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William A. Bonnet  
Vice President  
Government and Community Affairs

May 5, 2005

PUBLIC UTILITIES  
COMMISSION  
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Ms. Cheryl Kikuta  
Utilities Administrator  
Division of Consumer Advocacy  
Department of Commerce and  
Consumer Affairs  
335 Merchant Street, Room 326  
Honolulu, Hawaii 96813

Dr. Kay Davoodi  
Utilities Rates and Studies Office  
NAVFAC Washington  
1314 Harwood Street, S.E.  
Washington Navy Yard, DC 20374-5018

Dear Ms. Kikuta and Dr. Davoodi:

Subject: Docket No. 04-0113  
HECO 2005 Test Year Rate Case - Updates

By letter filed April 29, 2005, Hawaiian Electric Company, Inc. ("HECO") indicated that it would compile a list of changes in certain revenue requirements inputs (for example, to update for later information such as year-end 2004 recorded costs) that it has identified in its various responses to information requests ("IRs") from the Division of Consumer Advocacy ("CA") and the Department of the Navy on Behalf of the Department of Defense ("DOD"), and provide additional details regarding the changes not already provided in the IR responses. The list, and supporting information in the attachments thereto, are provided with this letter. As was indicated in the April 29<sup>th</sup> letter, the updates include the costs for HECO's existing energy efficiency and load managements DSM programs to be included in base rates as a result of Decision and Order No. 21698 (March 16, 2005), separating HECO's requests for approval and modification of DSM programs and recovery of such program costs and utility incentives from this docket, and opening a new Energy Efficiency Docket, Docket No. 05-0069.

HECO's objective is to provide the CA and the DOD with updates to the revenue requirements inputs at an earlier stage in the proceedings, to the extent practical, than updates have sometimes been provided in prior cases (for example, in rebuttal testimonies) in order to simplify the proceeding and narrow and/or focus the issues. At the same time, HECO reserves the right to make further updates as appropriate (such as to reflect new information or changes in circumstances), and to propose changes in rebuttal in response to positions taken by the CA or DOD. As HECO stated in its discussions with the CA and DOD, certain inputs, such as those for pension and OPEB costs, cannot be updated at this time, and will be updated when the information becomes available. (As the list indicates, the inputs for pension and OPEB costs cannot be updated until June, when HECO's actuary will provide updated 2005 pension and OPEB costs based on 1/1/2005 demographics.)

Division of Consumer Advocacy,

Department of Defense

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HECO will provide the Commission with copies of the referenced information requests ("IRs") along with responses to all of the Consumer Advocate's ("CA") and the Department of Defense's ("DOD") IRs after the last IR response is completed and submitted to the CA and the DOD (which is expected to be in late May 2005).

Sincerely,



Attachments

cc: Public Utilities Commission  
Utilitech, Inc.  
Larkin & Associates  
M. Brubaker  
Hill Associates



Hawaiian Electric Company, Inc.  
Listing and Description of Updates  
Docket No. 04-0013 – HECO 2005 Test Year Rate Case

<u>Attachment</u>	<u>Description of Updates</u>
1, 1A	<b>Sales estimate</b> revised to reflect: <ul style="list-style-type: none"><li>i. withdrawal of HECO's proposed Economic Development Rate ("EDR") as noted in response to CA-IR-235</li><li>ii. the delay in HECO's proposed Combined Heat and Power ("CHP") Program as noted in response to CA-IR-276, part b</li><li>iii. the impact of only the continuation of the existing Demand-Side Management ("DSM") programs</li></ul>
N/A	<b>Electric Sales Revenues</b> <ul style="list-style-type: none"><li>i. To be revised to reflect updates to sale estimate</li><li>ii. To be revised to reflect new Rider customers that have signed up for service since the filing of direct testimony. One new Rider M customer has been identified in response to CA-IR-584</li><li>iii. As in the past, Energy Cost Adjustment Factor will be updated to reflect the latest fuel prices. HECO proposes using May 1, 2005 contract fuel and purchased energy prices, unless more appropriate fuel prices for ratemaking purposes are available. May 1, 2005 contract fuel and purchased energy prices are attached. Energy Cost Adjustment Clause will also be modified to recover fuel costs for distributed generation at substations.</li></ul>
N/A	<b>Other Operating Revenues</b> Revisions to the Amortization of Gain on Sale of Land to reflect later information as identified in responses to CA-IR-332 and CA-IR-372
2	<b>Production Simulation</b> Revised calibration factor based on calibration run for calendar year 2004. Workpapers to support revised calibration factor and inputs for the calibration production simulation run. <ul style="list-style-type: none"><li>i. Revised Equivalent Forced Outage Rates (EFORs) based on actual 2004 experience provided in response to CA-IR-461</li><li>ii. Revised Maintenance Schedule (as of April 8, 2005) to reflect later information provided in response to CA-IR-43 (revised April 21, 2005)</li></ul>

	<ul style="list-style-type: none"> <li>iii. Revised ABC coefficients, based on revised maintenance schedule, provided in response to CA-IR-128 (supplemented May 2, 2005)</li> <li>iv. Revised CHP/DG assumptions as shown in Attachment 1A</li> <li>v. Power purchase expenses will be updated using the methodology explained in direct testimony, to reflect updated amounts of purchased energy for AES Hawaii and Kalaeloa when a new production simulation is run, and the updated assumptions as to purchased energy rates, and actual GNPIP information as provided in the attached. Purchased energy expense for HPOWER will be updated using the same methodology used in direct testimony, when a new production simulation is run, and the resulting avoided cost payment rates are calculated.</li> </ul>
3	<p><b>Fuel Related Expenses</b></p> <p>Revisions based on new operations and maintenance contracts entered into subsequent to the filing of the application as discussed in response to CA-IR-132, page 23.</p>
N/A	<p><b>Other Production Operations and Maintenance Expense</b></p> <ul style="list-style-type: none"> <li>i. Revise to delete CHP operations and maintenance expenses as a result of the delay in HECO's proposed CHP program as identified in response to CA-IR-276, part b.</li> <li>ii. Increase in production maintenance expense to reflect the change in betterment accounting, as agreed to by letter filed March 29, 2005, and as approved in Decision and Order No. 21738, filed April 14, 2005, in Docket No. 03-0206 (see response to CA-IR-416)</li> <li>iii. Revise for the removal of expenses for utility-owned CHP systems from the test year (see response to CA-IR-265)</li> <li>iv. Revise for the inclusion of normalized expense for HECO-leased DG units at HECO substations (see response to CA-IR-441)</li> <li>v. Revise for the removal of Sun Power for Schools Non-Labor expenses (see response to CA-IR-186)</li> </ul>
N/A	<p><b>Customer Accounts</b></p> <p>Bad Debt Expense factor will not change, but to the extent the electric sales revenue estimate is revised due to the changes in sales, and revenue calculations, the test year estimate amount will be revised.</p>

**Customer Service**

- i. Expenses related to DSM programs that would continue in base rates, based on HECO's understanding that other costs relating to the existing energy efficiency and load management DSM programs (as well as shareholder incentive, and lost margins for program impacts not reflected in test year sales) will continue to be recovered through a DSM surcharge, are shown on Attachment 4. The difference between the amounts shown on Attachment 4 and the amounts included in the direct testimony filing (See HECO-1013) would be removed from the test year estimates provided there continues to be a mechanism (such as a surcharge) for recovering incremental program costs and utilities incentives, if any, resulting from DSM programs and associated cost recovery mechanisms approved after the rate case (for example, as a result of the Energy Efficiency Docket No. 05-0069).
- ii. Revision to expenses as a result of the reorganization described in response to CA-IR-78

N/A

**Administrative and General Expenses**

- i. Revision to the rent expense as discussed in response to CA-IR-260
- ii. Revision to Regulatory Commission Expense as discussed in response to CA-IR-258
- iii. Revision to exclude the amortization of HR Suites Software Development costs as discussed in response to CA-IR-352
- iv. Revision to the HEI charges to HECO as discussed in responses to CA-IR-419 and CA-IR-552 and referred to in response to DOD/HECO-IR-4-6
- v. Increase in audit expenses (account no. 923, primarily for KPMG fees) from \$373,257 to \$754,155, primarily due to the increase in Sarbanes-Oxley audit fees, as discussed in response to CA-IR-424, part f
- vi. Revision to Research and Development expense based on response to CA-IR-536
- vii. Revised Employee Benefits expenses, other than pensions and OPEB to reflect actual premiums as discussed in responses to CA-IR-345, CA-IR-348, CA-IR-349, and CA-IR-350
- viii. Revised pension and OPEB estimates based on a change in the discount rate provided in response to CA-IR-337 and CA-IR-341. As indicated in response to CA-IR-340 further revised pension and OPEB estimates based on January 1, 2005 demographics will

be available in June 2005, based on work being performed by Watson Wyatt, the actuary for the pension and OPEB plans.

N/A

#### **Overtime Labor Costs**

In addition, as noted in response to CA-IR-76, HECO is in discussion with Mr. Carver of Utilitech (the Consumer Advocate's consultant) to review the standard labor rates used for the test year, and the level of overtime dollars and hours used to determine the standard labor rates. This is in light of HECO's position that the additions to staffing will be filled in place of incurring prior overtime levels. As indicated in response to CA-IR-76 discussions are continuing.

N/A

#### **Depreciation and Amortization Expense**

- i. Actual 2005 depreciation expense based on actual December 31, 2004 plant in service balances, as provided in response to CA-IR-86 and CA-IR-514
- ii. Revised amortization of Contributions in Aid of Construction to reflect actual December 31, 2004 Contributions in Aid of Construction, as provided in response to CA-IR-515
- iii. Revised amortization expense to reflect the amortization of the King Street capital lease, as discussed in response to CA-IR-260

N/A

#### **Taxes Other than Income Taxes**

- i. As indicated in HECO T-17, page 4, HECO will be revising its state unemployment taxes (SUTA) from \$202,000 to \$0.
- ii. Other taxes other than income taxes amounts will be revised as a result of the changes in revenues and expenses identified. No change in the tax rates.

N/A

#### **Income Taxes**

Interest expense deduction will be revised to reflect the lower earnings requirement on long term debt as result of the refunding Series 2005A revenue bonds.

5

#### **Cost of Capital**

Revised capital structure and earnings requirement to reflect (i) the lease obligation for the King Street capital lease, as discussed in response to CA-IR-260, resulting in an increase in equity and decrease in short-term borrowings of \$2.5 million (average for the test year, in order to rebalance for the lease obligation), and (ii) the refunding Series 2005A revenue bonds.

- Rate Base**
- i. Revised to reflect actual 2004 recorded balances as provided in response to CA-IR-95
  - ii. Plant Additions
    - a. Revised plant additions, as a result of more current information and projections.
    - b. Revised plant additions due to betterment accounting change, as discussed in CA-IR-416
- 6 N/A     iii. Lease Property  
Added lease property (King St. capital lease) to rate base as discussed in response to CA-IR-260.
- 7     iv. Fuel Inventory  
HECO is proposing a 35-day LSFO inventory, as in direct testimony, and the inventory amount (in barrels) and value will be updated to reflect the average daily LSFO consumption when a new production simulation is run, and the assumed fuel prices. HECO will update its diesel inventory to 26,500 barrels to reflect the latest five year average of diesel inventory for central station and diesel inventory for DG units at substations as shown on the attached, and to reflect the assumed diesel price.
- N/A     v. SFAS 109 Regulatory Assets  
The amortization for the regulatory liability related to the Federal ITC will be changed from \$581,772 to \$576,929 as discussed in response to CA-IR-516.
- N/A     vi. Deferred Taxes  
Changes to the accumulated deferred income taxes for 2005 for changes made in other areas.
- N/A     vii. **Working Cash**
  1. Revision to the fuel payment lag as discussed in response to CA-IR-524.
  2. Revision to the O&M Labor payment lag for the revised State Payroll Tax Withholding as discussed in CA-IR-210, item #9.

