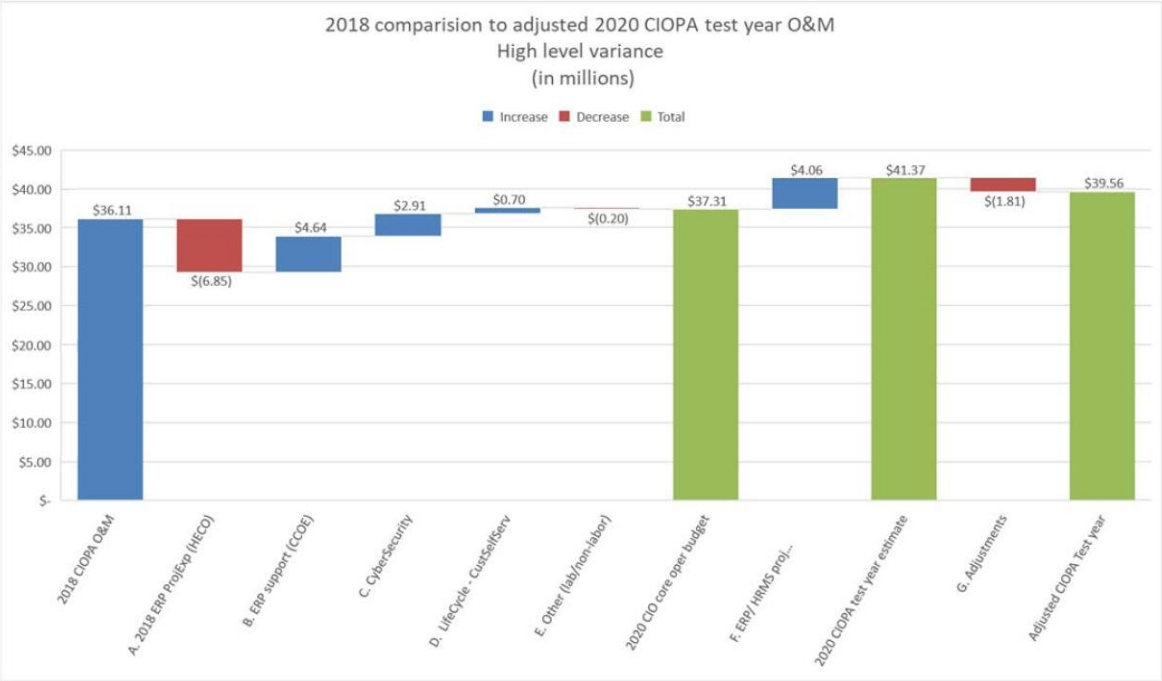
Q. What adjustments were made to the original 2020 test year estimate of CIOPA O&M expenses?

A. In order to arrive at the CIOPA adjusted 2020 test year O&M expense estimate of approximately $39,556,000, CIOPA made eight (8) adjustments (as shown in HECO-WP-1703) that taken together total to approximately -$1,812,000, including:

- A downward vacancy adjustment of approximately -$638,000 based on a corporate vacancy rate adjustment of 4.039%.[6]
- A downward adjustment of approximately -$462,000 to normalize the Application Management Services ("AMS") cost for ERP/EAM between 2020-2022, based on the remaining 2 years of the contract and the expected steady state costs in the final year (3) of the contract.
- Net normalization adjustments of $73,000 upward to account for:
    - The 2020 lifecycle upgrade of the Companies' Online Customer self service system (to maintain vendor support) in the amount of -$256,000 downward.
    - The expected 2021 onset of post implementation Grid Modernization systems software maintenance in the amount of $216,000 upward.

[5] Previously incurred and accounted for in the HR department, transferred to the CIO process area beginning in 2019, and accounted for in the O&M forecast for the Office of the CIO.
[6] See Mr. Trung Ha's testimony, T-15 for details on how the vacancy adjustment is determined.

1 ○ The 2021 lifecycle upgrade to maintain vendor support for the
2 Companies' Bill formatting software in the amount of $68,000 upward.
3 ○ The 2021 lifecycle upgrade to maintain vendor support for the
4 Companies' Geospatial information system $45,000 upward.
5 • A downward budget adjustment of approximately -$708,000 to reflect a revised
6 estimate for Data Analytics platform costs.
7 • A downward ERP/EAM benefits adjustment of -$78,000 related to the CIOPA
8 portion of Benefit Category No. 5 – Improved Vendor Contract Management
9 (Refer to HECO – 1507 for a more detailed explanation of this adjustment).
10 Q. How does the Company's adjusted 2020 test year CIOPA costs compare with 2018
11 recorded costs?
12 A. As shown in the table below, the adjusted 2020 test year estimate of approximately
13 $39,556,000 is higher than in 2018 by approximately $3,445,000 million due
14 primarily to the onset of the aforementioned deferred software project amortizations
15 and several key IT drivers, offset by the completion of the ERP Project.



The following factors provide a high level variance explanation between 2018 and the 2020 test year estimate:

1) **ERP Project completion and the elimination of project expenses**. In accordance with the Deferred Software Accounting policy and consistent with the approved ERP/EAM Implementation Project docket, certain project costs and the entire final phase (the three month hypercare phase following go-live) of the ERP Project were expensed as incurred. The Hawaiian Electric portion of these expenses were recorded in the CIO Process Area at approximately $6.85 million in 2018 and are zero in 2020.

2) **ERP Support.** As shown in the table below, SAP Customer Center of Excellence ("CCOE") support costs for the ERP/EAM system in the TY2020 estimate are approximately $4.64 million higher than the 2018 support cost for the legacy systems they replaced (including the Ellipse ERP system, Oracle

HRMS, and other systems) for several reasons. The most significant of which are highlighted in the table below.

ERP support - CCOE (round to 000s)							
WP-1704 NL ref	LI_Description	Labor cost basis	Non-Labor cost basis		Labor (O&M)	Non-Labor (O&M)	Total
Line 312	Application Maint Services (AMS)		$ 4,646,000	>>		$ 2,467,000	$ 2,467,000
	CCOE Xfer positions (17 ftes)	$ 3,620,000		>>	$ 1,853,000		$ 1,853,000
	CCOE incr positions (11 ftes)	$ 617,000		>>	$ 316,000		$ 316,000
						Total	$ 4,636,000

$2.467 million in non-labor O&M is included in the test year estimate for the second year of the signed AMS contract, which was filed as Attachment 5, Exhibit 1 in response to CA-IR-6 in Docket 2018-0368. Each successive year is based on year three of the contract (G17), which is the projected steady state of outside services for maintaining the operational state of the system (not including significant lifecycle work nor projects that significantly add or change functional scope of SAP), escalated by 2.2% annually.

Year	AMS Fees (Million USD)
2019	$ 6.01
2020	$ 4.64
2021	$ 3.33
Total	$ 13.98

$2.169 million in labor is included in the CIOPA test year estimate to account for CCOE support staffing. As reported in the MSR since January 2019 and through Docket No. 2014-0170 – ERP/EAM System Implementation Project Companies' Updated Response to Order Nos. 36259 and 36285 Attachment 4, the SAS ERP/EAM SAP support group grew by 28 positions in 2018. Seventeen of the 28 position were net neutral to the company as they were staffed via transferred positions from other process areas. An explanation of the CCOE staffing levels is provided later in this testimony.

For the last several years, Ellipse and HRMS have been in relative stasis (i.e. "life support"), first due to the anticipated ERP Project replacement, then followed by 2 years of implementation. During that time, abnormally low amounts of changes were being made. In some cases this was due to lack of vendor support for the old versions of software. Secondly, the SAP ERP/EAM is an integrated system of record that has a broader scope of functionality and scale of usage. For example, it supports greater automated workflows, electronic documents and access for a greater number and type of devices. Whereas the legacy Ellipse ERP systems was accessible primarily through windows desktop applications and limited to 200 concurrent users, the SAP ERP/EAM system is accessible by all employees through a variety of devices and methods including desktop, mobile, and the Web. The need for higher application management services in the short term is twofold; they are needed while internal staff become more proficient in the new technologies as well as to address the typical spike in requests associated with the new platform (See Incident and Service Request ticket trends in the HECO-SAS Overview exhibit.) Large scale changes to the way the Companies do business in those functional areas are being achieved through the new integrated SAP platform as evidenced by the $246 million in benefits that will be achieved and realized over 12 years. Support for these functions will provide the basis for further business optimization as it stabilizes and provides systematic baseline information that will lead to trackable improvements over time. Therefore, support for these new processes is critical.

3) Cyber security. As shown in the table below increased investment in Cyber security is needed to continue and accelerate the Companies' efforts to strengthen its cyber security for critical systems, operations, and customers to address the rising threat levels in parallel with the rapid convergence of IT, OT and Telecommunications systems (See Exhibit HECO-1716 Cyber Security Threat Environment). The most significant pertain to continuing and accelerating efforts to enhance and extend Cyber security capabilities to IT, OT, Telecommunications, and GridMod, at approximately $2.4 million as shown in the following table and explained further below:

Enhance and Extend Cyber Security Capabilities to IT/OT/Telecom/GridMod (round 000s)							
ref	Category (Serv1)	Labor cost basis	Non-Labor cost basis		Labor (O&M)	Non-Labor (O&M)	Total
a	Data Loss Prevention		$ 147,000	>>		$ 107,000	$ 107,000
b	EndPtProtection		$ 100,000	>>		$ 73,000	$ 73,000
c	Identity and Access Mgmt		$ 83,000	>>		$ 58,000	$ 58,000
d	Intrusion Prevention Sys		$ 496,000	>>		$ 358,000	$ 358,000
e	NOC monitoring	$ 908,000	$ 942,000	>>	$ 462,000	$ 603,000	$ 1,065,000
f	OT network inv		$ 170,000	>>		$ 90,000	$ 90,000
g	Sec Testing and Assessments		$ 808,000	>>		$ 429,000	$ 429,000
h	Security Tuning and Configuration Consultation		$ 200,000	>>		$ 106,000	$ 106,000
i	Vulnerability Mgmt		$ 181,000	>>		$ 115,000	$ 115,000
						Total	$ 2,401,000

The Companies' cyber security program is based on NIST Cyber Security Framework which incorporates continuous risk assessment and improvement. As a critical infrastructure provider for our customers and community, including for the state of Hawai'i, the major branches of the military, and INDOPACOM, the Company is a potential target for a variety of threat actors, including nation states. Attack vectors employed by these adversaries are increasingly sophisticated, designed to elude detection, move laterally, and maintain persistence. Concurrently, vulnerabilities and exploits are being discovered at an increasing rate while IT, OT and Telecommunications are converging and

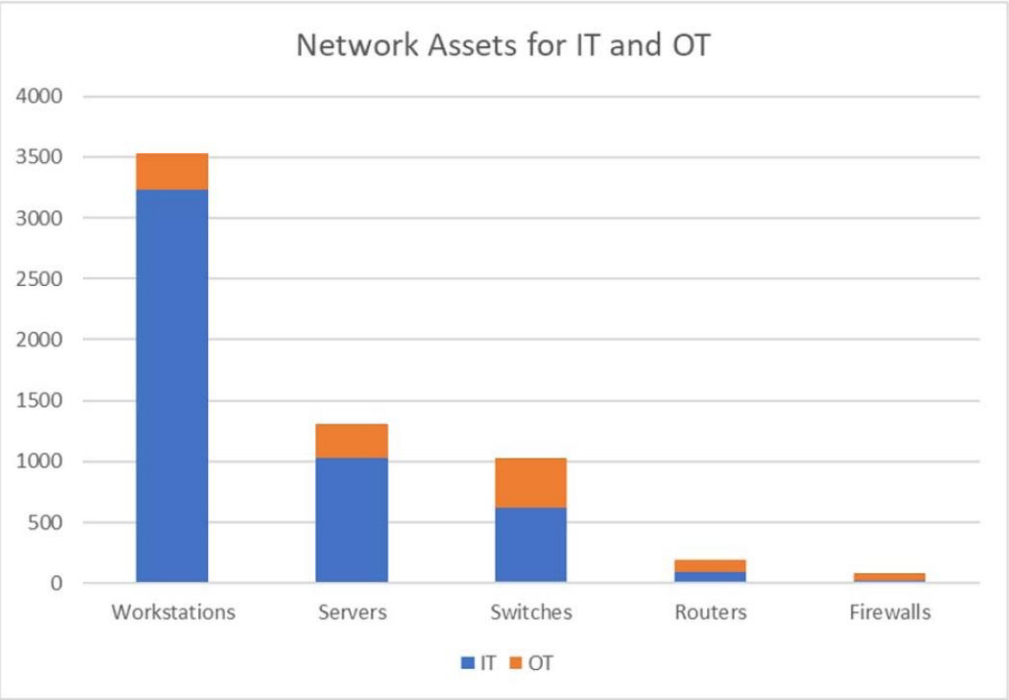
1 scaling up. OT systems and networks have and continue to become increasingly
2 interconnected and increasingly reliant on underlying commercial off-the-shelf
3 ("COTS") IT hardware and software platforms. As discussed above,
4 IT/OT/Telecommunications convergence drives the need for additional resources
5 to enhance and extend our Cyber security capabilities to these systems and
6 networks. There is no single static solution to mitigate this risk, rather the
7 Companies' cyber security program is based on Defense in Depth, layered
8 security, and a continuous risk assessment and improvement based on the NIST
9 cyber security program. As expressed in the 2017 testimony (see Docket No.
10 2016-0328, T-19, page 24-29) and consistent with the Department of Homeland
11 Security's ("DHS") "Seven Strategies to Defend Industrial Controls Systems
12 (ICS)"[7], the ongoing cyber security focus areas are to expand our capabilities to
13 mitigate common exploitable weaknesses in "as-built" control systems, telecom
14 systems, and grid modernization systems. This includes investments in highly
15 skilled resources, new in-house capabilities and third-party services, expanded
16 hours of operation and extended coverage of continuous monitoring by the
17 Network Operations (and Security) Center ("NOC"), and further segmentation of
18 network architecture to isolate and protect critical assets. As previously
19 mentioned, the Company has consolidated overall responsibility for
20 IT/OT/Telecommunication and Cyber Security under the CIO. This change will
21 enable the Company more effectively and efficiently manage Cyber security risk

[7] *See* HECO-1717

and accelerate its ongoing efforts to strengthen its Cyber security posture, including increasing its ability to continuously monitor IT/OT/Telecommunications network for anomalies (both operational and cyber) and extend its preventative controls laterally into OT networks and systems. As shown in the table below (based on a 2018 inventory that was limited to critical operational sites), this change consolidates responsibility for an increasing number of converged OT assets (i.e. OT assets that are increasingly using traditional IT platforms (Windows, Linux, TCP/IP)), from several areas of responsibility to a central authority, therein enabling the aforementioned acceleration of Cyber security improvements. Please also refer to Exhibit HECO-1716 Cyber Security Threat Environment.

	Workstations	Servers	Switches	Routers*	Firewalls	Active Directory Domains	Other converged assets
HECO OT	180	145	201	63	22	9	660
HELCO OT	39	51	90	19	29	1	225
MECO OT	82	85	113	18	6	1	261
Total	301	281	404	100	57	11	1146

The following table provides a high level view of the increased number of OT assets for which the Companies must extend and enhance cyber security capabilities relative to IT assets, based on the 2018 inventory of the most critical operational sites. Actual assets counts are expected to increase as IT/OT/Telecommunications convergence continues.



a. Data Loss Prevention ("DLP") is technology that manages, identifies and protects sensitive data, both at rest (encryption and policy enforcement) and in transit (e.g. the blocking of un-encrypted sensitive data in network transmission). Tools that automate the DLP process help us protect our customers' privacy as well as secure critical business and grid information. As shown in the table below, the test year estimate includes approximately $107K to acquire additional DLP system licenses for Grid Modernization and OT servers that store sensitive information.

Data Loss Prevention	Non-labor cost basis		Non-labor O&M
111: Data Loss Prev (Vmetric) SW lic - GMOD	$ 14,000	>>	$ 10,200
112: Data Loss Prev (Vmetric) SW lic - OT	$ 132,000	>>	$ 96,100
114: Data Loss Prev (Vmetric) SW maint - GMOD	$ 1,200	>>	$ 600
Grand Total	**$ 147,200**		**$ 106,900**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

b. Endpoint Protection ("EPP") involves software that hardens the security of the endpoint devices. This includes antivirus, anti-spyware, personal firewall,

and other exploit prevention tools. This technology helps protect against attackers that threaten the confidentiality, integrity, and availability of our endpoint assets. As shown in the table below, the test year estimate includes approximately $73K for the EPP enhancement and extension, including approximately $70K for new EPP software specifically designed for mitigation of attacks against Active Directory threats.

End Point Protection	Non-labor cost basis		Non-labor O&M
115: Active Directory EPP SW lic- IPS	$ 96,259	>>	$ 70,100
116: EndPtProtect SW lic- GMOD	$ 2,800	>>	$ 2,000
119: EndPtProtect SW lic maint - GMOD	$ 1,400	>>	$ 700
Grand Total	**$ 100,459**		**$ 72,800**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

c. Identity Access Management ("IAM") systems help to manage electronic or digital identities within an organization and ensure that people within an organization have access to the appropriate data and systems, based on the principle of least privileged access. Privileged Access Management ("PAM") tools are a subset of what the company defines as IAM tools and help manage and protect the administrative accounts that possess the elevated rights that are coveted by attackers. As shown in the table below, the test year estimate includes $58K for extending PAM into our OT and Grid Modernization networks.

Identity and Access Management	Non-labor cost basis		Non-labor O&M
121: Priv Acct Mgmt (PAM) SW Lic - OT	$ 71,000	>>	$ 51,600
125: Priv Acct Mgmt (PAM) SW maint - GMOD	$ 12,000	>>	$ 6,400
Grand Total	**$ 83,000**		**$ 58,000**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

d. Intrusion Prevention System ("IPS") monitors the network for suspicious activity, block malicious activity, and report any findings. Cyber security threat

actors are becoming more sophisticated, requiring a corresponding increase in the sophistication of the tools and capabilities needed to detect threats and prevent attacks. The Company employs multiple layers of IPS tools across our networks to help monitor, contain, and remediate cyber security intrusions. As shown in the table below, the test year estimates includes $357K to extend the suite of IPS tools used by the Companies to our OT and Grid Modernization networks.

Intrusion Prevention System	Non-labor cost basis		Non-labor O&M
129: IPS-FirewallMgmt (AlgoSec) - SW lic - GMOD	$ 5,300	>>	$ 3,900
130: IPS-FireEye - SW lic- GMOD	$ 2,400	>>	$ 1,700
131: IPS-FirewallMgmt (AlgoSec) - SW lic - OT	$ 90,000	>>	$ 65,500
132: IPS-Network Access Control (NAC) - SW lic - OT	$ 100,000	>>	$ 72,800
133: IPS - SecureVPN (SWd) - SW lic - OT	$ 21,600	>>	$ 15,700
134: IPS-FireEye - SW lic- OT	$ 72,000	>>	$ 52,400
135: IPS - WebFilter - SW lic - OT	$ 187,000	>>	$ 136,100
145: IPS-FirewallMgmt (AlgoSec) - SW maint - GMOD	$ 300	>>	$ 200
146: IPS-Network Access Control (NAC) - SW maint - GMOD	$ 6,000	>>	$ 3,200
147: IPS-FireEye - SW maint- GMOD	$ 1,200	>>	$ 600
148: IPS - SecureVPN (Xced) - GRIDMOD	$ 10,000	>>	$ 5,300
Grand Total	**$ 495,800**		**$ 357,400**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

e. NOC Monitoring tools enable our NOC to monitor our networks for cyber security incidents and network anomalies. As shown in the table below, the test year estimate includes $603K to extend NOC monitoring into OT and Grid Modernization environments, including extending our security information and event management ("SIEM"), insider access threat monitoring, and network mapping tools.

NOC Monitoring	Non-labor cost basis		Non-labor O&M
155: NOC monitoring - Network Map (Nbrain) - SW lic - OT	$ 160,000	>>	$ 116,500
156: NOC monitoring - SIEM(SPNK) - SW lic - OT	$ 361,000	>>	$ 262,800
160: NOC monitoring - Access Control Analytics (Varns)	$ 420,000	>>	$ 223,000
162: NOC monitoring - Network Map (Nbrain) - SW maint - GMOD	$ 1,400	>>	$ 700
Grand Total	**$ 942,400**		**$ 603,000**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

In addition, the test year estimate includes $462K of incremental labor to support expanded hours of operation and coverage of our network and security operations center, explained further in this testimony.

f. OT Network Inventory was collected from the most critical operational sites in 2017-2018. As shown in the table below, the test year estimate included approximately $90K for ongoing work to continue and maintain the OT network inventory and develop secure baseline configurations for OT assets.

OT Network Inventory	Non-labor cost basis		Non-labor O&M
166: OT network (baseline config)	$ 169,950	>>	$ 90,200
Grand Total	**$ 169,950**		**$ 90,200**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

g. Security Testing and Assessments are an important part of the Companies Cyber security program, helping to identify risks and assess the effectiveness of controls, thereby driving the prioritization of cyber security improvement plans. Given the myriad of cyber threats that all organizations are facing and the limited resources to mitigate all risks, these security tests and assessments provide insight into the most vulnerable areas for us to target endeavors. As shown in the table below, the test year estimate includes an incremetnal $429K in the area of security testing and assessments to remediate high-priority risks and continue efforts to further segment our IT and OT networks based on lower-priority recommendations from previous assessments.

Security Testing and Assessments	Sum of Amt		Non-labor O&M
102: Network Seg - Design and Implement - OT	$ 283,250	>>	$ 150,400
106: Network Seg - Analysis NetFlow capture and analysis - OT	$ 96,000	>>	$ 51,000
107: POAM - Remediation of TOP RISK	$ 429,000	>>	$ 227,800
Grand Total	**$ 808,250**		**$ 429,200**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

h. Security Tuning and Configuration Consultation As shown in the table below, the test year estimate includes approximately $106K to tune and update our security systems. Security appliances typically have a broad range of sophisticated capabilities and configuration options that can be optimized for different threats, attack vectors, security requirements, and operational environments. This configuration and ongoing periodic tuning benefits from professional consulting services with specialized knowledge to properly optimize each system, particularly following major upgrade releases or hardware upgrades from the security appliance vendor.

Security Tuning and Configuration Consulting	Sum of Amt		Non-labor O&M
110: Security Tuning and Config Services - IPS filters	$ 200,000	>>	$ 106,200
Grand Total	**$ 200,000**		**$ 106,200**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

i. Vulnerability Management systems help proactively monitor, detect, and mitigate vulnerabilities in the IT environment. A vulnerability management tool can help to identify known weaknesses and map out the appropriate remediation method. These tools can also help identify and prioritize needed software patches or weak configuration on devices, that need remediation. As shown in the table below the test year estimate includes $115K to extend the Companies vulnerability management tools to OT and Grid Modernization network and

systems and to implement an enhanced threat intelligence solution that is integrated with our network equipment to better protect the Companies' assets.

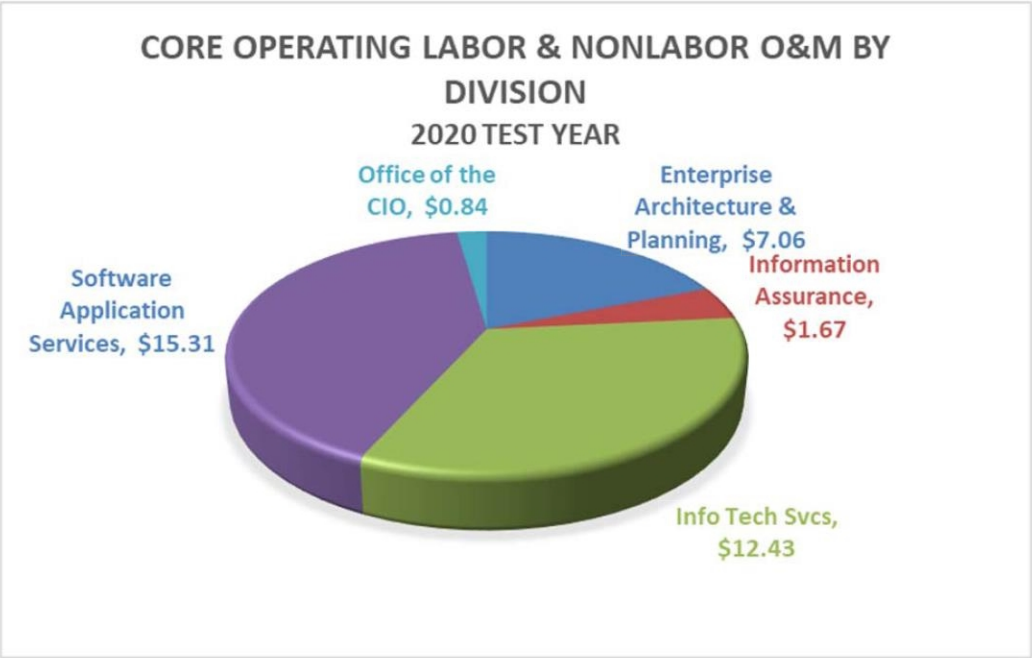
Vulnerability Management	Sum of Amt		Non-labor O&M
171: Vulnerability Mgmt (10able) SW lic - GMOD	$ 19,000	>>	$ 13,800
172: Vulnerability Mgmt (10able) SW lic - OT	$ 76,000	>>	$ 55,300
175: Vulnerability Mgmt (10able) SW maint - GMOD	$ 3,420	>>	$ 1,800
98: Threat Intelligence (CSCO THREAT GRID) - subscription	$ 82,992	>>	$ 44,100
Grand Total	**$ 181,412**		**$ 115,000**
* Prefix numbers correlate to HECO-WP-1704 line numbers			

4) Application Lifecycle Management (online customer self service) The test year estimate includes approximately $700K to address lifecycle support issues and enhance the Companies' Utility Customer E-Service ("UCES") system (ref HECO-WP-1704 pg.37-38 UID 318 and 327). The UCES application was implemented together with the CIS system in 2012 and it is due for a lifecycle upgrade in 2020 given impending desupport dates

CIOPA CORE OPERATING BUDGET

Q. What costs are included in the CIOPA core operating budget of $37,310,000 (prior to the aforementioned -$1,812,000 in downward adjustments) for the 2020 test year estimate?

A. The CIOPA core operating budget for the 2020 test year estimate includes the labor and non-labor O&M for each of the divisions and the Office of the VP- CIO as shown below (in millions).



As explained in HECO-1710 CIOPA costs in the Hawaiian Electric Test year estimate represent the unallocated residual portion of O&M of total CIOPA related labor and non-labor costs (less direct capital programs and deferred SW project costs) incurred by the Hawaiian Electric CIO process area (Cost Basis). The O&M estimate for labor and non-labor for each division is summarized below with more detailed support provided in HECO-WP-1704.

Q. What costs are included in the Information Technology & Services ("ITS") Division core operating budget of $12,434,800 for the 2020 test year estimate?

A. The ITS core operating budget for the 2020 test year estimate includes the resulting labor and non-labor O&M from the IT allocation process for the cost centers shown in the following table and described below. Details regarding labor and non-labor estimates by cost center and by cost element are provided in HECO-WP-1704.

ITS division Cost	Labor (cost basis)	NL (cost basis)		Labor OM	NL OM
101103A: Cyber Security Operations (PEI1)	$ 2,057,000	$ 3,921,700	>>	$ 1,047,500	$ 2,381,600
101104A: Network - Data & Telephony (PEI2)	$ 4,470,100	$ 3,792,200	>>	$ 2,275,600	$ 2,038,900
101105A: Desktop Architecture & Services (PET1)	$ 2,816,400	$ 1,898,900	>>	$ 1,431,400	$ 1,063,900
101106A: Service Desk (PET2)	$ 423,100	$ 706,800	>>	$ 213,600	$ 375,300
101108A: Records Management (PEC1)	$ 395,800	$ 449,100	>>	$ 200,200	$ 238,400
101109A: Printing Services (PEC2)	$ 484,800	$ 583,600	>>	$ 246,400	$ 309,900
101110A: Mailing Services (PEM)	$ 1,119,100	$ 82,300	>>	$ 567,400	$ 43,700
Total	**$ 11,766,300**	**$ 11,434,688**	**>>**	**$ 5,982,100**	**$ 6,451,700**

- 101103A: Cyber security Operations includes labor and non-labor for managing the cyber security operations for the Hawaiian Electric Companies including Network Operations Center ("NOC") staff who are responsible for monitoring network and cyber security events throughout the corporate network and extending through the OT network. It also includes are the IT security administration staff who are responsible for managing network access and control. Also included is the non-labor associated with cyber security operational tools and software licenses, software maintenance, hardware maintenance, and outside services.
- 101104A: Network – Data & Telephony includes Labor and non-labor associated with managing and supporting the Companies' IT data and voice network for the wide area network ("WAN"), local area network ("LAN") and datacenter server infrastructure. This includes the routers, switches, servers and data storage that the Company relies on for business operations.
- 101105A: Desktop Architecture and Services includes labor and non-labor for configuring, managing, and supporting the end user computing environment. This includes all personal computers, laptops, mobile devices and associated productivity applications, as well as, collaborative communication technology, such as video and data conferencing.

- 101106A: Service Desk includes labor and non-labor for providing first level help desk support and service request management for general IT services.
- 101108A: Records Management includes labor and non-labor charges for managing the official records of the Hawaiian Electric Companies. This includes paper shredding, physical records storage fees, microfilm services, and electronic records software.
- 101109A: Printing Services includes labor and non-labor associated with managing the Companies' printer fleet, print shop services, and customer utility bill printing and handling.
- 101110A: Mailing Services includes labor and non-labor for the Companies' interoffice and external mailing services.

Q. What costs are included in the SAS division's core operating budget of $15,309,400 for the 2020 test year estimate?

A. The SAS core operating budget for the 2020 test year estimate includes the labor and non-labor O&M from the cost centers shown in the following table and described below. Details regarding labor and non-labor estimates by cost center and by cost element are provided in HECO-WP-1704.

SAS division Cost	Labor (cost basis)	NL (cost basis)		Labor OM	NL OM
101114A: Operations Applications (PEG)	$ 3,210,300	$ 1,510,700	>>	$ 1,665,500	$ 815,600
101124A: ERP Systems (PEW)	$ 5,692,900	$ 6,286,500	>>	$ 2,899,300	$ 3,337,800
101125A: Customer Systems (PEX)	$ 3,709,600	$ 3,252,000	>>	$ 1,923,700	$ 1,755,600
101126A: Quality Integration & Database Svcs(PEY)	$ 2,082,800	$ 3,487,600	>>	$ 1,060,100	$ 1,851,800
Grand Total	**$ 14,695,600**	**$ 14,536,800**		**$ 7,548,600**	**$ 7,760,800**

- 101114A: Operations Applications (PEG) includes Labor and non-labor for supporting the operations applications for which the SAS department is responsible for including the enterprise Geospatial Information System ("eGIS"),

Outage Management System ("OMS"), and Demand Response Management Systems ("DRMS"). It also includes labor and non-labor for supporting web and workgroup applications and the Companies' websites and intranet. It does not include support for OT systems that have a material control function for Grid operations and generation such as the Companies' Energy Management System (EMS-SCADA) or plant Distributed Control Systems ("DCS").

- 101124A: ERP systems (PEW) includes labor and non-labor costs for managing the ERP/EAM modules of the Companies' SAP platform and the associated peripheral and workgroups applications. This includes support for Human Capital, Supply Chain, Finance, Work, and Asset Management.
- 101125A: Customer Systems (PEX) includes labor and non-labor for managing the Companies' Customer Information System modules of the Companies' SAP system and the associated peripheral and workgroup applications. These systems are used to manage customer information, complex and varying light & power billing schemas, non-energy related fees, credit and collection functions, online/web services, and voice based services (IVR).
- 101126A: Quality, Integration & Database Services (PEY) includes labor and non-labor for critical middleware integrations, database administration, software quality assurance, and an emerging need for improved data analytics across multiple system landscapes.

Q. What costs are included in the IA division's core operating budget of $1,665,800 for the 2020 test year estimate?

A. IA's core operating budget for the 2020 test year estimate includes the labor and non-labor from the cost centers shown in the following table and described below. Information Assurance division costs generally include costs associated with the oversight of the Companies' cyber security program including strategy, policy, architecture, governance, collaboration with external parties, awareness programs, and risk and threat analysis. Cyber security operational costs are generally included in the ITS budget and the appropriate operational business units. Details regarding labor and non-labor estimates by cost center and by cost element are provided in HECO-WP-1704

IA division Cost	Labor (cost basis)	NL (cost basis)		Labor OM	NL OM
101111A: Cyber Security Policy (PEJ1)	$ 558,700	$ 477,600	>>	$ 286,800	$ 253,600
101112A: Cyber Security Threat Analysis (PEJ2)	$ 650,700	$ 1,493,900	>>	$ 332,200	$ 793,200
Grand Total	**$ 1,209,400**	**$ 1,971,500**		**$ 619,000**	**$ 1,046,800**

- 101111A: Cyber security Policy includes labor and non-labor related to development of Cyber Programs and Plans from IA including, SOX compliance, NIST alignment, Plan of Action & Milestone (POAM) management, and awareness and training.
- 101112A: Cyber security Threat Analysis includes labor and non-labor related to security assessments, testing, incident response, and forensic analysis.

Q. What costs are included in the EAPD's core operating budget of $7,064,600 for the 2020 test year estimate?

A. EAPD's core operating budget for the 2020 test year estimate includes primarily internal labor costs, associated non-labor costs for internal staff, and limited non-labor costs for key projects or external expertise needed to deliver services as previously described in exhibit HECO-1701. The bullets below provide EAPD's

costs in a view that matches EAPD services. The current cost center structure of the underlying EAPD costs is a direct reflection of the historical organizational setup and allocations prior to the reorganization. The enterprise designation in the table below being the former EPE cost centers, while CIO designations represent the areas from the former ITS department. Details regarding EAPD's labor and non-labor estimates by cost center and by cost element are provided in HECO-WP-1704.

EAPD division Cost	Labor (cost basis)	NL (cost basis)		Labor OM	NL OM
101115A: Ent Planning & Architecture (PEF1)	$ 390,300	$ 390,200	>>	$ 390,300	$ 390,200
101116A: CIO Planning & Architecture (PEF2)	$ 750,200	$ 22,200	>>	$ 385,100	$ 11,800
101117A: Enterprise Portfolio & Business Services	$ 1,133,000	$ 197,300	>>	$ 1,133,000	$ 197,300
101118A: CIO Perf Finance & Vendor Mgmt (PEV2)	$ 1,410,600	$ 31,400	>>	$ 719,000	$ 16,600
101119A: Enterprise Execution (PEP1)	$ 1,685,100	$ 239,700	>>	$ 1,685,100	$ 239,700
101120A: Ent Bus Process & Cont Improv (PEP2)	$ 773,000	$ 29,100	>>	$ 773,000	$ 29,100
101121A: CIO Project & Program Mgmt (PEP3)	$ 803,700	$ 26,100	>>	$ 410,100	$ 13,900
101122A: CIO Bus Process & Cont Improv (PEP4)	$ 609,500	$ 13,200	>>	$ 310,300	$ 7,000
101123A: Ent Knowledge Management (PEK)	$ 335,200	$ 17,900	>>	$ 335,200	$ 17,900
Grand Total	**$ 7,890,600**	**$ 967,100**		**$ 6,141,100**	**$ 923,500**

- Enterprise Architecture and Planning costs are contained in the 101115A and 101116A cost centers that supports the overall EAPD management and administration, and the EA services provided to the Companies. This includes support of business and technical architecture, CIO strategy and planning, business and technical roadmaps, IT standards and design.
- Enterprise Project Management costs are contained in portions of 101119A and 101121A cost centers that supports the delivery of enterprise and IT project management services as previously described above.
- Enterprise Business Analysis and Continuous Improvement costs are contained in 101120A and 101122A cost centers that support the delivery of business analysis and continuous improvement services as previously described above.