**Hawaiian Electric Company, Inc.**  
**TEST YEAR 2005 SALES FORECAST \***

<u>Rate</u>	<u>2005 Test Year GWh Sales</u>	<u>2005 TY Average No. of Customers</u>
R	2,154.4	257,648
G	377.5	25,629
J	2,013.0	6,680
H	53.4	1,042
P	3,217.4	360
F	<u>40.3</u>	<u>406</u>
TOTAL	7,856.0	291,765

\* Including future DSM impacts from existing programs, 4-15-05.

**Hawaiian Electric Company, Inc.**  
**COMPARISON OF DIRECT TESTIMONY AND 4-18-05 REVISED ESTIMATES**

Rate	Direct Testimony TY Sales	Adjustments to Program Impacts				Revised 4-13-05 TY Sales	TY Sales Difference
		Utility CHP	3rd Party CHP	EDR	Future DSM		
R	2,145.7	0.0	0.0	0.0	8.7	2,154.4	8.7
G	377.1	0.0	0.0	0.0	0.4	377.5	0.4
J	2,016.9	0.0	(1.2)	(0.2)	(2.5)	2,013.0	(3.9)
H	53.4	0.0	0.0	0.0	0.0	53.4	0.0
P	3,209.4	1.4	5.6	0.0	1.0	3,217.4	8.0
F	40.3	0.0	0.0	0.0	0.0	40.3	0.0
TOTAL	7,842.8	1.4	4.4	(0.2)	7.6	7,856.0	13.2

**Hawaiian Electric Company, Inc.**  
**COMPARISON OF DIRECT TESTIMONY**  
**AND 4-18-05 REVISED ESTIMATES**

Rate	Direct Utility CHP	Revised Utility CHP	Difference Utility CHP
R	0.0	0.0	0.0
G	0.0	0.0	0.0
J	0.0	0.0	0.0
H	0.0	0.0	0.0
P	(1.4)	0.0	1.4
F	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
TOTAL	(1.4)	0.0	1.4

Rate	Direct 3rd Party CHP	Revised 3rd Party CHP	Difference 3rd Party CHP
R	0.0	0.0	0.0
G	0.0	0.0	0.0
J	0.0	(1.2)	(1.2)
H	0.0	0.0	0.0
P	(5.6)	0.0	5.6
F	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
TOTAL	(5.6)	(1.2)	4.4

**Hawaiian Electric Company, Inc.**  
**COMPARISON OF DIRECT TESTIMONY**  
**AND 4-18-05 REVISED ESTIMATES**

Rate	Direct EDR	Revised EDR	Difference EDR
R	0.0	0.0	0.0
G	0.0	0.0	0.0
J	0.2	0.0	(0.2)
H	0.0	0.0	0.0
P	0.0	0.0	0.0
F	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
TOTAL	0.2	0.0	(0.2)
Rate	Direct Future * DSM	Revised Future * DSM	Difference Future * DSM
R	(13.1)	(4.4)	8.7
G	(1.2)	(0.8)	0.4
J	(7.3)	(9.8)	(2.5)
H	(0.1)	(0.1)	0.0
P	(25.1)	(24.1)	1.0
F	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
TOTAL	(46.8)	(39.2)	7.6

**Hawaiian Electric Company, Inc.**  
**COMPARISON OF DIRECT TESTIMONY**  
**AND 4-18-05 REVISED ESTIMATES**

<u>Rate</u>	<u>Direct Adjustment ** to TY Sales</u>	<u>Revised Adjustment ** to TY Sales</u>	<u>Difference Adjustment ** to TY Sales</u>
R	(13.1)	(4.4)	8.7
G	(1.2)	(0.8)	0.4
J	(7.1)	(11.0)	(3.9)
H	(0.1)	(0.1)	0.0
P	(32.1)	(24.1)	8.0
F	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<b>TOTAL</b>	<b>(53.6)</b>	<b>(40.4)</b>	<b>13.2</b>

\* Future DSM includes 2004 and 2005 installations.

\*\* Utility CHP, 3rd Party CHP, EDR, and Future DSM impacts

**Docket No. 04-0113  
Hawaiian Electric Company, Inc.  
2005 Test Year Rate Case**

**Revisions Concerning  
Combined Heat and Power Projects and  
Installation of Distributed Generation Units at HECO Sites**

**Combined Heat and Power Projects**

HECO hereby removes combined heat and power ("CHP") project revenues, expenses, and rate base costs from its 2005 test year rate case. As described in HECO T-7, CHP revenues and expenses were anticipated to occur during the test year under the premise that HECO would be able to develop individual CHP projects, subject to Commission approval under Rule 4 of the Company's tariff, in parallel to the ongoing proceedings of the Distributed Generation Investigative Docket No. 03-0371.

Two utility CHP Agreements were filed to the Commission under this premise in the fourth quarter of 2004. In October 2004, HECO filed for approval of its CHP Agreement with Pacific Allied, Limited in Docket No. 04-0314. In December 2004, HELCO filed for approval of its CHP Agreement with Koa Hotel, LLC, for installation of a CHP system at the Sheraton Keauhou Resort, in Docket No. 04-0366. However, by Order Nos. 21554 and 21555, issued on January 21, 2005, the PUC suspended these applications to allow the PUC to first consider the issues of the Distributed Generation Investigative Docket No. 03-0371. Docket No. 03-0371 is still in progress at this time.

By letter dated February 9, 2005, Pacific Allied Products terminated its CHP Agreement with HECO for the Pacific Allied CHP Project due to the suspension of its Rule 4 application and resulting CHP schedule uncertainty. A formal notice withdrawing the Pacific Allied-HECO CHP Agreement from review was filed with the Commission on March 4, 2005. With the continued suspension of HECO's CHP Program application in Docket No. 03-0366, the recent suspension of HECO's and HELCO's applications for individual CHP projects, and the subsequent cancellation of the Pacific Allied project, no utility CHP is forecast to be installed during the 2005 test year. As a result, CHP project revenues, expenses, and capital costs are removed from the test year.

### **Installation of Distributed Generation Units at HECO Sites**

HECO is adding to the test year rate case the capital costs and expenses associated with the installation, operation, and maintenance of nine distributed generation (“DG”) units at HECO sites. \$2,107,800 in capital costs will be incurred to install three 1.64 MW diesel generating units each at three HECO sites. These capital costs will be included in the plant additions for the 2005 test year. Permitting and engineering for the installations are in progress, and HECO anticipates the first of the three site installations in October 2005. The second and third site installations are projected to be installed in November 2005. HECO proposes to normalize the impact on operations and maintenance (“O&M”) expenses by including the annual O&M expenses for the nine units in expenses for the 2005 test year. Non-fuel O&M expenses for the nine units total \$1,403,000 on an annualized basis, and total annual fuel expenses are estimated at \$1,038,300<sup>1</sup>. These expenses are summarized on page 6 of Attachment 1A. Updates to the HECO Energy Projects Department expenses are provided on page 9 of Attachment 1A.

#### **Background**

As described in the 2005 HECO Adequacy of Supply (“AOS”) letter filed March 10, 2005, given the expected reserve capacity shortfalls HECO may experience over the next several years, HECO is working to plan and implement a number of interim mitigation measures including the use of portable, leased DG units at HECO-controlled substation sites and other sites. The primary objective of this effort is to install dispatchable, firm generating capacity for peaking purposes as quickly as possible to mitigate the potential reserve capacity shortfalls. The expected duration of using the DG units is anywhere from two to five years depending on the reserve capacity situation and the effectiveness of HECO’s other programs such as DSM, load control, and CHP to manage load.

It was determined that small scale DG located at HECO sites other than power plants would be the most feasible to accomplish this objective. Such installations, if appropriately sited and limited in size and operation, can be permitted and installed in a relatively quick timeframe compared to central station generating units.

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<sup>1</sup> Diesel fuel cost based on May 2005 Waiau diesel cost of \$79.4392/bbl, \$0.105/gal fuel transportation cost, and fuel inventory of 500 barrels assuming an average fill level of 80% of total fuel storage capacity. See Attachment 1A, pages 6 and 8.

HECO began considering this DG mitigation measure in late October, 2004. Initial informal contacts with DG equipment vendors focused HECO's review on the use of mobile diesel engine generating units, which are commonly deployed by industry in Hawaii and on the mainland where there is a quick need for power.

Selection of DG Unit Vendor and Basic Terms of the DG Procurement

In December 2004, HECO, through a formal request for proposal ("RFP"), solicited competitive pricing bids from two DG vendors, Hawthorne Pacific and Cummins West. The RFP requested pricing on the bases of leasing or purchasing the DG units. Based on the bid responses, Hawthorne Pacific was selected in February 2005 as the DG equipment vendor for HECO's near-term DG mitigation measure efforts. HECO's RFP and the responding bids from Hawthorne Pacific and Cummins West were provided in response to CA-IR-441.

HECO determined that given the expected duration of using the DG units, anywhere from two to five years, it was preferable to lease the DG units from Hawthorne Pacific and that such lease should be for a two year term, subject to extension. On this basis, and considering Hawthorne Pacific's proposed pricing, HECO determined that such a lease will be an operating lease from an accounting standpoint. Preliminary negotiations have been conducted between HECO and Hawthorne Pacific on the detailed terms and conditions of the lease, however, no purchase order has yet been issued by HECO. HECO will issue a purchase order to Hawthorne Pacific for each individual DG project site upon completion of key permitting milestones.

Description of DG Unit Installations

HECO's planned DG installations consist of the following key components:

- Containerized diesel engine generators rated at 1.64 MW continuous, each with self-contained 1,250 gallon diesel fuel storage tanks and internal fire protection system. Up to three DG units would be installed at a single location. Self-contained diesel storage within each DG unit allows for approximately 11 hours of continuous full load operation. The DG units would be air permitted as non-covered sources, with an annual operating hour limit of 1,400 hours per unit based on a three-unit installation. However, actual operating hours are anticipated to be on the order of 500 hours per unit per year based on operating primarily during peak hours during

the high energy usage months of the late summer and fall. The units would be remotely monitored, started, and shut down via HECO's Ward Avenue SCADA system.

- 480V/12kV 1500 kVa step-up transformer, one per DG unit. Each unit would be interconnected into a 12 kV cable or bus via the step-up transformer.
- 5,000 gallon supplemental diesel storage tank, double-walled for spill containment, one per DG location. The 5,000 gallon supplemental diesel storage tank would be installed to extend the run time hours of each installation between fuelings, in order to increase operational flexibility and decrease the number of fuel truck deliveries that are required.
- Communications for remote monitoring, dispatch, and security of the DG units, specifically, communications for (1) substation remote terminal units ("RTU") to HECO's Ward Avenue distribution SCADA system ("DSS"), (2) substation security cameras, and (3) substation RTUs to a new Ward Avenue PI server.
- Sound barrier walls for sound control and visual screening.