- Enterprise Portfolio Management and Performance Benchmarking costs are contained in the 101117A cost center that supports the delivery of enterprise portfolio management and performance benchmarking services. This includes the facilitation and support of enterprise governing structures for project prioritization and approvals, coordination of transformation initiatives, and coordination of the Companies' key performance metrics.
- Enterprise PM and BA/CI Knowledge Management costs are contained in the 101123A cost center that supports the delivery of PM and BA/CI Knowledge Management services. This includes training supply and materials costs in support of conducting PM/BA/CI training courses on all islands, and for the functional support and maintenance of PM and BA/CI tools and resource centers.
- CIO Business Services and Enterprise IT Vendor and License Management Services are contained in the 101118A cost center that supports the internal CIO services across the CIOPA for financial and regulatory services, and enterprise wide IT contract and license management services. This includes managing the CIOPA's expense monitoring, budgets and forecasts, rate case support and preparations, contract lifecycle management, and internal or external license audits.
- The Business Continuity Program costs are contained in a portion of the 101119A cost center that supports the management and coordination of the program to ensure connectivity to existing incident plans, improvement of such plans, and/or the addition of prioritized new plans across limited resources. It also includes general staff non-labor costs, and external contract costs to provide expertise in the implementation and support of the business continuity management framework.

Q. What costs are included in the Office of CIO division core operating budget of $836,400 for the 2020 test year estimate?

A. The Office of the CIO core operating budget for the 2020 test year estimate includes the labor and non-labor from the 101100A cost center. This includes labor for the CIO and administrative assistant and non-labor for certain outside services that are shared across the divisions of CIO Process Area. As previously explained, this cost center also contains the amortization amounts for the completed ERP projects and the HR Suites Project (transferred from the HR department). Details regarding labor and non-labor estimates by division and cost elements are provided in HECO-WP-1704.

Office of the VP/CIO	labor (O&M)	nonlabor(O&M)	Total
101100A: VP CIO (P3W) - Core	490,700	345,700	836,400
101100A: VP CIO (P3W) - ERP & HRMS project amort	-	4,058,500	4,058,500
Total	**490,700**	**4,404,200**	**4,894,900**

ERP/EAM NET APPLICATION AND SUPPORT COSTS (BENEFIT CATEGORY 10)

Q. How do the relevant costs included in the test year estimate compare with ERP/EAM Implementation Project's Benefit Category 10 – Net Application and Support Costs Scenario 2 ("Scenario 2 baseline") as explained in Docket 2014-0170 and subsequently confirmed in Order number 36449 dated August 1, 2019?

A. As shown in the table below, the pertinent costs (shown in cost basis prior to allocation to O&M) in the test year estimate (prior to adjustments) are lower than Scenario 2 baseline by approximately $1.4M:

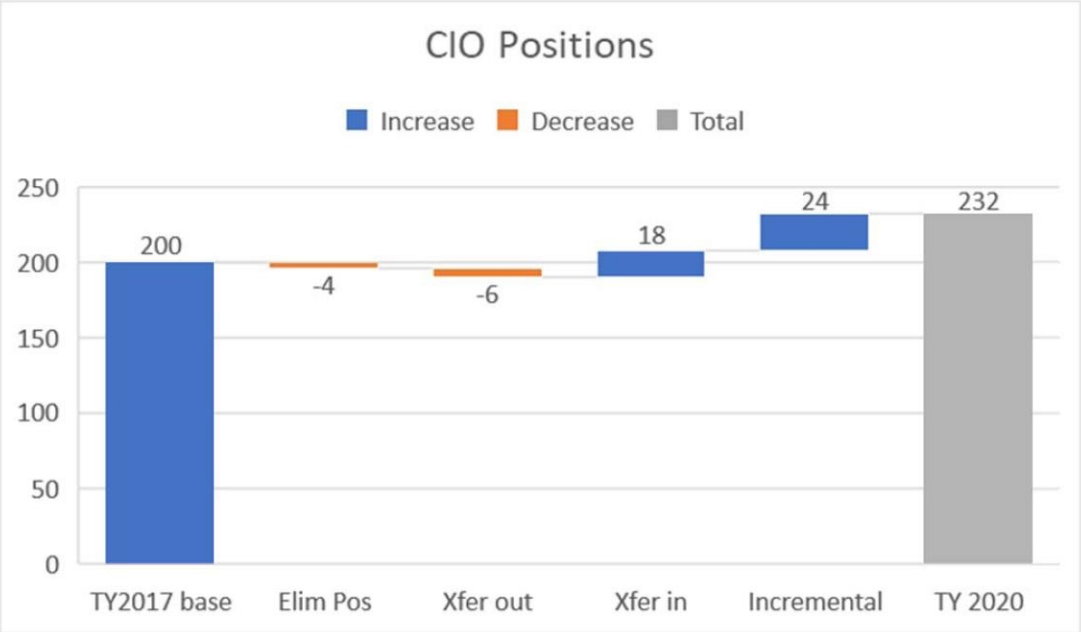
	Net App Benefits Baseline	Test Year Cost Basis	Variance
Labor	$ 9,580,220	$ 9,046,650	$ (533,570)
Non-Labor	$ 10,244,897	$ 9,373,282	$ (871,615)
Total	$ 19,825,116	$ 18,419,932	$ (1,405,184)

HECO-WP-1707 Benefit 10 Scenario 2 Costs to 2020 Test Year Reconciliation, provides a reconciliation of the Scenario 2 baseline costs to the CIO test year estimate. As expressed in Order 36449 (Docket 2014-0170), the $33.1 million in Benefit Category 10 - Net Application and Support Costs benefit is tracked in a separate methodology from the other 9 benefit categories. Scenario 2 represent the relevant subset of IT support costs that were used to provide a baseline comparison for benefits calculation that captured the cost difference between the integrated SAP platform and the converse "best of breed" approach. This includes support costs for the SAP ERP/EAM system and the SAP Customer Information Systems ("CIS"); collectively known as the SAP CCOE.

CIOPA HEADCOUNTS

Q. Please provide a summary of CIOPA's full staffing levels projected for 2020 TY compared with total CIOPA positions given in TY2017.

A. The chart and table below shows the projected full staffing levels for 2020 compared with 2017 Test year positions.



Type	Description	Count	Ref in other Dockets
a. TY2017	2017 RC baseline positions	**200**	
b. Elim Pos	Eliminated positions	**-4**	
c. Xfer out	Transfer of Mapping functions	**-6**	Docket 2018-0368*
d. Xfer in	CCOE transfer from other business units	**17**	Docket 2018-0368*
d. Xfer in	Director OT	**1**	
e. Incremental	CCOE incremental positions	**11**	Docket 2018-0368*
e. Incremental	Cyber Security NOC staffing for 24x7 operations	**6**	Docket 2018-0368*
e. Incremental	GridMod system support positions	**4**	
e. Incremental	Director Telecom	**1**	
e. Incremental	Business Continuity Planning (BCP)	**2**	
	TY 2020 budgeted positions	**232**	

*Refer to Docket 2018-0368, CA-IRs 116, 221, 222, 250, 312, 316, 319, 357, and 391

Q. Please describe the duties and explain the need for the 17 CCOE transfers and 11 incremental CCOE positions.

A. As reported in the MSR since January 2019 and through Docket No. 2014-0170 – ERP/EAM System Implementation Project Companies' Updated Response to Order Nos. 36259 and 36285 Attachment 4, the SAS ERP/EAM SAP support group grew

by 28 positions in 2018. Seventeen of the 28 positions were net neutral to the company as they were staffed via transferred positions from other process areas. The transferred positions had been located within various business units to support the old Ellipse and Oracle HRMS systems and consolidated within the SAS division to support the new SAP ERP/EAM system. Eleven of the 28 positions were incremental adds needed primarily to provide new types of support not previously provided under the old systems. Specifically, a new dedicated SAP Help Desk was created, two full time trainers were hired, and several work management positions were created since much of the ERP/EAM benefits will be achieved through work management improvements.

Q. Please describe the duties and explain the need for the four incremental Grid Modernization system support positions shown in the table above.

A. As noted in Docket 2018-0141, the application for Phase 1 of the Grid Modernization Project, page 14 of Exhibit B, under "Operations and Maintenance Costs" additional staff would be needed to support the system. The test year estimate includes 4 additional FTEs to provide that support. This includes three FTEs in the SAS division. Two of the three will provide application support for the new Meter Data Management System which will communicate at a regular frequency and on-demand with a projected 175,000 meters. The other SAS FTE will support the databases required to manage the massive data volumes associated with the smart meters, about 3000 more data points per month per meter (30 days/month • 24 hours/day • 4 reads/hour = 2,880 reads/month whereas today residential meters are typically read once per month). It also includes one additional position in the

ITS division to provide server infrastructure support for the approximately 40 new servers that are needed for the Phase 1 Grid Modernizations systems such as MDMS, customer portal, and AMI headend.

Q. Please describe the duties and explain the need for the additional six staff positions for the Cyber Security NOC.

A. The Network and Security Operations Center (NOC) was initiated in 2018 to guard against cyber security threats and maintain network availability. The NOC helps to monitor, prevent, assess, and respond to the ever-increasing cyber security threats. The NOC's staff main duties are as follows:

- Real-time network and system monitoring to detect anomalous activity, both malicious and operational (availability and performance)
- Rapidly respond to malware threats that can spread in minutes
- Ability to recover quickly from a malicious attack such as DDoS
- Log aggregation from disparate systems
- Centralized reporting
- Visualization of security status
- Support Post-incident investigation and analysis
- Vulnerability and patch management

The NOC currently has six positions that run in shifts on a 12 hours by 7 day schedule. The increase in the six additional staff positions would allow the NOC to run 24 hours by 7 days a week. This would further strengthen the Companies' cyber security efforts to secure the IT and OT networks.

Q. Please describe the duties and explain the need for transferred OT Directors and incremental Telecom Director.

A. Please see the explanation of these two positions earlier in this testimony.

Q. Please describe the duties and explain the need for the incremental BCP positions.

A. In 2017, the Companies completed their Business Continuity Planning Project in which critical non-operating areas were identified and prioritized to mitigate business and customer risk by establishing their individual business continuity plans in the case of a localized outage (e.g., building outage, localized area flooding). As part of that project, it was recommended that an enterprise wide function to unite all business continuity and incident management plans was needed. Therefore, the Business Continuity Program was established with responsibility to facilitate and coordinate, under a fully integrated enterprise-wide business continuity management framework, all incident plans across the Companies. Responsibility for this program was assigned to CIOPA in early 2018 and the Companies added two incremental resources in EAPD to manage and execute the program's activities and deliverables; which include the facilitation, prioritization, and creation of risks assessments, business impact analysis, incident plans, and the annual testing of such plans.

Q. Please describe the mapping positions transferred out of the IT department as reflected in the CIOPA test year estimate, where these positions were transferred to, and the reasons for the move.

A. In January 2015, the information technology departments from Hawaiian Electric, Maui Electric, and Hawai'i Electric Light were consolidated into one group under the Information Technology & Services (ITS) Division. At that time, certain

positions that performed non-IT mapping and functional GIS support functions at Hawai'i Electric Light and Maui Electric fell under the information technology area. Subsequently, in January 2019, a new division called Geospatial and Asset Operations was formed in System Operations to align and consolidate those responsibilities across the Companies. The CIOPA 2020 CIOPA test year estimate reflects the related transfer of these six positions out of the CIOPA.

Q. Please describe any positions that were eliminated and the efficiencies gained by the reduction in headcounts.

A. A total of four positions were eliminated between 2018 and 2019. These positions are described below:

- IT Program Manager (OAS Operations) – To reduce costs within the OAS department three teams were consolidated into two in March of 2019 and one supervisor position was eliminated.
- Director, Business Process Improvement (Director, EPE, Knowledge) – In an effort to optimize and to make consistent the delivery of enterprise wide Continuous Improvement services with IT business solution consultant services, and to rebalance director level span of control, the creation of the EAPD optimized resources across the consolidated groups, resulting in the elimination of this management position.
- Lean Six Sigma Black Belt – In the consolidation of like positions across business process improvement, IT business solution consultants, and lean six sigma black belts, and in the need to meet optimization targets, this position was eliminated.

- Office Services Supervisor – In an effort to consolidate and streamline reporting, the Office Services and Mailing Services teams were combined into one team under an Office Services Program Manager position. This allowed us to eliminate the need for the Office Services Supervisor position and flatten that portion of the organization.

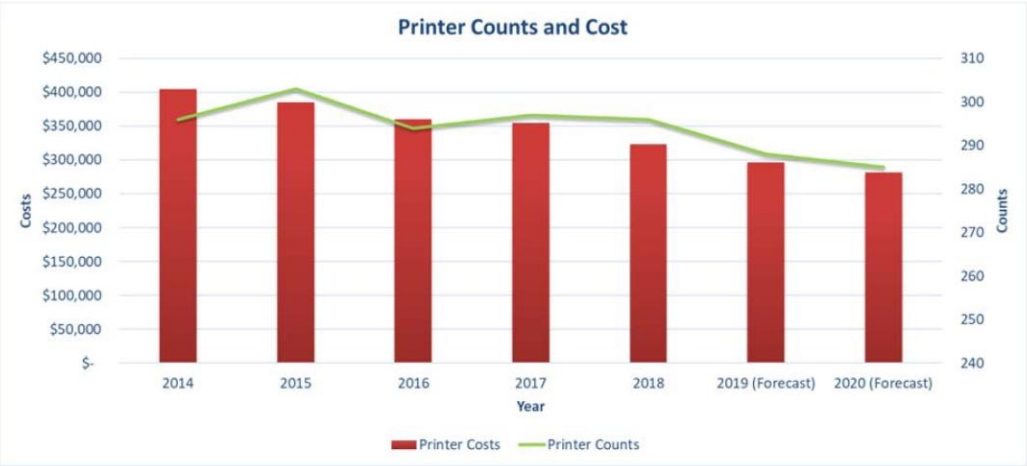
EFFICIENCY AND COST CONTAINMENT MEASURES

Q. What has the CIOPA been doing to contribute to internal efficiencies and contain costs to the benefit of customers?

A. As mentioned earlier in my testimony, the CIOPA provides a platform for managing the full lifecycle of the Companies' business processes from design, implementation, and secure enablement (automation). The efforts of the CIOPA help to reduce or contain costs through business process improvement, automation and through the provisioning of technology that provides efficient access to the right information. This in turn helps remove or reduce labor costs, lowering the unit cost of business processes and improving the cycle time of a business process to enable more responsiveness to customers and higher stakeholder efficiency, thereby reducing cost of service. For example:

- Implementing, integrating, and supporting the enterprise information systems that automate business processes and enables access to information in support of making timely business decisions, including the ERP/EAM system that will deliver a minimum of $246 million dollars in benefits to customers over 12 years (See testimony of Mr. Trung Ha, HECO T-15).

- Internal CIO Organizational optimizations including the aforementioned elimination of four positions resulting in approximately $743,300 in cost reductions (see HECO-1715).
- Ongoing efforts to improve internal CIS support capabilities have resulted in an increase in internal staff knowledge and expertise over the last few years. This has allowed SAS to continue to drive down outside services for staff augmentation and external consulting support to an estimated $560K in the test year. As noted in Docket 2016-0328 CA-IR-290, CIS consulting support costs were $2.85 million in 2016, an 80% reduction in four years.
- Ongoing efforts to encourage electronic documents and reduce printing has further lowered costs associated with work group printing. Additionally, the overall number of printers have been reduced due to the consolidation of facilities at Hawaiian Electric. As show in the figure below, there is a steady decrease in the cost of work group printing.



- Institutionalizing Continuous Improvement based on Lean Six Sigma, including training of more than 1600 LSS White Belts, 450 LSS Yellow Belts, and 300

LSS Green Belts has resulted in the execution of more than 80 improvement events since 2017.

- Promulgating best practice in project and portfolio management, based on Project Management Institute (PMI) standards through training and the facilitation of project governance across the Companies, including training more than 2000 in project management of which 64 were certified Project Management Professionals. This has resulted in faster processing of project initialization and authorization requests, as well as greater stability in project execution.

CAPITAL EXPENDITURES

Q. Please give an overview of the CIOPA's 2020 test year capital budget.

A. The ITS Department is the only CIOPA department with capital costs in its budget. As summarized in Table 1 below, the ITS Department's capital budget consists of lifecycle IT programs that: (1) maintain and enhance Hawaiian Electric's data center and network infrastructure; and (2) provide the workforce with assets that support employee productivity and communications.

Program	Amount ($ in Millions)
PO001000.01 Miscellaneous Office Equipment	0.30
PO.001000.02 IT Infrastructure	1.78
PO.001000.03 Collaborative Communications	0.19
PO.001000.04 Client Computing	2.42
PO.001000.05 Printer/Copier	0.44
PO.001000.06 Miscellaneous Telephone	0.88
TOTAL	6.01

Q. Please describe the IT programs.

A. The IT capital programs are described below:

- **PO.001000.01 MISCELLANEOUS OFFICE EQUIPMENT**

  The Miscellaneous Office Equipment program is needed to provide equipment that is associated with mailing services, records management services, and other miscellaneous IT equipment that may be required. These include lifecycle replacement of our mail inserter machines, postage metering machines, large format scanners, and other IT equipment. These also include capital budgets to accommodate new initiatives such as bulk scanners and microfilm digitization hardware for conversion to electronic records.

- **PO.001000.02 IT INFRASTRUCTURE**

  The IT Infrastructure program is needed to maintain and enhance Hawaiian Electric's data center and network infrastructure and includes costs to accommodate the growth in and lifecycle of the server fleet, networking equipment, and electronic storage, as required to meet the Companies' business needs. For example, acquiring and maintaining: (1) servers to support enterprise systems; (2) network equipment; (3) the core telephone system; (4) data center environmental equipment; and (5) electronic storage.

- **PO.001000.03 COLLABORATIVE COMMUNICATIONS**

  The Collaborative Communications program is needed to enable the Company to communicate effectively both internally and externally. This program includes lifecycle and new purchases of video conferencing equipment, conferencing telephone equipment, screen/data sharing devices, and other collaboration equipment such as large TV displays.

- **PO.001000.04 CLIENT COMPUTING**

The Client Computing program is needed to provide the workforce with assets that are managed as part of the Client Computing environment and support employee productivity and communications. It includes costs to accommodate growth and lifecycle of that environment; including desktop PCs, laptops, mobile devices, and peripherals.

- **PO.001000.05 PRINTER / COPIER**

  The printer and copier program is needed to provide equipment that can produce hardcopy output or scanned images. This program allows the Company to replace aged printers and plotters when those devices have reached their end-of-life. It also allows for new devices to be deployed especially to accommodate new facility needs.

- **PO.001000.06 MISCELLANEOUS TELEPHONE EQUIPMENT**

  The core hardware appliances that provide telephone service needs to be replaced on a cycle of every 5 to 6 years to ensure continued support from the manufacturer. The replacement cost of includes new hardware including servers, media gateways, circuit boards as well as current firmware version. Updated equipment and software would allow the Companies to maximize the customer experience such as IVR, call intelligence, call routing to ensure reliable communications.

CONCLUSION

Q. Please summarize your testimony.

A. The CIOPA plays a critical role in addressing Hawaiian Electric's major business challenges, including achieving a 100% Renewable Portfolio Standard, attaining industry leading customer service, addressing cyber security threats that are growing at an exponential rate, while transforming the Companies' business model into one that will be sustainable through the 21st century.

The CIOPA adjusted Test Year 2020 O&M expense estimate of approximately $39,556,000 reflects an increased reliance on IT and other services provided by the CIOPA to deliver reliable and resilient electric service, conduct core business operations and to deliver on the Companies' strategic transformation for the benefit of customers and the community.

Q. Does this conclude your testimony?

A. Yes, it does.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Chief Information Officer Process Area
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HAWAIIAN ELECTRIC COMPANY, INC.

JASON E. BENN

EDUCATIONAL BACKGROUND AND EXPERIENCE

Present Employer:	Hawaiian Electric Company, Inc. 900 Richards Street Honolulu, HI 96813	
Current Position:	Chief Information Officer and Vice President, Information Technology & Services	
Years of Service:	22 Years	
Education:	Bachelor of Science in Business Administration (1995) Oregon State University Corvallis, OR	
Previous Positions:	2010-2017	Hawaiian Electric Company, Inc. Manager, Information Technology and Services
	2007-2010	Hawaiian Electric Company, Inc. Director, Information Assurance
	2001-2007	Hawaiian Electric Company, Inc. Infrastructure Program Manager
	2000-2001	Hawaiian Electric Company, Inc. Desktop Supervisor
	1997-2000	Hawaiian Electric Company, Inc. Lead Network Analyst

HAWAIIAN ELECTRIC COMPANY, INC

ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

Aligned with the Companies transformation strategy to optimize services, the Enterprise Architecture & Planning Division ("EAPD") was formed by the consolidation of various existing CIO positions and departments in late 2018. This included: 1) various Information Technology ("IT") project/portfolio management ("PM") and business analysis/continuous improvement ("BA/CI") positions that were consolidated with the Enterprise Performance Excellence ("EPE") department; and 2) other existing IT departments/positions whose services were aligned with cross departmental support for CIO strategic, business, and regulatory services. All these components existed separately in 2018 and through the initial months of 2019 before they were finally reorganized into the EAPD.

For simplicity and clarity, the functions and accomplishments of these components are discussed by service categories: 1) Enterprise Architecture services; 2) Business Analysis & Continuous Improvement Services (combination of EPE, and IT business solution consultants and process analysts); 4) Enterprise Project Management Services (combination of the Enterprise and IT Project Management Offices); 5) Enterprise Portfolio Management services; 6) PM & BA/CI Knowledge Management services, CIO Business Services, and Enterprise IT Vendor & License Management services. Additionally, a new Business Continuity Program was also established in early 2018 because of the Companies' need to unify incident management capabilities against various threats (e.g., cyber-attacks, electrical outage, oil spill, building outages) across the Companies' limited resources and inclusive of all units supporting the identified critical processes at risk. The resulting new division leverages synergies across a now more integrated CIO organization that continues to support and improve these services to drive enterprise-wide performance excellence.

Rationale for Consolidation and the Increase in Demand of Services

The Companies have been on their transformation journey since 2014[1]; culminating in greater movement to adopt optimization and new business strategies that resulted in broad organizational changes post-merger docket[2] in 2016 (e.g., One Company initiative driving tri-company organizational re-structuring). Additionally, across the Companies, 2017 and 2018 had company resources heavily involved with activities supporting the ERP/EAM Implementation Project (e.g., having to maintain the existing processes and systems, while implementing the new). Therefore, as part of the Companies' continuing transformation in 2019, the CIOPA has taken steps to further integrate its resources to promote greater optimization, and to fundamentally shift the prior EPE department's focus from primarily teaching/mentoring into increasing direct execution (e.g., fewer resources dedicated to training classes or mentoring sessions, and shifting resources to directly support getting more work done). The impetus to do

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[1] Order No. 32052, Exhibit A: Commission's Inclinations on the Future of Hawaii's Electric Utilities ("Commission's Inclinations") issued on April 28, 2014, in Docket No. 2012-0036.

[2] See Docket No. 2015-0022, Order No. 33795 regarding the request to conduct a business merger between the Companies and NextEra Energy.

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this is not only aligned to the Companies' overall optimization objectives but also to address the following:

1. Increasing demand on project management, portfolio management, business process analysis and continuous improvement services, with the approval of the Companies' Grid Modernization Strategy, the increase in Cybersecurity risks, and the need to balance limited resources in support of the Companies' improvement activities.
2. Increasing pressure to deliver more results with the same or less resources.
3. Increasing need to support greater standardization, and therefore, greater transparency towards establishing and monitoring actionable key performance indicators, as the Companies deliver on ERP/EAM benefits realization and prepares for the shift to performance-based regulation.
4. The need to simplify and standardize the internal process in which the CIO's internal customers ("Clients") engage CIO services.

The Company's process improvement,[3] project management, and portfolio management activities and practices have been rapidly changing over the past several years primarily due to the increasing number of events, projects/programs, and transformation initiatives that the Company has undertaken in accordance with the Strategic Transformation Plan that looks to address modernizing infrastructure, renewables and business improvements.[4]

As illustrated below in Figure 1, there continues to be a rising number of enterprise (large complex, high risk, highly cross functional, and/or transformational) and IT project requests from 2017 through 2020. These requests have not only increased in number but have also increased in complexity and cross-functional integration.

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[3] For this document, the terms "continuous improvements", "process improvements", and "business analyses" are used inter-changeably to mean collectively "improvements" or "changes" made to simplify, or to make more efficient, or to clarify, or to automate processes.

[4] The number of projects is derived from the count of Ellipse P-numbered (pre-ERP/EAM go-live) and of SAP capital or deferred projects that have active spending in any given year. This number does not include Transformation Initiatives and/or CI events that are not formalized as P-numbered projects or as SAP projects.

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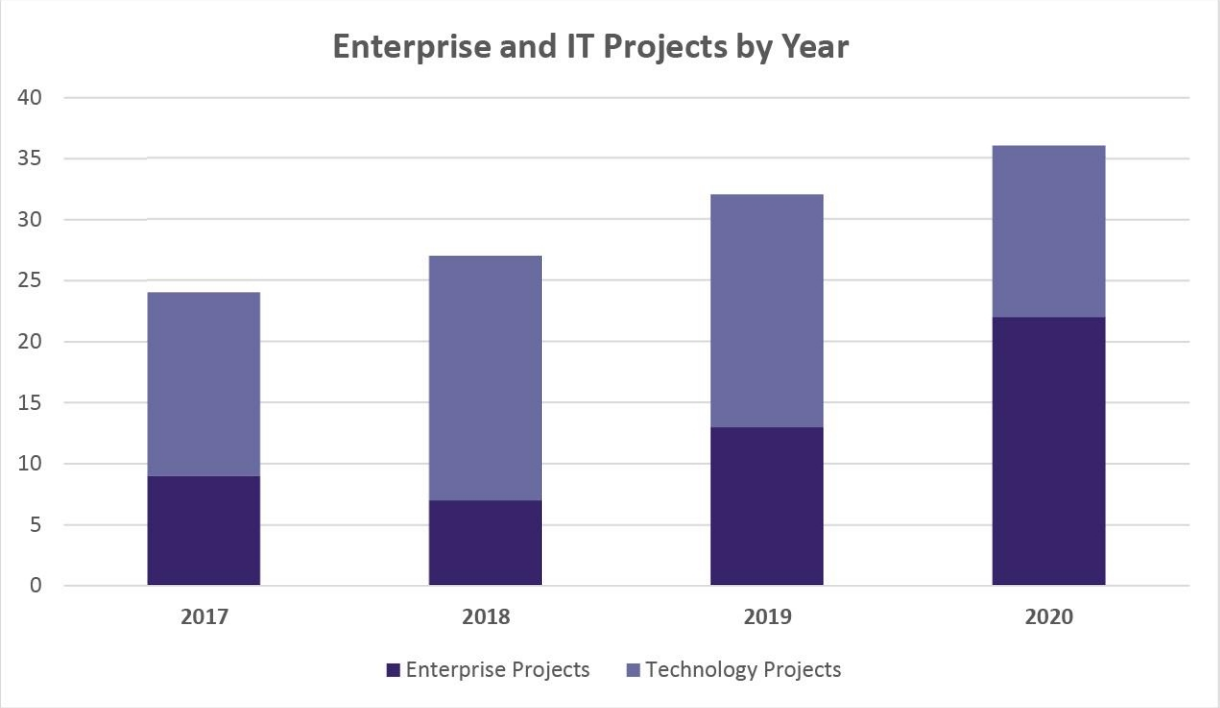
Figure 1- Total Number of Directly EAPD run Enterprise and IT Projects by Year



*counts in 2020 is a combination of existing inflight projects that is expected to carry over to 2020 and the estimated additional projects that are currently expected to start in 2020.

With this context, the EAPD was therefore established to create a more optimized division that integrates its services within the CIO process area while continuing to support the enterprise.

EAPD Service Descriptions and Accomplishments

Overall, the collection of positions and departments equated to a total of 47 full time equivalents ("FTE"s) in 2017 (as approved in the HECO TY2017 rate case). The creation of the new EAPD results in the ability to keep the pool of resources flat at 47 FTEs while taking on incremental work. Additionally, costs were also controlled via the re-leveling of positions (i.e. fewer director level positions and the removal of a vice president level position). Figure 2 below provides the high-level description of services provided by EAPD. These services are categorized as either demand based or core operations. Capacity to deliver demand-based services is normally structured with base internal FTEs and coupled with variable externally contracted staff augmentation FTEs. This is primarily because demand for such services can be variable over time depending on the amount of service requests received. Alternatively, core services are on-going steady state activities with a high predictability of the volume of work.

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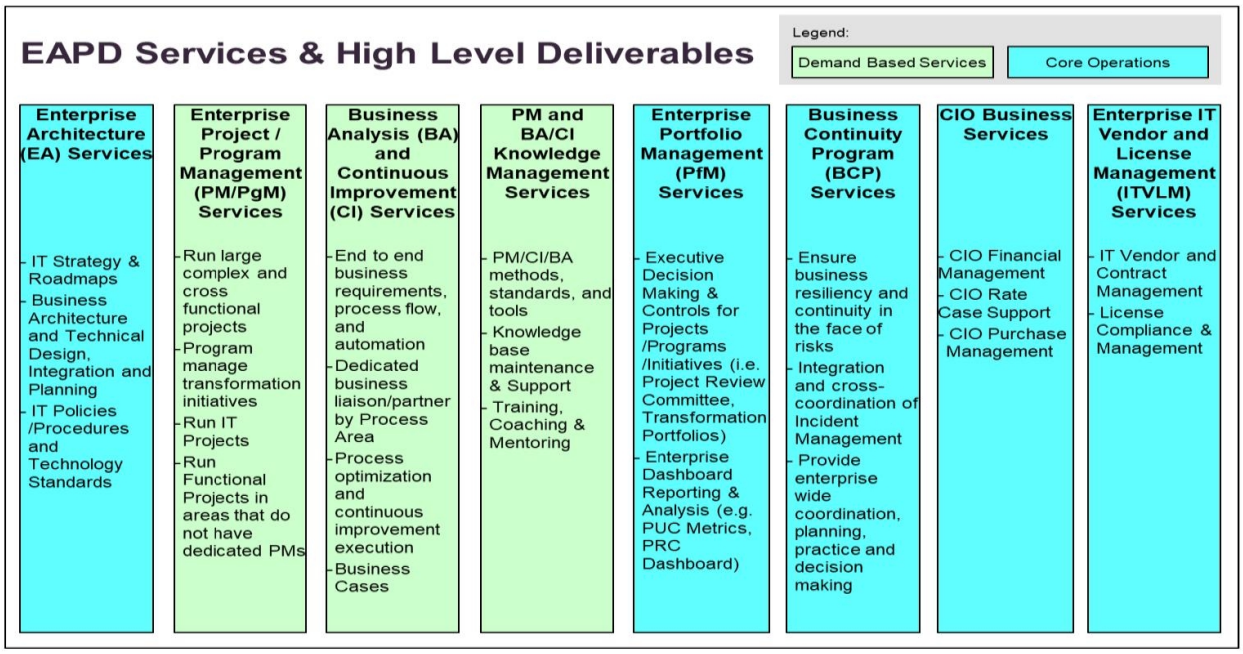
Figure 2- EAPD Services & High-Level Deliverables



The follows section provides additional details about each service and their current accomplishments.

A. **Enterprise Architecture Services**

The Companies are in the initial process of adopting an enterprise architecture practice that is aligned with the cross-industry standards supported by The Open Group[5] and applied in adopting the TOGAF standard.[6]

According to the Open Group,

"The purpose of Enterprise Architecture is to optimize across the enterprise the often fragmented legacy of processes (both manual and automated) into an integrated environment that is responsive to change and supportive of the delivery of the business strategy.

Today's CEOs know that the effective management and exploitation of information and Digital Transformation are key factors to business success, and indispensable means to achieving

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[5] The Open Group is a global consortium that enables the achievement of business objectives through technology standards. It has a membership of more than 700 organizations including customers, systems and solutions suppliers, tool vendors, integrators, academics, and consultants across multiple industries. See https://www.opengroup.org/ for more information on the Open Group.

[6] The TOGAF standard is a standard of the Open Group that provides a proven Enterprise Architecture methodology and framework used to improve business efficiency. See https://publications.opengroup.org/standards/togaf/specifications/c182 for information on the TOGAF standard.

competitive advantage. An Enterprise Architecture addresses this need, by providing a strategic context for the evolution and reach of digital capability in response to the constantly changing needs of the business environment.

For example, the rapid development of social media, Internet of Things, and cloud computing has radically extended the capacity of the enterprise to create new market opportunities.

Furthermore, a good Enterprise Architecture enables you to achieve the right balance between business transformation and continuous operational efficiency. It allows individual business units to innovate safely in their pursuit of evolving business goals and competitive advantage. At the same time, the Enterprise Architecture enables the needs of the organization to be met with an integrated strategy which permits the closest possible synergies across the enterprise and beyond."[7]

The utility industry like many other industries is disrupted by technology shifts that drive the increase of information and transformational digitization of the business. This is evident in the Companies transformation journey to becoming the modern utility of the future; that is an integrated service provider of consumers, prosumers and producers of electrons and its associated products and services. Additionally, the Companies need to conduct this change in reasonable and prudent manner that is supportive of both customers and shareholders.

By establishing the practice, Enterprise Architecture will align technology standards and investments with business strategies and capabilities, through the creation of published strategies, standards, guidelines and roadmaps that seek to provide clarity on the Companies' current state, their target state, and identified gaps that need to be overcome. By providing this clarity, the Companies' will mitigate the risk of being locked into proprietary technologies, will help utilize resources more efficiently and effectively, while realizing a greater return on investment.

While still in its infancy, Enterprise Architecture service is currently focused on conducting technical design reviews of new technology requests, and/or major modifications of existing technologies. Additionally, this service recently established the Data & Analytics Governing Group, to support: 1) the standardization of key data elements; 2) the creation and maintenance of relevant data policies (e.g., privacy, sharing); 3) the business capability of analytics; and 4) the prioritization of analytic investments.[8] Overall to-date this service has processed over 227 requests of which 30 are currently open in progress.

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[7] The Open Group, TOGAF Standard, Version 9.2, Part 1, Introduction, Section 1.3 – Executive Overview. Online HTML version.

[8] The Companies is a member of the Utilities Analytics Institute, which is a consortium of utility experts supporting the development and maintenance of data analytics governance and standards. See https://utilityanalytics.com/ for more details on Utility Analytics Institute.

HAWAIIAN ELECTRIC COMPANY, INC

ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

B. **Enterprise Project Management Services**

This service continues to provide direct project management expertise for: 1) enterprise projects; 2) IT projects; and 3) projects/programs from process areas that do not have dedicated project/program managers. It is led by 1 manager with 10 FTEs who provide direct oversight of such initiatives/projects/programs by being the assigned Enterprise/IT Project Manager. Demand from this service continues to increase as the Companies have undertaken more complex and larger interdependent initiatives/projects/program, and as there is an increase in IT projects (e.g., Windows 10 Upgrade, Microsoft SQL Server Upgrade Project). To a smaller extent, the FTEs in this area also continue to provide limited PM coaching and mentoring services on an as needed basis.[9]

This service also continues to provide direct initiative/project/program management for various transformation initiatives. For example, this includes directly staffing the Project or Program Manager role in the following initiatives/projects/programs - ERP/EAM Implementation Project, ERP/EAM Benefits Realization Program, Grid Modernization Program projects (i.e., Meter Data Management System Implementation Project, Advance Distribution Management System Implementation Project), Demand Response Management System Implementation Project, One Company Initiative, Enterprise Data Analytics & Governance Initiative.

This service increases project management transparency and proactive risk management, resulting in a decrease in project overruns and failures.

C. **Business Analysis & Continuous Improvement Services**

This service provides CIO business account planning, business case development, business analysis and continuous improvement services. It is designed to help simplify the internal Client engagement process, to support process optimization whether from a simple manual continuous improvement event through to highly complex process automation, and to facilitate Clients through the governing processes in which their business cases and/or CI events are approved and prioritized.

This service is led by 1 manager and 9 FTEs who support driving process efficiency and productivity into the Companies via process improvement methodologies that utilize a structured discovery and problem-solving approach coupled with change management practices. This team practices Lean Six Sigma[10] and Business Analysis[11] capabilities and their primary intent is to

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[9] PM coaching and mentoring refers to the pairing of EPM resources with internal PM clients to provide on the job training.

[10] The Companies have adopted a combination of the Lean and Six Sigma continuous improvement practices as guided by the Lean Enterprise Institute ("LEI") and the American Society of Quality (ASQ). The Lean Enterprise Institute Inc. is a 501(c)(3) nonprofit with a mission to make things better through lean thinking and practice. LEI conducts research, teaches educational workshops, creates publications, runs conferences, and shares practical information about lean thinking and practice. See https://www.lean.org/ for more information on LEI. ASQ is a

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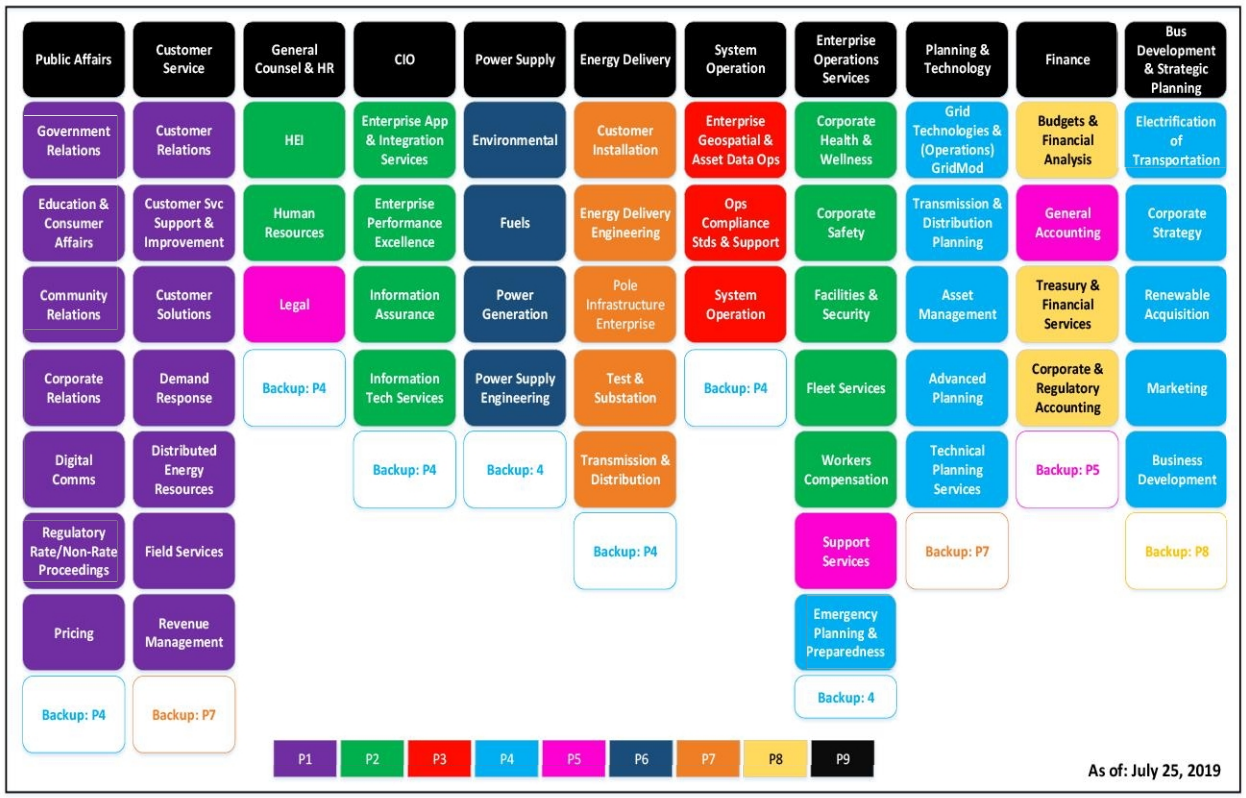
demonstrate / implement such process improvements via direct engagements; while providing limited coaching and mentoring to other like practitioners external to the EAPD.

This team provides process support across the entire Company. Figure 3 below provides the general process area groupings supported by individual assigned FTEs. The coverage is broad, and they are primarily process integrators. Specialization to a supported technology is handed off to the appropriate CIO division once processed.

Figure 3 - Process Area Groupings



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not-for-profit membership association for quality practices whose mission is punctuated by making quality a global priority, an organizational imperative, and a personal ethic. ASQ seeks to become the community for everyone who seeks quality concepts, technology, or tools to improve themselves and their world. ASQ provides quality certifications, standards, and networking opportunities to share best practices. See https://asq.org/ for information on the American Society for Quality.

[11] The Companies have adopted Business Analysis capabilities as certified by the International Institute of Business Analysis ("IIBA"). The IIBA is a non-profit professional association serving the growing field of business analysis. As the global thought leader and voice of the business analysis community, IIBA® actively supports the recognition of the profession, and works to maintain global standards for the ongoing development of the practice and certifications. See https://www.iiba.org/ for further information on the International Institute of Business Analysis.

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This service directly processes on average approximately 18 CI events or business analysis assignments a year. For example, FTEs are assigned as dedicated "business process leads" or "change management leads" on major projects like the ERP/EAM Implementation Project. In this case, EAPD staffed the change management lead role on the project. The department also processes on average 20 business cases annually by providing an external unbiased view to the process areas that are undertaking such proposed process improvements. It also processes approximately 468 service tasks annually. Service tasks are smaller task like activities that are needed in support of the engagement between the CIO service areas and its Clients. This includes supporting Clients through the annual IT capital budget request process for IT equipment or responding to a Client's request that may not be very clear as to which CIO service should be responding, or general questions about CIO services.

D. **Enterprise Portfolio Management & Performance Benchmarking Services**

This service is the combination of two related services described below. It is led by one manager and 4 FTEs who facilitate the enterprise governing structures used to approve and monitor the Companies' major investments.

Enterprise Portfolio Management Services

This service supports the Companies' federated enterprise project management capability in providing standardized portfolio management oversight and governance over the Companies' initiative, project and program initialization, authorization and prioritization processes. This includes the facilitation and coordination of the enterprise projects portfolio and transformation initiatives. The governing structures managed and facilitated by this service includes the IT Governance Group ("ITGG"), the executive Project Review Committee ("PRC") and the Transformation Management Portfolios ("TMPs").[12] It is through this service that the Companies performs its overall review, prioritization, and monitoring to realize investments in the major initiatives and capital/deferred expenditures.

For example, the PRC provides enterprise management and oversight of capital/deferred projects and programs, fuels contracts and power purchase agreements. On average, approximately 100 projects are reviewed through the PRC annually. This represents all capital projects that are greater than $2 million, and/or any high-risk projects deemed by executives needing PRC oversight. In support of the PRC, a PRC Dashboard was established to provide for monitoring of the key capital / deferred projects/programs. Additionally, EAPD also continues to improve the project business case process by further automating the submission and review of such cases. The project business case review process is implemented not only for the PRC reviewed projects, but for all capital and deferred projects.

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[12] See Docket No. 2016-0328, HECO-1301 for details on the Transformation Management Office and its Transformation Program. See HECO-1303 for current details on the STP.

HAWAIIAN ELECTRIC COMPANY, INC

ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

Additionally, the ITGG reviews and approves technology related business cases as well as technology and security policies. Key reviews with approvals totaled 4 for 2017, 10 for 2018 and has already reached 11 for the first half of 2019 with 2 in progress.

Enterprise Performance Benchmarking Services

This service provides the consolidation and reporting on the Company's Key Performance Metrics as published on the Company's internet website.[13] In order to increase the efficacy of measuring performance, a common taxonomy of processes and the associated key metrics needed to be established within the enterprise yet outwardly aligned to the appropriate external comparisons available in the utility industry. Agreement and acceptance of a common taxonomy that aligns internally as well as externally will take time and since the industry is transforming, there are also metrics that are not yet common or established. As the companies move further toward Performance Based Regulation ("PBR")[14], the service is important to the continued development and operationalization of candidate and approved metrics.

In line with the Business Analysis & Continuous Improvement standards and to provide both internal as well as external comparisons, the EAPD utilizes its American Productivity & Quality Center and the Gartner/Corporate Executive Board memberships to acquire and/or participate in external benchmarks. This also provides access to peer members, and to their standardized process and project management benchmarking information. Additional utility industry specific information is also acquired from the Electric Power Research Institute.

E. **Enterprise PM & CI Knowledge Management Services**

This service provides for access to centralized PM and CI/BA training, standards, processes, templates and tools, that are aligned to industry best practices as provided by the internationally based independent non-profit Project Management Institute ("PMI")[15] and ASC.

This service is supported by 2 FTEs who currently manage and maintain the Companies' PM and CI/BA methodology, processes and tools. This includes supporting the iterative process in which consistent methods, processes and tools are updated and evaluated for effective use among practicing project managers and business process analysts. EAPD provides certified PM training, such that the training courses provided throughout the year count towards official credit

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[13] See https://www.hawaiianelectric.com/about-us/key-performance-metrics for further details on the Company's published metrics.

[14] See Docket No. 2018-0088 for details on the development of the Performance Based Regulation.

[15] The PMI is the world's largest not-for-profit membership association for the project management profession. Its professional resources and research empower more than 700,000 members, credential holders and volunteers in nearly every country in the world to enhance their careers, improve their organizations' success and further mature the profession. PMI's worldwide advocacy for project management is reinforced by its globally recognized standards and certification program, extensive academic and market research programs, chapters and communities of practice, and professional development opportunities. See https://www.pmi.org/ for information on the Project Management Institute.

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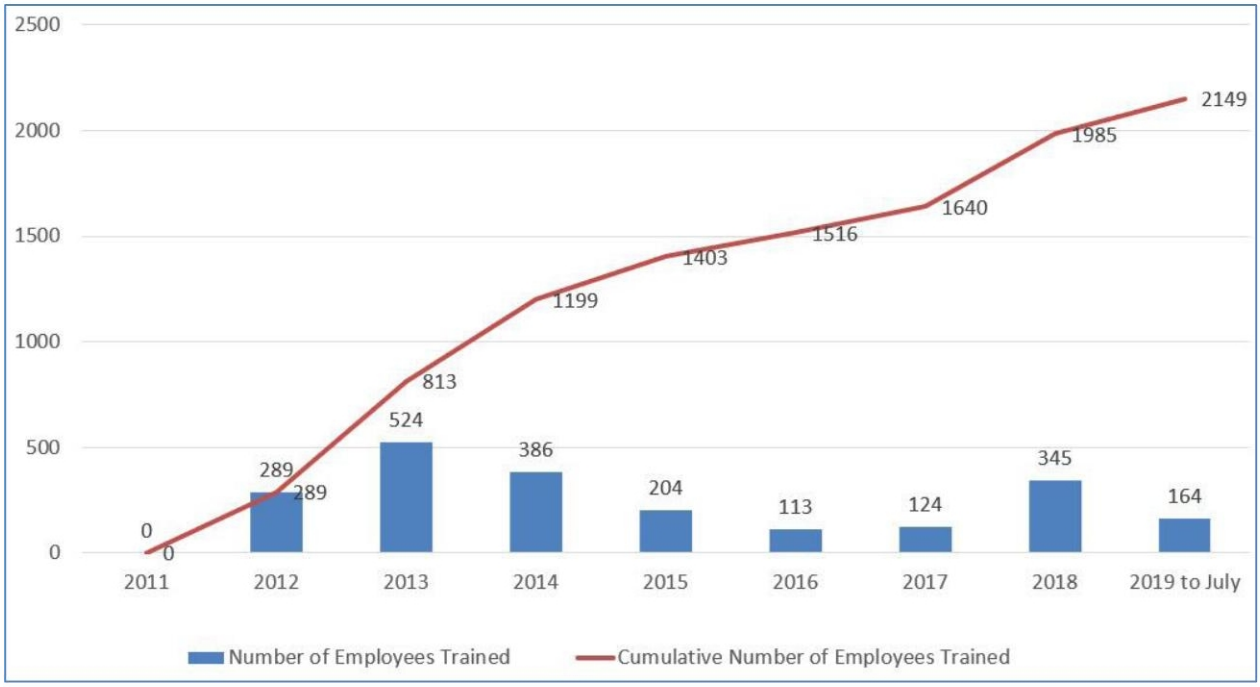
used to maintain the PMI's Project Management Professional ("PMP") credential. The primary goal of this service is to provide both professionally recognized PM and CI/BA capabilities, as well as institutionalizing a base level of such capabilities as a competency for all employees. Figure 4 below provides a high-level view of employees attending Project Management courses by year.

Figure 4 - Number of Employees Trained in Project Management



Additionally, on an as needed basis, there is the coordination and collaboration of internal project managers, business process analysts and LSS practitioners across process areas as well as being networked externally into the project management and improvement community here in Hawaii and nationally across the USA. It allows for the sharing of practical experiences and to promote collaboration between practitioners that will result in higher performance.

Although this service is well received within the Companies, the service is now staffed at lower levels to provide at this time, base support and maintenance. This includes the support and maintenance of the PM and CI/BA online resource centers.[16] Since its inception, the resource centers have received an average of over 500 visits per month with over 2,000-page views per month. Additionally, limited PM and CI/BA training sessions have continued with further

[16] The materials for version 1.0 of the enterprise project management standards are voluminous. Should the Consumer Advocate or Commission staff desire to see these materials online in the Company's intranet, Hawaiian Electric would accommodate such a request via an on-site visit, to be arranged through Hawaiian Electric's Regulatory Affairs Division.

enhancements to move repetitive subjects from being class instruction to online instruction. To-date, 64 employees across the Companies have achieved the industry recognized professional PMP certification, and 49 Green Belts and 7 Black Belts have been LSS certified. Additionally, the training evaluation scores have continued to be consistently above the 4.5 level on a 1-5 scale where 5 is the highest score, and in the follow-up survey to gauge applicability to daily use, these students score in general higher than the industry benchmark scores as provided by the Corporate Executive Board.

Moreover, this service connects the Companies' PM and CI/BA professionals with the broader activities in the community as supported by the Honolulu Chapter of PMI and IIBA. This includes supporting the community by participating in the PMI Hawaii Professional Development Day activities as well as supporting community recognition of the Companies' project managers by participating in the annual project and project manager of the year awards.[17]

F. **CIO Business Services**

This service is primarily and internal support function that integrates CIO financial and regulatory activities across all the CIO divisions into the broader overall company processes. It conducts the following key activities for the CIO process area: 1) Expense monitoring and spend analysis: in which labor and non-labor costs are tracked and reported, in addition to providing technology spend specific guidance in which accounting and budget policies are applied; 2) CIO cost allocation management: in which allocated CIO costs are identified and appropriately allocated based on consumption/benefit; 3) CIO budget and forecasts: includes the management of the data into the various systems, variance analysis is conducted and reported, and adjustments are made; and 4) CIO regulatory support: includes the creation of supporting work papers, coordination of regulatory efforts within the CIO process area as aligned to the broader company efforts. This service is supported by 0.5 FTE of a manager and 5 FTEs who support each rate case annually and ensures that the CIO process area remains on top of its financial responsibilities.

G. **Enterprise IT Vendor & License Management Services**

This service provides central support of all IT vendor contracts and license obligations throughout the Companies. It centralizes the support activities for the management of IT vendors and licenses in coordination with the broader Purchasing and Legal teams. This is primarily because IT expertise is required to manage such vendors and licenses.

This service is supported by 0.5 FTE of a manager and 4 FTEs who manage the relationship with IT vendors, ensures overall enterprise views of the vendors in order to gain the best pricing, responds to and coordinates both internal and external license audits, ensures the

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[17] See https://www.pmihnl.org/about-us/pm-and-project-of-the-year-awards for PMI Honolulu's most recent annual award recipients. The Companies have consistently been nominated and placed or won the awards over the past five years.

appropriate use and compliance with contractual terms, and supports the appropriate transfer of license use internally within the Companies. This service manages nearly 400 contract negotiations or updates per year across some 150 IT vendors and monitors/maintains approximately $13M in contract value plus another $9M in annual license maintenance plus $3.5M of IT goods. It also manages license control for over 1,300 software products with more than 1,000 of these requiring active license management, and coordination for internal or external license audits that may occur.

H. **Business Continuity Program Services**

This service provides the overall business continuity ("BC") framework used by the Companies to plan and execute business continuity activities designed to prepare for and recover from business disruptions and disasters. The planning portion of this framework utilizes the Disaster Recovery Institute (DRI)[18] International's Professional Practices for BC Management ("BCM"), while the execution of the response to an incident is aligned to the Department of Homeland Security's Incident Command System ("ICS").[19] ICS is a component of the Department of Homeland Security's National Incident Management System framework that the Companies have adopted to manage all types of incidents (e.g., cyber-related, oil releases, electrical outages). By integrating the principles of BCM and ICS into a singular BC framework, the Companies are better able to manage resiliency and continuity risks in an optimized fashion with limited resources.

The BC Program was established in 2018 and is supported by 2 FTEs who facilitate and coordinate the program's activities across the Companies using cross-functional teams of incident response subject matter experts. Examples of program activities include risk assessments, business impact analyses, designing and implement strategies and plans to minimize risks, awareness campaigns and training, and testing and maintaining plans. Its current priorities include implementing the Companies' BC framework governed by an executive BC Steering Committee to coordinate and manage continuity strategies at the Companies, and to establish the executive Crisis Management Plan used to organize a high-level strategic incident response to avoid or minimize damage to the Companies' ability to operate, to protect its reputation and its financial stability.

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18 DRI is a nonprofit organization that helps organizations around the world prepare for and recover from disasters by providing education, accreditation, and thought leadership in business continuity and related fields. Founded in 1988, DRI International has 15,000+ certified professionals in more than 100 countries and conducts native-language training in more than 50 countries, offering in-depth courses ranging from introductory to master's level, as well as specialty certifications. See https://drii.org for more information on the Disaster Recovery Institute

19 The Incident Command System (ICS) is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure. It is used to plan for and execute emergency responses.

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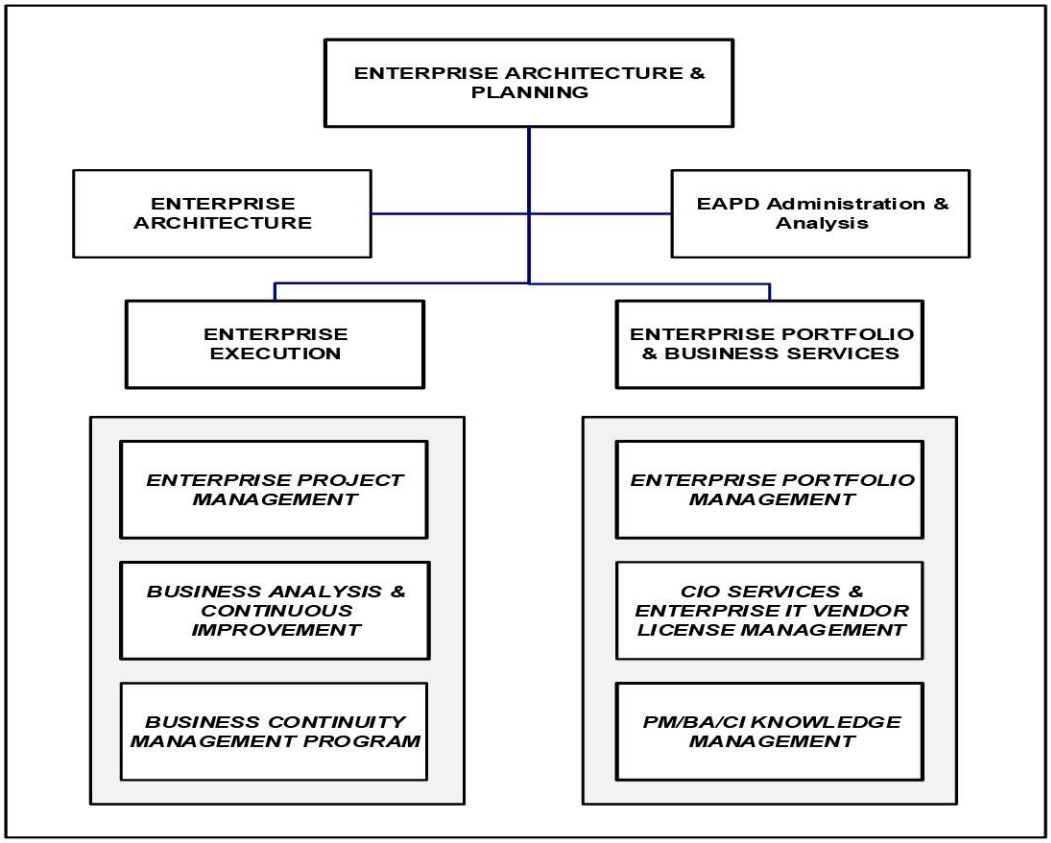
EAPD Organization, Structure, and Governance

EAPD is organized around the key services provided. Figure 5 below provides the high-level view of the EAPD organization.

Figure 5 - Enterprise Architecture & Planning Organization Structure



Within this structure, the EAPD has three directors, four managers, and thirty-nine FTEs spread across six units grouped within Enterprise Execution, and Enterprise Portfolio & Business Services. EAPD Administration & Analysis represents the internal management support structure for administrative services shared across all departments and consists of 1 FTE. The Enterprise Architecture team consists of 3 FTEs.

Specific to project management and continuous improvement, the EAPD employs a federated model whereby methods, standards, training, and key central tools for monitoring and measuring results at the portfolio level are centralized while practitioners are federated either directly or through a process area process/project management office ("PMO") or operational excellence office ("OEO") throughout the enterprise. This allows for the execution of most process improvement events and projects to occur within the respective process areas. Direct continuous process improvement and project/program management services will continue to be provided for centrally out of the EAPD for highly cross functional, large and complex initiatives, as well as for areas in which they do not have such dedicated resources.

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The creation of the consolidated resources and service in EAPD is a result of the CIO process area's objectives to further consolidate its services and to optimize resources used to deliver such services. This action leverages and creates new synergies across the combination of continuous process improvement, project management, portfolio management, architecture and CIO business services that optimizes existing resources and seeks to increase performance excellence throughout the enterprise. It also further integrates the divisions within the CIO process area to provide consistent and quality services to its Clients and ultimate to the Companies' customers.

HAWAIIAN ELECTRIC COMPANY, INC

INFORMATION TECHNOLOGY & SERVICES DIVISION OVERVIEW

The Information Technology and Services ("ITS") division main goals are to provide reliable and cost-effective support for the IT business operating environment and its users. The ITS division focuses on maintaining the availability of servers, datacenter, (data) storage area network, data/voice network, phone system, imaging and end-user computing devices. The division also provides other ancillary services such as mailing room, print shop, and records management. These services are provided across all islands three Companies.

The ITS division is organized into two departments which includes the IT Infrastructure and Operations Department and the Desktop Services Department. The functions for these departments are described below:

1) IT Infrastructure and Operations Department

The primary purpose of the IT Infrastructure and Operations ("IO") department is to provide reliable and efficient computing and communications platforms in support of the Company's IT systems and users. The IO department is responsible for provisioning, maintenance, administration and around the clock operation of the datacenters and IT infrastructure related assets and services that support the Company's IT applications and services. IT infrastructure includes the following systems and services:

- Network engineering, construction, and operations;
- IT security administration and identity management;
- Datacenter operations;
- Bill printing services;
- Servers and operating systems;
- Enterprise storage management;
- Messaging services;
- Network connectivity (wired and wireless);
- Telephone private branch exchange ("PBX") system;
- Internet services; and
- Disaster recovery and backup.

One of the main areas of focus recently in the Infrastructure and Operations department has been the build out of the Network Operations (and Security) Center (NOC). This team provides security services to help manage the ever increasing cyber security threat environment.

2) Desktop Services Department

The Desktop Services department is responsible for the lifecycle planning, installation and maintenance of all client computing assets and for the delivery of related services. In addition, the Desktop Services department manages the ITS Service Desk which provides first level support and triage of internal client queries, incidents and service requests. The department also manages ancillary services including the Company's records management, print shop, and mailing services. The Desktop Services department manages the following areas:

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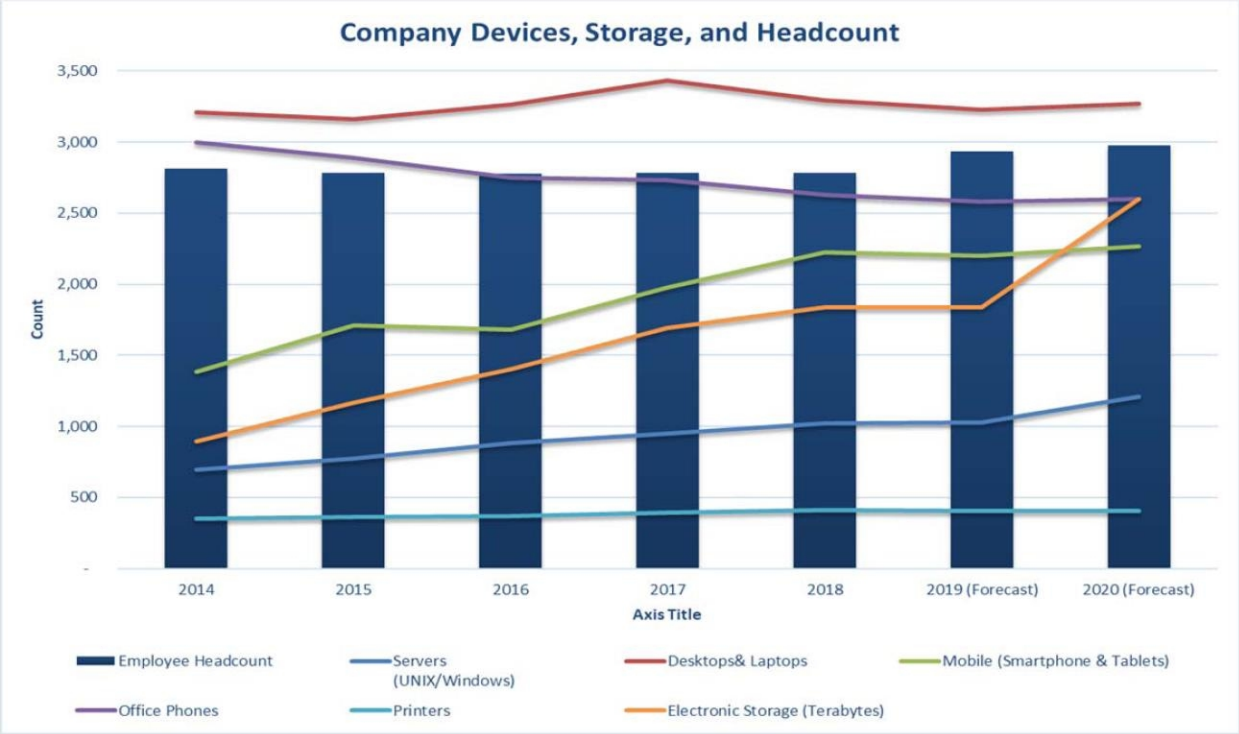
INFORMATION TECHNOLOGY & SERVICES DIVISION OVERVIEW

- Client computing equipment including computers, monitors and other peripherals, and mobile devices such as cell phones, smartphones and tablets;
- Client productivity applications such as Microsoft Office;
- IT service delivery and management platforms including software packaging that enables automated software installation, as well as application and desktop virtualization
- Collaborative communication or conferencing equipment including conferencing enabled telephones, projectors, electronic whiteboards, video conferencing devices, displays, and digital signs;
- Help desk service for assistance with internal clients;
- Workgroup printing and imaging including desktop, multi-function and wide-format devices, as well as imaging, scanning and fax devices;
- Printing services including business cards, manuals, flyers and some Company communications;
- Records management services including research and policy setting, guidance for policy compliance, and managing records retention and destruction; and
- Interoffice and United States Postal Services mail services including customer bill insertion and mailing.

As shown in the figure below ITS Division is responsible for supporting an increasing number of servers, endpoint devices, electronic storage, and imaging devices across the employee base.



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INFORMATION TECHNOLOGY & SERVICES DIVISION OVERVIEW

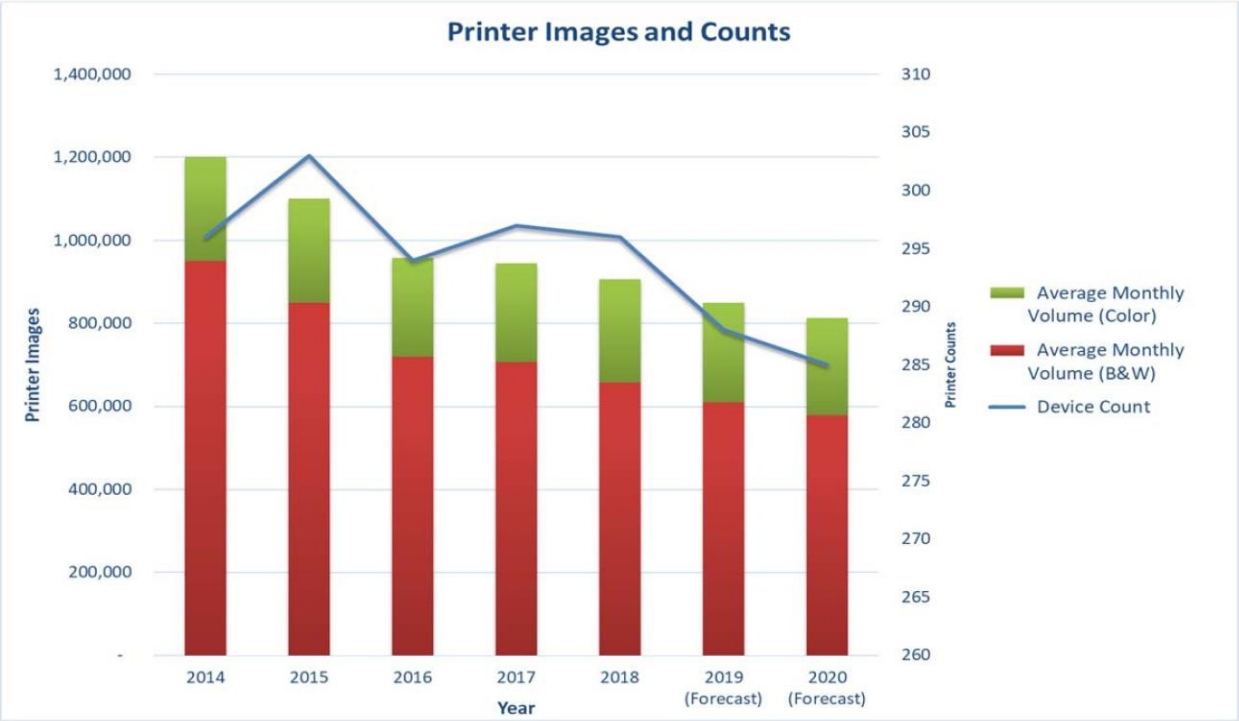
Some of these devices are seeing a decline due to efficiencies efforts. Others have seen an incline due to new functionality needed by the workforce. These are characterized below:

- In 2018, the ITS Division standardized on laptops, to increase mobility and decrease the number of laptops that are shared within work groups. The result has been a decline in the ratio of PCs (Desktops and Laptops) to employees.

- With the growing need for a connected-workforce, more mobility, and an increased need for user-friendly mobile applications, there has been a growth in the number of smartphones and tablets.

- Demand for electronic data storage continue to increase due to the need for more data to make better decisions and the desire to access the data where and when it is needed. The increase in storage is projected to grow even further due to increased data collection induced by Grid Modernization and as the need for data analytics increases.

- As shown in the figure below, ongoing efforts to promote electronic documents, reduce paper consumption and consolidate facilities has resulted in lower printer counts and lower image output.



HAWAIIAN ELECTRIC COMPANY, INC

SOFTWARE APPLICATION SERVICES DIVISION

The Software Application Services ("SAS") division is responsible for the support of the preponderance of software in use across the Hawaiian Electric Companies. Application support encompasses a wide swath of services including, but not limited to, application implementation, application development, software quality assurance, database maintenance, application security, training, solution architecting, and SAP specific help desk functions. SAS provides those services across a wide variety of specialized functional areas such as human resources, finance, supply chain, work management, customer service, and operations, along with generalized functional support for tools available for use by all employees such as SharePoint, the intranet, and web/mobile applications used by The Companies' external customers

The size of the supported applications varies considerably. At the large end of the spectrum are the Enterprise Information Systems ("EIS") such as the Customer Information System ("CIS"), the Enterprise Resource Planning ("ERP") system which includes Human Resources functions, the Outage Management System ("OMS"), the Demand Response Management System ("DRMS"), and the Enterprise Geospatial Information System ("eGIS"). These enterprise systems are supplemented by a number of peripheral systems that provide data to, or draw data from, the EIS. Some examples of those are the meter reading system that transfers data between the CIS and the hand-held devices carried by meter readers and the Syclo mobile work management tool which provides job detail information to crews in the field. Workgroup applications is another broad category of applications that encompasses everything from simple homegrown databases (e.g. a tool to track pledges to Aloha United Way) to special purpose commercial applications such as O-Calc which is used by Engineering to calculate structural loadings on utility poles. Lastly, and while not applications per se, the SAS division supports the tools and processes needed to successfully support and build applications, tools such as databases, middleware technologies, reporting systems, and quality assurance oversight.

The services and support noted above benefits internal customers (fellow employees), external customers, and state & federal regulators in a variety of ways. The division supports internal customers by supporting the tools they need to operate the company; be it a platform to recruit and retain employees, a platform to purchase and pay for materials and services, or a platform to manage interactions with customers from outage reports to billing inquires, among other things. The division supports external customers by providing accurate billing for their energy usage, timely responses to requests for new service or reports of power outages, and the ability to view said information through the web or mobile applications. Lastly, state and federal regulators are supported through compliance with new programs and existing regulations. For example, SAS made the necessary changes to SAP to support the financing program offered by the State's Green Infrastructure Authority known as Green Energy Money $aver (See: https://gems.hawaii.gov/participate-now/for-homeowners/). Compliance with federal regulations are supported through the SAS division by ensuring the Companies' software solutions adhere to tax regulations established by the Internal Revenue Service, health care statutes established by the United States Congress such as the Affordable Care Act, etc.

The SAS division is primarily organized across three departments as follows:

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SOFTWARE APPLICATION SERVICES DIVISION

- Operations Application Services ("OAS") department: OAS supports applications used to manage the electrical system, from the Outage Management System to the mapping system that provides transmission and distribution circuit information.
- Enterprise Technical Software Services ("ETSS") department: ETSS provides the technical support for the SAP platform and its peripheral applications in addition to providing some shared technical services across the division such as quality assurance, database, and middleware support.
- Enterprise Functional Software Services ("EFSS") department: EFSS provides the functional support for the SAP platform. They make and test configuration changes within the system and are the primary liaisons with the users in the business.
- Along with the three departments there are two Business Solution Architects that possess a unique depth of knowledge and experience that crosses the functional, technical, and business boundaries.

Costs in 2020 have increased in comparison to 2018 due to a variety of factors, such as:

- A tenfold increase in the usage of The Companies core ERP platform necessitating higher licensing and ongoing maintenance costs. The previous ERP platform was only licensed for 200 concurrent users and leveraged by a subset of employees whereas all employees, 2000+, use the new platform.
- The ongoing need to keep applications current and on support with many approaching their end of life. The Companies' Interactive Voice Response (IVR) was installed in 2013 (For reference, the very first iWatch wouldn't be released for two more years, in 2015). The Utilities Customers E-Services (UCES) platform was installed before that, in 2012. The Companies' SharePoint collaboration tool is the 2013 version of Microsoft's product. The production version of IBM's Integration Broker has exceeded its planned useful life and The Companies' are now paying a premium for extended support, an adder many vendors charge to support their older technologies if they are willing to do so.
- The need to invest in the new ERP/EAM platform both in terms of increased capabilities in the form of a new help desk, training, and work management support staff and a temporary but multiyear need for extra support from seasoned SAP consultants. The reason for the need for extra SAP consulting is twofold; they're needed while internal staff become more proficient in the new technologies as well as to address the typical spike in tickets associated with the new platform. The two charts below show how the backlog of tickets have increased over the last few years, a situation that needs to be addressed.