#### DG Site Selection

HECO considered all substation sites on the island of Oahu, and other properties owned by HECO. Based primarily on the criteria of physical space availability, zoning, and land ownership, five have been identified as leading candidate sites for installation of DG during the 2005 test year. These sites are (1) Helemano Substation, (2) Ewa Nui Substation, (3) Iwilei Tank Farm, (4) Uwapo Substation, and (5) Hoaeae Substation. For each site with the exception of Hoaeae Substation, three DG units, each rated at 1.64 MW, would be installed totaling a maximum 4.92 MW per site. Hoaeae Substation would be limited because of shoreline management area constraints to two units, totaling 3.28 MW. HECO intends to install nine DG units in the 2005 test year, consisting of three units at each of three sites, and is therefore focusing its 2005 installations at the sites other than Hoaeae Substation. HECO anticipates that additional units will be installed in later years depending on the reserve capacity situation.

Production Simulation Modeling

The production simulation will model the Substation DG as follows:

The hours are broken out as follows:

- July 100 hours
- Aug 100 hours
- Sep 200 hours
- Oct 100 hours

It is assumed that 14.8 MW is available for all 12 months. The following production simulation modeling technique will be used:

- July, Aug, and Oct: 20 week days \* 5 hours per day \* 14.8 MW.
- Sep: 20 week days \* 10 hours per day \* 14.8 MW

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

**SUMMARY OF DG/CHP CAPITAL, REVENUES, AND COSTS**

		<u>2005</u>
1	DG/CHP CAPITAL	\$000
2	DG Capital	\$2,107.8
3	CHP System Capital	0.0
4		
5	DG INFORMATION	
6	DG Capacity Installed in 2005	MW                  14.8
7	DG Generated Energy	MWH                7,380.0
8	Non-fuel Expenses related to DG	\$000               \$1,403.0
9	Diesel Fuel Inventory	Bbls                500
10	Fuel Costs Related to DG	\$000               \$1,038.3
11		
12	UPDATED CHP SYSTEM	
13	CHP Generating Capacity	MW                0.0
14	CHP Generated Energy	MWH                0.0
15	Revenues related to CHP	\$                0.0
16	Expenses related to CHP	\$                0.0
17	Fuel costs related to CHP	\$                0.0
18		
19		
20		
21		
22	Note: DG costs are based on 12-months of operation of nine units,	
23	with (3) 1.64 MW units at each of three HECO sites.	

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

**2005 CAPITAL COSTS FOR DG AND UTILITY CHP**

		<u>2005</u> <u>(\$000)</u>
1	<b>DG Capital Work (\$000)</b>	
2	HECO Engineering, construction and overheads	\$208.6
3	Outside Engineering work	\$26.1
4	Transformers, fuel tank and other equipment	\$219.3
5	Outside construction and construction material	\$179.9
6		<u>-----</u>
7	Capital Cost per Site with 3-Units:	\$633.9
8		<u>=====</u>
9	Capital Cost for Three (3) Sites:	\$1,901.8
10	PI system data monitoring software: <sup>1</sup>	<u>\$206.0</u>
11	<b>Total DG capital for 2005:</b>	<b>\$2,107.8</b>
12		
13	<b>HECO CHP Capital Work (\$000)<sup>2</sup></b>	
14	No CHP projects to be built in 2005	\$0.0
15		<u>=====</u>
16	<b>Total DG/CHP capital for 2005:</b>	<b>\$2,107.8</b>
17		
18	<u>Notes</u>	
19	1. DG data monitoring software is a one-time cost.	
20	2. CHP projects are in design in 2005 with construction in 2006 pending PUC approvals.	

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

**DETAILED ESTIMATE OF DG O&M COSTS AND FUEL INVENTORY**

		Monthly (\$000)	Annual (\$000)
	<b>MONTHLY OPERATING COSTS</b>		
1	DG unit rental: \$145,000 per unit per year x 9-units	\$108.75	\$1,305.0
2	Phone line lease per site	\$1.89	\$22.7
3	DG unit monitoring and coordination work	\$1.80	\$21.6
4	Site security & on-site escort work	<u>\$0.60</u>	<u>\$7.2</u>
5	DG operating costs:	\$113.04	\$1,356.5
6			
7		Per Site (\$000)	Annual (\$000)
8	<b>ANNUAL COSTS</b>		
9	Annual source test: \$5,000 per unit x 9-units	\$15.00	\$45.0
10	Non-Covered Source Air Permit Fee	<u>\$0.50</u>	<u>\$1.5</u>
11	DG air permit related costs:	\$15.50	\$46.5
12			
13	<b>ANNUAL FUEL COSTS</b>	Per Hour	Annual
14	500-Hour Fuel burn for 9-units (Bbl) <sup>1</sup>	24.77	12,383.5
15	Diesel fuel cost including transport <sup>2,3</sup> \$83.85/Bbl		
16	Unit heat rate - HHV 9,833 Btu/kWh		
17	DG fuel costs:	\$2.08	\$1,038.3
18			
19	<b>FUEL INVENTORY</b>		
20	Self-contained fuel storage capacity, gallons per DG unit	1,250	
21	Total self-contained fuel storage for nine units, gallons		11,250
22	Supplemental fuel storage tank capacity, gallons	5,000	
23	Total supplemental fuel storage for three tanks, gallons		<u>15,000</u>
24	Total fuel storage capacity, gallons		<u>26,250</u>
25			
26	Fuel storage inventory assuming 80% of total storage capacity, gallons		21,000
27	Fuel storage inventory assuming 80% of total storage capacity, bbls		500
28			
29	<u>Notes:</u>		
30	1) Air permit application requests 1,400 hours operation per unit per year but 500 run hours expected		
31	2) Diesel fuel cost based on May 2005 Waiau diesel cost of \$79.4392/Bbl.		
32	3) Transport cost for trucking to sites estimated at 10.5 ¢/gal.		

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

**ENERGY PROJECTS DEPARTMENT  
DEPARTMENT EXPENSES**

		2005 TEST YEAR ESTIMATE (\$000)	References
1	Energy Projects Project Labor & Overhead Expenses		
2			
3	Labor Expenses	\$ 321.5	Source: Attachment 1A, page 10
4			
5	Overheads	\$ 381.0	Source: Attachment 1A, page 10
6			
7	InterCompany Billables to HELCO & MECO	\$ 450.4	Source: Attachment 1A, page 11
8			
9	Charges to Clearing	\$ 65.3	Source: Attachment 1A, page 12
10			
11	Energy Projects Dept Non-Project Expenses		
12			
13	Labor Expenses	\$ 255.9	Source: Attachment 1A, page 13
14			
15	Non-Labor Expenses	\$ 195.9	Source: Attachment 1A, page 13
16			
17	Total Energy Projects Department Expenses:	\$ 1,670.1	

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

Department: Energy Projects

Account Block Description: Construction

Account Group Description: Capital

NARUC: 107

NARUC Description: CWIP

	Lbr/NLbr	Act #	Activity	Exp Element	EE #	FY05 Budget05
1	Labor	211/212	Design & Construct	Labor Cost	150	\$287,822
2	Labor		NPW	Non-Productive Wages	421	<u>\$33,688</u>
3				TOTAL LABOR:		\$321,510
4						
5	Non-Labor			Stores Overheads	401	\$67,977
6	Non-Labor			En Del OH	404	\$195,145
7	Non-Labor			Admin Tfr to Const OH	406	\$22,575
8	Non-Labor			Cust Install OH	407	\$2,134
9	Non-Labor			Empl Benefits OH	422	\$68,950
10	Non-Labor			Payroll Tax OH	423	<u>\$24,235</u>
11	Non-Labor			TOTAL OVERHEADS:		\$381,016
12						
13			TOTAL CHP PROJECT RELATED LABOR & OVERHEADS:			<u><u>\$702,526</u></u>

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

Department: Energy Projects  
 Account Block Description: Intercompany  
 Account Group Description: Billable  
 NARUC: 1861  
 NARUC Description: Chgs Bill Assoc Cos

	Lbr/NLbr	*Act #	Activity	Exp Element	*EE #	FY05 Budget05
1	Labor	210	Plan & Approve Projects	Labor Cost	150	\$47,971
2	Labor	210	Plan & Approve Projects	Non-Productive Wages	421	\$3,484
4	Labor	211	Engr Design & Mng Proj	Labor Cost	150	\$167,458
5	Labor	211	Engr Design & Mng Proj	Labor True-up	155	\$0
6	Labor	211	Engr Design & Mng Proj	Non-Productive Wages	421	\$20,857
8	Labor	701	Dev & Mg Forecasts	Labor Cost	150	\$22,107
9	Labor	701	Dev & Mg Forecasts	Non-Productive Wages	421	\$3,560
11	Labor	711	Adm & Impl IRP Pgm-Base	Labor Cost	150	\$6,312
12	Labor	711	Adm & Impl IRP Pgm-Base	Non-Productive Wages	421	\$458
14	Labor	712	Adm & Impl IRP Pgm-Incr	Labor Cost	150	\$1,578
15	Labor	712	Adm & Impl IRP Pgm-Incr	Non-Productive Wages	421	\$115
17	Labor	720	Improve Bus Processes	Labor Cost	150	\$22,107
18	Labor	720	Improve Bus Processes	Non-Productive Wages	421	\$3,560
20	Non-Labor	210	Plan & Approve Projects	Corp Admin Expense	406	\$2,189
21	Non-Labor	210	Plan & Approve Projects	Employee Benefits	422	\$7,287
22	Non-Labor	210	Plan & Approve Projects	Outside Svcs-General	501	\$7,200
23	Non-Labor	210	Plan & Approve Projects	Payroll Taxes	423	\$4,025
25	Non-Labor	211	Engr Design & Mng Proj	Corp Admin Expense	406	\$13,104
26	Non-Labor	211	Engr Design & Mng Proj	Employee Benefits	422	\$43,625
27	Non-Labor	211	Engr Design & Mng Proj	Interisland Travel	522	\$0
28	Non-Labor	211	Engr Design & Mng Proj	Outside Svcs-Engr	506	\$0
29	Non-Labor	211	Engr Design & Mng Proj	Payroll Taxes	423	\$14,050
30	Non-Labor	211	Engr Design & Mng Proj	Vehicles	301	\$0
32	Non-Labor	700	Dev & Adm Business Plans	Interisland Travel	522	\$13,200
33	Non-Labor	700	Dev & Adm Business Plans	Mainland Travel	520	\$6,720
34	Non-Labor	700	Dev & Adm Business Plans	Matl-Purchasing Card	205	\$1,320
35	Non-Labor	700	Dev & Adm Business Plans	Meals & Entertainment	521	\$10,392
36	Non-Labor	700	Dev & Adm Business Plans	Rents	570	\$2,400
38	Non-Labor	701	Dev & Mg Forecasts	Corp Admin Expense	406	\$2,237
39	Non-Labor	701	Dev & Mg Forecasts	Employee Benefits	422	\$7,447
40	Non-Labor	701	Dev & Mg Forecasts	Payroll Taxes	423	\$1,855
42	Non-Labor	711	Adm & Impl IRP Pgm-Base	Corp Admin Expense	406	\$288
43	Non-Labor	711	Adm & Impl IRP Pgm-Base	Employee Benefits	422	\$959
44	Non-Labor	711	Adm & Impl IRP Pgm-Base	Payroll Taxes	423	\$530
46	Non-Labor	712	Adm & Impl IRP Pgm-Incr	Corp Admin Expense	406	\$72
47	Non-Labor	712	Adm & Impl IRP Pgm-Incr	Employee Benefits	422	\$240
48	Non-Labor	712	Adm & Impl IRP Pgm-Incr	Payroll Taxes	423	\$132
50	Non-Labor	720	Improve Bus Processes	Corp Admin Expense	406	\$2,237
51	Non-Labor	720	Improve Bus Processes	Employee Benefits	422	\$7,447
52	Non-Labor	720	Improve Bus Processes	Payroll Taxes	423	\$1,855
54			TOTAL BILLABLE			\$450,378

HAWAIIAN ELECTRIC COMPANY, INC.  
2005 TEST YEAR

Department: Energy Projects

Account Block Description: Charges to Clearing

Account Group Description: Charges to Clearing

NARUC: 184

NARUC Description: Clearing Accounts

Lbr/NLbr	*Act #	Activity	Exp Element	*EE #	FY05 Budget05
Labor	98	Payroll Cost Center	Nonproductive Time	107	\$65,349

Note: These costs reflect the addition of one Senior Technical Services Engineer in April 2005.