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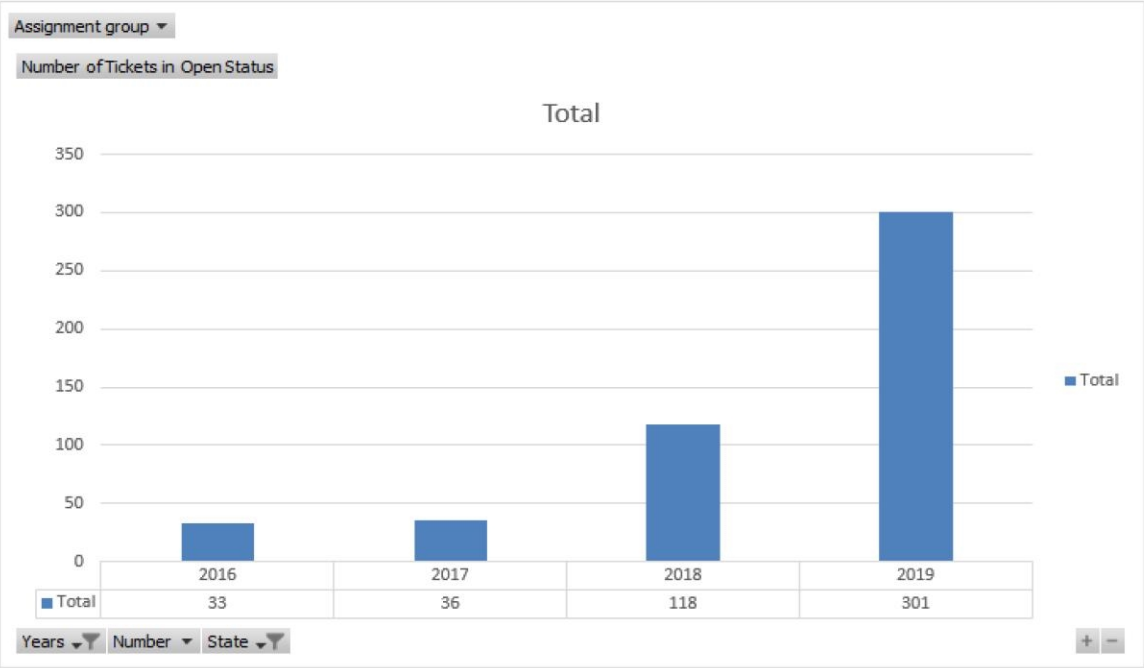
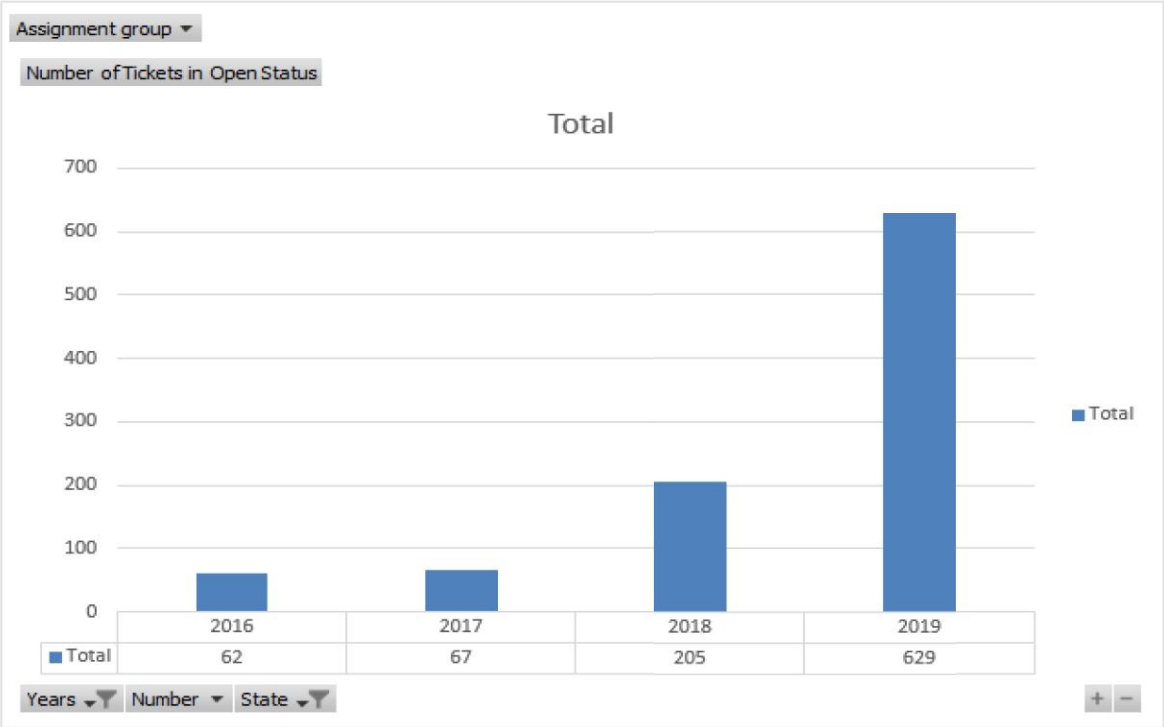
SOFTWARE APPLICATION SERVICES DIVISION

Number of Open Incidents by Year Opened



Number of Open Service Requests by Year Opened



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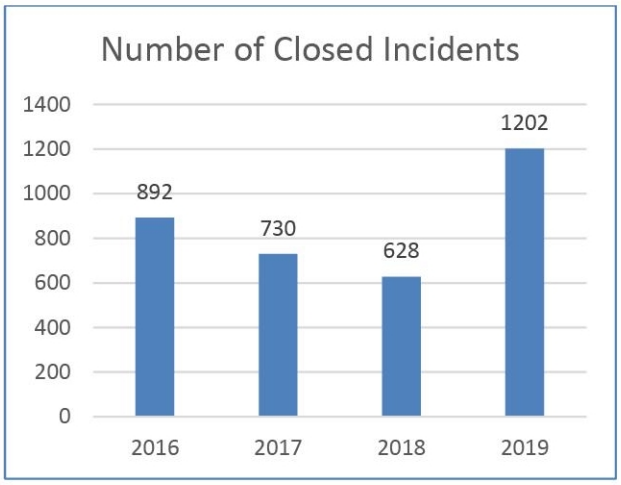
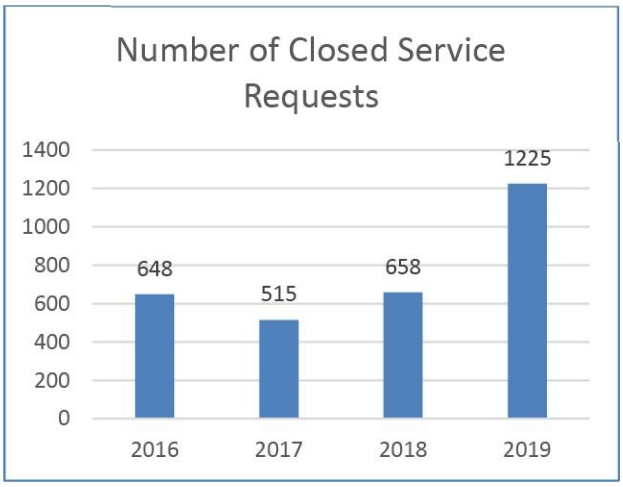
SOFTWARE APPLICATION SERVICES DIVISION

For reference, the rate in which tickets have been closed has been increasing. As shown below the number of closed incidents and service requests have almost double between the years 2018 and 2019.





The vast majority of the costs associated with the on going support of the new ERP/EAM platform are found in the SAS division. A mapping of test year estimates compared to Scenario 2 of the Net Application benefit forecast can be found in HECO-WP-1707 ERP NetApp.

For more background on the ERP/EAM platform and please see Docket No. 2014-0170, the application for an Enterpise Resource Planning & Enterprise Asset Management System. At its core the ERP/EAM system is the heart of the Companies' business operations providing the means to track and manage its finances, invoicing, procurement, work orders, time keeping, payroll, recruitment, learning management, employee benefits, crew scheduling, budgeting, and most other functions required to operate a business.

HAWAIIAN ELECTRIC COMPANY, INC

INFORMATION ASSURANCE DIVISION OVERVIEW

The Information Assurance division of the CIO Process Area is responsible for defending the Hawaiian Electric Companies against the vast scope and scale of cybersecurity threats, which are rapidly evolving in diverse form and function. The Companies' electric infrastructure assets are part of the nation's Critical Infrastructure as defined by the U.S. Department of Homeland Security, and the effort to defend them involves pragmatic development and implementation of strategic defense measures to provide resilience for the most critical operations. The scope of the IA mission extends across IT, OT, Telecom, and grid domains operating on five islands under three companies.

Organization

To more effectively facilitate the planning, buildout, and execution of a new cyber security program aligned with the NIST Cyber Security Framework ("CSF"), the Information Assurance division was reorganized in 2018. The division is comprised of seven (7) FTE staff members, including the Chief Information Security Officer ("CISO"), two managers, and four senior analysts. In addition, the division employs a consultant as its NIST CSF Subject Matter Expert (SME), fully allocated to planning and implementation of the cyber security program.

Leading the Companies' cyber security program, the CISO provides strategic-level guidance for the cyber security program and ensures compliance with cyber security policy, standards, regulations, and legislation. The CISO also collaborates with the private and public sector to share information on threats and increase resilience, and engages with governments, industry, and the community to increase awareness of cyber security.

Cybersecurity Services

Given the broad scope of coverage and the variety of unique risk profiles across the enterprise, the cybersecurity program needs to be flexible and dynamic. To that end, the Companies have aligned the cyber security program to the NIST Cyber Security Framework.

Services provided by the Information Assurance division are best described in terms of the NIST CSF functions, which represent the five primary pillars for a successful and holistic cybersecurity program.

The five elements of the NIST CSF are:

IDENTIFY – Enhance organizational capabilities to manage the cybersecurity risk.

PROTECT – Develop and implement enterprise controls to reduce risk and increase resilience; promote enterprise cybersecurity awareness through workforce development and training.

DETECT – Develop tools and processes to accelerate notification of cybersecurity threats.

RESPOND – Rapid analysis of, and response to, anomalies and suspected events.

RECOVER – Develop and implement an incident triage, response, and recovery process to contain and eliminate cybersecurity threats.

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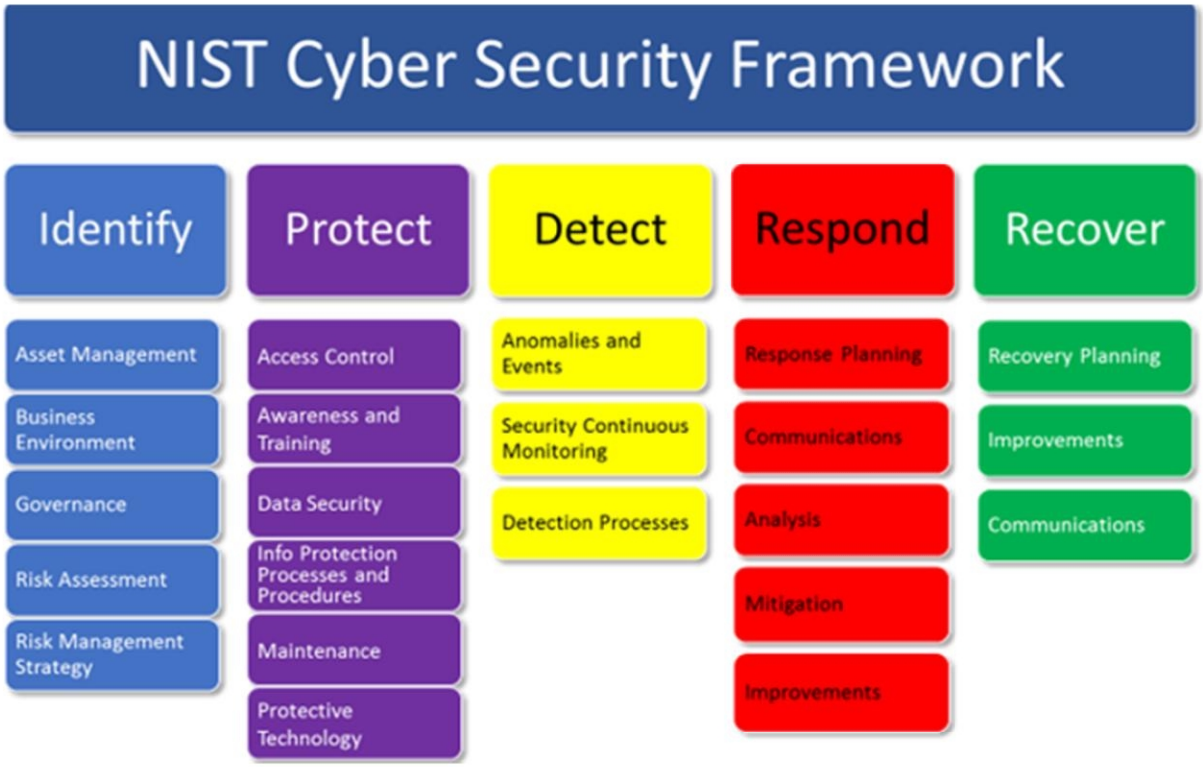
INFORMATION ASSURANCE DIVISION OVERVIEW

Please refer to the figure below for an illustration of the five elements, as well as the 22 Categories that are split across the five elements.



Staffing

The Manager, Cybersecurity Architecture and two analysts are responsible for coordination of the Identify and Protect elements of the NIST CSF, comprised of the following services:

Strategy

- Cyber Risk Management Strategy and Cybersecurity Program Development
- Security Policy and Plan Management
- Plan of Action & Milestone (POAM) Management

Training and Awareness

- Security Awareness Training
- E-mail "phishing" Awareness and Testing

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INFORMATION ASSURANCE DIVISION OVERVIEW

System Testing

- Independent Security Assessments
- Internal Security Controls Assessments
- Periodic Penetration Testing

The Manager, Cybersecurity Operations and two analysts are responsible for coordinating the Detect, Respond, and Recover elements of NIST's framework, comprised of the following services:

Cyber Operations Guidance and Oversight

- Enterprise Incident Response
- Enterprise Risk Information Sharing
- Threat Intelligence Management
- Threat Hunting
- Continuous threat monitoring, tuning, and improvement

Cyber Assessments

- Indicators of Compromise (IOC) Assessments
- Project-based Risk Assessments

Risk Management

- Risk Assessment Remediation
- Policy Exception Management
- Information Security Continuous Monitoring
- Identity, Credential, and Access Management
- Advanced Network and Data Protections
- Insider Threat and Supply Chain Risk Mitigation

The Information Assurance division must continuously monitor, measure, and calibrate its cybersecurity defense-in-depth and defense-in-breadth posture, while balancing risk, resource constraints, and fiduciary obligations to our customers. There will be ongoing integration,

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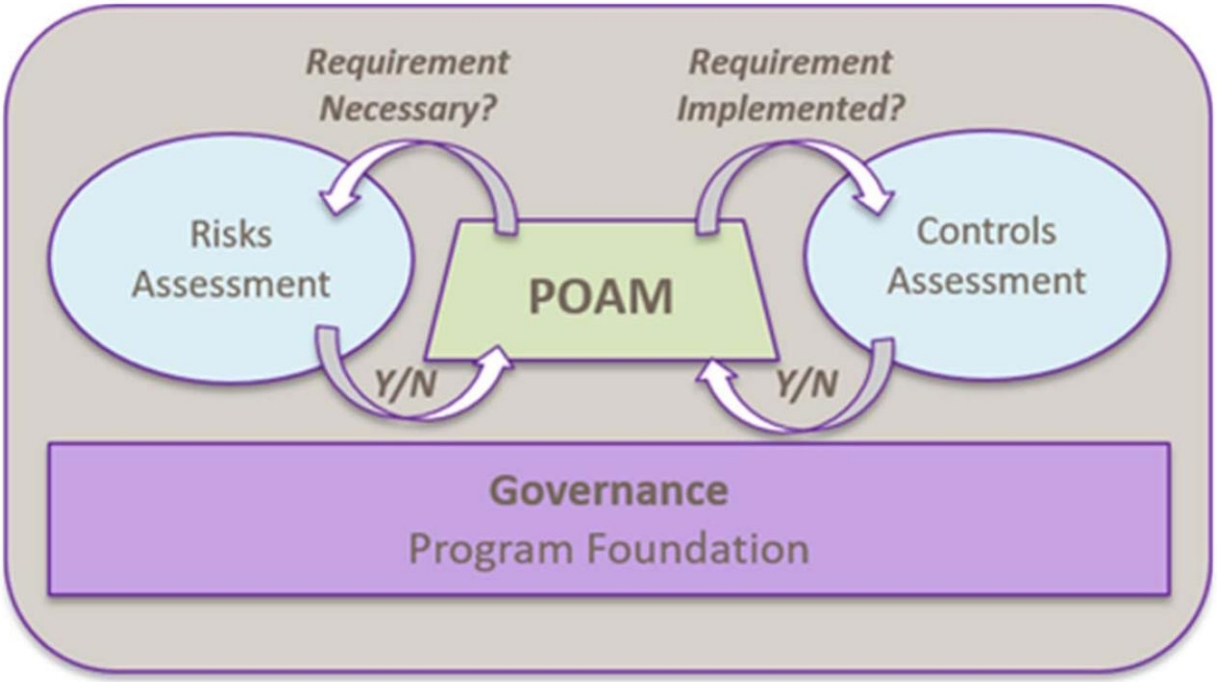
INFORMATION ASSURANCE DIVISION OVERVIEW

coordination, and partnering across IT, OT, and the grid networks to secure the enterprise as one company.

Please refer to the figure below for an illustration of the cyclical, iterative nature of the cyber security program.



For further detail, see Exhibit HECO-1716 Cyber Security Threat Environment.

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ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

Background

Electric utilities across North America have been making significant advancements in optimizing operations and maintenance activities while enabling smart grid improvements. Throughout these efforts, the growing use of Information Technology (IT) is being deployed in the Operational Technology (OT) environment. IT includes traditional desktop computers, wireless networks and internet connected systems used in businesses and homes. OT includes technologies that run real-time processes such as electrical generation and distribution control systems.

This integration of IT with OT has been termed "IT/OT Convergence". Capabilities that once lived only in IT systems are being deployed in OT systems, such as Internet Protocol (IP) enabled devices and traditional OT applications are now being integrated into IT environments, such as cloud services like Software as a Service (SAAS). A major issue with IT/OT Convergence is the need for collaboration between traditionally isolated environments so that the Company can support the needs of both the Utility and the customers through initiatives such as renewable generation integration, customer choices and system reliability/resiliency.

Organization

The Operational Technology (OT) division's primary obligation will be the enterprise wide responsibility for planning, implementation, integration, operations and maintenance for OT systems. OT systems include the Industrial Control Systems, such as the Energy Management Systems - Supervisory Control and Data Acquisition (EMS/SCADA), Power Plant Distributed Control Systems (DCS) and Smart Grid Technologies that control the operation of the five island electric grids across the three Hawaiian Electric Companies. As part of the OT division's primary obligation for the responsibility of OT systems, the need to leverage IT/OT Convergence while maintaining safe, secure and reliable OT systems is critical to the evolution of the Companies' electrical grid. The OT division will be organized into three functional areas which includes the EMS, Power Supply Controls and the Smart Grid Technology. The figure below shows the Operational Technology Division's organizational structure with the three functional areas.

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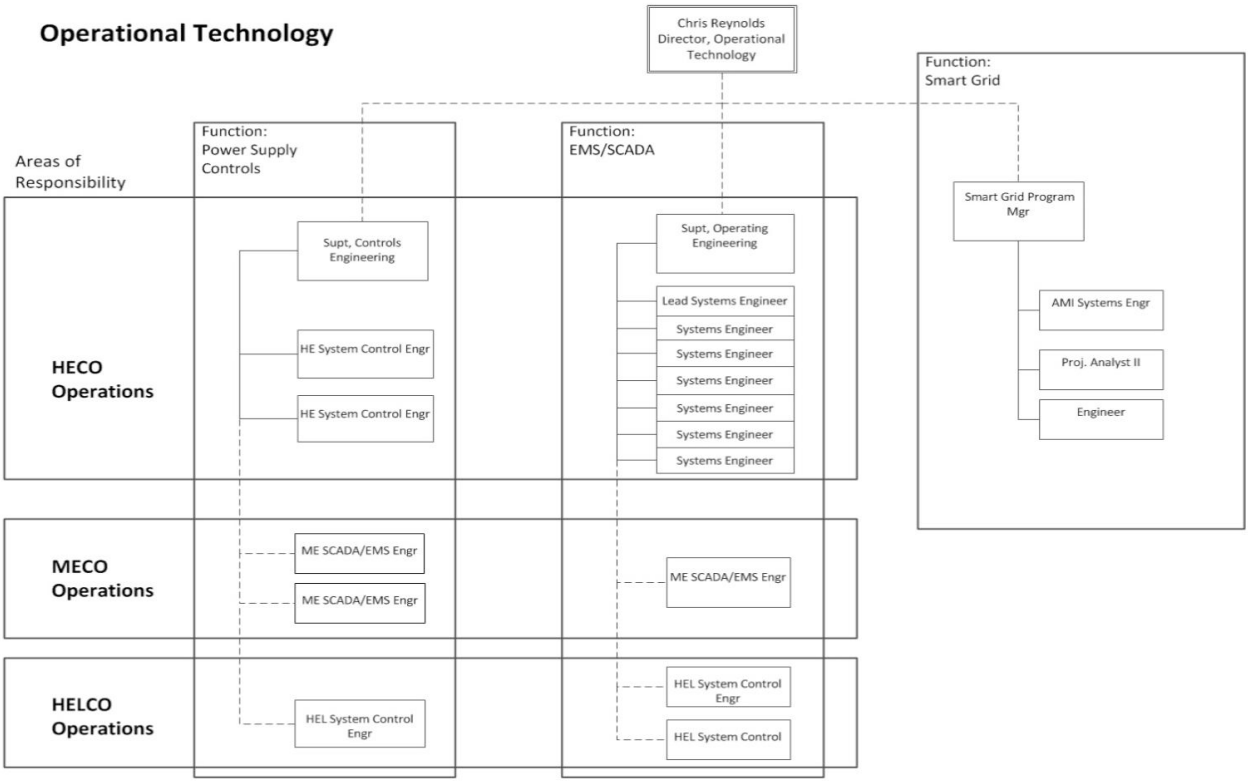
ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW



The OT division will have matrixed authority over the individual OT system subject matter experts throughout the Companies, including existing positions in HECO/HELCO/MECO System Operations, Power Supply, and Smart Grid. The functions for these areas are described below:

1. Energy Management Systems Department

The primary purpose of the Energy Management Systems (EMS) department will be to provide reliable and effective EMS control systems in support of the Company's System Operations division and other users. The EMS department will be responsible for the procurement, maintenance, administration and around the clock operation of the EMS along with related assets and services that support the Company's grid management. The EMS infrastructure includes the following systems and services:

- EMS servers and operating systems
- EMS workstations and operating systems
- EMS network engineering, construction, and operations
- EMS security administration and identity management
- EMS software and application planning and support
- EMS asset management
- Data storage and retrieval management;
- Disaster recovery and data backup.

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ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

2. Power Supply Control Systems Department

The primary purpose of the Power Supply Control Systems (PSCS) department will be to provide a reliable and effective DCS in support of the Company's Power Supply division and other users. The PSCS department will be responsible for the procurement, maintenance, administration and the continuous operation of the DCS along with related assets and services that support the Company's generation needs. The PSCS infrastructure includes the following systems and services:

- DCS servers and operating systems
- DCS workstations and operating systems
- DCS network engineering, construction, and operations
- DCS security administration and identity management
- DCS software and application planning and support
- DCS asset management
- Data storage and retrieval management;
- Disaster recovery and data backup.

3. Smart Grid Technologies

The primary purpose of the Smart Grid Technologies department will be to coordinate the implementation of applications and services in support of the Company's initiatives to modernize the grid and in reaching our 100% RPS goal. The Smart Grid Technologies includes the following systems and services:

- Advanced Distribution Management System (ADMS)
- Outage Management System (OMS)
- Solar and wind forecasting services
- Distributed Energy Resource Management Systems (DERMS)

Cybersecurity

The Companies have implemented OT starting with the first SCADA and power plant control system deployments. While OT has been used for decades, only relatively recently has OT evolved rapidly away from isolated, hard wired systems to integrated, micro-processor based systems. As manufacturers for OT products move away from offering traditional OT style analog equipment to offering only digital based products, the need to realize potential threats to the safe delivery of electrical service across the islands has grown as well. In collaboration with Information Assurance, the OT division will focus on the development of an in depth inventory for threat analysis and the standardization of technology to enable best practices used across the electric utility industry.

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TELECOMMUNICATIONS DIVISION OVERVIEW

Background

Within the electric utility industry, Operational Technology ("OT") is becoming increasingly similar to Information Technology ("IT"). Complex electric power utility infrastructures are being integrated with sensors and software that are networked into distribution automation and grid visibility/ controllability. Information is exchanged using internet protocols. Application platforms, software, security requirements and practices are becoming more alike between OT and IT, and their supporting telecommunications requirements are evolving and vital to the operability and security the of these systems.

This integration of IT with OT has been termed "IT/OT Convergence". IT/OT Convergence presents opportunities and challenges. The underlying telecommunications networks can be created and evolved to efficiently and effectively support the needs of both OT and IT. As a result, close collaboration between the traditionally siloed OT, IT, and Telecommunications areas will become increasingly important.

Organization

The Telecommunications division's primary obligation is the enterprise wide responsibility for planning, engineering, implementation, integration, operations and maintenance for telecommunications systems, supporting both OT and IT, across the three operating companies. The Telecommunications systems includes infrastructure (i.e., fiber, microwave, telecommunication protection, and other wireless technologies, etc.), the systems and networks that operate over said infrastructure, Land Mobile Radio, and others. The Telecommunications division will be organized into three functional areas which includes Planning, Engineering, and Operations & Maintenance. The figure below shows the Telecommunications division's organizational structure with the three functional areas that are matrixed to this Division. The telecommunications organizational structure and functional areas' roles and responsibilities will further evolve to support continuous improvement to best service our customers, providing safe, reliable, and resilient electrical service.

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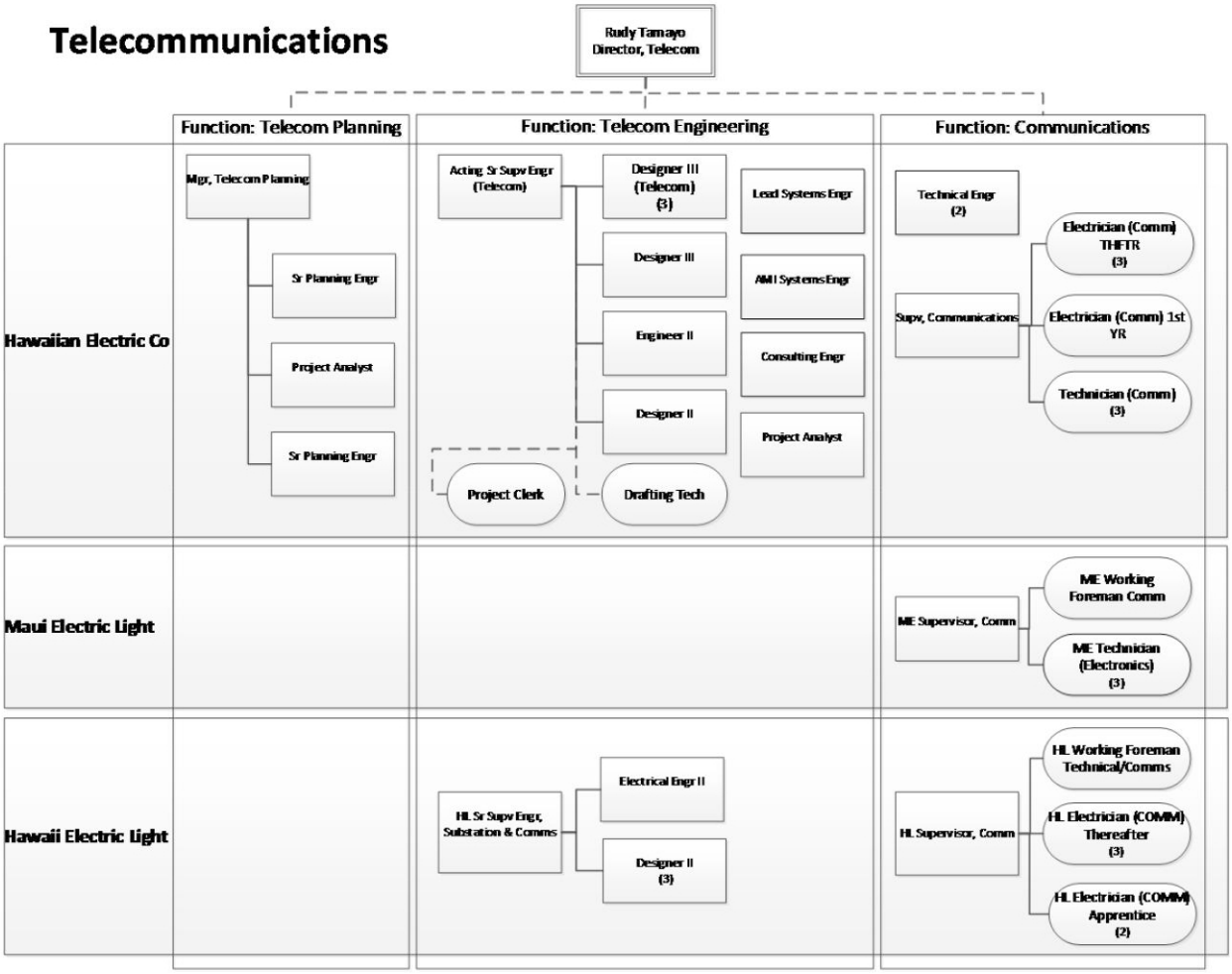
TELECOMMUNICATIONS DIVISION OVERVIEW



The Telecommunications division will have matrixed authority over the individual Telecommunications system subject matter experts throughout the Companies, including existing positions in HECO/HELCO/MECO. The functions for these areas are described below:

Telecommunications Planning Department

The primary purpose of the Telecommunications department is to provide a tri-Company forward looking strategy, criteria, and roadmap that identifies the appropriate infrastructure for cost-effective, efficient, secure, and reliable telecommunications transport networks that support both OT and IT demands and facilitates the effective integration of Grid Modernization and customer programs.

Telecom Planning will be a central entity within the tri-Company organization where various tri-Company, cross-functional, and inter-departmental collaboration occurs, the goal of which is to enable the transformation and enhancement of our telecom networks for the benefit of all customers. This will be achieved through the strategic alignment of communications technology,

shared goals, and a common understanding between the three Companies, of how the communications infrastructure and networks will support and enable the Companies' strategic goals. In addition, Telecom Planning, through the telecom master plan, will provide foundational concepts to achieve standardization, consistency, and interoperability within and between the tri-Company telecom networks to effectively and efficiently serve the telecommunications needs of the Companies.

1. Telecommunications Engineering Department

The Telecom Engineering department will have the responsibility to build a reliable, two-way communications network, that can support OT company applications. This network utilizes company installed and maintained fiber optic cable, microwave links, and leased line services. The Telecom Engineering group will be tasked with project management, system design, procurement, administration (project/budget reporting). The Engineers are knowledgeable of the system and equipment capabilities. Some of the applications Telecom Engineering supports include, but not limited to the following:

- Supervisory Control and Data Acquisition (SCADA)
- Tele-protection / Direct Transfer Trip
- Land Mobile Radio (LMR)
- Power Quality Monitoring
- Distribution Sub-transmission Reliability Team (DSRT)
- Generation/System Hotline
- Power Supply
- Security

Telecom Engineering will play a big part in the design and implementation of the Grid Modernization Telecom network and other customer programs.

2. Telecommunications Operations and Maintenance Department

The primary purpose of the Telecommunications Operations and Maintenance Department will be to implement and maintain the various telecommunications infrastructure, systems, and networks. This includes, installation and maintenance of wireless infrastructure, fiber architecture, associated transport of OT and IT applications. The Telecommunications Operations and Maintenance Department will also serve as the emergency responders during system restoration and is the provider of system maintenance during normal operations.

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TELECOMMUNICATIONS DIVISION OVERVIEW

Cybersecurity

Cybersecurity is an important aspect of telecommunications. Collaboration with Information Assurance will be on-going, as the Telecommunications division plans, engineers, and implements telecommunications infrastructure, systems and networks.

Not Used

Not Used

Not Used

HAWAIIAN ELECTRIC COMPANY, INC

ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

SHARED SERVICES

Since February 2015, the Hawaiian Electric Companies have centralized all technology (IT) related services at the Hawaiian Electric Company. With the change to our ERP system in Oct 2018, the allocation of IT services to the tri-companies and HEI has been revamped to utilize a more simplistic approach to allocating costs to the areas of benefit. CIO Process Area expenses includes labor and non-labor from five different divisions[1]: 1) Office of the CIO/Vice President; 2) Information Assurance; 3) Information Technology and Services; 4) Software Application Services; and 5) Enterprise Architecture and Planning. These costs are charged to an allocation pool that applies an allocation methodology to distribute costs to the areas of benefit.[2]

Labor costs are determined by the approved headcount for each Division. Each Division provides a timeline of when positions are expected to be filled. The timeline of filled positions is then used to determine the number of productive hours.[3] This information is entered into the corporate budgeting system where standard labor rates and related overheads are applied, in turn calculating total labor costs (see HECO-WP-1704, page X for details on labor costs).

Non-labor costs are developed based on three major categories: 1) software and hardware maintenance for ongoing operations; 2) contract services for specific system/hardware expertise and support, and 3) general administrative expenses related to the development and improvement of personnel (see HECO-WP-1704, page X for details on non-labor costs and related support).

ALLOCATION METHODOLOGY

The basis of allocating IT services is labor based and is adjusted annually. A high-level overview of the allocation process is described below:

- First, the tri-company-wide historical capital and O&M labor hours determines the percentage spread to capital amongst the three Companies (Refer to Docket No.2018-0368, CA-IR-467 for details of the review performed to determine the capital percentage).
- Then, employee headcount by work location (HECO, HELCO, MECO and HEI) is used to determine the O&M split by Company (Refer to Docket No.2018-0368, CA-IR-467 for details of the review performed). Work location is considered the Company of where the employee primarily works on-site. Many employees are HECO employees, however, they could work onsite at MECO or at HELCO. We distribute those charges based on work location because they use the resources at that Company. If we did not use work location, the distribution to HECO would be skewed.
- Finally, we take the tri-company historical FERC distribution of O&M labor and allocate in that respective proration.

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[1] As of May 2019.
[2] Most expenses are allocated to HECO, HELCO, MECO and HEI. There is a subset of costs that do not allocate to HEI.
[3] Refer to HECO-1710 Attachment 1 for the detail used in determining productive labor hours

HAWAIIAN ELECTRIC COMPANY, INC

ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

HECO -1710, Attachment 1 provides a visual diagram of the allocation process. The total CIO Process Area expected spend can be found in HECO-WP-1704, page 1. A calculation of into clearing expenses as converted into O&M can be found at HECO -1710, Attachment 2.

TYPES OF SERVICES ALLOCATED

CIO process area costs fall into two categories 1) allocated expenses - shared services that are allocated via the methodology noted above and 2) direct expenses – services in which HECO bears 100% of the cost.

Allocated Expenses

The following IT services below are allocated to HECO, HELCO, and MECO.