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HAWAIIAN ELECTRIC COMPANY, INC.

2005 TEST YEAR

Department: Energy Projects

Account Block Description: Prod Oper

Account Group Description: O&M

NARUC: 546

			*Act				FY05
	NARUC Descr	Lbr/NLbr	#	Activity	Exp Element	*EE #	Budget05
1	Gen Elec	Labor	210	Plan & Approve Projects	Labor Cost	150	\$47,971
2	Gen Elec	Labor	211	Engr Design & Mng Proj	Labor Cost	150	\$118,386
3	Mng & Supp	Labor	701	Dev & Mg Forecasts	Labor Cost	150	\$26,944
4	Mng & Supp	Labor	720	Improve Bus Processes	Labor Cost	150	\$19,308
5		Labor	-	-	Non-Productive Wages	421	<u>\$43,297</u>
6						TOTAL	\$255,907
7							
8	Gen Elec	Non-Labor	211	Eng Design & Mng Proj	Vehicles	301	\$8,280
9	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Matl-Purchasing Card	205	\$2,400
10	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Matl-Purchasing Card	205	\$3,000
11	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Outside Svcs-General	501	\$2,130
12	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Mainland Travel	520	\$3,360
13	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Mainland Travel	520	\$3,640
14	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Meals & Entertainment	521	\$500
15	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Meals & Entertainment	521	\$5,196
16	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Meals & Entertainment	521	\$5,629
17	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Interisland Travel	522	\$6,600
18	Mng & Supp	Non-Labor	700	Dev & Adm Business Plans	Interisland Travel	522	\$6,600
19		Non-Labor	-	-	Corp Admin Expense	406	\$29,015
20		Non-Labor	-	-	Employee Benefits	422	\$88,618
21		Non-Labor	-	-	Payroll Taxes	423	<u>\$30,927</u>
22						TOTAL	\$195,895
23							
24					TOTAL O&M		\$451,802
25							

26 Note: These costs reflect the addition of one Senior Technical Services Engineer in April 2005.

Hawaiian Electric Company, Inc.

FUEL PRICES FOR 2005 TEST YEAR  
WEIGHTED AVERAGE FUEL PRICES

Line	LSFO	(A) Chevron	(B) Tesoro	(C) = (A) + (B) (C) Total
1.	<b>Test Year Percent of Purchases<sup>1</sup></b>	61.34%	38.66%	100.00%
2.	<b>Price per Barrel (\$/Barrel)<sup>2</sup></b>	\$ 53.4192	\$ 54.2351	
3.	<b>Weighted Average \$/Barrel (Line 1 * Line 2)</b>	\$ 32.7673	\$ 20.9673	\$ 53.7346
4.	<b>Diesel<sup>2</sup></b>	\$ 79.4392		\$ 79.4392

<sup>1</sup> Chevron and Tesoro split based upon 2004 actual nomination of LSFO.

<sup>2</sup> Priced based on May 2005 Contract Fuel Prices.

**Docket No. 04-0113**  
**Hawaiian Electric Company, Inc.**  
**Rate Case - Test Year 2005**  
**2004 Calibration Factors**

Hawaiian Electric Company, Inc. (HECO) has completed a calibration run for calendar year 2004. This calibration run utilizes the same modeling techniques and the same type of data that was used in the 2003 calibration run. The only difference is that the data reflects the actual operations of calendar year 2004.

A comparison of the calibration factors are as follows:

	<b>2004</b>	<b>2003</b>	<b>Difference</b>
<b>Kahe</b>	1.0134	1.0061	0.0073
<b>Waiau</b>	1.0278	1.0211	0.0067
<b>Honolulu</b>	0.9747	0.9540	0.0207
<b>Diesel</b>	1.2288	1.1231	0.1057
<b>HECO</b>	1.0275	1.0159	0.0116

The increase in the calibration factor of 0.0114 reflects the higher heat rate that HECO experienced in 2004 (compared to 2003) due to the shrinking reserve margins and the higher EFOR.

The inputs to the production simulation run to model 2004 are as follows:

1. Actual 8,784 System MW Load
2. Actual Planned Outages (PO)/Maintenance Outages (MO)/Forced Outages (FO) and Derates
  - PO and MO Modeled by Whole Day's Increments
  - FO Outages and Derates Modeled by Percent Input into Unit Performance File
3. Actual ABC Coefficients Entered into EMS
4. Actual HECO and IPP Fuel Prices/Index Entered into EMS
5. Actual Transmission Penalty Factor Entered into EMS
6. Calculated Startup Fuel Consumption from Andy Ho
7. Actual HECO and IPP Minimum Operating and Normal Top Loads

8. Actual KPLP Washes (Excluding the EFOR Extensions)
  9. Actual HPOWER hourly MW (Utilizing Data Smoothing Techniques)
  10. Actual (Average) KPLP Capacity (i.e., modeled the ability > 180 MW)
  11. Actual AES hourly MW (Utilizing Data Smoothing Techniques)
  12. Actual Average Annual NonFirm MW

The summary for the production simulation results (MBtu Consumption and MWh Generation) is shown in Table 1.

Table 1

The Calibration Factors are shown on the bottom line.

The summary for the actual 2004 results (MBtu Consumption and MWh Generation) is shown in Table 2.

Table 2

pstotals2004Calibration		Hawaiian Electric Company, Inc.									
4/14/2005		2004 Actual MBtu Consumption and MWh Generation									
		Data from the Fuel Management Reporting System (FMRS)									
Month		Mbtu Consumption				Net MWh Generation				Net Heat Rate	
Month		Kahe	Walau	Honolulu	Diesel	Total	Kahe	Walau	Honolulu	Diesel	Total
Jan	2,720,501	1,137,318	138,405	31,336	4,027,559	267,833	101,199	10,339	1,557	380,927	10,573
Feb	2,366,091	1,129,840	191,543	39,453	3,726,927	235,637	102,177	14,648	1,946	354,406	10,516
Mar	2,531,600	1,265,086	191,448	31,986	4,020,119	252,074	113,667	14,350	1,490	381,581	10,536
Apr	2,570,939	1,252,311	176,338	26,143	4,125,731	253,400	121,254	13,350	1,146	389,150	10,602
May	2,859,312	1,615,985	186,834	117,293	4,819,403	282,409	144,997	15,028	5,808	448,242	10,752
Jun	2,728,122	1,240,846	243,738	63,148	4,295,853	268,118	110,473	19,312	3,993	399,896	10,742
Jul	3,067,384	1,194,229	197,221	102,656	4,561,490	301,528	107,016	14,912	4,226	427,582	10,666
Aug	3,323,180	1,049,396	239,420	129,174	4,741,170	330,000	94,294	18,255	6,036	448,584	10,569
Sep	3,357,823	844,125	252,110	140,960	4,595,018	331,191	74,816	19,350	6,491	431,848	10,640
Oct	3,403,056	936,224	250,051	46,248	4,637,578	334,820	79,141	19,334	2,066	435,360	10,652
Nov	3,177,532	1,022,877	210,716	32,475	4,443,600	310,987	90,045	16,150	1,470	418,863	10,614
Dec	2,962,630	1,124,823	152,920	14,017	4,254,390	269,754	100,620	11,381	590	402,344	10,574
Total	35,108,169	13,915,040	2,430,742	794,889	52,248,839	3,455,760	1,239,899	186,405	36,819	4,918,584	10,623
	10,159	11,225	13,040	21,588	10,623	70.3%	25.2%	3.8%	0.7%	100.0%	

The summary for the AES and KPLP production simulation and actual results (MWh Generation) is shown in Table 3.

Table 3

IPP Simulated and Actual MWh Generation						
Month	AES			KPLP		
	Simulated	Actual	Diff.	Simulated	Actual	Diff.
Jan	133,545	130,034	3,511	113,928	102,072	11,856
Feb	124,930	124,997	(67)	114,861	112,666	2,195
Mar	127,083	126,994	89	124,481	125,546	(1,165)
Apr	106,262	106,391	(129)	122,732	110,299	12,433
May	133,545	133,899	(354)	69,215	69,484	(269)
Jun	129,238	128,732	506	129,456	117,442	12,014
Jul	133,545	133,731	(186)	133,244	126,874	6,370
Aug	133,545	132,395	1,150	135,520	126,048	9,472
Sep	129,238	129,649	(411)	130,505	124,766	5,739
Oct	133,545	133,730	(185)	130,666	125,902	4,764
Nov	129,238	128,964	274	94,364	90,312	4,052
Dec	133,545	132,090	1,455	112,896	105,834	7,062
Total	1,547,259	1,541,608	5,651	1,411,868	1,337,348	74,520

The summary for the HPOWER and NonFirm IPP production simulation and actual results (MWh Generation) is shown in Table 4.

Table 4

IPP Simulated and Actual MWh Generation			
Month	H-POWER and NonFirm		
	Simulated	Actual	Diff.
Jan	28061	26,445	(384)
Feb	25767	26,162	(395)
Mar	6397	6,484	(87)
Apr	30072	30,462	(390)
May	30741	31,073	(332)
Jun	28842	28,997	(355)
Jul	30423	30,749	(326)
Aug	29833	30,234	(401)
Sep	27406	27,828	(422)
Oct	23080	23,485	(405)
Nov	30133	30,499	(386)
Dec	30710	31,173	(483)
Total	321,265	325,591	-4,326

The 2004 actual 8.760 hourly MW loads in standard EEI format are as follows:

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032604	1016	1005	997	1006	1031	1031	1030	985	929	864	776	
698	639	601	583	582	606	653	724	815	911	952	972	
032704	981	982	979	971	977	985	989	1035	1019	963	898	816
720	660	621	598	591	604	637	682	776	862	917	945	
032804	950	949	954	957	966	973	988	1041	1018	970	898	800
702	647	617	602	611	668	786	888	950	1006	1038	1048	
032904	1050	1049	1038	1033	1033	1026	1034	1082	1060	992	907	791
697	642	614	596	605	660	781	880	940	992	1033	1049	
033004	1056	1061	1055	1057	1049	1035	1036	1088	1033	1004	901	794
698	642	612	594	601	655	777	878	946	1011	1049	1061	
033104	1070	1080	1080	1075	1065	1065	1106	1057	1017	933	815	
716	656	621	606	611	665	781	881	951	1023	1055	1072	
040104	1081	1085	1092	1096	1088	1074	1062	1101	1081	1012	926	814
718	659	626	609	614	666	779	883	941	985	1016	1027	
040204	1039	1039	1036	1035	1034	1027	1011	1039	1019	964	900	814
726	665	624	606	603	621	674	750	849	934	978	991	
040304	996	988	983	976	982	981	974	1014	1000	947	886	807
040304	724	662	621	603	598	609	649	694	779	867	913	930
040404	935	943	943	946	958	974	989	1030	1037	983	910	804
040404	704	645	616	600	607	665	794	903	964	1023	1057	1076
040504	1085	1091	1097	1102	1099	1084	1068	1106	1105	1039	934	815
716	661	626	613	619	678	806	914	966	1025	1059	1082	
040604	1085	1091	1091	1098	1095	1081	1073	1115	1079	1042	941	822
040604	722	660	625	610	614	670	800	905	966	1027	1060	1075
040704	1085	1094	1101	1089	1078	1064	1066	1103	1039	1011	925	801
698	639	605	592	598	654	789	890	949	1014	1053	1064	
040804	1057	1057	1060	1056	1055	1043	1028	1054	1046	987	909	807
1009	653	615	601	605	648	733	819	907	966	1006	1013	
040904	694	1008	999	986	988	989	985	1009	993	943	873	787
041004	951	638	603	584	581	606	659	735	833	912	947	953
041004	707	942	929	921	925	934	946	988	974	925	870	795

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062704	991	995	1000	1014	1023	1031	1022	1066	1036	964	862
762	704	671	655	660	715	814	930	1016	1084	1129	1149
062804	1153	1154	1150	1134	1126	1105	1096	1087	1120	1071	984
771	714	675	659	663	716	829	936	1013	1074	1105	1122
062904	1129	1132	1131	1119	1111	1097	1088	1092	1116	1064	979
768	711	675	658	662	711	830	927	999	1051	1099	1114
063004	1118	1112	1112	1116	1118	1094	1080	1081	1110	1056	976
767	704	672	657	663	715	828	927	1002	1068	1114	1131
070104	1136	1145	1146	1136	1121	1108	1098	1079	1119	1072	990
784	722	686	669	670	719	824	928	1011	1077	1113	1127
070204	1132	1132	1135	1135	1129	1104	1078	1057	1080	1039	975
791	730	688	666	661	679	724	801	905	991	1031	1049
070304	1051	1044	1036	1034	1041	1039	1024	1010	1044	1004	948
785	722	681	660	652	664	687	738	818	900	954	979
070404	987	987	985	986	992	992	976	955	967	926	917
785	722	686	658	652	671	707	770	861	952	1013	1040
070504	1042	1041	1043	1049	1056	1069	1075	1070	1115	1066	986
776	717	682	662	670	720	820	925	1022	1090	1130	1152
070604	1163	1170	1177	1175	1168	1151	1134	1117	1149	1098	1007
787	723	688	672	669	715	820	924	1007	1071	1116	1136
070704	1149	1155	1159	1163	1158	1145	1128	1107	1144	1093	1008
781	721	682	666	668	713	819	927	1001	1047	1096	1123
070804	1134	1142	1148	1152	1151	1137	1117	1094	1136	1088	998
787	727	692	670	675	717	815	932	1006	1100	1143	1163
070904	1168	1172	1170	1172	1169	1151	1124	1084	1110	1067	1000
813	749	708	685	677	692	737	813	916	1010	1057	1078
071004	1081	1079	1071	1068	1075	1066	1050	1040	1073	1033	977
803	740	698	673	666	673	703	745	823	903	959	986
071104	994	995	996	997	1009	1019	1018	1012	1058	1024	964
768	709	676	661	665	714	819	927	1014	1086	1129	1146
071204	1151	1156	1154	1158	1156	1137	1114	1100	1131	1081	989
776	1156	1154	1158	1156	1137	1114	1100	1131	1081	989	876

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082804	1101	1096	1089	1087	1082	1069	1083	1081	1030	975	888
800	736	696	670	661	673	706	749	827	931	989	1019
082904	1031	1039	1044	1049	1061	1073	1077	1114	1125	1067	987
777	717	685	666	677	735	860	964	1038	1112	1156	1174
083004	1192	1201	1202	1207	1205	1185	1167	1185	1196	1122	1020
792	728	695	676	683	737	860	964	1040	1107	1156	1176
083104	1186	1201	1198	1203	1203	1187	1170	1192	1196	1126	1025
795	736	700	681	686	740	867	978	1041	1111	1154	1178
090104	1193	1201	1208	1206	1206	1189	1174	1207	1192	1124	1032
804	746	708	691	696	753	881	983	1050	1122	1156	1173
090204	1182	1195	1190	1193	1188	1170	1156	1192	1188	1124	1029
802	740	704	685	688	744	866	970	1041	1111	1153	1165
090304	1175	1182	1183	1190	1173	1143	1121	1141	1118	1067	997
808	741	702	679	672	690	743	810	924	1012	1057	1080
090404	1092	1090	1082	1075	1077	1066	1053	1083	1072	1021	967
810	742	701	675	667	676	710	749	845	930	992	1017
090504	1029	1036	1046	1051	1062	1066	1062	1096	1088	1042	992
819	754	716	687	680	697	743	789	883	971	1027	1036
090604	1033	1043	1052	1063	1079	1097	1107	1157	1147	1086	993
770	711	679	664	671	724	853	957	1038	1117	1161	1186
090704	1203	1214	1214	1209	1207	1179	1166	1222	1203	1137	1032
809	749	714	698	703	761	889	994	1065	1131	1173	1193
090804	1204	1216	1223	1228	1225	1208	1195	1242	1220	1153	1047
820	760	719	704	709	764	887	1001	1070	1139	1176	1190
090904	1197	1207	1206	1205	1201	1178	1165	1212	1183	1126	1027
802	744	710	695	700	757	882	992	1052	1116	1153	1167
091004	1169	1177	1183	1188	1181	1152	1120	1156	1122	1063	988
803	744	705	682	678	701	758	824	931	1018	1062	1077
091104	1080	1069	1069	1068	1073	1074	1065	1100	1073	1027	960
791	744	705	682	678	701	758	824	931	1018	1062	1077
091204	1024	731	697	675	667	677	713	756	848	933	985
091204	1024	1030	1033	1040	1055	1061	1061	1127	1108	1051	974
776	1030	1033	1040	1055	1061	1061	1127	1108	1051	974	869

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091304	720	688	677	686	743	873	983	1055	1125	1163	1180
1190	1199	1196	1198	1187	1163	1154	1193	1168	1097	1003	882
091404	730	696	681	692	747	874	977	1025	1100	1132	1145
1159	1179	1183	1187	1184	1161	1143	1203	1175	1116	1014	893
091404	799	737	704	690	693	751	882	991	1060	1128	1162
1198	1205	1206	1208	1206	1169	1161	1214	1191	1126	1031	916
091504	815	754	722	704	709	758	885	989	1059	1125	1163
091604	1187	1202	1203	1197	1199	1172	1161	1207	1176	1120	1026
091604	809	754	721	700	705	762	888	993	1063	1132	1174
091704	1189	1194	1200	1201	1188	1157	1138	1174	1123	1075	1005
091704	827	762	724	702	699	718	776	842	949	1032	1075
091804	1098	1098	1094	1092	1098	1086	1076	1121	1081	1030	982
091804	810	750	707	685	673	681	721	767	858	945	1009
091904	1043	1043	1044	1050	1052	1065	1074	1140	1109	1056	978
091904	780	723	689	675	684	734	865	971	1037	1109	1147
092004	1184	1193	1194	1194	1187	1167	1155	1216	1179	1117	1014
092004	799	741	706	689	696	756	882	983	1045	1100	1141
092104	1174	1184	1191	1193	1190	1169	1155	1209	1168	1110	1010
092104	797	739	701	683	693	768	901	999	1064	1130	1169
092204	1198	1212	1220	1217	1215	1197	1181	1244	1193	1132	1033
092204	819	759	727	710	719	772	902	1005	1070	1141	1178
092304	1197	1212	1207	1214	1188	1160	1148	1205	1164	1091	1003
092304	788	729	695	681	689	738	865	970	1035	1104	1142
092404	1163	1177	1178	1178	1171	1148	1123	1155	1109	1054	990
092404	809	744	709	682	680	696	753	826	931	1021	1070
092504	1099	1088	1085	1080	1082	1078	1067	1112	1068	1021	966
092504	791	729	693	671	661	674	709	754	850	940	991
092604	1022	1024	1027	1031	1043	1052	1058	1128	1097	1034	962
092604	767	714	680	665	672	730	857	957	1030	1101	1140
092704	1173	1186	1187	1177	1173	1150	1141	1208	1157	1086	985
092704	772	716	682	663	673	730	852	942	1014	1085	1128
092804	1163	716	682	663	673	730	852	942	1014	1085	1143

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092804	1176	1181	1183	1173	1146	1136	1196	1149	1091	995	879
783	727	695	677	687	738	863	961	1034	1097	1140	1157
092904	1164	1178	1184	1188	1180	1160	1152	1211	1160	1087	988
784	726	691	676	682	741	870	966	1033	1087	1121	1129
093004	1136	1156	1161	1168	1164	1146	1129	1188	1146	1086	994
781	727	694	675	682	740	864	962	1032	1094	1131	1149
100104	1156	1155	1161	1164	1154	1125	1110	1145	1090	1043	972
794	729	694	673	670	687	738	807	915	1002	1049	1062
100204	1075	1070	1059	1051	1049	1040	1031	1080	1033	982	925
773	713	674	652	645	657	691	735	831	918	967	1000
100304	1007	1016	1021	1024	1030	1034	1048	1108	1061	1008	938
743	689	655	641	647	702	832	924	993	1058	1084	1099
100404	1111	1124	1119	1123	1117	1101	1097	1157	1109	1044	955
745	689	659	644	655	710	825	916	988	1052	1086	1106
100504	1120	1128	1137	1133	1127	1108	1102	1158	1106	1039	949
745	687	657	641	649	707	827	918	989	1059	1087	1100
100604	1110	1114	1122	1120	1118	1105	1109	1153	1103	1038	949
747	695	657	642	651	707	830	923	994	1058	1106	1128
100704	1139	1149	1152	1151	1142	1121	1120	1179	1124	1054	968
761	704	671	654	659	713	829	931	1014	1078	1134	1153
100804	1169	1180	1186	1189	1179	1160	1148	1185	1130	1071	1006
822	757	717	692	688	709	758	826	943	1035	1088	1104
100904	1102	1098	1087	1084	1081	1071	1069	1113	1072	1015	965
800	737	694	670	661	676	716	761	862	954	1014	1044
101004	1061	1064	1066	1071	1079	1082	1101	1159	1114	1059	1003
817	757	726	705	711	747	837	924	1026	1115	1163	1193
101104	1206	1213	1217	1217	1217	1208	1218	1268	1216	1142	1035
816	758	722	705	708	762	887	991	1057	1130	1179	1202
101204	1222	1235	1235	1237	1230	1214	1220	1275	1223	1150	1044
813	750	711	676	677	731	852	954	1023	1097	1140	1163
101304	1176	1179	1186	1191	1188	1169	1177	1231	1165	1105	1006
783	1179	1186	1191	1188	1169	1177	1231	1165	1105	1006	886