- Infrastructure & Operations (IA and ITS):
  - Cyber Security Operations – Cost Center 101103A
  - Cyber Security Policy – Cost Center 101111A
  - Cyber Security Threat Analysis – Cost Center 101112A
  - Network/IT Infrastructure – Cost Center 101104A
  - Desktop Services – Cost Center 101105A
  - IT Service Desk/Help Desk - Cost Center 101106A
  - Records Management – Cost Center 101108A
  - Printing Services – Cost Center 101109A
  - Mailing Services – Cost Center 101110A
- Software Application Services (SAS):
  - Operation Application Services – Cost Center 101114A
  - ERP Systems – Cost Center 101124A
  - Customer Systems – Cost Center 101125A
  - Quality and Database Services – Cost Center 101126A
- Enterprise Architecture and Planning Services (EAPD)
  - CIO Technical Architecture Services – Cost Center 101116A
  - CIO Finance, Vendor and License Management – Cost Center 101118A
  - CIO Project and Program Management- Cost Center 1011121A
  - CIO Business Process and Continuous Improvement Services – Cost Center 101122A

HAWAIIAN ELECTRIC COMPANY, INC

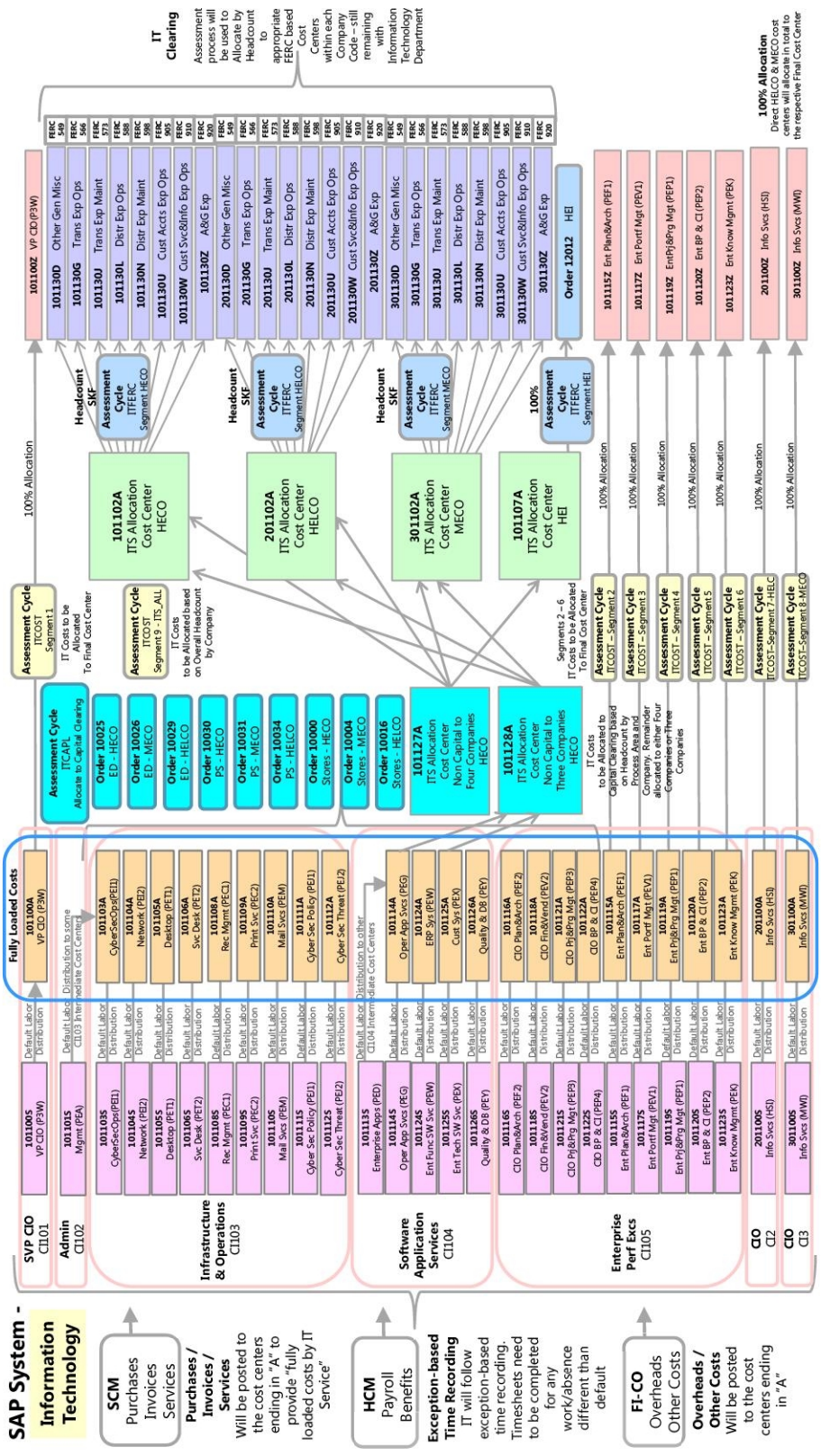
ENTERPRISE ARCHITECTURE & PLANNING DIVISION OVERVIEW

HEI receives a share of the same services above except for Customer Systems (Cost Center 101125A) and Operation Application Services (Cost Center 101114A). It was deemed that most expenses from those two services do not benefit HEI and therefore are excluded as an allocation to them.

Direct Expenses

Expenses directly charged to subsidiaries are minimal since most IT services are allocated. The following expenses are direct charged:

- Amortization expense of deferred project costs (e.g., HR Suites project and ERP project) is directly charged monthly through recurring entries recorded by Accounting.
- If an internal customer has a software request that is not considered to be a Company standard, but necessary for work the software license costs will be directly charged to the actual customer. Maintenance on the related software is the responsibility of the requester.
- If a project is specifically executed to benefit a sole subsidiary and will not benefit the tri-companies, those project costs will be directly charged to that subsidiary.


SAP System - Information Technology
SCM Purchases Invoices Services
Purchases / Invoices / Services Will be posted to the cost centers ending in "A" to provide "fully loaded costs by IT Service"
HCM Payroll Benefits
Exception-based Time Recording IT will follow exception-based time recording. Timesheets need to be completed for any work/absence different than default
FI-CO Overheads Other Costs
Overheads / Other Costs Will be posted to the cost centers ending in "A"
SVP CIO CI101
Admin CI102
Infrastructure & Operations CI103
Software Application Services CI104
Enterprise Perf Excs CI105
CIO CI2
CIO CI3
Fully Loaded Costs
Default Labor Distribution
Distribution to some Intermediate Cost Centers
Distribution to other Intermediate Cost Centers
Assessment Cycle ITCAPL Allocate to Capital Clearing
Assessment Cycle ITCOST Segment 1
IT Costs to be Allocated To Final Cost Center
Assessment Cycle ITCOST Segment 9 - ITS_ALL
IT Costs to be Allocated based on Overall Headcount by Company
Headcount SKF
Assessment Cycle ITFERC Segment HECO
Assessment Cycle ITFERC Segment HELCO
Assessment Cycle ITFERC Segment MECO
Assessment Cycle ITFERC Segment HEI
100% Allocation
IT Clearing
Assessment process will be used to Allocate by Headcount to appropriate FERC based Cost Centers within each Company Code – still remaining with Information Technology Department
100% Allocation
Direct HELCO & MECO cost centers will allocate in total to the respective Final Cost Center
Segments 2 – 6 IT Costs to be Allocated To Final Cost Center
IT Costs to be Allocated to Capital Clearing based on Headcount by Process Area and Company. Remainder allocated to either Four Companies or Three Companies

ITS Allocation

- Payroll will be posted to the "Sending" cost centers that end with an "S"
- CIO employees will determine the distribution to the Intermediate "A" Cost Centers for Labor and Non-labor costs, depending on the service it relates to.
- CIO employees will be using "Exception-based" time reporting. Default account assignments and activity type will be populated on each employee's personnel master record. There is a maximum of 6 defaults that may be entered on an employee's personnel master record.
- Labor Distribution will be generated from the default account assignments at the standard labor rate (price per hour is saved master data by activity type within the cost center). Exceptions (PTO, Sick leave, etc.) to the default values will require completing a timesheet. Labor Distribution will be charged to the Intermediate Cost Centers (ending in an "A")to deliver the requirement of fully loaded costs by Service for Rate Cases and various Surveys. Cost Center Group for the IT Fully Loaded Cost Centers is IT_FULLOAD
  - Cost Center 101101S for default labor distribution will be allocated equally to: 101103A, 101104A, 101105A, 101106A and 101109A
  - Cost Center 101113S for default labor distribution will be allocated equally to: 101114A, 101124A, 101125A and 101126A
- Materials, Direct Purchases and Services will be posted to the Intermediate IT Services Cost Centers (ending in an "A")
- Overheads and other allocations will be posted to the Intermediate IT Services Cost Centers to deliver fully loaded costs by Service. Costing sheet on the HECO Intermediate Cost Centers should be Z025 (HECO – O&M Labor and Materials Overheads); HELCO Intermediate Cost Centers should have costing sheet Z029 (HELC – O&M Labor and Materials Overheads); and costing sheet Z026 (MECO – O&M Labor and Materials Overheads) will be used on the MECO Intermediate Cost Centers.
- IT Assessment Cycles:
  - ITCAPL Assessment Cycle has eight segments:
    - The first four segments allocate to Capital Clearing Internal Orders based on Headcount with the remainder to be spread in the ITCOST Assessment Cycle to four Company Codes (including HEI).
    - The last four segments allocate to Capital Clearing Internal Orders based on Headcount with the remainder to be spread in the ITCOST Assessment Cycle to three Company Codes.
  - ITCOST Assessment Cycle has nine segments:
    - First six segments allocate the costs of specific Intermediate IT Services Cost Centers to their associated A&G Final Cost Center (100%).
    - Seventh segment allocates the costs for HELCO Info Services Cost Center directly to the HELCO Info Services Final Cost Center (100%)
    - Eighth segment allocates the costs for MECO Info Services Cost Center directly to the MECO Info Services Final Cost Center (100%)
    - Ninth segment allocates the costs from the remaining Intermediate IT Cost Centers to the ITS Allocation Cost Centers by Company Code. This allocation is calculated using a Statistical Key Figure (SKF) for Headcount by work location – allocating the costs to HECO, HELCO, MECO and HEI.
  - ITFERC Assessment Cycle has Four groups of segments (sixteen segments in total) – one group for each company code. Within each group, the segments allocate based on Labor, Payroll Tax, Benefits and Other (remaining cost elements). The final allocation to the FERC-based Final Cost Centers will occur using the Headcount SKFs by FERC functional breakdown by company code. HEI's group of segments will be assessed 100% to ICB Internal Order 12012.
- Headcounts by work location by Company and by FERC are calculated by the Planning and Budgeting Department annually and will be provided to Cost Accounting to input into SAP and UI systems.

Cost Center codes for nonlabor & labor charges - must always end in an "A" for CIO Process Area

Company	VP desc	Dept	hier area	cost ctr	cost center desc	allocation
HECO	CIO (PV07)	CIO	CI101	101100A	VP CIO (P3W)	direct
HECO	CIO (PV07)	ITS	CI102	various [A]	previously PEA	n/a
HECO	CIO (PV07)	ITS	CI103	101103A	Cyber Security Operations (PEI1)	clearing
HECO	CIO (PV07)	ITS	CI103	101104A	Networking - Data and Telephony (PEI2)	clearing
HECO	CIO (PV07)	ITS	CI103	101105A	Desktop Architecture & Services (PET1)	clearing
HECO	CIO (PV07)	ITS	CI103	101106A	Service Desk (PET2)	clearing
HECO	CIO (PV07)	ITS	CI103	101108A	Records Management (PEC1)	clearing
HECO	CIO (PV07)	ITS	CI103	101109A	Printing Services (PEC2)	clearing
HECO	CIO (PV07)	ITS	CI103	101110A	Mailing Services (PEM)	clearing
HECO	CIO (PV07)	IA	CI103	101111A	Cyber Security Policy (PEJ1)	clearing
HECO	CIO (PV07)	IA	CI103	101112A	Cyber Security Threat Analysis (PEJ2)	clearing
HECO	CIO (PV07)	SAS	CI104	various [A]	previously PED	n/a
HECO	CIO (PV07)	SAS	CI104	101114A	Operations Applications (PEG)	clearing
HECO	CIO (PV07)	SAS	CI104	101124A	ERP Systems (PEW)	clearing
HECO	CIO (PV07)	SAS	CI104	101125A	Customer Systems (PEX)	clearing
HECO	CIO (PV07)	SAS	CI104	101126A	Quality Integration & Database Svcs (PEY)	clearing
HECO	CIO (PV07)	EPE	CI105	101115A	Enterprise Planning & Architecture (PEF1)	direct
HECO	CIO (PV07)	EPE	CI105	101116A	CIO Planning & Architecture (PEF2)	clearing
HECO	CIO (PV07)	EPE	CI105	101117A	Enterprise Portfolio Mgmt (PEV1)	direct
HECO	CIO (PV07)	EPE	CI105	101118A	CIO Performance, Finance & Vendor Mgmt (PEV2)	clearing
HECO	CIO (PV07)	EPE	CI105	101119A	Enterprise Project & Program Mgmt (PEP1)	direct
HECO	CIO (PV07)	EPE	CI105	101120A	Enterprise Business Process & Continuous Improvement (PEP2)	direct
HECO	CIO (PV07)	EPE	CI105	101121A	CIO Project & Program Mgmt (PEP3)	clearing
HECO	CIO (PV07)	EPE	CI105	101122A	CIO Business Process & Continuous Improvement (PEP4)	clearing
HECO	CIO (PV07)	EPE	CI105	101123A	Enterprise Knowledge Management (PEK)	direct

Note: Do not use Cost Center codes to charge to IMT, Capital or Prepaid purchases to be amortized, which will be through Internal Orders (IO).

[A] Depending on the type of expense, the user will need to identify one or more cost centers to charge to. Cost centers in future state will represent our services to customers.

For example:
If Camille plans to attend a mainland conference that relates to Desktop Services and Help Desk, she would split the related expenses for travel, registration, lodging, and meals to the following:

X% 101105A Desktop Architecture & Services
Y% 101106A Service Desk

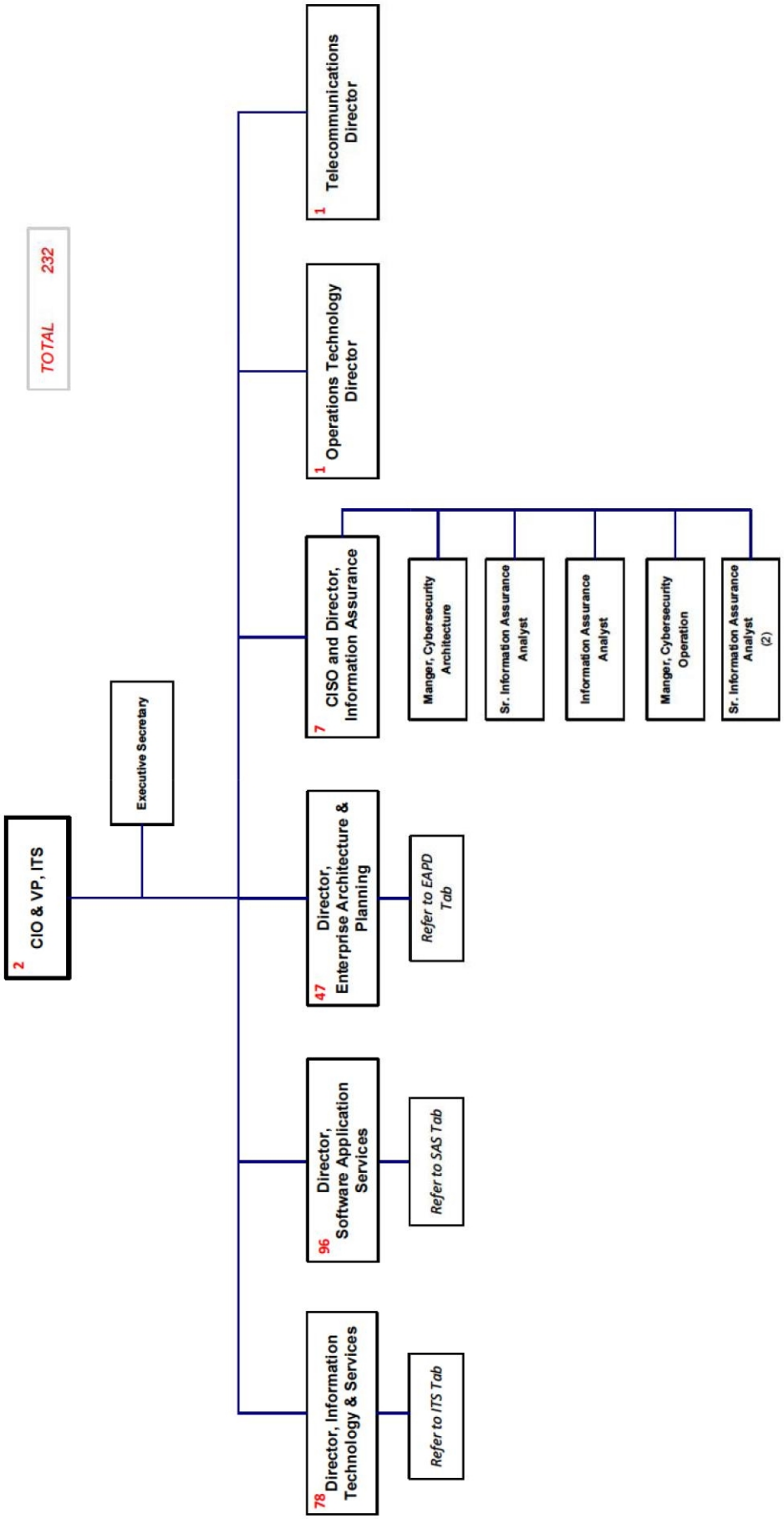
X% + Y% = 100%

Employees outside of the CIO Process Area should not charge to our cost centers.

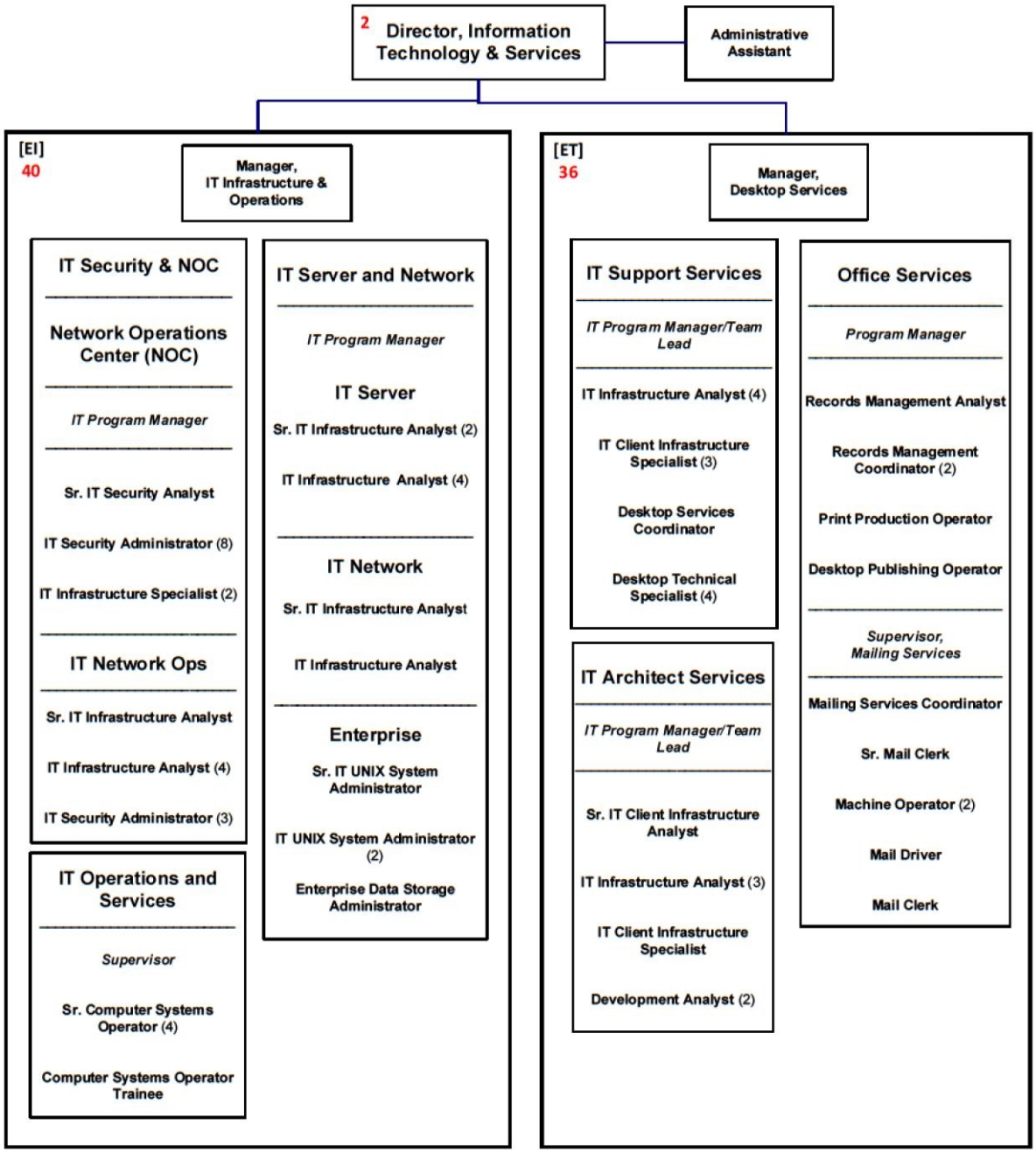
If you are unsure, please inquire with the CIO Finance Team (Celine, Jean or Glenn).

8/19/2019

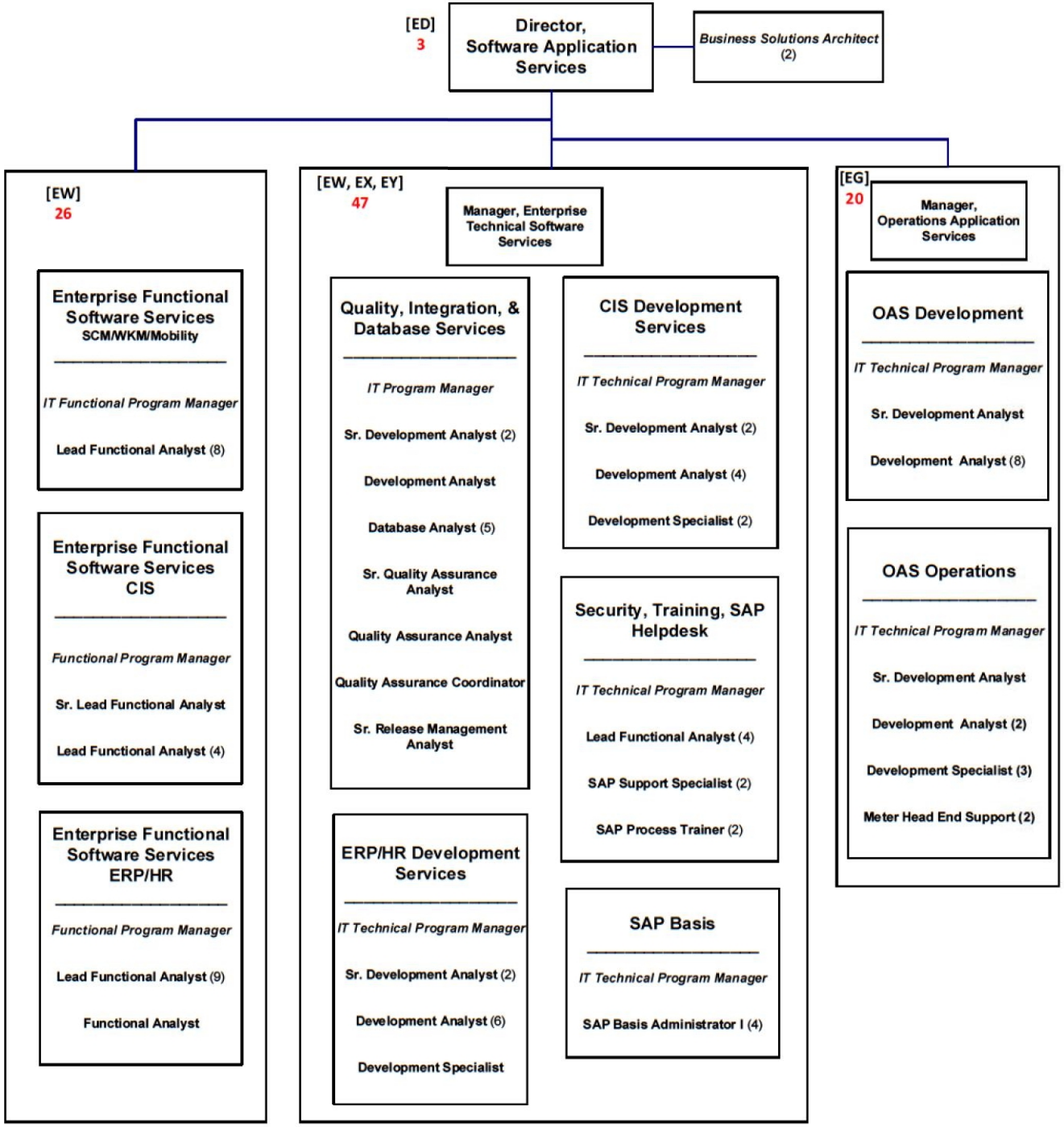
CHIEF INFORMATION OFFICER PROCESS AREA (CIOPA)



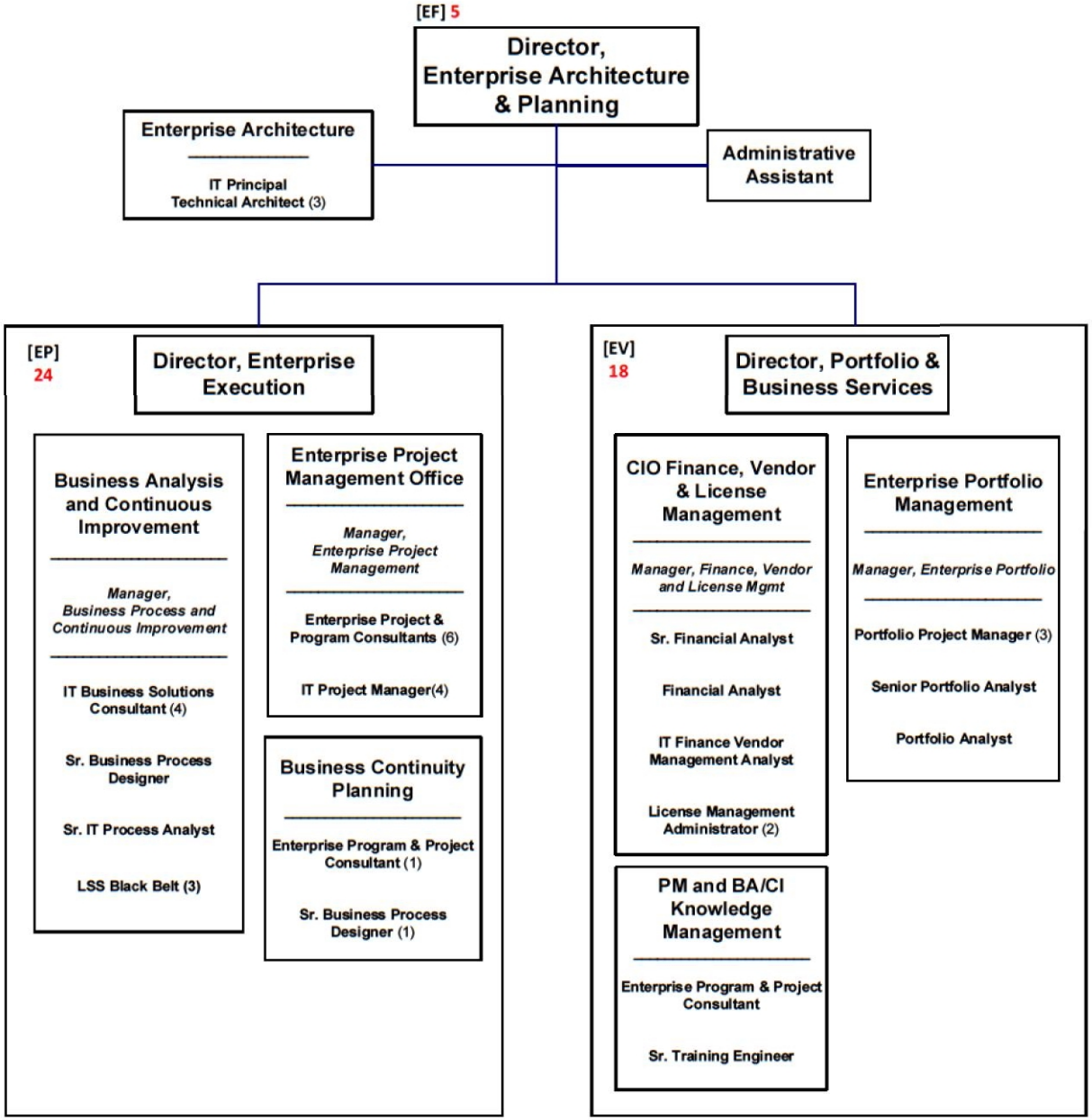
INFORMATION TECHNOLOGY & SERVICES (ITS) DIVISION



SOFTWARE APPLICATION SERVICES (SAS) DIVISION



ENTERPRISE ARCHITECTURE & PLANNING DIVISION (EAPD)



Not Used

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
CIO Process Area
Staffing as of July 31, 2019

		A	B	C	D	E	F	G	H	I	J
				=B-A		=D-B			=F+G		=H+I
		12/31/18 Recorded Headcount	07/31/19 Recorded Headcount	Difference	07/31/19 Budgeted Headcount	Vacancies as of 07/31/19	12/31/19 Budgeted Headcount	Positions Added in 2020	12/31/20 Budgeted Headcount	Adjustments to 12/31/20 Budgeted Headcount	2020 End of Year Headcount
1	Office of the CIO/VP	2	2	0	2	0	2	0	2	0	2
2	Information Technology & Services	68	68	0	72	4	80	0	80	0	80
3	Software Application Services	82	93	11	93	0	94	0	94	0	94
4	Information Assurance	7	7	0	7	0	7	0	7	0	7
5	Enterprise Architecture and Planning	46	44	-2	46	2	47	0	47	0	47
6	Operational Technology	1	1	0	0	-1	1	0	1	0	1
7	Telecom	1	1	0	0	-1	1	0	1	0	1
8	TOTAL	207	216	9	220	4	232	0	232	0	232

Not Used

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
CIO Process Area
Cost Containment / Efficiency / Other Measures
($ Dollars)

	A	B	C	D	E	F	G	H	I
	Cost Savings Estimate								
	2020	2021	2022	Estimated Annual Savings Reflected in 2020 Test Year	Description	Customer Benefits	Timeframe of Implementation	Frequency (On-going or One-time)	Reference
1	743,300	743,300	743,300	743,300	Elimination of 4 positions and change of 1 position from a higher labor class to a lower labor class	O&M expense reduction	2019	On-going	HECO T-17

HECO-1716 contains confidential information and

will be provided after a Protective Order is issued in this proceeding.

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INTRODUCTION

Cyber intrusions into US Critical Infrastructure systems are happening with increased frequency. For many industrial control systems (ICSs), it's not a matter of *if* an intrusion will take place, but *when*. In Fiscal Year (FY) 2015, 295 incidents were reported to ICS-CERT, and many more went unreported or undetected. The capabilities of our adversaries have been demonstrated and cyber incidents are increasing in frequency and complexity. Simply building a network with a hardened perimeter is no longer adequate. Securing ICSs against the modern threat requires well-planned and well-implemented strategies that will provide network defense teams a chance to quickly and effectively detect, counter, and expel an adversary. This paper presents seven strategies that can be implemented today to counter common exploitable weaknesses in "as-built" control systems.

Seven Strategies to Defend ICSs

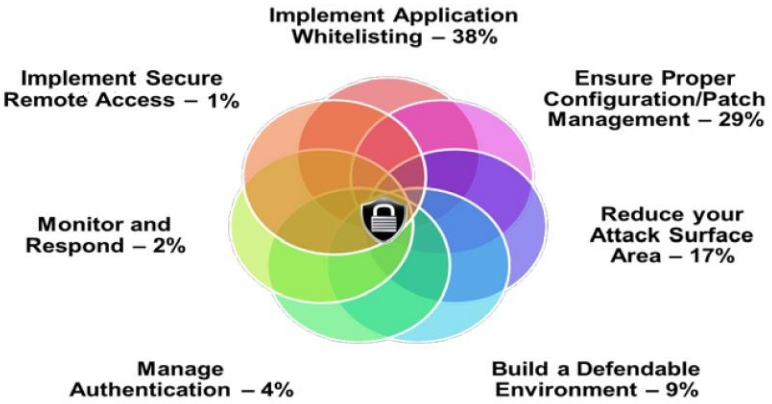

Figure 1: Percentage of ICS-CERT FY 2014 and FY 2015 Incidents Potentially Mitigated by Each Strategy[a]

a. Incidents mitigated by more than one strategy are listed under the strategy ICS-CERT judged as more effective.

If system owners had implemented the strategies outlined in this paper, 98 percent of incidents ICS-CERT responded to in FY 2014 and FY 2015 would have been prevented. The remaining 2 percent could have been identified with increased monitoring and a robust incident response.

THE SEVEN STRATEGIES

1. IMPLEMENT APPLICATION WHITELISTING

*Application Whitelisting (*AWL) can detect and prevent attempted execution of malware uploaded by adversaries. The static nature of some systems, such as database servers and human-machine interface (HMI) computers, make these ideal candidates to run AWL. Operators are encouraged to work with their vendors to baseline and calibrate AWL deployments.

Example: ICS-CERT recently responded to an incident where the victim had to rebuild the network from scratch at great expense. A particular malware compromised over 80 percent of its assets. Antivirus software was ineffective; the malware had a 0 percent detection rate on VirusTotal. AWL would have provided notification and blocked the malware execution.

2. ENSURE PROPER CONFIGURATION/PATCH MANAGEMENT

Adversaries target unpatched systems. A configuration/patch management program centered on the safe importation and implementation of trusted patches will help keep control systems more secure.

Such a program will start with an accurate baseline and asset inventory to track what patches are needed. It will prioritize patching and configuration management of "PC-architecture" machines used in HMI, database server, and engineering workstation roles, as current adversaries have significant cyber capabilities against these. Infected laptops are a significant malware vector. Such a program will limit connection of external laptops to the control network and preferably supply vendors with known-good company laptops. The program will also encourage initial installation of any updates onto a test system that includes malware detection features before the updates are installed on operational systems.

Example: ICS-CERT responded to a Stuxnet infection at a power generation facility. The root cause of the infection was a vendor laptop.

Use best practices when downloading software and patches destined for your control network. Take measures to avoid "watering hole" attacks. Use a web Domain Name System (DNS) reputation system. Get updates from authenticated vendor sites. Validate the authenticity of

downloads. Insist that vendors digitally sign updates, and/or publish hashes via an out-of-bound communications path, and use these to authenticate. Don't load updates from unverified sources.

Example: HAVEX spread by infecting patches. With an out-of-band communication path for patch hashes, such as a blast email, users could have validated that the patches were not authentic.

3. REDUCE YOUR ATTACK SURFACE AREA

Isolate ICS networks from any untrusted networks, especially the Internet.[b] Lock down all unused ports. Turn off all unused services. Only allow real-time connectivity to external networks if there is a defined business requirement or control function. If one-way communication can accomplish a task, use optical separation ("data diode"). If bidirectional communication is necessary, then use a single open port over a restricted network path.

Example: As of 2014, ICS-CERT was aware of 82,000 cases of industrial control systems hardware or software directly accessible from the public Internet. ICS-CERT has encountered numerous cases where direct or nearly direct Internet access enabled a breach. Examples include a US Crime Lab, a Dam, The Sochi Olympic stadium, and numerous water utilities.

4. BUILD A DEFENDABLE ENVIRONMENT

Limit damage from network perimeter breaches. Segment networks into logical enclaves and restrict host-to-host communications paths. This can stop adversaries from expanding their access, while letting the normal system communications continue to operate. Enclaving limits possible damage, as compromised systems cannot be used to reach and contaminate systems in other enclaves. Containment provided by enclaving also makes incident cleanup significantly less costly.[c]

b. ICS-ALERT-14-063-01AP, Multiple Reports of Internet Facing Control Systems, ICS-CERT 2015.

c. Improving Industrial Control Systems Cybersecurity with Defense in Depth, ICS-CERT 2009.

Example: In one ICS-CERT case, a nuclear asset owner failed to scan media entering a Level 3 facility. On exit, the media was scanned, and a virus was detected. Because the asset owner had implemented logical enclaving, only six systems were put at risk and had to be remediated. Had enclaving not been implemented, hundreds of hosts would have needed to be remediated.

If one-way data transfer from a secure zone to a less secure zone is required, consider using approved removable media instead of a network connection. If real-time data transfer is required, consider using optical separation technologies. This allows replication of data without putting the control system at risk.

Example: In one ICS-CERT case, a pipeline operator had directly connected the corporate network to the control network, because the billing unit had asserted it needed metering data. After being informed of a breach by ICS-CERT, the asset owner removed the connection. It took the billing department 4 days to notice the connection had been lost, clearly demonstrating that real-time data were not needed.

5. MANAGE AUTHENTICATION

Adversaries are increasingly focusing on gaining control of legitimate credentials, especially those associated with highly privileged accounts. Compromising these credentials allows adversaries to masquerade as legitimate users, leaving less evidence than exploiting vulnerabilities or executing malware. Implement multi-factor authentication where possible. Reduce privileges to only those needed for a user's duties. If passwords are necessary, implement secure password policies stressing length over complexity. For all accounts, including system and non-interactive accounts, ensure credentials are unique, and change all passwords at least every 90 days.

Require separate credentials for corporate and control network zones and store these in separate trust stores. Never share Active Directory, RSA ACE servers, or other trust stores between corporate and control networks.