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102904	1146	1146	1145	1136	1094	1126	1124	1076	1032	972	881	
794	738	703	681	677	694	752	824	927	1006	1039	1054	
103004	1058	1046	1041	1040	1048	1067	1078	1007	958	897	830	
1060	700	662	643	638	648	685	731	832	931	993	1026	
747	1055	1059	1034	1030	1046	1055	1023	998	982	930	826	
103104	737	686	655	640	651	704	827	935	1005	1083	1129	1154
1044	1182	1177	1165	1153	1131	1166	1184	1120	1058	967	858	
110104	768	709	681	664	671	719	825	903	989	1055	1098	1116
1116	1126	1128	1122	1116	1114	1151	1187	1134	1064	973	862	
110204	774	715	680	668	676	730	860	962	1017	1080	1119	1141
11151	1152	1151	1143	1136	1134	1183	1195	1134	1068	970	860	
110304	762	707	675	657	665	724	848	959	1005	1056	1091	1120
110404	737	1147	1140	1129	1122	1121	1168	1158	1099	1032	940	831
110504	1072	686	655	639	647	708	836	954	997	1046	1067	1074
110504	712	1064	1063	1049	1052	1047	1095	1086	1024	952	885	792
110604	1061	654	641	621	624	643	692	761	880	966	1010	1036
110604	770	1060	1059	1062	1069	1066	1104	1100	1044	992	932	856
110704	1008	705	670	644	635	646	682	724	810	893	957	989
110704	736	1014	1017	1020	1033	1051	1101	1133	1070	1011	936	832
110804	1160	679	650	639	649	704	837	945	1002	1074	1120	1143
110804	748	1171	1170	1166	1160	1145	1185	1209	1143	1061	959	840
110904	1154	690	659	642	653	707	838	918	997	1067	1112	1137
110904	772	1160	1168	1167	1163	1154	1199	1214	1150	1084	983	869
111004	1161	714	680	659	667	720	851	954	1013	1086	1125	1148
111004	765	1175	1177	1177	1164	1144	1168	1178	1099	1036	959	857
111104	1086	704	669	648	647	681	757	827	927	1008	1058	1083
111104	751	1087	1087	1089	1084	1080	1124	1156	1088	1025	945	839
111204	1117	695	660	639	642	695	812	919	985	1059	1100	1118
111204	783	1124	1125	1133	1128	1101	1130	1135	1073	1018	955	870
111304	1073	729	689	665	660	680	735	798	905	988	1036	1063
111304	761	1069	1064	1052	1052	1053	1081	1084	1026	976	916	848

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112904	1099	1100	1096	1090	1068	1141	1153	1100	1034	948	834
735	678	649	635	647	709	840	955	984	1034	1058	1065
113004	1086	1071	1058	1053	1057	1132	1133	1083	1024	935	826
1082	676	643	632	643	709	841	953	982	1030	1064	1074
113004	730	674	643	632	643	709	841	953	982	1030	1064
120104	1078	1074	1067	1062	1048	1112	1132	1072	1009	933	813
120104	719	661	630	615	625	688	816	929	964	1021	1050
120204	1068	1072	1071	1065	1054	1046	1107	1118	1072	1001	925
120204	720	664	635	621	631	690	817	919	959	1016	1044
120304	1058	1063	1052	1048	1047	1026	1065	1081	1024	976	912
120304	734	673	638	616	613	640	700	771	862	936	970
120404	983	978	961	953	951	956	1004	1013	969	935	876
120404	731	667	627	601	601	615	658	703	785	872	918
120504	934	930	925	922	932	951	1036	1071	1025	974	900
120504	701	645	616	604	614	675	798	907	941	1001	1017
120604	1042	1037	1025	1028	1023	1018	1093	1123	1079	1011	922
120604	708	652	623	610	620	684	810	921	943	1003	1030
120704	1053	1056	1049	1042	1034	1029	1085	1126	1081	1027	942
120704	716	662	631	613	623	687	813	924	950	1016	1050
120804	1083	1095	1100	1100	1098	1089	1151	1168	1106	1047	960
120804	729	699	664	649	658	720	862	975	1007	1067	1096
120904	1112	1110	1090	1078	1067	1056	1116	1140	1093	1028	943
120904	715	654	619	611	620	681	809	922	948	1000	1014
121004	1022	1016	1016	1011	1005	993	1047	1073	1020	969	910
121004	720	652	616	598	600	626	679	757	842	922	960
121104	968	957	944	933	946	955	1002	1031	987	944	897
121104	723	662	628	604	597	612	645	688	771	859	910
121204	936	934	927	925	933	958	1032	1080	1038	983	914
121204	688	625	600	585	599	659	790	901	920	987	1027
121304	1053	1068	1070	1073	1073	1065	1119	1169	1118	1053	960
121304	722	658	630	615	624	683	812	923	944	1010	1050
121404	1078	1085	1088	1095	1097	1084	1133	1176	1115	1058	973
121404	733	1085	1088	1095	1097	1084	1133	1176	1115	1058	973

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123004	1098	1091	1081	1084	1104	1151	1173	1120	1064	1000	911
816											
123104	748	704	681	681	697	764	836	902	995	1063	1090
1096											
123104	1091	1077	1075	1084	1118	1167	1128	1046	991	946	896
833											

The actual 2004 Planned and Forced Outages and Derates are as follows:

Unit ID	EEI Type	EEI Code	Start Date	Start Time	End Date	End Time	CAPB	CAPR	REMARK	
K4	PO	1800	01/01/04	0000	01/27/04	2305	89	0	Boiler Overhaul	
K5	PO	1800	02/01/04	2205	02/29/04	2400	142	0	Boiler Overhaul	
K5	PO	1800	03/01/04	0000	03/31/04	2400	142	0	Boiler Overhaul	
K5	PO	1800	04/01/04	0000	04/30/04	2400	142	0	Overhaul	
K5	PO	1800	05/01/04	0000	05/15/04	1403	142	0	Overhaul	
W3	PO	1450	06/01/04	0000	06/30/04	2400	49	3	APH Airflow Restriction	
W3	PO	1800	06/04/04	2312	06/30/04	2400	49	0	Boiler Overhaul	
W3	PO	1800	07/01/04	0000	07/31/04	2400	49	0	Boiler Overhaul	
W3	PO	1800	08/01/04	0000	08/31/04	2400	49	0	Boiler Overhaul	
W8	PO	1800	08/21/04	1700	08/31/04	2400	90	0	Boiler Overhaul	
W3	PO	1800	09/01/04	0000	09/30/04	2400	49	0	Boiler Overhaul	
W8	PO	1800	09/01/04	0000	09/30/04	2400	90	0	Boiler Overhaul	
W3	PO	1800	10/01/04	0000	10/08/04	1925	49	0	Boiler Overhaul	
W8	PO	1800	10/01/04	0000	10/31/04	2400	90	0	Boiler Overhaul	
W8	PO	1800	11/01/04	0000	11/02/04	1219	90	0	Boiler Overhaul	
K1	PO	1800	12/17/04	2211	12/23/04	1200	86	0	Boiler Inspection	
Unit ID	EEI Type	EEI Code	Start Date	Start Time	End Date	End Time	CAPB	CAPR	REMARK	
W9	MO	5109	1/3/04	1047	1/3/04	2359	53	0	Static Precipitator	
W8	MO	3220	1/8/04	2314	1/18/04	0308	90	0	Tunnel Cleaning	
W6	MO	1810	1/29/04	0719	1/31/04	2400	55	0	Boiler Tube Inspection	
W6	MO	1810	2/1/04	0000	2/14/04	1607	55	0	Boiler Tube Inspection	
W5	MO	3270	2/17/04	1030	2/25/04	1200	57	0	Tunnel Cleaning	
W0	MO	5000	2/25/04	0600	2/29/04	2400	50	0	Maintenance Outage	
K3	MO	1487	2/27/04	2345	2/28/04	2343	90	0	APH Wash	
W0	MO	5000	3/1/04	0000	3/5/04	1645	50	0	Scheduled MO	
W9	MO	5000	4/14/04	0700	4/24/04	1252	53	0	Planned Maintenance	
W4	MO	1410	4/22/04	0700	4/30/04	1500	49	0	FD Fan HS Motor Check	
W3	MO	4730	4/28/04	0922	4/30/04	1638	49	0	Test Generator Current Transformers	
K5	MO	4262	5/28/04	2111	5/31/04	2400	142	0	Intercept Valve Strainers	
W7	MO	0480	5/31/04	1132	5/31/04	2400	87	0	Fuel Oil Supply Valve	
K5	MO	4262	6/1/04	0000	6/5/04	1153	142	0	Intercept Valve Strainers	
W7	MO	0480	6/1/04	0000	6/4/04	0025	87	0	Fuel Oil Supply Valve	
K4	MO	4279	6/4/04	2330	6/5/04	2332	89	0	Turbine Expansion Joints	
K6	MO	3611	6/25/04	1127	6/30/04	2400	142	0	OCB249 - 138 kV	
K6	MO	3611	7/1/04	0000	7/10/04	2230	142	0	OCB249 - 138 kV	
W5	MO	1800	7/26/04	1212	7/31/04	2400	57	0	Boiler Inspection-Annunciator Upgrade	
W5	MO	1800	8/1/04	0000	8/17/04	1149	57	0	Boiler Inspection/Annunciator Upgrade	
K1	MO	1800	8/18/04	0232	8/20/04	0337	86	0	Boiler Inspection	

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W7	MO	3113	10/15/04	2043	10/16/04	2048	87	0	Pressure Wash of Shells in Condenser
W7	MO	3270	11/5/04	0908	11/14/04	0400	87	0	Circ Water Tunnel Cleaning
W3	MO	1455	11/12/04	1500	11/24/04	2123	49	0	ID Fan Bearing
W6	MO	3210	12/14/04	0730	12/17/04	1504	55	0	Remove 62 CWP
W5	MO	3210	12/16/04	0730	12/16/04	2240	57	0	Replace 51 CWP and Valve

Unit ID	EEI Type	EEI Code	Start Date	Start Time	End Date	End Time	CAPB	CAPR	REMARK
K3	D4	3410	1/20/04	0042	1/24/04	1045	90	55	BFP Volute Replacement
K1	D4	3210	2/21/04	0636	2/21/04	2050	86	26	CWP
K1	D4	3260	4/28/04	0345	4/30/04	2400	86	16	1 CWP/Full Cndsr - Traveling Screen
K1	D4	3260	5/1/04	0000	5/1/04	1650	86	16	1 CWP/Full Cndsr - Traveling Screen
W5	D4	3501	6/19/04	1930	6/20/04	1330	57	12	HDP
W8	D4	3411	7/16/04	0650	7/16/04	1652	90	32	81 BFP Motor Inboard Bearing Troubleshooting
K2	D4	3342	9/16/04	0542	9/17/04	1638	86	10	FWH Tube Leak
K4	D4	3110	9/16/04	0545	9/17/04	1450	89	9	Evaporator Condenser Tube Leak
W3	D4	4499	10/10/04	2015	10/12/04	2252	49	9	Turbine Air Leak
W3	D4	4499	10/13/04	1204	10/15/04	1506	49	9	Turbine Air Leak
W3	D4	4499	10/18/04	1554	10/21/04	1056	49	19	Turbine Air Leak
K6	D4	3416	10/30/04	0005	10/30/04	0906	142	62	BFP Inboard Mechanical Seal
K5	D4	3220	12/14/04	0552	12/14/04	1435	142	32	Tunnel Inspection - 1 CWP/Full Cond

The EFOR are modeled using the following rates.