Example: One US Government agency used the same password across the environment for local administrator accounts. This allowed an adversary to easily move laterally across all systems.

6. IMPLEMENT SECURE REMOTE ACCESS

Some adversaries are effective at gaining remote access into control systems, finding obscure access vectors, even "hidden back doors" intentionally created by system operators. Remove such accesses wherever possible, especially modems as these are fundamentally insecure.

Limit any accesses that remain. Where possible, implement "monitoring only" access enforced by data diodes, and do not rely on "read only" access enforced by software configurations or permissions. Do not allow remote persistent vendor connections into the control network. Require any remote access be operator controlled, time limited, and procedurally similar to "lock out, tag out." Use the same remote access paths for vendor and employee connections; don't allow double standards. Use two-factor authentication if possible, avoiding schemes where both tokens are similar types and can be easily stolen (e.g., password and soft certificate).

Example: Following these guidelines would have prevented the BlackEnergy intrusions. BlackEnergy required communications paths for initial compromise, installation and "plug in" installation.

7. MONITOR AND RESPOND

Defending a network against modern threats requires actively monitoring for adversarial penetration and quickly executing a prepared response.

Consider establishing monitoring programs in the following five key places:

1) Watch IP traffic on ICS boundaries for abnormal or suspicious communications.
2) Monitor IP traffic within the control network for malicious connections or content.
3) Use host-based products to detect malicious software and attack attempts.
4) Use login analysis (time and place for example) to detect stolen credential usage or improper access, verifying all anomalies with quick phone calls.
5) Watch account/user administration actions to detect access control manipulation.

Have a response plan for when adversarial activity is detected. Such a plan may include disconnecting all Internet connections, running a properly scoped search for malware, disabling affected user accounts, isolating suspect systems, and an immediate 100 percent password reset. Such a plan may also define escalation triggers and actions, including incident response, investigation, and public affairs activities.

Have a restoration plan, including having "gold disks" ready to restore systems to known good states.

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Example: Attackers render Windows®[d] based devices in a control network inoperative by wiping hard drive contents. Recent attacks against Saudi Aramco™[e] and Sony Pictures demonstrate that quick restoration of such computers is key to restoring an attacked network to an operational state.

CONCLUSION

Defense against the modern threat requires applying measures to protect not only the perimeter but also the interior. While no system is 100 percent secure, implementing the seven key strategies discussed in this paper can greatly improve the security posture of ICSs.

DISCLAIMER

The information and opinions contained in this document are provided "as is" and without any warranties or guarantees. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by the United States Government, and this guidance shall not be used for advertising or product endorsement purposes.

ACKNOWLEDGMENT

This document "Seven Steps to Effectively Defend Industrial Control Systems" was written in collaboration, with contributions from subject matter experts working at the Department of Homeland Security (DHS), the Federal Bureau of Investigation (FBI), and the National Security Agency (NSA).

d. Windows® is a registered trademark of Microsoft Corp.

e. Saudi Aramco™ is an unregistered trademark of Saudi Arabian Oil Company.

Homeland Security

NCCIC
National Cybersecurity and Communications Integration Center

CONTACT INFORMATION

POC	Phone	e-Mail
Department of Homeland Security ICS-CERT	877-776-7585	ICS-CERT@HQ.DHS.GOV
Federal Bureau of Investigation Cyber Division - CyWatch	855-292-3937	CyWatch@ic.fbi.gov
National Security Agency (Industry) Industry Inquiries	410-854-6091	bao@nsa.gov
National Security Agency (Government) IAD Client Contact Center	410-854-4200	IAD_CCC@nsa.gov

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Operation and Maintenance Expenses by Process Area and Division
CIO Process Area
Labor and Non-Labor Expenses
($ Thousands)

			A	B	C	D	E	F = D+E
			2020 Operating	(See HECO-WP-1703) Test Year Adjustments				2020 Test Year
	FERC Category	L/NL	Budget	Budget	Normalization	Ratemaking	Total	Estimate
1	Production	L	$ 3,547	$ (143)	$ -	$ -	$ (143)	$ 3,403
2	Production	NL	6,326	(10)	(869)	-	(879)	5,447
3		Subtotal	9,872	(153)	(869)	-	(1,022)	8,850
4	Transmission	L	636	(26)	-	-	(26)	610
5	Transmission	NL	1,134	(2)	(1,197)	-	(1,199)	(65)
6		Subtotal	1,769	(27)	(1,197)	-	(1,225)	545
7	Distribution	L	2,190	(88)	-	-	(88)	2,101
8	Distribution	NL	3,906	(6)	-	-	(6)	3,900
9		Subtotal	6,096	(95)	-	-	(95)	6,001
10	Customer Accounts	L	1,094	(44)	-	-	(44)	1,050
11	Customer Accounts	NL	1,951	(3)	-	-	(3)	1,948
12		Subtotal	3,046	(47)	-	-	(47)	2,998
13	Uncollectible Accounts	NL	-	-	-	-	-	-
14	Customer Services	L	560	(23)	-	-	(23)	537
15	Customer Services	NL	998	(2)	-	-	(2)	996
16		Subtotal	1,557	(24)	-	-	(24)	1,533
17	A&G	L	6,757	(273)	-	-	(273)	6,484
18	A&G	NL	12,271	(19)	-	-	(19)	12,252
19		Subtotal	19,028	(292)	-	-	(292)	18,736
20	ERP Benefits (note D)	L	-	-	-	-	-	-
21	ERP Benefits	NL	-	-	-	(78)	(78)	(78)
22		Subtotal	-	-	-	(78)	(78)	(78)
20	**Total Process Area**	**L**	**14,783**	**(597)**	-	-	**(597)**	**14,186**
23	**Total Process Area**	**NL**	**26,585**	**(41)**	**(2,066)**	**(78)**	**(2,186)**	**24,400**
24		**Grand Total**	**$ 41,368**	**$ (638)**	**$ (2,066)**	**$ (78)**	**$ (2,783)**	**$ 38,586**

Notes:

- Totals may not add exactly due to rounding.

D See HECO-1507 for details of the ERP Benefits.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Operation and Maintenance Expenses by Process Area and Division
CIO Process Area
Labor and Non-Labor Expenses
($ Thousands)

		A	B	C	D	E	F = D+E
		2020 Operating Budget	(See HECO-WP-1703) Test Year Adjustments				2020 Test Year Estimate
			Budget	Normalization	Remaki	Total	
	Total Labor and Non-labor Expense						
	Production						
1	CI104 Software Application Svcs		(72)	(869)	-	(942)	(942)
2	CI105 Enterprise Architecture & Plng (PEFD)		(18)	-	-	(18)	(18)
3	CI106 CIO Allocation	9,872	(63)	-	-	(63)	9,810
4	Production Total	9,872	(153)	(869)	-	(1,022)	8,850
	Transmission						
5	CI104 Software Application Svcs		(13)	(1,197)	-	(1,210)	(1,210)
6	CI105 Enterprise Architecture & Plng (PEFD)		(3)	-	-	(3)	(3)
7	CI106 CIO Allocation	1,769	(11)	-	-	(11)	1,758
8	Transmission Total	1,769	(27)	(1,197)	-	(1,225)	545
	Distribution						
9	CI104 Software Application Svcs		(45)	-	-	(45)	(45)
10	CI105 Enterprise Architecture & Plng (PEFD)		(11)	-	-	(11)	(11)
11	CI106 CIO Allocation	6,096	(39)	-	-	(39)	6,057
12	Distribution Total	6,096	(95)	-	-	(95)	6,001
	Customer Accounts						
13	CI104 Software Application Svcs		(22)	-	-	(22)	(22)
14	CI105 Enterprise Architecture & Plng (PEFD)		(6)	-	-	(6)	(6)
15	CI106 CIO Allocation	3,046	(19)	-	-	(19)	3,026
16	Customer Accounts Total	3,046	(47)	-	-	(47)	2,998
	Customer Services						
17	CI104 Software Application Svcs		(11)	-	-	(11)	(11)
18	CI105 Enterprise Architecture & Plng (PEFD)		(3)	-	-	(3)	(3)
19	CI106 CIO Allocation	1,557	(10)	-	-	(10)	1,548
20	Customer Services Total	1,557	(24)	-	-	(24)	1,533
	A&G						
21	CI101 SVP CIO (P3WD)	4,895	(17)	-	-	(17)	4,878
22	CI104 Software Application Svcs		(66)	-	-	(66)	(66)
23	CI105 Enterprise Architecture & Plng (PEFD)	5,191	(153)	-	-	(153)	5,038
24	CI106 CIO Allocation	8,942	(57)	-	-	(57)	8,885
25	A&G Total	19,028	(292)	-	-	(292)	18,736

Notes: See notes on page 1.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Operation and Maintenance Expenses by Process Area and Division
CIO Process Area
Labor and Non-Labor Expenses
($ Thousands)

		A	B	C	D	E	F = D+E
		2020 Operating Budget	(See HECO-WP-1703) Test Year Adjustments				2020 Test Year Estimate
			Budget	Normalization	Remaki	Total	
	ERP Benefits						
26	CI101 SVP CIO (P3WD)		-	-	(78)	(78)	(78)
27	ERP Benefits Total		-	-	(78)	(78)	(78)
28	Grand Total	41,368	(638)	(2,066)	(78)	(2,783)	38,586
	Labor Expense	14,783	(597)	-	-	(597)	14,186
	Production						
29	CI104 Software Application Svcs		(68)	-	-	(68)	(68)
30	CI105 Enterprise Architecture & Plng (PEFD)		(17)	-	-	(17)	(17)
31	CI106 CIO Allocation	3,547	(59)	-	-	(59)	3,488
32	Production Total	3,547	(143)	-	-	(143)	3,403
	Transmission						
33	CI104 Software Application Svcs		(12)	-	-	(12)	(12)
34	CI105 Enterprise Architecture & Plng (PEFD)		(3)	-	-	(3)	(3)
35	CI106 CIO Allocation	636	(11)	-	-	(11)	625
36	Transmission Total	636	(26)	-	-	(26)	610
	Distribution						
37	CI104 Software Application Svcs		(42)	-	-	(42)	(42)
38	CI105 Enterprise Architecture & Plng (PEFD)		(10)	-	-	(10)	(10)
39	CI106 CIO Allocation	2,190	(36)	-	-	(36)	2,154
40	Distribution Total	2,190	(88)	-	-	(88)	2,101
	Customer Accounts						
41	CI104 Software Application Svcs		(21)	-	-	(21)	(21)
42	CI105 Enterprise Architecture & Plng (PEFD)		(5)	-	-	(5)	(5)
43	CI106 CIO Allocation	1,094	(18)	-	-	(18)	1,076
44	Customer Accounts Total	1,094	(44)	-	-	(44)	1,050
	Customer Services						
45	CI104 Software Application Svcs		(11)	-	-	(11)	(11)
46	CI105 Enterprise Architecture & Plng (PEFD)		(3)	-	-	(3)	(3)
47	CI106 CIO Allocation	560	(9)	-	-	(9)	550
48	Customer Services Total	560	(23)	-	-	(23)	537

Notes: See notes on page 1.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Operation and Maintenance Expenses by Process Area and Division
CIO Process Area
Labor and Non-Labor Expenses
($ Thousands)

		A	B	C	D	E	F = D+E
		2020 Operating Budget	(See HECO-WP-1703) Test Year Adjustments				2020 Test Year Estimate
			Budget	Normalization	Remaki	Total	
	A&G						
49	CI101 SVP CIO (P3WD)	389	(16)	-	-	(16)	373
50	CI104 Software Application Svcs		(61)	-	-	(61)	(61)
51	CI105 Enterprise Architecture & Plng (PEFD)	3,156	(143)	-	-	(143)	3,013
52	CI106 CIO Allocation	3,212	(53)	-	-	(53)	3,159
53	A&G Total	6,757	(273)	-	-	(273)	6,484
	Non-labor Expense	26,585	(41)	(2,066)	(78)	(2,186)	24,400
	Production						
54	CI104 Software Application Svcs		(5)	(869)	-	(874)	(874)
55	CI105 Enterprise Architecture & Plng (PEFD)		(1)	-	-	(1)	(1)
56	CI106 CIO Allocation	6,326	(4)	-	-	(4)	6,322
57	Production Total	6,326	(10)	(869)	-	(879)	5,447
	Transmission						
58	CI104 Software Application Svcs		(1)	(1,197)	-	(1,198)	(1,198)
59	CI105 Enterprise Architecture & Plng (PEFD)		(0)	-	-	(0)	(0)
60	CI106 CIO Allocation	1,134	(1)	-	-	(1)	1,133
61	Transmission Total	1,134	(2)	(1,197)	-	(1,199)	(65)
	Distribution						
62	CI104 Software Application Svcs		(3)	-	-	(3)	(3)
63	CI105 Enterprise Architecture & Plng (PEFD)		(1)	-	-	(1)	(1)
64	CI106 CIO Allocation	3,906	(2)	-	-	(2)	3,903
65	Distribution Total	3,906	(6)	-	-	(6)	3,900
	Customer Accounts						
66	CI104 Software Application Svcs		(1)	-	-	(1)	(1)
67	CI105 Enterprise Architecture & Plng (PEFD)		(0)	-	-	(0)	(0)
68	CI106 CIO Allocation	1,951	(1)	-	-	(1)	1,950
69	Customer Accounts Total	1,951	(3)	-	-	(3)	1,948
	Customer Services						
70	CI104 Software Application Svcs		(1)	-	-	(1)	(1)
71	CI105 Enterprise Architecture & Plng (PEFD)		(0)	-	-	(0)	(0)
72	CI106 CIO Allocation	998	(1)	-	-	(1)	997
73	Customer Services Total	998	(2)	-	-	(2)	996

Notes: See notes on page 1.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Operation and Maintenance Expenses by Process Area and Division
CIO Process Area
Labor and Non-Labor Expenses
($ Thousands)

		A	B	C	D	E	F = D+E
		2020 Operating Budget	(See HECO-WP-1703) Test Year Adjustments				2020 Test Year Estimate
			Budget	Normalization	Remaki	Total	
	A&G						
74	CI101 SVP CIO (P3WD)	4,506	(1)	-	-	(1)	4,505
75	CI104 Software Application Svcs		(4)	-	-	(4)	(4)
76	CI105 Enterprise Architecture & Plng (PEFD)	2,035	(10)	-	-	(10)	2,025
77	CI106 CIO Allocation	5,730	(4)	-	-	(4)	5,726
78	A&G Total	12,271	(19)	-	-	(19)	12,252
	ERP Benefits						
79	CI101 SVP CIO (P3WD)		-	-	(78)	(78)	(78)
80	ERP Benefits Total		-	-	(78)	(78)	(78)
81	Grand Total	41,368	(638)	(2,066)	(78)	(2,783)	38,586

Notes: See notes on page 1.

Hawaiian Electric Company, Inc.
2020 Test Year Rate Case
Operation and Maintenance Expense - Historical Comparison by Division
CIO Process Area
($ Thousands)

		A	B	C	D	E	F	G	H =F+G
							2020		
	Division	2014	2015	2016	2017	2018	Budget	Total Adjustment	TY Estimate
Labor and Non-labor									
CI101	SVP CIO (P3WD)	553	610	716	4,923	7,401	4,895	(95)	4,800
CI103	Infrastructure & Operations	1,961	2,005	1,746	1,783	1,291	-	-	-
CI104	Software Application Svcs	2,346	31	112	120	119	-	(2,296)	(2,296)
CI105	Enterprise Perf Exc (PEFD)	3,348	4,160	4,385	4,839	4,740	5,191	(193)	4,998
CI106	CIO Allocation	18,924	21,364	20,782	20,550	23,183	31,283	(199)	31,084
Total		**27,132**	**28,169**	**27,741**	**32,214**	**36,734**	**41,368**	**(2,783)**	**38,586**
Labor		**3,582**	**3,467**	**3,973**	**3,231**	**2,347**	**14,783**	**(597)**	**14,186**
CI101	SVP CIO (P3WD)	306	351	344	267	292	389	(16)	373
CI103	Infrastructure & Operations	852	914	782	831	533	-	-	-
CI104	Software Application Svcs	542	33	12	27	15	-	(215)	(215)
CI105	Enterprise Perf Exc (PEFD)	1,882	2,169	2,835	2,106	1,507	3,156	(180)	2,975
CI106	CIO Allocation						11,238	(186)	11,052
Non-Labor		**23,550**	**24,703**	**23,768**	**28,983**	**34,387**	**26,585**	**(2,186)**	**24,400**
CI101	SVP CIO (P3WD)	246	259	373	4,656	7,109	4,506	(79)	4,427
CI103	Infrastructure & Operations	1,109	1,091	964	951	758	-	-	-
CI104	Software Application Svcs	1,804	(2)	100	94	104	-	(2,081)	(2,081)
CI105	Enterprise Perf Exc (PEFD)	1,467	1,991	1,550	2,733	3,233	2,035	(13)	2,023
CI106	CIO Allocation	18,924	21,364	20,782	20,550	23,183	20,044	(13)	20,032
Total		**27,132**	**28,169**	**27,741**	**32,214**	**36,734**	**41,368**	**(2,783)**	**38,586**

Note: Totals may not tie due to rounding

TESTIMONY OF
CLAIRE K.S. COOPER

VICE PRESIDENT, HUMAN RESOURCES and
CHIEF PEOPLE STRATEGIST

Subject: Headcount, Total Compensation, Employee Benefits, and Workforce Issues in Strategic Transformation

EXECUTIVE SUMMARY

Headcount, Employee Benefits, Total Compensation and Workforce Issues

- Hawaiian Electric Company, Inc. ("Hawaiian Electric" or "Company") recognizes the critical importance of reducing the State's dependence on fossil fuels, ensuring utility facilities are properly maintained in order to provide safe, reliable and affordable electric service for the Company's customers, and operating in a financially sound manner. To meet these important objectives, the Company forecasts the need for a total average number of 2,301 employees for the test year 2020.
- The Company has had some changes to its organization structure to better align the organization as one company and to improve efficiency and effectiveness. Headcount has increased from 2017 actual headcount compared to the test year 2020 forecast by 5.89%, largely due to transformation initiatives, partially offset by Enterprise Resource Planning (ERP) benefits.
- Competitive benefit and compensation programs are critical for the recruitment and retention of high capability talent to meet the challenges of transforming the Company's electric system to a modernized system with a reduced reliance on fossil fuels. Since the Company invests significant resources to train and develop skilled utility workers, employee retention is a critical consideration in designing the compensation package.

- Hawaiian Electric Company's "Total Compensation" package consists of two integrated elements: (1) cash compensation and (2) a package of benefits for health, retirement and insurance. The Total Compensation package reflects the location where Hawaiian Electric employees work, the type of work performed, and the proper incentives to keep the Company's workforce safe, healthy and productive.
- The Company regularly evaluates the competitiveness of its Total Compensation package by having a third-party consultant perform a Total Compensation Review. The review conducted in 2018 concluded that the Company's Total Compensation package is competitive with the market, and peer companies.
- The Company has implemented cost control measures for its employee benefits programs including post-retirement medical plans, defined benefit retirement plans, and unpaid leave and worker's compensation programs. A Voluntary Retirement Incentive Program was also offered in 2019. A collective bargaining agreement ("CBA") with the International Brotherhood of Electrical Workers Local 1260 ("IBEW" or "union") was extended effective November 1, 2018 for union employees with no changes to employee benefits. Changes in benefits from the former agreement (effective July 1, 2013) will continue to achieve savings in the cost of benefits for all employees over time, while maintaining a balanced compensation package.

- The Strategic Transformation Plan[1] provides both opportunities and challenges for the Company's workforce. The transition to renewables and grid modernization provides opportunities to develop and transition the Company's workforce for the highly skilled jobs of the future. The Strategic Transformation Plan also has the challenges of managing change during an increasingly competitive labor market and maintaining a steadfast focus on providing safe and reliable service.
- The Company and the union recognize the need for collaboration to meet the challenges of the future and have partnered to develop innovative methods and concepts.

[1] See HECO-101 for the Strategic Transformation Plan, and additional testimony in HECO T-13. The Plan builds a strong foundation for the Company's 2030 Vision and 2020 goals (in three areas: Quality customer experience and innovative energy solutions; Modern grid and technology platform; and Cost-effective, clean energy portfolio), by building a strong foundation (focused on: Safety, Employees, External Stakeholder, Financial Health, Market and Regulatory Models).

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INTRODUCTION

Q. Please state your name and business address.

A. My name is Claire Cooper and my business address is 220 South King Street, Suite 1710, Honolulu, Hawai'i, 96813.

Q. By whom are you employed and in what capacity?

A. I am employed by Hawaiian Electric Company, Inc. ("Hawaiian Electric" or "Company") as the Vice President of Human Resources and Chief People Strategist. My educational background and experience are provided in HECO-1800.

Q. What is your area of responsibility in this proceeding?

A. I am responsible for presenting the Company's employee headcount, total compensation (to include benefits) and workforce issues for our Transformation Plan for the test year 2020. My testimony will also discuss Hawaiian Electric Company's overall organizational changes and structure since December 31, 2017.

Q. Who discusses the need for additional employees for the other areas in the Company?

A. The following individual witnesses will address the estimated number of positions required by their areas in their respective testimonies:

1) Colton Ching – Planning and Technology (HECO T-3);
2) Michael DeCaprio – Power Supply (HECO T-10);
3) Mark Shimabukuro – Energy Delivery, SVP Operations, Grid Modernization (HECO T-11);
4) Kevin Saito – System Operation (HECO T-12);
5) Jimmy Alberts – Corporate Planning and Business Development (HECO T-13);
6) Shelee Kimura – Customer Service (HECO-T14);
7) Trung Ha – O&M Aggregation (HECO T-15);

8) Jason Benn – Chief Information Officer (HECO T-17); and

9) Larry Keola Siafuafu – Enterprise Operations Services (HECO T-21).

ORGANIZATION STRUCTURE

Q. What is Hawaiian Electric's current organizational structure, including reporting relationships among the departmental organizations?

A. The management organization charts in HECO-1801 (Organizational Charts) show the current organizational structure, reporting relationships and staffing levels as of May 31, 2019.

Q. What organizational changes have occurred since January, 2017?

A. The key changes at the executive level include: (1) the creation of a new process area named Enterprise Operations Services headed by a new vice president, Larry Keola Siafuafu who reports to the Senior Vice President ("SVP") of Operations; (2) an executive "swap" for executive development purposes between the SVP Customer Service and the SVP Business Development and Strategic Planning areas effective February 2, 2019; (3) the addition of three new vice presidents as of January 1, 2019 – (i) AJ Halagao, VP Marketing, reporting to Jim Alberts, SVP Business Development and Strategic Planning; (ii) Erin Kippen, VP Legal, reporting to Susan Li, SVP and Chief Administrative Officer; and (iii) Claire Cooper, VP Human Resources and Chief People Strategist, reporting to Susan Li;[2] and (4) the retirement

[2] The new positions of VP Legal and VP Human Resources and Chief People Strategist were named in anticipation of the retirement of the SVP Chief Administrative Officer in early 2020.

of Cecily Barnes, VP Energy Delivery, on August 1, 2019, who was succeeded by Rodney Chong, previously the Director of Grid Modernization.

Q, Have there been other organizational changes since 2017?

A. There have been numerous organization changes in order to facilitate the One Company initiative to streamline our processes across all companies and improve efficiencies, along with the creation of new areas related to our Transformation Plan. Our current organization is reflected in our organization charts in HECO-1801.

Q. What key events have occurred since the last time the Company filed testimony on the subject of employee benefits and wages in Hawaiian Electric's 2017 test year rate case?

A. The Collective Bargaining Agreement ("CBA") with the International Brotherhood of Electrical Workers Local 1260 ("IBEW") cited in the 2017 test year rate case (Docket No. 2016-0328) was extended via ratification effective November 1, 2018 and ending October 31, 2021. The agreement extends the same benefits ("Benefit Agreement"), as further explained in this testimony.[3] The only change to the CBA was an annual general wage increase of three percent per year non-compounded beginning on January 1, 2019 through January 1, 2021. With over 43 percent of Hawaiian Electric employees represented by the union, the collective bargaining process plays a significant role in both the total compensation and individual benefit plans offered to employees.

[3] See HECO-1833, 2018-2021 MOU, Attachment A and CBA.

Q. What has been the general nature and impact resulting from the CBA and Benefit Agreement?

A. For union-represented employees, benefit plan provisions are an integral component of the overall labor contract between the union and the Company. The areas of medical care and retirement income benefits represent a significant concern in the CBA negotiations. Negotiations resulted in the following key results: (1) a three-year contract; (2) a consolidated CBA (covering all three Companies, Hawaiian Electric, Hawai'i Electric Light Company, Inc. ("Hawai'i Electric Light") and Maui Electric Company, Limited ("Maui Electric")) which includes the Benefit Agreement, and (3) a percentage based schedule for the employee health and welfare program contributions, compared to a fixed dollar contribution.

Due to rising healthcare costs and the volatility of utilization rates, it is difficult for the Company to determine a fixed contribution amount that is appropriate and fair. Thus, a percentage-based schedule which requires employees to contribute a percentage of the premium cost creates a partnership between the Company and the employees to manage healthcare utilization and costs. Should the premium costs decrease, both the Company and the employee would benefit from decreased costs. Currently, the percentage-based schedule requires contributions of 80 percent by the Company and 20 percent by the employee (not including the flex credits given to employees).

The multi-year period of the CBA provides cost certainty over a longer length of time for both employees and the Company and maintains a balanced

compensation package that will attract and retain a skilled workforce. The potential cost impact of the Benefit Agreement is further discussed in this testimony under the section entitled "Cost Control Measures."

Q. Why are management employees affected by the CBA and Benefit Agreement?

A. The Company considers labor market changes, which include the negotiated general wage increase and benefits for union employees, to establish the merit salary increase and benefits for its non-union management employees. Although there are differences in the respective labor markets, in determining compensation for bargaining unit and management employees the Company balances the issues of pay equity (relative pay across positions), pay compression (pay differential between supervisors and employees), recruitment, retention, and cost containment. The approach to determine management employees' merit salary increase is discussed in further detail in the section on "Compensation." The Company considers union and non-union management employees as one workforce.

Current Organizational Structure

Q. What is Hawaiian Electric's current organizational structure, including reporting relationships among the divisional organizations?

A. The management organization charts in HECO-1801 (Organizational Charts) show the current organizational structure, reporting relationships and staffing levels as of May 31, 2019. As the Company continues to implement the Transformation Plan along with the One-Company initiative, further reorganizations may occur in order to efficiently and effectively meet business and customer needs while providing reliable and safe service.

1 Company Test Year Headcount

2 Q. What is the Company's total average number of employees for the test year?

3 A. The Company's total average number of employees for the test year 2020, prior to
4 any ERP benefit reductions is 2,320. The Company average number of employees
5 for the test year including ERP benefit reductions is 2,299. Please refer to HECO-
6 1802 for test year 2020 headcount forecasts, and Mr. Trung Ha's testimony (HECO
7 T-15) for the ERP benefit reduction information.

8 Q. What is the Company's total forecast number of employees at the end of year 2020?

9 A. The Company's end of year forecast prior to any ERP benefit reductions is 2,322.
10 Whereas, the Company's end of year forecast including the ERP benefit reduction is
11 2,301. Please refer to HECO-1804 for the end of year headcount forecasts and Mr.
12 Trung Ha's testimony (HECO T-15) for the ERP benefit reduction information.

13 Q. Please define "employee" as used in this testimony.

14 A. For purposes of this testimony, the employee count includes regular, temporary and
15 probationary employees, but excludes temporary agency help and contractors. For a
16 description of the various types of employees, refer to HECO-1803 (Headcount
17 Definitions).

18 Q. How was the average test year headcount created?

19 A. The average test year headcount is based on a 13-month average. January is
20 included twice to capture the start of the month and the end of the month.

21 Q. How were the estimates of the number of employees developed?

A. The estimates were developed as part of the Company's budgeting process. Generally, Directors establish the personnel requirements for their areas by reviewing the planned workload (e.g., capital projects, non-capital projects, nonrecurring activities or normal day-to-day activities) to determine the labor "demand" that will be required to accomplish the work.

Management also reviews the forecasted labor supply within the existing workforce (including impacts such as anticipated retirements during the forecast period). When the planned labor demand exceeds the forecasted labor supply available, the individual work activities are prioritized and certain work is identified to be performed on an overtime basis, contracted out, performed by temporary personnel, or, in some cases, deferred. If the demands on existing staff are excessive, or if the additional workload is expected to be ongoing, the hiring of additional staff may be budgeted.

Q. How does the test year average budgeted count of 2,322 compare to Hawaiian Electric's December 31, 2018 year-end actual headcount?

A. The actual headcount on December 31, 2018 was 2,148 (an increase of 174 over budgeted headcount).

Q. What is the impact of the reorganizations on headcount?

A. The reorganizations due to One Company are not expected to result in increases to headcount, with the exception of newly created work which will be determined as the reorganizations are finalized. Wherever possible, newly created positions will be

filled by repurposing existing positions or by not backfilling vacancies. Please see section below on Organization Headcount for further explanation on headcount.

Q. Can the Company increase overtime in place of hiring additional employees?

A. Yes, but only for a limited time, and not for all employees. Excessive overtime over long periods will lead to employee fatigue, which will result in lower quality work or increased safety risks. Also, excessive overtime may lower morale and productivity and increase the risk of employees leaving the Company. As explained later in my testimony, non-union management employees classified as exempt are not paid for overtime except under special circumstances.

Q. Can the Company continue to use contractors and temporary help to complete its work requirements?

A. It can to some extent. Where very specialized and nonrecurring tasks are required to be performed, the hiring of contractors or agency workers on a temporary basis may be the most cost-effective method for the Company to perform its work. In cases where it has been difficult to fill positions, Hawaiian Electric has supplemented its workforce through the use of consultants, contractors and temporary agency workers, in addition to increasing overtime for existing staff. But, generally, hiring regular employees to perform normal and ongoing required work is more cost efficient and effective in the long run.

Q. Why would regular employees be more efficient and effective over the long-term?

A. Having regular employees knowledgeable of Company-specific issues eliminates the learning curve (and associated time) required by consultants, contractors or

temporary workers. In addition, rather than spending time continually conducting searches and negotiating contracts for temporary resources, using skilled regular employees will allow the Company the flexibility to assign and reassign duties and functions. Furthermore, the quality of work produced will be improved because of the direct supervision and daily communication that takes place with regular employees. Having a more efficient and effective regular workforce will lower costs in the long-term, benefitting the Company and its customers.

Vacancy Rate Adjustment

Q. What is the budgeted vacancy rate for the test year?

A. The vacancy rate for the test year is 4.039 percent. Please refer to Mr. Trung Ha's testimony (HECO T-15) for further explanation on vacancy rate calculations and how the vacancy rate is applied in preparing budgets.

Q. Why did the Company implement a vacancy adjustment to the test year labor estimate?

A. In recognition of the challenges the Company has had in filling all needed positions due to employee turnover and a tight labor market, the Company reduced its operations and maintenance ("O&M") cost to reflect a 4.039 percent labor cost adjustment.

Q. If the Company attains a staffing count closer to the test year estimated average of 2,322 at year end of 2019, will the Company request a change to the proposed labor cost adjustment?

A. Yes. Since the Company plans to continue to fill its vacant positions through the end of 2019 and into the test year, in subsequent data submittals for this rate case, Hawaiian Electric may seek a reduction to the labor cost adjustment based on the actual employee count at the end of 2019.

Q. Why weren't further adjustments made to the test year labor estimate?

A. Further labor estimate adjustments would result in a significant understatement of the 2020 O&M expenses, unless commensurate upward revisions were made to reflect the additional costs for overtime, contract services and temporary hires in order to accomplish the forecasted workload.

Q. Please discuss how Hawaiian Electric temporarily reassigns work to exempt management (non-bargaining unit) employees in addition to their regular responsibilities.

A. Many of Hawaiian Electric's exempt management employees were promoted from within the Company and possess key knowledge and skills from previous jobs held. At times when a position becomes vacant and an immediate replacement is not found, Hawaiian Electric's exempt management employees take on additional work to ensure that key duties and tasks are performed, ensuring that reliability and service to customers are not compromised. This practice is a temporary measure that cannot continue for an indefinite period of time contractually. As a result, if the vacancies are not filled, certain work will not get done and employee morale and effectiveness will decline.

Q. Are management exempt employees paid additional compensation to temporarily take on responsibilities in addition to their regular responsibilities?

A. Management employees classified as exempt are not paid for overtime. This group of exempt employees includes non-bargaining supervisory, professional and managerial level employees. While many exempt employees work well beyond the standard 40-hour work week, they receive no additional compensation except under extreme circumstances, such as severe storms, or when approved by Hawaiian Electric's executives (e.g. for a temporary assignment to a higher-level role and/or responsibilities).

Q. Where is the discussion of headcount variances/explanations provided?

A. Please see Mr. Trung Ha's testimony (Exhibits HECO-1505A-1505F) for headcount explanations in the A&G areas. For other process areas, please refer to the testimonies listed above on pages 1-2.

SUMMARY OF TOTAL COMPENSATION PROGRAM AND ESTIMATED COSTS

Q. What is the purpose of Total Compensation?

A. Total Compensation is a term used to represent a total package of pay and benefits to retain and attract a skilled workforce needed to provide safe and reliable energy service for the Company's customers.

Q. What are the components of a Total Compensation program?

A. In this rate case two main components of Total Compensation are presented: (1) Cash compensation, and (2) Health, retirement, and insurance benefits, often referred to as Health and Welfare benefits.

Table 18-1, below, lists components of Hawaiian Electric's employee Total Compensation and specifies whether they are included in the 2020 test year revenue requirement estimate. The items that are excluded from the revenue requirement are necessary to competitively compensate and retain Hawaiian Electric's employees, but the Company has chosen to exclude these items in order to minimize contentious issues in this rate case. The Company reserves the right to propose recovery of these costs in future rate cases.

Table 18-1

Components of Hawaiian Electric Company's Employee Compensation

Component	Included in 2020 Test Year Revenue Requirement	Not Included in 2020 Test year Revenue Requirement
Base Pay	X	
Other management bonuses (All Team Incentive (ATI) and Management Award Program (MAP)), incentives and pay related components such as service awards, retirement incentives.		X
Retirement/Savings Benefits: Defined benefit pension, defined contribution retirement and non-qualified retirement plans	X	
Health/Group Benefits: Pre-retirement and post-retirement medical and dental plans, pre-retirement and post-retirement life insurance plans, long term care, flexible spending accounts and short-term disability plans	X	
Accidental Death and Dismemberment	X	
Long-Term Disability	X	
Workers' Compensation Program	X	
Long-Term Incentives		X
Executive Incentive Compensation		X

Q. Please describe Hawaiian Electric's approach to compensating its workforce.

A. The electric utility business and Hawai'i's energy environment are changing rapidly, as technology, consumer and energy supply options evolve at a dramatic pace. To meet these challenges, Hawaiian Electric must offer a comprehensive and competitive Total Compensation package designed to attract and retain skilled employees. The Total Compensation package considers the type of jobs in the

marketplace, the work performed, and the proper incentives to keep the Company's workforce safe, healthy and productive.

While competitive wages and salaries are an important factor for all employees, the relative value of healthcare and retirement benefits can vary for different employees. Therefore, the Company strives to attract and retain current and future employees who have critical technical and business skills by striking a strategic balance between cash compensation and benefits, resulting in a Total Compensation package that is market-competitive. The Company annually reviews the individual components of its Total Compensation package and makes adjustments to keep the overall package relevant and competitive. Discussion of the market-competitiveness of the Company's benefits programs is provided by Mr. Yannick Gagne in HECO T-19 and by Mr. Malcolm Tajiri in HECO T-20.

Q. What is Hawaiian Electric's 2020 test year estimate for benefits?

A. Table 18-2, below, summarizes the 2020 test year estimate by benefits program area (totals may not tie exactly due to rounding):

Table 18-2

A&G Expenses – Employee Benefits

Category	2020 Test Year Estimate ($)
Employee Pensions and Benefits (account 926000)	
Qualified Pension Plan	$44,099,000
Non-Qualified Pension Plans	0
Other Postretirement Benefits	-230,000
Defined Contribution Plan	2,930,200
Other Benefits/Administration	741,700
Labor	789,800
Total Employee Pensions and Benefits	$48,330,800
Employee Benefits - Flex Credits (account 926000)	
Employee Contribution	-$6,851,300
Group Medical Plan	35,607,800
Group Dental Plan	1,940,200
Group Vision Plan	343,500
Group Life Insurance Plan	860,600
Long-Term Disability	582,300
Group Long Term Care	74,500
Total Employee Benefits – Flex Credits	$32,557,700
Other (account 926000)	
Employee Benefits Transfer	-$33,210,800
ERP Benefits Add-back	1,040,400
ERP Benefits Adjustment	-1,635,000
Labor Vacancy Adjustment	-31,900
Total Other	-$33,837,400
Employee Benefits Charged to O&M	**$47,051,000**

Q. What adjustments were made to the 2020 operating budget to derive the 2020 test year estimate for employee benefit cost?