	EFOR
H8	0.11%
H9	0.03%
K1	1.19%
K2	0.32%
K3	1.20%
K4	0.42%
K5	2.21%
K6	4.51%
W3	4.51%
W4	2.53%
W5	8.56%
W6	5.62%
W7	3.64%
W8	2.77%
W9	3.36%
W10	3.21%
AES	0.28%
KPLP	1.38%
HPOWER	N/A (used a transaction file to model the hourly loadings)

The actual ABC Coefficients that were entered into the EMS in 2004 are as follows:

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Unit	A	B	C	Installed Date
H8	54.92906	10.16683	0.00774	10/9/98
H9	62.67367	9.40383	0.01947	7/18/96
W3	67.13639	8.19328	0.04362	4/23/98
W4	49.46043	9.31119	0.03203	4/23/98
W5	32.9736884	10.7381895	0.0104794	01/23/02
W6	62.08097	8.6976893	0.0209455	11/07/01
W7	61.4803458	8.6478625	0.0089561	04/17/03
W8	87.8064	7.6208	0.0188	11/24/03
W9	192.56503	7.60753	0.02832	3/15/95
W10	194.60357	7.39761	0.02899	6/21/95
K1	50.084	8.813	0.00550	05/01/03
K2	66.701188	8.2935333	0.0103496	10/01/02
K3	103.624	7.084	0.01846	06/23/03
K4	82.465	7.950	0.01071	05/01/03
K5	148.6319	7.234	0.01145	11/24/03
K6	128.2775	8.0351397	0.0074353	10/05/01

The ABC Coefficients were not updated during 2004.

The actual Fuel Oil Prices, Heat Content, and GNPIPD Indices are as follows:

**FUEL PRICES and GNPIPD INDEX  
ECONOMIC DISPATCH**

	<u>L.S.F.O.</u> <u>HONOLULU</u>	<u>L.S.F.O.</u> <u>WAIAU</u>	<u>L.S.F.O.</u> <u>KAHE</u>	<u>DIESEL</u> <u>WAIAU</u>	<u>LSWR</u> <u>KPLP</u>	<u>GNPIPD</u> <u>AES</u>
MBTU Per Barrel	<u>6.2713</u>	<u>6.2713</u>	<u>6.2713</u>	<u>5.8160</u>	<u>6.0000</u>	<u>72.4650</u> <u>105.8530</u>
Ave. Price (BBL) Thrput	35.2713 <u>0.5792</u>	35.2713 <u>0.1758</u>	35.2713 <u>0.0784</u>	38.5103 <u> </u>	37.4190 <u> </u>	146.0747 <u> </u>
<b>01/01/2004 Price</b>	<b><u>35.8505</u></b>	<b><u>35.4471</u></b>	<b><u>35.3497</u></b>	<b><u>38.5103</u></b>	<b><u>37.4190</u></b>	
MBTU Per Barrel	<u>6.2744</u>	<u>6.2744</u>	<u>6.2744</u>	<u>5.8204</u>	<u>6.0000</u>	<u>72.4650</u> <u>105.8530</u>
Ave. Price (BBL) Thrput	36.1446 <u>0.6068</u>	36.1446 <u>0.1544</u>	36.1446 <u>0.0809</u>	38.5520 <u> </u>	35.6590 <u> </u>	146.0747 <u> </u>
<b>02/01/2004 Price</b>	<b><u>36.7514</u></b>	<b><u>36.2990</u></b>	<b><u>36.2255</u></b>	<b><u>38.5520</u></b>	<b><u>35.6590</u></b>	
MBTU Per Barrel	<u>6.2594</u>	<u>6.2594</u>	<u>6.2594</u>	<u>5.8062</u>	<u>6.0000</u>	<u>72.4650</u> <u>105.8530</u>
Ave. Price (BBL) Thrput	34.7240 <u>0.4943</u>	34.7240 <u>0.1688</u>	34.7240 <u>0.0804</u>	40.3478 <u> </u>	39.0020 <u> </u>	146.0747 <u> </u>
<b>03/01/2004 Price</b>	<b><u>35.2183</u></b>	<b><u>34.8928</u></b>	<b><u>34.8044</u></b>	<b><u>40.3478</u></b>	<b><u>39.0020</u></b>	
MBTU Per Barrel	<u>6.2953</u>	<u>6.2953</u>	<u>6.2953</u>	<u>5.7932</u>	<u>6.0000</u>	<u>72.4650</u> <u>105.8530</u>
Ave. Price (BBL) Thrput	35.5481 <u>0.7214</u>	35.5481 <u>0.1651</u>	35.5481 <u>0.0798</u>	40.4139 <u> </u>	38.0080 <u> </u>	146.0747 <u> </u>
<b>04/01/2004 Price</b>	<b><u>36.2695</u></b>	<b><u>35.7132</u></b>	<b><u>35.6279</u></b>	<b><u>40.4139</u></b>	<b><u>38.0080</u></b>	

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MBTU Per Barrel	<u>6.3370</u>	<u>6.3370</u>	<u>6.3370</u>	<u>5.7927</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>37.4949</u>	<u>37.4949</u>	<u>37.4949</u>	<u>44.0599</u>	<u>36.3240</u>	<u>105.8530</u>
Thrput	<u>0.7025</u>	<u>0.1591</u>	<u>0.0766</u>			<u>146.0747</u>
<b>05/01/2004 Price</b>	<b><u>38.1974</u></b>	<b><u>37.6540</u></b>	<b><u>37.5715</u></b>	<b><u>44.0599</u></b>	<b><u>36.3240</u></b>	
MBTU Per Barrel	<u>6.2885</u>	<u>6.2885</u>	<u>6.2885</u>	<u>5.7840</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>36.2014</u>	<u>36.2014</u>	<u>36.2014</u>	<u>52.3466</u>	<u>38.8890</u>	<u>105.8530</u>
Thrput	<u>0.3670</u>	<u>0.1551</u>	<u>0.0766</u>			<u>146.0747</u>
<b>06/01/2004 Price</b>	<b><u>36.5684</u></b>	<b><u>36.3565</u></b>	<b><u>36.2780</u></b>	<b><u>52.3466</u></b>	<b><u>38.8890</u></b>	
MBTU Per Barrel	<u>6.2817</u>	<u>6.2817</u>	<u>6.2817</u>	<u>5.8038</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>37.2892</u>	<u>37.2892</u>	<u>37.2892</u>	<u>58.6161</u>	<u>37.3830</u>	<u>106.9960</u>
Thrput	<u>0.4743</u>	<u>0.1612</u>	<u>0.0781</u>			<u>147.6520</u>
<b>07/01/2004 Price</b>	<b><u>37.7635</u></b>	<b><u>37.4504</u></b>	<b><u>37.3673</u></b>	<b><u>58.6161</u></b>	<b><u>37.3830</u></b>	
MBTU Per Barrel	<u>6.2763</u>	<u>6.2763</u>	<u>6.2763</u>	<u>5.7889</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>37.6173</u>	<u>37.6173</u>	<u>37.6173</u>	<u>53.3786</u>	<u>40.4850</u>	<u>106.9960</u>
Thrput	<u>0.6305</u>	<u>0.1746</u>	<u>0.0818</u>			<u>147.6520</u>
<b>08/01/2004 Price</b>	<b><u>38.2478</u></b>	<b><u>37.7919</u></b>	<b><u>37.6991</u></b>	<b><u>53.3786</u></b>	<b><u>40.4850</u></b>	

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MBTU Per Barrel	<u>6.3351</u>	<u>6.3351</u>	<u>6.3351</u>	<u>5.8179</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>39.2290</u>	<u>39.2290</u>	<u>39.2290</u>	<u>57.6648</u>	<u>47.3460</u>	<u>106.9960</u>
Thrput	<u>0.0578</u>	<u>0.1807</u>	<u>0.0817</u>			<u>147.6520</u>
<b>09/01/2004 Price</b>	<b><u>39.2868</u></b>	<b><u>39.4097</u></b>	<b><u>39.3107</u></b>	<b><u>57.6648</u></b>	<b><u>47.3460</u></b>	
MBTU Per Barrel	<u>6.3180</u>	<u>6.3180</u>	<u>6.3180</u>	<u>5.7602</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>43.6334</u>	<u>43.6334</u>	<u>43.6334</u>	<u>58.9430</u>	<u>47.0720</u>	<u>106.9960</u>
Thrput	<u>0.5739</u>	<u>0.1713</u>	<u>0.0837</u>			<u>147.6520</u>
<b>10/01/04 Price</b>	<b><u>44.2073</u></b>	<b><u>43.8047</u></b>	<b><u>43.7171</u></b>	<b><u>58.9430</u></b>	<b><u>47.0720</u></b>	
MBTU Per Barrel	<u>6.3039</u>	<u>6.3039</u>	<u>6.3039</u>	<u>5.7759</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>45.4696</u>	<u>45.4696</u>	<u>45.4696</u>	<u>60.7190</u>	<u>50.6490</u>	<u>106.9960</u>
Thrput	<u>0.5582</u>	<u>0.1671</u>	<u>0.0875</u>			<u>147.6520</u>
<b>11/01/04 Price</b>	<b><u>46.0278</u></b>	<b><u>45.6367</u></b>	<b><u>45.5571</u></b>	<b><u>60.7190</u></b>	<b><u>50.6490</u></b>	
MBTU Per Barrel	<u>6.2821</u>	<u>6.2821</u>	<u>6.2821</u>	<u>5.7720</u>	<u>6.0000</u>	<u>72.4650</u>
Ave. Price (BBL)	<u>48.9593</u>	<u>48.9593</u>	<u>48.9593</u>	<u>63.2086</u>	<u>43.6520</u>	<u>106.9960</u>
Thrput	<u>0.6423</u>	<u>0.1779</u>	<u>0.0866</u>			<u>147.6520</u>
<b>12/01/04 Price</b>	<b><u>49.6016</u></b>	<b><u>49.1372</u></b>	<b><u>49.0459</u></b>	<b><u>63.2086</u></b>	<b><u>43.6520</u></b>	

The Transmission Penalty Factors are modeled using the following rates.

H8	0.997
H9	0.997
K1	1.026
K2	1.026
K3	1.026
K4	1.026
K5	1.026
K6	1.026
W3	1.006
W4	1.006
W5	1.012

W6	1.012
W7	1.012
W8	1.012
W9	1.012
W10	1.012
AES	1.029
KPLP	1.029
HPOWER	N/A (Not modeled as being on AGC)

The HECO Unit Startup Fuel Consumption Rates are modeled using the following rates.