A. A total reduction of -$5,105,400 in budget, normalization and ratemaking adjustments were made to the 2020 operating budget to derive the 2020 test year estimate for the employee benefit costs. See HECO-1850 for all adjustments, as only the largest adjustments are discussed below. A budget reduction of -$11,997,800 was made to reflect the most current estimates of Net Periodic Pension Costs ("NPPC") and other qualified pension costs. Normalization and budget adjustments were made for Flex and health and welfare benefits, totaling $3,268,700. Lastly, budget adjustments totaling $3,485,100 were made for Employee Benefits Transfer, ERP add-back and adjustment, and Employee Vacancy Adjustment.

Q. How do the employee benefit costs charged to O&M expenses for the 2020 test year compare to the 2018 recorded amount?

A. In total, the 2020 test year benefits expenses are lower than 2018 recorded amounts by -$19,249,700, as shown in Table 18-3 below (totals may not tie due to rounding). The primary drivers of the decrease are: (1) a decrease of -$23,727,300 in qualified pension benefit costs, (2) a decrease of -$475,300 in non-qualified pension benefit costs, (3) an increase of $367,200 in OPEB costs, (4) an increase of $1,117,200 in defined contribution costs, (5) a decrease of -$1,688,600 in other benefits administration costs, (6) an increase of $288,800 in labor, (7) an increase of $9,601,600 in health and welfare benefits, (8) a decrease in costs transferred to

capital of -$4,106,700[4], and (9) a decrease in net ERP benefits (savings) of -$594,700. Please refer to column (l) of HECO-1850 for additional details.

Table 18-3

Benefits Expense 2018 Recorded Costs to 2020 Test Year Estimate Variances

Benefit Category	2018 Recorded to 2020 Test Year Variance ($)
Employee Pensions and Benefits (account 926000)	
Net Periodic Pension Cost	-12,151,200
Amortization of Regulatory Asset –Tracker (Pension)	-12,841,500
Non Service Reg Asset Amortization	382,000
Non Service Costs	883,400
Non-Qualified Pension Plans	-475,300
Net Periodic Benefit Cost	-182,200
Adjustment for Executive Life Program	-47,900
Amortization of Regulatory Asset-Tracker (OPEB)	424,300
Retiree Drug Subsidy	173,100
Defined Contribution Plan	1,117,200
Other Benefits/Administration	-1,688,600
Labor	288,800
Total Employee Pensions and Benefits	-$24,118,100
Employee Benefits - Flex Credits (account 926000)	
Flex Credit Less Prices	-3,648,300
Employee Contribution	1,511,300
Group Medical Plan	11,561,900
Group Dental Plan	203,800
Group Vision Plan	27,500
Group Life Insurance Plan	-197,300
Long-Term Disability	134,000
Group Long Term Care	8,700
Total Employee Benefits – Flex Credits	$9,601,600

[4] See HECO-WP-1512B for Employee Benefits Transfer.

Benefit Category	2018 Recorded to 2020 Test Year Variance ($)
Other (account 926000)	
Employee Benefits Transfer	-$4,106,700
ERP Benefits Add-back	$1,040,400
ERP Benefits Adjustment	-$1,635,000
Labor Vacancy Adjustment	-$31,900
Employee Benefits Charged to O&M	**-$19,249,700**

The decrease in pension cost is driven by a decrease in pension expense, amortization of the pension tracker, and non-qualified pension plans, offset by increases in non-service pension cost and amortization, discussed further by Mr. Yannick Gagne in HECO T-19 and by Ms. Patsy Nanbu in HECO T-16. The Employee Benefits-Flex Credits increases are driven by an increase in group medical, dental and vision plan costs, offset by decreases in group life insurance costs (discussed further by Mr. Malcolm Tajiri in HECO T-20). Accidental Death and Dismemberment Insurance ("AD&D") is a new benefit that will be provided to employees at no additional cost to the employee (HECO-1873). As discussed further in this testimony and in HECO T-19 and HECO T-20, the Company's employee benefit plans are a critical component of its total compensation and are comparable with other market and peer companies.

Q. What account does Hawaiian Electric use to record employee benefit expense?

A. Employee benefit and pension expenses are recorded in account no. 926000.

Q. Are all employee benefit costs charged to O&M expense?

A. No. Employee benefit costs charged to O&M expense are the net amount resulting from the total cost of employee benefits (account no. 926000), less the amount transferred to construction and to other accounts (account no. 926020). The amount transferred to construction and to other accounts is explained by Mr. Trung Ha in HECO T-15.

COMPENSATION

Q. How does the Company determine the appropriate value and composition of the Total Compensation package?

A. In order to offer a competitive Total Compensation package of cash compensation and benefits, the Company evaluates the competitiveness and reasonableness of its offerings by benchmarking its compensation and benefits to that of peer companies. Benchmarking studies conducted take into consideration geographic location and technical characteristics of work that is performed by the Company's employees. Past studies have concluded that Hawaiian Electric's Compensation package is slightly [redacted]. Additional information on total compensation evaluations is provided below.

Q. What kinds of companies constitute Hawaiian Electric's competitive market?

A. The Company's competitive or peer market includes mainland and other local utilities, oil refineries, engineering firms and other large diversified local companies.

Q. How does Hawaiian Electric assess the value of its Total Compensation package compared to its competitive market?

A. In 2011, 2012, 2013, 2016 and 2018, the Hawaiian Electric Companies engaged AON Hewitt to conduct an objective evaluation of the Companies' Total Compensation package and compare the value to their competitive market as found in exhibits HECO-1805, HECO-1806, HECO-1807, HECO-1808, and HECO-1809, respectively.[5] The studies were comprehensive reviews, analyzing both cash compensation and benefits for positions within the Hawaiian Electric Companies.

Q. How have the Companies' Total Compensation review results changed over time?

A. The Companies' target is to maintain a Total Compensation package at or close to the 50th percentile, or median, of its competitive market. The review results since 2011 indicate that the Companies Total Compensation package has moved from being [redacted] percentile of comparable companies in 2011 to [redacted] in 2018, as shown in Figure 18-1 and discussed in additional detail below.

[5] These exhibits contain confidential proprietary information, which if disclosed publicly may competitively disadvantage the Company's consultant with respect to industry competitors. The information was gathered as part of private compensation and salary surveys and the survey data and results are provided only to the survey participants. Accordingly, they will be filed upon issuance of a protective order in this proceeding.

1 Figure 18-1

Total Compensation Review: 2011 - 2018

with Geographic Adjustment

2

3 2018 Total Compensation Review

4 Q. How was the 2018 Total Compensation Review conducted?

5 A. In 2018, the Companies engaged AON Hewitt to conduct a Total Compensation
6 review to benchmark comparable jobs and to ensure program competitiveness. The
7 review included establishing the methodology, properly categorizing and analyzing
8 data, and interpreting the results for benchmark jobs representing 742 employees, or
9 approximately 27 percent of the Companies' total employee population. Though
10 there are differences among employee categories, the review concluded overall that
11 the total cash (base salary and bonus) compensation (with a six percent geographic
12 adjustment) is
13 . The 2018 Total Compensation

review concluded that, in aggregate, the Companies' total compensation [redacted] with its market, at [redacted] Table 18-4, below, summarizes the results of the 2018 review.

Table 18-4
2018 Total Compensation Review Summary
With 6% Geographic Adjustment Factor

[redacted]

Q. Why is overall total cash compensation [redacted] median, and benefits [redacted] median – is it necessary to have each component at the market median?

A. No, each component need not be at market median. The Companies' Total Compensation combination of cash and benefits must be competitive in total with the market in order to attract and retain skilled workers. Within the Total Compensation package, the balance between cash and benefits is continually monitored and adjusted based on changes in the competitive job market, prospective job applicants and retaining employees. [redacted]

[redacted] Since 2011, the Companies have improved its competitive position relative to market to address the hiring and retention issues of non-union positions caused by a Total Compensation package well below market. (This issue of low pay relative to competitors is discussed later in this testimony in the section on "Management Employee Recruitment and Retention Issues.") Though by 2018 the Companies' cash compensation for non-union positions was [redacted] resulting in a Total Compensation package that is [redacted]. The [redacted] for non-union employees is being further assessed in a non-union salaried base pay compensation study. Additional benchmarking information on benefits presented in HECO T-19 and HECO T-20, support the conclusion that Hawaiian Electric's benefit programs are consistent with, and competitive with, other similar companies.

Q. What kinds of companies constituted Hawaiian Electric's peer group for the 2018 Total Compensation Review for benefits benchmarking?

A. The study used a peer group of thirteen companies, located mostly in the western United States: Edison International, Entergy, Eversource Energy, Hawaiian Airlines, Hawaiian Telecom, NRG Energy, Inc., NV Energy, Pacific Gas and Electric Company, PacifiCorp, The Queen's Health Systems, Sempra Energy, Southwest Gas Corporation and Verizon.

Q. Are employee benefits a key component in labor negotiations?

A. Yes. As of September 28, 2018, over 43 percent of Hawaiian Electric's employees are represented by a labor union. As stated earlier in this testimony, and further supported by HECO T-19 and HECO T 20, benefit plan provisions are an integral component of the overall labor contract between the union and the Company. The areas of medical care and retirement income benefits represent a significant part of the CBA.

CASH COMPENSATION

2018 Bargaining Unit Employee General Wage and Increase

Q. What is the general wage increase for bargaining unit positions included in the 2020 test year?

A. The general wage increase included in the 2020 test year is 3.0 percent effective January 1, 2020. Wage increases for bargaining unit positions are negotiated between the Company and the IBEW. The CBA was extended via ratification effective November 1, 2018, with wage increases for 2019 through 2021. The CBA includes increases of: 3.0 percent effective January 1, 2019; 3.0 percent effective January 1, 2020, and 3.0 percent effective January 1, 2021.

Q. Are these increases reasonable in light of the current economic climate?

A. Yes. The Company strives to offer compensation that is cost effective and competitive in the markets where the Company competes for talent. In the current economy, competitors are recruiting aggressively for employees in the same talent pool as the Company. Wages and salaries that lag the market will impede the

Company's ability to attract and retain the necessary talent, particularly for positions that require utility experience and/or specialized skills or knowledge.

Q. How do wage increases negotiated in the CBA compare to wage increases at other electric utilities?

A. In April 2019, Public Utilities Employers Institute ("PUEI") performed an informal survey of its members regarding general wage increases from 2014 to 2021.[6] There were employers who participated in the survey. The wage increases reported by employers ranged from a low of percent to a high of percent, with the average increase of percent. These increases include localized employment market activity and other factors. The Hawaiian Electric Companies' average wage increase was percent for this period, and took into consideration the cash compensation discussed earlier in the Total Compensation Review section of this testimony.

<u>2020 Management Employee Merit Salary Increase</u>

Q. What is the merit salary increase for management employees included in the 2020 test year?

A. The average salary increase for 2020 is budgeted at 3.0 percent based on the Annual Merit Program effective March 1, 2020 (HECO-1811, 2020 Annual Merit Program

[6] See HECO-1810 for the PUEI Survey. This exhibit contains confidential proprietary information, which if disclosed publicly may competitively disadvantage the Company with respect to industry competitors. The information was gathered as part of private compensation and salary surveys and the survey data and results are provided only to the survey participants. Accordingly, the exhibit will be filed upon issuance of a protective order in this proceeding.

Summary). The Annual Merit Program is a performance-based salary review program designed to reward and recognize management employees for their individual contributions and performance in achieving the Company's core business objectives and/or strategic goals and objectives. The Annual Merit Program also provides an opportunity to evaluate the salaries of management employees based on their performance and assess whether employee salaries are appropriately set in comparison to the market value of their position. The Company's compensation philosophy is to pay for performance while maintaining a competitive compensation position within its market. To establish the merit salary increase and benefits for its management employees, the Company considers labor market changes, which include the negotiated general wage increase and benefits for union employees.

Q. How is the budget for merit salary increases determined?

A. Multiple factors are considered when determining merit salary increases. The Hawaiian Electric Compensation Department evaluates available survey data from compensation survey vendors, which includes data for Hawai'i companies, national companies, and the utility industry. Please see HECO-1805 to HECO-1809 for compensation review studies, HECO-1812 (WorldatWork 2018-2019 Salary Budget Survey), and HECO-1812A (HEC 2018 Salary Adjustment Survey). Additional considerations include scheduled bargaining unit general pay increases for the coming year, the Company's strategic objectives, and its financial situation. After reviewing all information, a recommendation for the merit salary increase is developed for approval by Hawaiian Electric's Chief Administrative Officer and

Hawaiian Electric's President. Then, the Hawaiian Electric Industries, Inc. ("HEI") Board of Directors Compensation Committee reviews and recommends changes as necessary.

Survey data available as of May 2018 for 2018/2019 indicated that median salaries were projected to [redacted] for both general industry and the utility industry, as shown in Table 18-5, below.[7]

Table 18-5

2018/2019 Wage and Salary Increases

	Non-exempt[8]	Exempt[9]
General Industry Average	[redacted]	
Utility Industry Average (National Only)		
Hawaiian Electric Wage & Salary Increase		

The comparison shows that the increase for Hawaiian Electric is consistent with non-exempt positions and exempt positions in the utility industry.

<u>Supervisor Differential Program</u>

Q. What is the purpose of the Supervisor Differential Program?

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[7] See HECO-1812 (WorldatWork 2018-2019 Salary Budget Survey)
This exhibit contains confidential and proprietary information which was gathered as part of private compensation and salary surveys with survey data and results provided only to the survey participants. Public disclosure of such information could place the Company's consultant at a competitive disadvantage with respect to industry competitors. Accordingly, the exhibit will be filed on a confidential basis upon issuance of a protective order in this proceeding.

[8] See HECO-1812 - "Non-exempt" are those employees who do not belong to the bargaining unit but are paid on an hourly basis.

[9] See HECO-1812 - "Exempt" are those employees who do not belong to the bargaining unit and are exempt from pay rules stipulated by the Fair Labor Standards Act.

A. The Supervisor Differential Program establishes a pay guideline to maintain a minimum 10 percent pay differential between a supervisor's salary and the base wages of the highest paid direct report. For first-line supervisors, vertical salary compression (when wages of direct reports is close to, or in excess of, the supervisor's salary) can occur when there are differences in merit salary increases and contractually negotiated wage increases. In addition, since the pool of qualified candidates is often from the bargaining unit, the differential serves as an incentive to those candidates to consider management positions by offsetting the overtime pay, meal allowance, call-out and shift differentials that they otherwise would have earned.

The 2018 AON Hewitt Total Compensation Review validates the existence of lateral pay compression between certain bargaining unit and management positions. Based on the analysis, base pay is [redacted] for the office and clerical positions by [redacted] percent and trades and craft positions by [redacted] percent [redacted] as compared to [redacted] for non-union positions by [redacted] percent. These results indicate that bargaining unit members may have a reduced financial incentive to consider management positions and management employees may have an increased incentive to consider bargaining unit positions. The Company monitors lateral pay compression as part of its review of pay equity across organizations and functions.

Q. What would be the impact to pay compression, if the merit salary budget was reduced?

A. Pay compression and its associated problems would be compounded if the Company could not offer pay increases in management salaries that are competitive with the market and provide a differential with union pay. The inability to provide reasonable salary increases for management supervisors increases the risk of turnover and compounds the difficulty of filling the resulting vacancies with experienced and knowledgeable utility employees. These supervisors hold pivotal positions that ensure the Company provides safe, reliable and cost-effective service. An adequate merit increase budget is critical to keeping these positions filled with qualified employees.

Although a Department of Business, Economic Development & Tourism (DBEDT) study[10] comparing Hawai'i to the U.S. in 2012-2016 noted that the utility industry had the highest labor earnings in Hawai'i, the overall earnings are below mainland utilities. Utilities require highly skilled technical professionals, for example, engineers, as well as high skilled crafts (i.e., linemen). Utility experience gained on the job is a vital component to competency in the utility industry. The Company must compete for talent not only within Hawai'i, but also with the U.S. mainland. Therefore, comparing earnings with similar industries in similar cost of living areas in the U.S. is a more relevant comparison.

As mentioned above, management non-union exempt pay is [redacted] (reference Table 18-4 above). To ensure that the Company is

[10] Department of Business, Economic Development & Tourism, Research and Economic Analysis Division, *Hawaii's Working Population: An Analysis by Industry 2012-2016* (April 2018), *available at* http://files.hawaii.gov/dbedt/economic/reports/Hawaii_Workforce_Report_2018.pdf.

able to attract and retain top talent as well as engage and develop employees to successfully achieve its transformational goals, Hawaiian Electric's cash compensation for non-union management positions is under review to ensure that the Company has a salary structure that facilitates market fairness, is up to date, and provides equitable pay practices while maintaining cost controls. Preliminary results indicate that there are some employees who fall below the minimum for their position in a proposed new salary structure (further discussed later in this testimony). To address this, the Company plans to implement an equity pay adjustment using the existing budget. For employees who are above the maximum of the new salary ranges, their pay will be maintained at existing levels until changes are warranted by future salary structure adjustments. Salary structure adjustments, which are separate from pay equity adjustments, are performed annually and based on market adjustments to the entire salary structure. New non-union pay structures are planned to be implemented in test year 2020. Any adjustments to pay will be within existing budget.

PENSION PLANS

Qualified Pension Plan

Q. What are the factors affecting pension expense, including plan provisions, employee demographics, fund performance, and the methodology for determination of the value of plan assets?

A. Details for the pension benefits plan design, components of pension expense (including the factors and minimum required contribution), the actuarial

assumptions, other post-retirement benefits, and considerations to control pension cost and volatility are presented by Mr. Yannick Gagne in HECO T-19. The testimony provided in HECO T-19 concludes that Hawaiian Electric's pension and post-retirement benefits plans are consistent with those offered in the utility industry.

Q. What is the test year 2020 estimate for the qualified pension plan?

A. The test year 2020 estimate for the qualified pension plan, which includes NPPC amortization for regulatory asset tracker and non-service costs) is $44,099,000. NPPC is $36,610,000, amortization is $7,107,000, and non-service amortization is $382,000 (see HECO-1850).

Q. How was the 2020 operating budget adjusted to derive the 2020 test year estimate for pension expense?

A. The 2020 operating budget amount of $56,096,800 was decreased by -$11,997,800 to arrive at the 2020 test year estimate of $44,099,000. The adjustments to the 2020 operating budget were made as follows: (1) the NPPC was decreased by -$5,988,800; (2) amortization of regulatory asset – tracker was decreased by -$6,968,800, and (3) the nonservice regulatory asset and amortization were increased by $959,800 ($686,000 + $273,800 = $959,800). Please see HECO-1850.

Q. Please explain the amortization of the regulatory asset from the pension tracking mechanism.

A. Any differences between the NPPC in rates and the actual NPPC is added to (or subtracted form) the regulatory asset. The regulatory asset balance is then amortized in a straight line over 5 years and added (or subtracted if it is a regulatory liability) to

the revenue requirement. The calculation of the regulatory asset amortization amount is provided in HECO-1602. Ms. Patsy Nanbu discusses the accounting and ratemaking treatment of pension costs in HECO T-16 and HECO-1602.

Non-Qualified Pension Plan

Q. What is a non-qualified pension plan?

A. The Company participates in the HEI Excess Pay Plan, a non-qualified pension plan designed to restore benefits lost due to limitations placed on qualified plans, which include pay limits under IRC Section 401(a)(17) and benefit limits under IRC Section 415.

Q. What is the estimated cost for the non-qualified plan for 2020?

A. The estimated 2020 cost for the non-qualified pension plan provided by Willis Towers Watson is $468,000. To simplify and limit the issues in this proceeding, a downward adjustment of -$468,000 was made to remove the costs for the non-qualified pension plan, which reduces the test year amount to $0.[11] However, these benefits are part of employees' total compensation and should not be treated differently for ratemaking purposes due to statutory limits. Therefore, the Company reserves the right to propose inclusion of non-qualified pension cost in its test year estimates in future rate cases.

[11] See HECO-1850 (Administration and General Expenses – Employee Benefits).

1 Other Postretirement Benefits

2 Q. What is the 2020 test year estimate for the Postretirement Benefits Other Than
3 Pensions ("OPEB")?

4 A. The test year 2020 estimate for other post-retirement benefits is -$230,000.

5 Q. What adjustments were made to the OPEB costs for the 2020 test year?

6 A. Adjustments totaling $519,700 were made to the 2020 operating budget including a
7 budget adjustment of $105,000 for amortization of the regulatory asset tracker and a
8 ratemaking adjustment of $414,700 for the executive life program.

9 Q. What are the Statement of Financing Accounting Standards No. 106 ("SFAS 106",
10 since renamed and now referred to as ASC 715-60, or simply ASC-715), Employers'
11 Accounting for Postretirement Benefits Other Than Pensions regulatory asset and the
12 amortization amount?

13 A. The Commission's Decision and Order No. 13659 (November 29, 1994) and letter
14 dated December 28, 1994 in Docket Nos. 7243 and 7233 (Consolidated) allowed
15 Hawaiian Electric to adopt SFAS 106 in its entirety and include in its rates the full
16 cost of postretirement benefits other than pensions calculated pursuant to ASC 715,
17 effective January 1, 1995; and to amortize the regulatory asset established for the
18 deferral of postretirement benefit costs other than pensions for the period January 1,
19 1993 to December 31, 1994, over an 18-year period beginning January 1, 1995. The
20 total amount remaining has been amortized and as a result, the regulatory asset
21 amount in the 2020 test year estimate is $0.

22

Q. What is the amount of the OPEB tracking mechanism regulatory asset in the 2020 test year?

A. The OPEB Tracker amount is -$230,000. The calculation of this amount is provided in HECO-1603. Ms. Patsy Nanbu's testimony discusses the accounting and ratemaking treatment of postretirement benefit costs other than pensions in HECO T-16.

Q. How does Hawaiian Electric provide postretirement benefits other than pensions to its employees?

A. Hawaiian Electric provides postretirement benefits other than pensions by participating in the Postretirement Welfare Benefits Plan for Employees of Hawaiian Electric Company, Inc. and Participating Employers.

Q. How are the estimated postretirement benefits costs determined?

A Willis Towers Watson, the plan's independent actuary, determines the postretirement benefits cost to be recognized by the Company each year in accordance with provisions of FASB ASC 715. Calculation of postretirement benefit expense under FASB ASC 715 is similar to the calculation of NPPC. Under FASB ASC 715, the Company's postretirement benefit cost is referred to as the net periodic postretirement benefit cost ("NPBC"). This is the amount that Hawaiian Electric must recognize on its financial statements as the cost of providing other postretirement benefits to its employees for the year and includes capitalized and expense amounts.

Q. When will the actual 2020 NPBC be determined?

A. The actual 2020 NPBC will be determined by Willis Towers Watson in the summer of 2020, based on employee demographic data as of January 1, 2020.

Q. Is the NPBC included in the Company's revenue requirements for the 2020 test year?

A. Yes. Since adoption of SFAS 106 in 1995, the Company has consistently and properly incorporated the NPBC in the budget for employee benefits, and the Commission accepted Hawaiian Electric's treatment of OPEB costs consistent with past decision and orders issued by the Commission, most recently in Decision and Order No. 36219 issued March 18, 2019 in Docket No. 2017-0150 (Maui Electric's 2018 test year rate case) and in Decision and Order No 35545 issued June 22, 2018 in Docket No. 2016—0328 (Hawaiian Electric's 2017 test year rate case.)

Q. Does Hawaiian Electric fund the postretirement benefits?

A. Yes. Under the OPEB tracking mechanism approved by the Commission and described by Ms. Patsy Nanbu in HECO T-16, the Company is required to make annual contributions into the OPEB trust funds in an amount equal to the total ASC 715 NPBC (no less than $0), except when limited by material, adverse consequences imposed by federal regulations, using tax advantaged funding vehicles whenever possible.

Q. What are the funding vehicles?

A. The Company makes contributions to two Voluntary Employees' Beneficiary Association ("VEBA") trusts (bargaining unit and non-bargaining). The Company also makes additional contributions to a special 401(h) account in the existing

pension plan trust to provide postretirement medical benefits for non-bargaining unit employees. Assets of these trusts are commingled for all participating employers to maximize investment opportunities and minimize plan expenses. Assets and liabilities of each participating employer are separated for purposes of determining postretirement benefit expenses and funding amounts for each participating employer. Maximum tax deductible contributions to the various funding vehicles are determined by Willis Towers Watson and included in its actuarial valuation of the plan. HECO-1603 presents the OPEB cost and cash contributions used for the test year estimate.

Q. How are contributions in the trusts invested?

A. Assets are held by the plan's trustee, the Bank of New York Mellon. The PIC (Pension Investment Committee) is the named fiduciary for the plan and is responsible for overseeing the administration of the plan and management of plan assets.

Q. Can the Company use the assets in the VEBA trusts for other purposes?

A. No. These trusts are externally managed. Assets of the trusts can only be used for the benefit of employees covered by the OPEB plan and may not be used for general utility operations or given to shareholders.

DEFINED CONTRIBUTION PLAN

Q. What is the 2020 test year estimate for defined contribution plan benefits?

A. The 2020 test year estimate for defined contribution plan benefits is $2,930,200.

Q. How were defined contribution plan benefits (Company match costs) estimated for the 2020 test year?

A. Defined contribution plan benefits were estimated using a projection of the payroll eligible for the defined contribution plan. To determine the eligible payroll for matching contributions:

1. The current population eligible for the benefit was identified, and an assumed salary increase was applied. (Only employees hired after April 30, 2011 are eligible for the matching contribution.)
2. It was assumed that any employees leaving employment (including both the pre-2011 and post-2011 groups) would be replaced by new hires eligible for the matching contribution.
3. In addition, new hires needed to reach the projected employee headcount were included in the eligible payroll.

Using this projection method, the eligible payroll for matching contributions was forecasted to increase by 24.5% between 2018 and 2019, and 17.0% between 2019 and 2020. To calculate the 2020 test year expense, these increases were applied to the actual 2018 match costs of $1,813,000 (which reflects actual employee contribution rates and corresponding Company match) to arrive at a baseline 2020 Company match cost of $2,640,600.

The forecasted growth in the Company match costs over the rate case period will significantly exceed the growth in payroll as pre-2011 employees who are not eligible for the match are replaced by new employees who are eligible for the match.

To reasonably reflect this forecasted significant increase, a normalization adjustment of $289,600 has been applied to the baseline 2020 cost, to arrive at the 2020 normalized match cost of $2,930,200 ($2,640,600 + $289,600). Please refer to the HECO T-19 testimony (and HECO-1905) as well as HECO-1860 for additional details.

Q. What is the estimated annual net savings expected from reducing the formula of the defined benefit plan and adding the 401(k) plan with Company match (applicable to the employees hired on or after May 1, 2011)?

A. For the year 2018, the estimated annual net savings resulting from the 2011 plan changes were calculated at $2,207,000, as explained in the testimony of Mr. Yannick Gagne, HECO T-19. These savings are expected to continue to grow as employees under the old retirement program leave the Company and new employees receive the new, less expensive, retirement benefit.

In the long term, once all employees have migrated from the prior defined benefit plan to the new 401 (k) plan, the Company's actuary has estimated the savings will be about 8 percent of payroll (HECO-1905). It is important to note that this cost saving estimate assumes all eligible participants participate in receiving the maximum Company match (which may not be the case). This savings estimate is therefore conservative, and actual savings could be higher if some employees do not participate fully (resulting in lower Company matching contributions).

The 401(k) plan reduces the costs of overall retirement benefits.

Q. Are all employees eligible to participate in the 401(k) plan?

A. Yes, however, the Company match is only available to employees hired on or after May 1, 2011. The Company is not offering multiple plans from which employees can choose; only those employees hired on or after May 1, 2011 may participate in the reduced formula defined benefit plan and the 401(k) plan with the Company match. Employees hired before May 2011 may participant in the 401(k) plan, but are not eligible to receive the Company match.

Q. Has the Company considered further reduction in pension benefits, in addition to those implemented in 2011?

A. The Company values the defined benefit plan due to its ability to attract and retain key talent. However, the Company regularly reviews the suitability of its benefit designs when compared to the talent market, competitors, and as part of the Total Compensation package review. Currently, the Company is considering ways to achieve further cost reductions in the defined benefit plan. The Company is currently forming a working group of union and management representatives to begin discussions on pension redesigns utilizing a collaborative process. This working group will be governed by the Pension Redesign Committee composed of HEI and Hawaiian Electric officers.

Q. What regulatory mechanisms support making any changes to the benefit plans?

A. Outside of a rate case, there is currently is no regulatory mechanism for recovering the costs associated with a shift in benefits in participants from the defined benefit plan to an increased number of participants in the defined contribution plan, even if in total the change (decreased defined benefit costs less increased defined

contribution costs) will results in savings to the customers. Defined benefit costs are subject to the pension tracker, and such a shift would immediately be reflected as a decrease in the tracker. However, there is no such mechanism that exists to recognize the corresponding increase in costs for the matching contributions to the 401(k) plan.

Q. What changes could be made to the cost recovery model to support making a design change?

A. Due to the complexity of making changes to the plan design, it is not always possible to time the implementation of a plan change with a rate case test year. Establishing a cost recovery mechanism for the 401(k) plan similar to the pension tracker would allow the Company to make changes which reduce overall retirement program costs between test years.

Q. Given the complexity of making a change to the pension benefits, when is the next likely opportunity to do so?

A. A significant portion of plan participants have benefits that are collectively bargained. The next collective bargaining agreement will not be entered into until late in 2021, so any change would likely go into effect in 2022.

OTHER BENEFITS/ADMINISTRATION

Q. What is Hawaiian Electric's 2020 test year estimate for Other Benefits/Administration costs?

A. The 2020 test year estimate for Other Benefits/Administration is $741,700.

Q. What adjustments were made to the 2020 operating budget for Other Benefits/Administration?

A. Ratemaking adjustments totaling -$219,400 were made to the 2020 budget of $961,200, to arrive at the test year estimate of $741,700. In the interest of simplifying issues and expediting the regulatory process, Hawaiian Electric is proposing a ratemaking adjustment to remove HEIRS Administration, Executive Pension Administration, and the Company Health and Wellness program. The budget for the Health and Wellness Program is now maintained by the Enterprise Operations Services process area as discussed in the testimony of Mr. Siafuafu (HECO T-21). Detailed line item descriptions for Other Benefits attributed to account no. 926000 are provided in HECO-1871.

Labor Expenses

Q. Please explain the labor amount included in account no. 926000?

A. The 2020 test year estimated labor amount of $789,800 is primarily attributed to the administration of the retirement program. Detailed line item descriptions and supporting references for direct labor attributed to account no. 926000 are provided in HECO-1872.

CONTINUING COST CONTROL MEASURES FOR TOTAL COMPENSATION

Q. What cost control measures have been included in the 2020 test year for Total Compensation?

A. Continuing cost control initiatives in the CBA have resulted in a general lowering of future costs for compensation and benefits, and included the following key changes for all employees, both bargaining and non-bargaining:[12]

- Postretirement Welfare Benefits Plan
  - Increased the years of service required for postretirement benefits eligibility for all employees retiring after December 31, 2011.
  - Bargaining unit employees must now have a minimum of 20 years of service to (1) receive a Company subsidy toward their health premium, and (2) be eligible to receive the $20,000 Group Life Insurance benefit for retirees. Under the previous benefit agreement, bargaining unit employees qualified for these benefits as long as they were retirement eligible.
  - Management employees hired from January 1, 1999 to April 30, 2011 must now meet a target number of 70, which is the total of their age plus years of service upon retirement, to receive the Company subsidy toward their health premium. Previously, management employees qualified for this benefit as long as they were retirement eligible.
  - Reduced postretirement welfare benefits for all employees hired on or after May 1, 2011 by eliminating health coverage for spouse and dependents.
  - Retained the Company's contribution for payment of monthly health care premiums for post-retirement welfare benefits at the levels established in 1998. As medical premiums rise, retirees are responsible for amounts in

[12] Analysis of the pension and health benefits programs are provided in HECO T-19 and HECO T-20.

excess of the Company's contribution.

- Defined Benefit Retirement Plan
  - For employees hired on or after May 1, 2011, raised the age to qualify for early retirement from age 50 to age 55; reduced the pension factors used in the retirement formula; reduced early retirement subsidies; raised the earliest full retirement age from 60 to 62; and eliminated the cost of living adjustment ("COLA") for pension benefits, previously equivalent to 3 percent every two years.
  - Reduced retirement benefits provided through the defined benefit pension plan. For bargaining unit employees, the pension factor used in the retirement formula was reduced from 1.83 percent to 1.25 percent. For management employees, the factor was reduced from 2.04 percent to 1.50 percent.
- Defined Contribution 401(k) Plan (Hawaiian Electric Industries Retirement Savings ("HEIRS")[13]
  - Added an employer-funded matching component to the defined contribution 401(k) plan of 50 percent up to the employees' voluntary 401(k) contribution of 6 percent.
  - Added a vesting service schedule for the Company match: zero percent with less than two years of service, 20 percent after two years of service, 40 percent after three years of service, 60 percent after four years of

[13] Changes to these plans were effective January 1, 2011, but were not applied until May 1, 2011.

service, 80 percent after five years of service, and 100 percent after six years of service.

- Employee Benefits Plans (Welfare Benefits Plan and FlexPlan)[14]
  - Cost sharing beyond 2018 will be maintained at 20 percent for the length of the three-year contract extension.
  - Prior to the three-year extension agreement, changes were made to the medical plan design, including replacement of the costlier plan (Hawaii Medical Service Association ("HMSA") Preferred Provider Plan) with a less costly plan (HMSA CompMed) in 2012. Annual deductibles must be satisfied before benefits are received for services such as ambulance, medical equipment, inpatient mental health services, skilled nursing facilities, and home health services received from participating providers.
  - Increased annual maximum out-of-pocket limits for HMSA HPH ZN and Kaiser medical plans from $1,750 per person and $5,250 per family, to $2,500 per person and $7,500 per family.
- Unpaid Leave and Workers Compensation
  - Reduced the sick leave benefit for employees with three or more years of service by 20 percent, and reduced the maximum amount of sick leave that can be accrued.
  - Reduced the amount of workers' compensation by providing statutory pay only and subsidizing pay with an employee's leave balance.

[14] See HECO-1820 (Summary of Welfare Benefits Plan).

1 These changes are expected to save costs while preserving the pension benefit and
2 providing competitive health benefits to retain highly skilled and experienced
3 employees. In addition, these benefit plan changes were made to address the needs
4 and wants of a changing workforce and to attract and retain new employees.
5 Q. Are there any other cost efficiency measures that the Company is focusing on?
6 A. In addition to the cost efficiency measures discussed above, the Company focuses on
7 overall employee wellness to encourage employees to address potential health issues
8 before they become serious, and to bring healthcare information directly to
9 employees through the dissemination of wellness information at safety meetings and
10 the Company's intranet. These efforts are directed towards improving the health and
11 safety of the workforce, reducing the unavailability for work due to injury or illness,
12 and in the long-term, reducing the overall costs of employee benefits. The Corporate
13 Health and Wellness (CHW) program focuses on health promotion and disease
14 prevention by promoting healthier lifestyles through making healthy choices. As an
15 example, to address the rising rates of obesity and chronic disease, employees are
16 provided tools, resources and programs to increase their awareness, recognize
17 symptoms, encourage good dietary habits, and perform regular exercise.
18 Q. What is the Company's Corporate Health and Wellness philosophy?
19 A. The Company is committed to creating a culture of safety, health and well-being for
20 its employees. Please see HECO-1816 for a summary of the key programs and
21 services that are offered to employees.
22

1 Additional details on safety, wellness, and workers' compensation cost control
2 measures are provided in Mr. Larry K. Siafuafu's testimony (HECO T-21). These
3 areas were moved to a new process area headed by Mr. Siafuafu named Enterprise
4 Operations Services under the SVP of Operations, Mr. Ron Cox.

5 CURRENT AND FUTURE COST SAVINGS INITIATIVES

6 Q. Cost savings initiatives have been implemented across the three utilities and cost
7 savings continue to be realized. Are there any other cost saving initiatives in
8 progress or planned in the future?

9 A. There are a number of other cost savings initiatives in progress, including:

10 • The Companies continue to review and analyze the pension plan and 401(k)
11 plan designs, as well as the medical plan cost sharing for viable options that
12 reduce costs yet provide competitive benefits.

13 • Health and welfare plans are reviewed annually for cost savings opportunities
14 with each plan and cost sharing options.

15 • The Union's proposal that the Companies join a union VEBA Trust is being
16 analyzed, and the union is assessing the Company-provided census data.

17 • Pension administration outsourcing is being explored. Currently, outsourcing
18 parts of pension administration are targeted to be in place in 2020, dependent
19 on the successful bidding and implementation of the RFP. This outsourcing
20 will increase employee self-service by utilizing an improved system for
21 pension calculations. Upon implementation, there should be administrative
22 time savings; however no headcount savings are anticipated at this time. As

employee self-service is accepted by the workforce and retirees, additional out-sourcing will be contemplated.

STRATEGIC TRANSFORMATION WORKFORCE ISSUES

Q. What workforce issues does Hawaiian Electric face as it executes its Strategic Transformation Plan?

A. The Transformation Plan initiatives (Quality customer experience and innovative energy solutions; Modern grid and technology platform; and Cost-effective, clean energy portfolio) require some skills not currently available in the Company's workforce, and some of which are not readily available in the Company's labor market. To address the issues of recruiting and retaining skilled employees, transitioning the existing workforce, and integrating new process efficiencies, the Company is working on a multi-pronged approach which is described below.

Employee Recruitment and Retention Issues

Q. How important is base pay to the success of recruiting employees?

A. Competitive base pay is one of the key items that individuals look at when applying for new jobs. In a 2016 global workforce study conducted by Towers Watson (now Willis Towers Watson), competitive base pay was identified as the highest attraction driver. The study also noted that it is the top retention driver for employees.[15]

Q. Please describe what is being done to support pay competitiveness.

[15] See HECO-1813, *Willis Towers Watson 2016 Global Workforce Study.* Willis Towers Watson is an international consulting firm in the area of employee compensation and benefits, and human resource management.

A. A comprehensive market pay and salary structure analysis is being performed by a third party consultant to assess non-union competitive pay and structure and a new salary structure will be developed based on the data analysis. This will enable the Company to be more agile and competitive in pay decisions as it moves into new areas of business, while maintaining fairness and consistency within the organization. The assessment is due to be completed in 2019, with the new salary structure targeted for implementation in 2020. All non-union positions will be placed into the new structure, and any adjustments in pay will be pending budget and executive approvals. Individual employees will be placed within a job range based on their skill level and experience and pay ranges for jobs will be priced according to their value in the marketplace. The goal, over time, is for employees who are fully functioning in their jobs to be paid close to the market midpoint, and therefore paid competitive to the market.

Current employees may be paid over or under the market midpoint of their position in the new salary structure. There may be circumstances that justify an employee to be paid below or above the midpoint, considering the individual employee's work experience and skill level. Market pay equity adjustments will be made for those individuals who are paid severely under the market; those paid extremely high compared to market will be "red-circled" and will not eligible for base salary increases until their pay is within the job's pay range. As stated earlier, these changes will help retain talent as well as position the Company competitively in the marketplace.

Based on the analysis, 90% of employees have an aggregate compa-ratio (base salary to midpoint of the salary range) of 94%. It is estimated that about three percent of the non-bargaining population (0.23% of payroll) will be over the maximum of the new salary range and will be managed towards the market over time.

Q. How competitive is the labor market?

A. The labor market for the skills and expertise needed by Hawaiian Electric remains very competitive. There is difficulty in hiring and retaining electric industry workers nationwide, and it is even more challenging in Hawai‘i. The 2017 U.S. Department of Energy Quadrennial Energy Review provides a multi-year roadmap for U.S. energy policy and related workforce challenges.[16] It states that the "specific skills requirements and the importance of the industry to national security and economic prosperity elevate the importance of its workforce management."[17] The report discusses the potential of shifts in technologies, operations, tools, and industry structure which will require a skilled workforce that can build, operate, and manage a modernized grid infrastructure. It details the recruitment challenges faced by companies nationwide, with shortages of skilled workers forecast to increase, and cites a current industry study which forecasts the need for 105,000 new electric

[16] U.S. Department of Energy, *Transforming the Nation's Electricity System: the Second Installment of the Quadrennial Energy Review* (January 2017), *available at* https://www.energy.gov/sites/prod/files/2017/02/f34/Quadrennial%20Energy%20Review--Second%20Installment%20%28Full%20Report%29.pdf (hereinafter "QER").

[17] QER, page 5-11.

utility industry workers by 2030.[18] Hawaiian Electric will be one company among many that will be competing for skilled electric and renewable energy workers.

In addition, the report discusses the lengthy amount of time it takes to become a fully trained electric worker (e.g., approximately seven years for a journeyman lineman), which further supports the importance of retaining skilled employees once recruited and trained by the Company. A Total Compensation package must be competitive with both the local and utility industry markets to attract and retain these long-term highly skilled employees.

Q. What are the Company's concerns about hiring and retention?

A. As discussed above, the business of producing and delivering safe, reliable electric service to our customers requires utility-specific skills that are in short supply. A reduction in power engineering graduates nationwide and an industry-wide shortage of skilled utility workers has resulted in strong competition for these candidates, and is becoming more pronounced as utilities increase their focus on integrating renewable energy. In this environment, the Company must transition to new work requiring new skills (for example, electrification of transportation ("EOT"), marketing, business development, battery storage, renewable technologies), by developing existing employees and/or acquiring the skills needed. The success of the Company's efforts to meet the State's clean energy goals is directly impacted by the Company's ability to recruit and retain engineers, field and plant workers, leadership talent, and other knowledgeable employees.

[18] Ibid.

Q. What is the Company doing to attract and retain employees?

A. Hawaiian Electric continually looks for ways to improve hiring while remaining committed to creating and maintaining a safe and productive workforce. In addition to traditional recruitment methods, Hawaiian Electric has implemented various strategies, programs, and processes including:

Summer Interns/Project Aides

In 2018, Hawaiian Electric hired sixteen (16) summer interns for placement into departments with hard-to-fill positions: Electrical Engineering, Mechanical Engineering, Civil/Structural Engineering, Information Technology, Environmental Science, Accounting, Finance, and Corporate Audit. This partnership has consistently proven successful, allowing the Company to hire the interns as regular employees, some of whom are now Directors.

Job Fairs and Other Recruitment Avenues

The Company attends eleven (11) job fairs annually that range from community colleges and universities, to military bases, to meet face-to-face with a wide variety of job seekers. Job fairs not only help with existing recruitment needs, but present opportunities to introduce the Company to applicants for future recruitment needs. Additionally, other recruitment avenues employed by the Company include unpaid internships and a new partnership with The Wounded Warrior Project and the Warriors to Work program.

1 Use of Technologies

2 The Company is increasing its use of social media technologies to attract and vet
3 candidates. The Business Partners who handle recruitment are utilizing
4 technologies, for example, using LinkedIn to build their professional network,
5 increase their online presence in the community and source/search for
6 candidates, expanding the landscape of recruits. In addition, with the
7 implementation of SAP, there will be a more abundant array of reports that will
8 allow access to build metrics around recruitment, time to fill and retention.

9 Partnerships

10 The Company is actively seeking and creating partnerships with schools, the
11 community, other organizations, and other energy entities to create avenues for
12 students as well as employees to work on joint projects and learn from other
13 organizations. This will build pipelines for future employees as well as provide
14 development opportunities for existing employees. Examples of this are the
15 College of Engineering-University of Hawaii, Patsy Mink Leadership Academy,
16 Omidyar Fellowship Program, Edison Electric Institute, and Nevada Energy.

17 Onboarding Program

18 Onboarding is the Company's orientation process for new employees. It is
19 designed to orient new employees with their work environment, supervisor, co-
20 workers, policies, performance expectations, and training. Because of the
21 significant amount of resources invested to recruit, hire, develop, and retain new
22 talent, the Company goes well beyond just the administrative process of hiring.

Most employees make the decision to stay or leave within the first six months and effective onboarding is an important retention tool.[19] The onboarding experience establishes the new employee's first impression of the Company, and provides an opportunity to shape behaviors consistent with the Company's vision, values and culture. The more effective the onboarding process, the greater the employee engagement, retention and contribution to the success of the organization.

Workforce Transformation:

Strategic Workforce Planning, Workforce Development and Culture, Employee Development, Employee Transition Plan, Voluntary Retirement Incentive, Part-time Pilot Program, and One Company Initiatives

Q. How is the Company addressing its workforce transformation issues?

A. As discussed earlier, specialized utility and renewable energy skills and experience are not readily available in Hawai'i and these critical skills take time to develop. These workforce transformation issues are currently being addressed by seven integrated initiatives:

- The Strategic Workforce Planning initiative identifies the critical roles/jobs in the current and future business and identifies the future job skills required (due to ongoing and new work, changes in power generation demand, grid modernization, new products and services, and increasing automation).

[19] See HECO-1814: Benchmarking-Onboarding Data.

- The Workforce Development and Organization Culture initiative develops the workforce towards a culture that supports the Strategic Transformation Plan.
- The Employee Development initiative prepares employees for new processes and skills through continuous training and development and support employees to be continuous learners.
- The Employee Transition Plan initiative helps to redeploy employees who are affected by job changes. See HECO-1824 (Employee Transition Plan) for a description of this Plan.
- A Voluntary Retirement Incentive Plan was implemented to enhance retirement choices for those close to retirement or who have reached retirement age, while allowing more workforce flexibility.
- Part-time Under 20 Hours Pilot Program will create more workforce flexibility for employees while providing potential cost savings.
- The One Company[20] initiative will expand on a shared services model to standardize processes, and improve efficiencies.

Q. What is Strategic Workforce Planning?

A. Strategic Workforce Planning will enable the organization to assess future workforce needs against current workforce capabilities, identify gaps, and create plans to fill those gaps. The Company is utilizing a workforce planning process that assesses what a business area will likely look like in the future, identifying the critical roles

[20] See HECO-1818 (One Company) for additional background.

needed currently and in the future, and the type of knowledge and skills needed. The first pilot of the process was completed in Q2 2019 with one business unit (Business Development) and with other business units (Account Management and System Operation) to follow.

Q. What is involved with the Workforce Development and Organization Culture initiative?

A. Workforce Development and Organizational Culture refers to developing the workforce to embrace shared values, attitudes, standards, and beliefs that characterize what it takes to transform an organization and define its nature. Culture is rooted in an organization's goals, strategies, structure, and approaches to labor, customers, investors, and the greater community. As the Company transforms to its future state, an agile, high performance culture is needed where individuals and teams are focused on achieving results collaboratively with clear alignment with the organization's business strategy. Please see HECO-1817 for additional information on the Company's efforts related to employee culture.

In addition, the Company has a robust change management program which applies a structured process and tools to lead people through change to maximize adoption and achieve desired business outcomes. The change management process helps employees transition from how things have been done in the past, or in the current state, to how things will be done in the future. Training programs have been developed and implemented for different audiences and delivered by certified internal trainers--Hawaiian Electric has forty-seven Change Management

1 Practitioners and eight Trainers in the change methodology. The Company's
2 employees participated in an on-line culture survey in 2017, and each business area
3 is currently working on culture action plans based on the results of the survey to
4 make improvements in areas that were rated lowest in the survey. A review of the
5 Company's change management practices is planned for 2019/2020 to assess their
6 effectiveness and identify improvements.
7 Q. What is the Company doing to develop the workforce in its' Employee Development
8 initiative?
9 A. The Company supports employee development and growth throughout an
10 individual's career, which not only improves employee skills, but also increases
11 workforce flexibility. The Employee Development initiative includes skill training
12 and providing resources to employees to prepare for future positions. In addition,
13 the Company is focused on developing the next generation of the leaders, which is
14 discussed further in this testimony under Leadership and Succession. There are
15 numerous types of training and development activities for employees. A total of 21
16 training courses were offered by Human Resource Talent Management and
17 Organization Development Department in 2018 with a total of 780 participants. In
18 2019, there are 23 training and development courses planned (including leadership
19 and professional growth), as well as many other technical and community
20 volunteerism opportunities offered by other areas within the Company.
21 Q. What is the Employee Transition Plan?

A. The Companies have designed and implemented a Transition Plan for employees who are displaced due to job elimination as a result of reorganizations, automation, or business reasons. The plan's objective is to give employees choices on what course of action is best for them: to leave with a severance package that bridges them to another job externally, or to stay in a resource pool for a period of time to look internally for another suitable position while continuing to be productive doing temporary work or projects. Please see HECO-1825 (Employee Transition Plan – Flowcharts) for a description of this plan.

Q. What is the Voluntary Retirement Incentive Program?

A. In 2019, HEI and the Companies implemented a Voluntary Retirement Incentive Program. The program enhances the retirement choices for those close to retirement or who have reached retirement age, while allowing more flexibility in staffing to achieve the Transformation. Please see HECO-1822 (Voluntary Retirement Incentive Program) for a description of the program. A total of 27 Hawaiian Electric employees chose the Voluntary Retirement Incentive Program. Cost savings from the program is estimated at $1,253,115 for 10 months of 2019, and $1,284,443 for test year 2020 based on 20 of the 27 positions being backfilled (three at a lower level) and a lag of two months delay in hiring backfills. Please see HECO-1823 (Voluntary Retirement Incentive Program Savings Calculations) for the cost savings analysis of this program.

Cost savings are estimated to increase over time for each position that is not backfilled, or filled at a lower level/lower salary cost. The initial cost of the program

(including severance costs) is estimated to pay for itself over time and add more cost savings over the long-term.

Q. What is the Part-time Under 20 Hours Pilot Program?

A. This program was initiated to provide more flexibility for non-union management employees. It creates opportunities for employees to improve their work-life balance as well as options to address issues such as child care, elder care, and phased retirement. The pilot program provides creative ways to structure work while also attracting the needed skill sets of people who may have retired elsewhere but want to be engaged in a workforce community. It also encourages new ways to get work done, such as through job sharing. The cost savings estimate for a current non-union employee to become an Under 20 Hours employee is $48,000 per year in benefits savings plus the salary (or hourly pay) savings. A newly hired Under 20 Hour employee cost savings estimate is $20,000 per year in benefits savings not including savings based on the employee's salary or hourly wage. Please refer to HECO-1826 (Part-Time Under 20 Hours Pilot Program) for a description of the program.

<u>One Company Initiative</u>

Q. Please provide background on the One Company initiative.

A. The One Company initiative is an expansion of the shared services model. The shared services model allows employees at one of the Companies to perform work and services for all three Companies, and to bill the Companies for their portion of the costs. The shared services model has been used at the Companies for many years

and includes functions such as legal, system planning, independent power producer negotiations and renewable acquisitions, environmental consulting, and information technology services related to Enterprise Information Systems. Traditionally, the shared services model centralized these labor resources at Hawaiian Electric for all three Companies. Hawaiian Electric uses an intercompany billing process to bill Hawai'i Electric Light or Maui Electric for the services they provide.

In the past few years, the Companies have recognized increased opportunities (and improved efficiency) for the expansion of shared services in other areas due to advances in computer and communication media and talent management amongst the three Companies.

With the increased utilization of communications technology, common databases and other enabling technologies, the shared services model is no longer constrained to having labor resources physically centralized at Hawaiian Electric. It is now possible to have labor resources physically distributed and performing work for any of the Companies. Employees residing on Hawai'i Island and Maui who routinely perform work for the other Companies in the areas of Accounting, HR, Information Technology and Customer Service were converted to Hawaiian Electric employees. These employees can direct charge Hawaiian Electric for work performed for Hawaiian Electric. When performing work for Hawai'i Electric Light and Maui Electric, these employees use the existing intercompany billing process to bill for their associated time and expenses.

For more background information on the One Company Initiative, please see HECO-1818.

Additional Activities Supporting Workforce Transformation

Q. What has the Company accomplished in Leadership Succession and Development?

A. The goal of leadership succession planning is to ensure leadership continuity for the organization. A succession plan was designed and implemented in 2017, which included potential successors for all executive positions. This plan also identified high potential employees who had the capability to rise into higher leadership positions over time. Individual development plans were prepared for all executives based on a 360-leadership assessment that measured seven leadership competencies identified and defined by the executive team to be the most critical for transformation success, see HECO-1815 (Leadership Competencies For Transformation). The 360 assessment surveys bosses, peers, subordinates, and identified others (i.e., customers, clients) to obtain a rounded assessment of leader competencies as described by observable behaviors. This assessment is currently being implemented at the Manager and Director levels and development plans based on the assessment results are in process. Leadership programs and training courses are developed and implemented to add to the overall employee development curriculum based on the largest gaps in the aggregate scores of the competencies.

Q. Please describe the changes made to the Manager and Director titles and Divisions and Departments?

A. On October 2, 2018, in conjunction with the SAP go live date, the Companies switched the position titles between the Managers and Directors (Director titles became Manager, and Manager titles became Director) to be consistent with other businesses. In addition, Division and Department names were also switched. See HECO-1830 (Job Title and Organization Changes) for additional information on these changes.

EMPLOYEE BENEFIT PLANS

Q. What are the factors affecting employee benefits expense, including the CBA and the Prepaid Health Care Act, and how do the Company's benefit plans compare to those offered by other employers?

A. To foster an engaged and committed workforce working as one, Hawaiian Electric Company considers its entire union and non-union workforce as a unified group of employees; benefits negotiated for union employees influence the benefits received by management employees. Details for the employee benefits plan for medical, prescription drug, vision, dental and group life and long-term disability benefits and cost sharing are presented by Mr. Malcolm Tajiri in HECO T-20. The testimony provided in HECO T-20 concludes that Hawaiian Electric's benefits are comparable to other employers in Hawai'i.

Q. How does Hawaiian Electric provide group insurance benefits to its employees?

A. Hawaiian Electric provides group medical, dental, vision and life insurance benefits to its employees through a flexible benefits plan called a "FlexPlan."

Q. What is the FlexPlan?

A. The FlexPlan is designed to meet the requirements of Section 125 of the IRC. Under the provisions of the plan, employees are given an allocation of flex credits each year by the Company. These flex credits are stated in units of flex dollars. Employees apply these credits toward the purchase of non-taxable benefits (health and life insurance) by electing from several available plans, each with a stated flex price in units of flex dollars. To the extent that the employee's flex credits exceed the total of flex prices for health and life insurance purchases, remaining credits can be: (1) used to purchase other optional benefits such as supplemental life insurance, dependent life insurance, and additional accidental death and dismemberment insurance ("AD&D"), (2) directed to flexible spending accounts for the reimbursement of health care expenses (that are not covered by insurance) and/or dependent care expenses, or (3) returned to the employee as additional taxable income. If the total of flex prices for the plans elected by the employee exceeds their flex credits, the difference is withheld from the employee's pay on a pre-tax basis or after-tax basis. Information provided to employees regarding the FlexPlan is provided in HECO-1861.

Q. Why did Hawaiian Electric adopt the FlexPlan?

A. The plan was adopted in 1989 to provide employees with the flexibility of choosing benefit levels that meet individual needs while helping the Company to control future health plan costs.

Q. How does the FlexPlan help to control future health plan costs?

A. Health plan costs are driven by plan provisions, plan utilization and the cost of services. The FlexPlan offers employees an incentive to waive health plan coverage in return for flex credits that can be used to purchase other benefits. For example, employees covered by their spouses' medical plan may elect to waive medical coverage with Hawaiian Electric and use their flex credits to purchase additional life insurance, dependent life insurance or put the credits into a healthcare or dependent spending account that can be used towards their out-of-pocket medical or child care expenses. This results in lower utilization of health plan benefits which results in lower premium costs.

Q. How is the Company's total cost for the FlexPlan determined?

A. The Company's cost is equal to: Flex credits (Company-funded) less flex prices (employee-funded) plus premiums for all plans (Company-funded), as further described below.

<u>Flex Credits less Flex Prices</u>

Q. What is included in this category of employee benefit costs?

A. This category includes the estimated difference between Company-funded flex credits and flex prices charged to employees for health and life insurance plans.

Q. How was the 2020 test year estimate for the flex credits determined?

A. The Company provides basic flex credits for health coverage plus additional credits for life insurance coverage. Basic flex credits amount to $67.54 per employee for each of 24 pay periods. Life insurance credits are equal to the premium to provide each bargaining unit employee with coverage of one and one-half times their annual

base pay; each management employee with coverage of two times their annual salary, and senior management employees with coverage of $50,000. The calculation of the 2020 test year estimate for flex credits is $3,709,300. The $3,698,100 includes a budget adjustment of $11,200 as shown in HECO-1855 and HECO-1856. As noted on exhibit HECO-1850, flex credits are no longer budgeted for separately. However, they are still calculated (HECO-1855) and used in determining employee contributions of benefit premiums (HECO-1856, and discussed further below).

Q. How is the level of flex credits and prices determined?

A. The difference between flex credits and prices is the employee contributions, which is estimated at -$6,851,300 (HECO-1850). The maximum amount of employee contributions for health plan coverage is negotiated between the Company and the IBEW for bargaining unit employees. As discussed earlier in this testimony, the maximum employee contributions were increased in dollar amount although the percentage of employee contribution remains the same as in the current CBA. The test year contribution amount for bargaining unit employees is 20 percent of premium cost. The same contribution level applies to management employees. Flex credits and prices are set such that the difference between the employer-provided flex basic credits and flex prices charged to employees for health plans will not exceed the maximum employee contributions. HECO-1855 provides a schedule showing basic flex credits of $67.54 per pay period for each employee. In an effort to manage future health and welfare costs, multi-year contracts were pursued and

achieved after much carrier negotiation. This allowed for normalization adjustments to be based on contracted amounts for contracted years rather than on projected increases for all years. Calculations for normalization adjustments to flex prices based on increasing premium costs can be found in HECO-1856. HMSA contracted final rates of 11.7 percent increase in 2019 and 2020. Kaiser contracted final rate increases of zero percent (0%) in 2019, five percent (5%) in 2020, and five percent (5%) in 2021 for all participants. Hawaii Dental Service agreed to three years fixed rate at zero percent (0%) increase in 2019 and five percent for 2020 and 2021. VSP agreed to hold their rates flat (0% increase) for 2019 and 2020. MetLife contracted final rates of no increase in 2019, 2020, 2021 for Basic Life; no increase for three years for Optional Life; a 15 percent increase for three years for Dependent Life due to pooled claims activity. In addition, negotiations yielded no increase for three years in Voluntary AD&D; a 20 percent increase for LTD for 2019 due to unusually high claim activity with a cap of 15 percent increase for 2020. The benefit with these multi-year contracts is that the rates are guaranteed and they ensure stability in rates.

The basic health flex credits have been at the same level since 1996, and the flex prices for health plan options have been revised annually as the maximum employee contribution amount increases.

The flex prices for medical, dental and vision are calculated as follows: total of monthly premiums for medical, dental and vision minus the monthly flex credit of $135.08 times the employee contribution of 20 percent equals the total monthly

1 amount that an employee should pay for medical, dental and vision coverages. For
2 example, medical premium for Kaiser family is $1,496.58, dental premium for
3 family is $96.24, vision premium for family is $17.39. Total monthly premium costs
4 is $1,610.21 ($1,496.58 + $96.24 + $17.39) minus flex credit amount of $135.08
5 equals $1,475.13 times 20 percent equals $295.02 a month or $147.51 per pay period
6 (see HECO 1861, page 1).
7 Q. How was the estimate for flex credits less flex prices adjusted for the test year?
8 A. The amount was adjusted to reflect new estimates for the health plan premiums and
9 updated enrollment and participation estimates based on actual enrollments and
10 participation as of January 1, 2019.[21] The calculations for the adjustments can be
11 found in HECO-1856.

12 Group Medical/Dental/Vision Plans

13 Q. What do group medical/dental/vision plan costs represent?
14 A. These costs represent premiums for medical, dental and vision plans provided under
15 the FlexPlan. Medical plans are provided by HMSA and Kaiser Foundation Health
16 Plan ("Kaiser"). Dental and vision plans are provided by Hawaii Dental Service
17 ("HDS") and Vision Service Plan ("VSP"), respectively.
18 Q. What health plan options are available in the FlexPlan?
19 A. The 2020 FlexPlan health plan options are as follows:
20 1. HMSA CompMed ("CompMed") with Vision plan

[21] See HECO-1850, AG Employee Benefits.

2. HMSA Health Plan Hawaii ZN ("HPH") with Vision plan
3. Kaiser Permanente Group plan with Vision plan
4. HDS Major Care plan
5. Waiver of medical coverage
6. Waiver of dental coverage

Q. How were 2020 test year estimates for medical, dental, and vision plans determined?

A. The 2020 test year estimates were determined by taking the estimated average number of covered employees for each plan, multiplied by the applicable premium rate for 2020. The estimated number of employees covered in each plan was determined by pro-rating the elections made by employees for 2019 by plan to the total estimated number of covered employees for the test year. The calculation worksheets are provided in HECO-1857 (medical), HECO-1858 (dental), and HECO-1859 (vision).

Q. Please explain the adjustments to medical, dental and vision plan premiums?

A. The adjustments in HECO-1850, lines 24-26, columns h-i were made to update premium rates and to incorporate normalization adjustments. Normalization adjustments to account for future contracted and estimated premium costs can be found in column i, and supporting calculations for those costs are contained in HECO-1856.

Q. How were 2020 premium rates estimated?

A. In September 2018, the Company finalized the 2020 rates for medical, dental, and vision plans. Premium rates for 2020 were determined by increasing actual 2019

rates by five percent (5%) for Kaiser and 11.7 percent for HMSA medical plans, three percent (3%) for the dental plan and zero percent (0%) for the vision plan based on rate information received from HMSA, Kaiser, HDS and VSP. See HECO-1857-1859 for actual premium rates used.

Q. How are medical plan provisions determined?

A. Medical plan provisions are determined through the negotiating process between the Company and the IBEW. As discussed earlier in this testimony, the negotiations culminating in the collective bargaining agreement effective January 1, 2019 through October 31, 2021 resulted in the same medical plans, one additional plan provision (AD&D), and increases to out-of-pocket employee contributions. The union contract extension effective November 1, 2019 through Oct. 31, 2021 did not change any of the plan provisions.

Q. What other factors affect medical plan costs?

A. Other drivers of medical plan costs include general health care inflation experienced in Hawai‘i and the rest of the nation due to an aging population, rising consumer expectations, new and more expensive medical technology, and increases in reimbursements to physicians and hospitals. Increased costs are also attributable to mandated benefit provisions as required under the Hawai‘i Prepaid Health Care Act and nationally under Health Care Reform - Patient Protection and Affordable Care Act (“PPACA” or “ACA”) which includes provisions for extended dependent coverage for children up to age 26, free preventive health services, and eliminating lifetime limits.

1 Group Life Insurance

2 Q. What costs are included in this category of employee benefits?

3 A. This category includes premiums for basic group life and amounts to a 2020 test year
4 estimate of $860,600 as shown on HECO-1850. Depending on their position with
5 the Company, employees will have life insurance coverage at 1.5 times annual
6 earnings for bargaining unit employees, and 2 times annual earnings for non-
7 bargaining employees, and $50,000 for Management/Executives. Employees have
8 the opportunity to purchase additional voluntary AD&D coverage (coverage can be
9 purchased at ½, 1½ times, 2 times, 3½ times annual earnings to a maximum benefit
10 of the lesser of 3½ times or $500,000 of annual earnings.)

11 Group Long-Term Disability Benefits

12 Q. What is the 2020 test year estimate of long-term disability ("LTD") benefits?

13 A. The 2020 test year estimate for this category of employee benefits is estimated at
14 $612,300 (including $30,000 in claims not budgeted to account 926000).

15 Q. How was the 2020 test year estimate calculated for LTD?

16 A. HECO-1852 provides the calculation of LTD plan expenses. LTD expense is the
17 sum of the cost of premiums, run outs and claims. Due to unfavorable claims
18 experience, actual premiums for 2020 will increase by 15 percent over 2019
19 premium rates. The Run Outs will remain stable through 2020 and the Company is
20 assuming that the claims experience will remain stable through 2020. The 2020 test
21 year estimate was calculated utilizing the 2019 actuals, averaged over the 2019
22 period and escalated by the increase in premiums to derive the test year estimate.

Q. Please define the costs referred to as "Run Outs" and explain the need to separate these amounts from premiums.

A. "Run Outs" in this context refers to monthly bank fees and Administrative Services Agreement ("ASA") charges. These Run Outs are separate from premiums, as they are related only to the third-party administration of claims made under the Company's legacy self-insured LTD program.

Q. Please define the costs identified as "Claims" and explain the need to separate these amounts from premiums.

A. The costs identified as "Claims" reflect actual monthly claim payments made.

Q. What costs are included in this category?

A. This category includes costs to provide LTD benefits to Hawaiian Electric employees. LTD benefits are income replacement benefits provided to employees in the event of a non-occupational long-term disability that lasts beyond six months.

Q. How are LTD benefits provided to employees?

A. LTD benefits are provided through an insurance contract with MetLife. Effective January 1, 2003, benefits under the contract are paid on a fully insured basis. Prior to that, the Company paid benefits for the first five years of disability and on a fully insured basis thereafter. We continue to pay for the prior partially insured contract with MetLife for the maintenance of three cases still in existence. Costs are included in the MetLife total premium costs.

Q. Does Hawaiian Electric provide other insurance and disability benefits to employees?

A. Yes. In addition to LTD benefits, Hawaiian Electric provides other disability benefits such as Company-paid Accidental Death and Dismemberment, workers' compensation and sick leave to employees. Company-paid AD&D is also now provided as good industry practice due to the operations-oriented jobs in the industry. As mentioned earlier in this testimony, benefit levels for workers' compensation and sick leave have been reduced in the current CBA negotiated with the IBEW.

Q. How do LTD benefits coordinate with other disability benefits?

A. The LTD plan is designed to provide a total level of disability income to employees. Therefore, LTD benefits payable by the plan are offset by any other income received by the disabled employee. For example, sick leave, workers' compensation and social security benefits would offset the LTD benefits.

Q. Why do other disability benefits offset LTD benefits?

A. These benefits are offset because the plan is designed to encourage employees to return to work and keep disability related costs under control. Disability benefits are meant to be a partial wage replacement program, and not designed to offer benefits up to 100 percent of an employee's pre-disability earnings.

<u>Group Long-Term Care</u>

Q. Please describe the long-term care insurance benefit.

A. Effective July 1, 2004, Hawaiian Electric provides management employees with a basic level of long-term care benefits through an insurance contract. In general, the basic level provides a benefit of $1,000 per month for up to two years towards the

1 cost of residing in a long-term care facility. Employees also have the option to
2 purchase additional coverage at their cost. Upon retirement or other termination of
3 employment, employees may assume this cost to continue the coverage.
4 The 2020 test year estimate of $74,500 represents the Company's portion of
5 the premium for this benefit.[22] This amount was based on a 2019 run rate, the
6 headcount estimate for 2020, and an escalation rate of 10 percent due to rising long-
7 term care costs. The rising costs were determined based on discussions with the
8 insurance provider. See calculation at exhibit HECO-1853.

9 UNION AND LABOR RELATIONS

10 Q. What is the Company's relationship with the Union?
11 A. The Company has a strong collaborative relationship with the Union, working
12 through numerous projects, initiatives, and employee issues. Although there may
13 not be an agreement on every matter, both the Company and the Union are
14 committed to working out reasonable and fair resolutions. For example, the
15 Company continues to work on its transformation efforts and the Union has been a
16 collaborative partner in the efforts to create new jobs to meet customer needs.
17 Q. When does the current Collective Bargaining Agreement expire?
18 A. The former CBA between the Hawaiian Electric Companies and IBEW Local 1260
19 expired on October 31, 2018. A negotiated three-year extension through October 31,
20 2021 was ratified by IBEW Local 1260 employees in July 2018.

[22] See HECO-1853.

Q. Were any innovative programs and concepts utilized in the 2018 negotiations?

A. Yes. The negotiations used Interest-Based Bargaining ("IBB") that relies on Labor-Management collaboration. This is more fully explained below.

Q. What is Interest-Based Bargaining in relation to Labor-Management collaboration?

A. Interest-Based Bargaining is a negotiation technique in which both sides discuss their interests and work to develop agreements that satisfy the common interests and balance opposing interests. This is different from traditional negotiation where both sides put forward formal proposals for contract changes and negotiate a settlement on the proposals. The IBB method also looks for ways to create joint value and it produces more satisfactory outcomes for the parties than traditional bargaining, which is focused on fixed, opposing viewpoints (versus shared interests) that tend to result in compromise or no agreement at all.

The IBB process also utilizes sub-committees to discuss certain issues with added subject matter experts that work collaboratively to arrive at recommendations for consideration by the main negotiating committee. Please see HECO-1831 (Interest Based Bargaining) or further information on Interest Based Bargaining.

Q. Describe the process and the results of IBB negotiations to secure a new CBA.

A. Starting on November 13, 2017, representatives from the Company and IBEW 1260 participated in IBB with the assistance of a federal mediator. Joint negotiation sessions continued over the course of eight months, during which point, a number of issues were presented followed by identifying common interests that would be used to brainstorm resolutions to ultimately use in resolving the respective issues. On

July 12, 2018, a tentative agreement was reached to extend the existing contract for three years through October 31, 2021, providing a three percent (3%) annual wage increase and no other changes to the existing terms and conditions of the contract. Subsequently, in late July 2018, the negotiated tentative agreement was ratified by members of the IBEW 1260.

Q. Can you expand on the IBEW Code of Excellence?

A. As a part of this three-year extension, the Company and IBEW 1260 committed to work together to jointly develop and implement the IBEW Code of Excellence, which will create mutual accountability, shared values and vision, and ultimately, improved customer service. An example of the IBEW International Code of Excellence is provided in HECO-1832.

The IBEW Code of Excellence is designed to bring out the best in the Union's membership and to demonstrate to customers that IBEW members perform the highest quality work, utilizing their skills and abilities in a safe and productive manner. The Company and Union agreed to work together to develop and implement the program and training, designed to: support mutual accountability, values and vision; improve productivity; reduce conflicts with the intent to resolve issues; and continue discussions on wage compression, shift rules, paid-to-work, work base, reporting to work and call-outs.

SUMMARY

Q. Please summarize the key points in this testimony.

A. The key areas in this testimony include:

- Hawaiian Electric employees are critical to fulfilling the Company's mission to provide safe, reliable service to customers.
- Multiple initiatives are in progress to support the Company's Strategic Transformation Plan and the State's energy goals.
- As part of the Company's ongoing transformation efforts, some changes have been made to organization structure to increase efficiency and consistency and further move our transformation initiatives forward.
- Although the Company has worked hard to scrutinize the need for new positions, headcount has necessarily gone up to support transformation initiatives.
- The Company's Strategic Transformation Plan necessitates a Total Compensation (compensation and benefits) package that is competitive in order to recruit and retain highly skilled and specialized talent to meet customer needs and state policy goals.
- Hawaiian Electric's 2020 test year estimate for employee benefits expense of $47.0 million includes costs for providing employee benefits to active employees and retirees. The employee benefits expenses include the costs for pension, other postretirement benefits, long-term disability, health plans, life insurance plans, and other miscellaneous benefits, and are net of employee benefits transfer to capital.
- Benefits are negotiated with the IBEW for bargaining unit employees and take into account changes to wages and benefits resulting from the current CBA. Management employees generally receive the same level of benefits as

bargaining unit employees with some differences in retirement benefits, long-term disability insurance, group life insurance and long-term care insurance.

- Negotiations resulted in wage increases that were lower than the prior CBAs and benefits were maintained for both bargaining unit employees and management employees.
- The increase in the cost of providing employee benefits are attributed largely to market conditions outside of the Company's control (e.g., return on assets, discount rate, and medical utilization rates.) From a Total Compensation perspective, the benefit changes were designed to minimize cost, maintain the value of benefits, and still meet the goal of attracting and retaining a skilled workforce.
- The costs of pension (NPPC) and postretirement benefits (NPBC) were calculated by the plan's actuary using the employee benefit plans that are in effect in 2019 and reasonable assumptions in accordance with provisions of FASB ASC 715 and SFAS 106. Pension and post retirement costs are calculated by the plan's actuary in accordance with applicable laws.

Q. Does this conclude your testimony?

A. Yes.