H8	190 MBtu/Start
H9	190 MBtu/Start
K1	5044 MBtu/Start
K2	5044 MBtu/Start
K3	5044 MBtu/Start
K4	5044 MBtu/Start
K5	4586 MBtu/Start
K6	9274 MBtu/Start
W3	337 MBtu/Start
W4	337 MBtu/Start
W5	277 MBtu/Start
W6	277 MBtu/Start
W7	5044 MBtu/Start
W8	5044 MBtu/Start
W9	11 MBtu/Start
W10	11 MBtu/Start

The other inputs are best understood at looking at the operational data by working with the staff in Generation Planning Division.

Assumptions For Power Purchase Testimony

	Kalaeloa		AES Hawaii		H-POWER	
	<u>Existing</u>	<u>Revised</u>	<u>Existing</u>	<u>Revised</u>	<u>Existing</u>	<u>Revised</u>
GNPIPD	108.409 WP501,p.1	109.099	107.864 (3Q2004) 108.958 (1Q2005) WP503, p.1	108.479 (3Q2004) 109.642 (1Q2005) (note 1)		
LSFO Fuel Price	36.28 WP501, p.1	51.802 (note 2)				
Availability (Capacity, fixed O&M Charge)			29	28		
February Calendar Days			WP503, p.2	(note 5)		
Availability KWH (Bonus Calculation)			Actual thru 6/04 WP503, p.4	Actual thru 4/05 (note 5)		
On-Peak Energy Rate					7.90	(note 4)
Off-Peak Energy Rate					6.08 WP506, p.1	(note 4)

note 1: First quarter 2005 GNPIPD is an estimate calculated based on same methodology as in Direct Testimony.  
Final first quarter 2005 GNPIPD is not available until 6/30/2005.

note 2: May 2005 LSFO price for Kalaeloa. Represents the estimated price used for economic dispatch for Kalaeloa for May 2005.

note 3: Information will be updated with actual available KWH thru April 2005. Calculations will be provided as soon as it is available.

note 4: HPOWER on-peak and off-peak rate will be determined using the same methodology used in direct testimony, and updated when a new production simulation is run, and the resulting avoided cost payment rates are calculated.  
Availability factor for HPOWER will remain at 90%.

note 5: Calculation of AES availability will be updated to correct the number of days in February 2005 (28 days instead of 29 days used in direct testimony).

**REVISED DSM Program Expense Summary**  
**Docket No. 04-0113**

	2005 Test Year <u>Estimate*</u>	Adjustment	Revised 2005 Test Year <u>Estimate</u>
1 Incentives	10,863,285	-10,863,285	0
Direct Labor			
2     Base	368,074	296,011	664,085
3     Incremental	<u>1,435,317</u>	<u>-1,435,317</u>	<u>0</u>
4     Subtotal	1,803,391	-1,139,306	664,085
Outside Services			
5     Implementation	4,095,770	-4,095,770	0
6     Tracking	35,000	-35,000	0
7     Evaluation	175,501	-175,501	0
8     PEA, Feasibility Studies	<u>425,000</u>	<u>-425,000</u>	<u>0</u>
9     Subtotal	4,731,271	-4,731,271	0
10 Advertising/Marketing	3,221,841	-3,071,841	150,000
11 Material, Travel, Misc.	<u>834,843</u>	<u>-815,115</u>	<u>19,728</u>
12 Subtotal	21,454,631	-20,620,818	833,813
13 Shortfall Recovery	6,129,646	-6,129,646	0
14 Return on Costs	<u>2,668,901</u>	<u>-2,668,901</u>	<u>0</u>
15 Total DSM Expenses	\$30,253,178	-\$29,419,365	\$833,813

\* Source: HECO-WP-1104, p. 1 of 12.

Note:

These are the revised test year estimates of the expenses to be included in base rates, based on HECO's understanding that other costs relating to the existing energy efficiency and load management DSM programs (as well as shareholder incentives, and lost margins for program impacts not reflected in test year sales) will continue to be recovered through a DSM surcharge; provided there continues to be a mechanism (such as a surcharge) for recovering incremental program costs and utility incentives, if any, resulting from DSM programs (and associated cost recovery mechanisms) approved after the rate case (for example, as a result of the Energy Efficiency Docket No. 05-0069).

**REVISED Amount of DSM Expenses Proposed in Base Rates (\$)**

	<u>2004 M&amp;E Report *</u>	<u>Adjustment **</u>	<u>REVISED DSM Expense in Base Rates</u>
Base Labor	340,742		340,742
RDLC Expenses to be Recovered in Base Rates <sup>1</sup>			
Direct Labor	203,900		203,900
Advertising	50,000	100,000	150,000
Miscellaneous	13,500		13,500
Total RDLC	267,400	100,000	367,400
CIDLC Expenses to be Recovered in Base Rates <sup>2</sup>			
Direct Labor	119,443		119,443
Miscellaneous	6,228		6,228
Total CIDLC	125,671	0	125,671
Total in Base Rates	733,813	100,000	833,813

\* Filed November 30, 2004, Attachment A.

\*\* Adjustment for RDLC Advertising: Additional marketing expenses necessary  
necessary to achieve Year 1 peak impacts.

Notes:

1. D&O 21415, October 14, 2004, Docket No. 03-0166, p. 12.
2. D&O 21421, October 19, 2004, Docket No. 03-0415, p. 11.

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Hawaiian Electric Company, Inc.

Composite Embedded Cost of Capital  
Test Year 2005 Average  
(\$ Thousands)

	(A)	(B) = (A)/Total(A)	(C)	(D) = (B)*(C)
	Capitalization			Weighted Earnings Requirements
	WP Series Reference	Amount	Percent of Total	Earnings Requirement
Short-Term Debt	WP-2102	\$ 37,429	3.22%	3.50%
Lease Obligation	WP-2102A	10,115	0.87%	5.79%
Long-Term Debt	WP-2103	423,565	36.49%	6.25%
Hybrid Securities	WP-2104	27,303	2.35%	7.55%
Preferred Stock	WP-2105	20,476	1.76%	5.54%
Common Equity	WP-2106	641,955	55.30%	11.50%
Total Capitalization		<u>\$ 1,160,841</u>	<u>100.00%</u>	<u>9.08%</u>
<b>Estimated 2005 Test Year Composite Cost of Capital</b>				<b><u>9.08%</u></b>

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Short-Term Borrowings  
Test Year 2005 Average  
(\$ Thousands)

	WP Reference	Total
Short-Term Borrowings as of December 31, 2003	WP-2102, p.1	\$ 20,700
2004 Estimated Net Change in Short-Term Borrowings	HECO-2107	<u>27,085</u>
Short-Term Borrowings as of December 31, 2004		47,785 (A)
2005 Estimated Net Change in Short-Term Borrowings	HECO-2107	<u>(20,713)</u>
Short-Term Borrowings as of December 31, 2005		<u>\$ 27,072 (B)</u>
<b>Test Year 2005 Average = [(A)+(B)]/2</b>		<b><u>\$ 37,429</u></b>

Totals may not add exactly due to rounding.

Hawaiian Electric Company, Inc.

Lease Obligation  
Test Year 2005 Average  
(\$ Thousands)

	WP Reference	Total
Lease Obligation, beginning	CA-IR-206 p. 4	10,209 (A)
Estimated Net Change	CA-IR-206 p. 4	<u>(189)</u>
Lease Obligation, ending	CA-IR-206 p. 4	\$ <u>10,020</u> (B)
<b>Test Year 2005 Average = [(A)+(B)]/2</b>		<b>\$ <u>10,115</u> (C)</b>

Totals may not add exactly due to rounding.

Implicit Interest Rate Calculation

Total Monthly Interest for the Year	CA-IR-206 p. 4	\$ <u>586</u> (D)
Implicit Annual Interest Rate		<u>5.79%</u> (D)/(C)

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Hawaiian Electric Company, Inc.

Embedded Cost of Long-Term Debt  
Test Year 2005 Average  
(\$ Thousands)

(A)	(B)	(C) = (A)*(B)	(D) = WP-2103, p.3	(E) = (C)+(D)
-----	-----	------------------	-----------------------	---------------

Long-Term Debt	Rate	Net Proceeds	Annual Interest	Annual Amortization	Annual Requirement
<b>Special Purpose Revenue Bonds (Refunded Issue):</b>					
Series 1993					
	5.45%	\$ 50,000	\$ 2,725	\$ 89	\$ 2,814
Series 1995A	6.60%	20,000	1,320	102	1,422
Series 1996A	6.20%	48,000	2,976	79	3,055
Series 1996B	5 7/8%	14,000	823	19	842
Series 1997A	5.65%	50,000	2,825	71	2,896
Refunding Series 1998A (1987)	4.95%	42,580	2,108	254	2,362
Refunding Series 1999B (1988)	5.75%	30,000	1,725	118	1,843
Series 1999C	6.20%	35,000	2,170	63	2,233
Refunding Series 1999D (1990A)	6.15%	16,000	984	49	1,033
Refunding Series 2000 (1990B&C)	5.70%	46,000	2,622	181	2,803
Series 2002A ***	5.10%	33,644	1,716	106	1,822
Refunding Series 2003B (1992)	5.00%	40,000	2,000	195	2,195
Refunding Series 2005A (1995A)	4.80%	20,000	960	81	1,041
Unamortized Costs, Revenue Bonds *			(20,881)		
Unamortized Costs, First Mtg Bonds **		(779)		103	103
<b>Test Year 2005 Average</b>		<b>\$ 423,565</b>	<b>\$ 24,953</b>	<b>\$ 1,511</b>	<b>\$ 26,464</b>
<b>Effective Rate = Total(E)/Total(B)</b>					
<b><u>6.25%</u></b>					

\* Issuance costs, redemption costs, issuance discounts, and investment income differentials are included in this amount. Refer to WP-2103, p.2 for detail.

\*\* Unamortized costs relate to HECO's First Mortgage Bonds which were redeemed prior to December 31, 2003. Refer to WP-2103, p.14 for First Mortgage Bonds unamortized costs.

\*\*\* Series 2002A is not fully drawn until 2005. Refer to WP-2103, p.1 for calculation of 2005 average balance.

Totals may not add exactly due to rounding.

Hawaiian Electric Company, Inc.

Early Redemption of Series 1995A Special Purpose Revenue Bonds

	<u>Total</u>
Outstanding Series 1995A as of December 31, 2003	\$ 40,000,000
2004 Activity	<u>-</u>
Outstanding Series 1995A as of December 31, 2004	40,000,000 (A)
Early Redemption on January 1, 2005 *	<u>(40,000,000)</u>
Outstanding Series 1995A as of December 31, 2005	<u>\$ - (B)</u>
<b>Test Year 2005 Average = [(A)+(B)]/2</b>	<b><u>\$ 20,000,000</u></b>

\* Per bond documents, HECO can early redeem the Series 1995A bonds beginning January 1, 2005 at a 101% redemption price.

Totals may not add exactly due to rounding.

Hawaiian Electric Company, Inc.

2005A Special Purpose Revenue Bonds

	<u>Total</u>
Outstanding Series 2005A as of December 31, 2003	\$ -
2004 Activity	<u>-</u>
Outstanding Series 2005A as of December 31, 2004	- (A)
Issuance	<u>40,000,000</u>
Outstanding Series 1995A as of December 31, 2005	<u>\$ 40,000,000 (B)</u>
<b>Test Year 2005 Average = [(A)+(B)]/2</b>	<b><u>\$ 20,000,000</u></b>

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Summary of Unamortized Balances

Unamortized Costs	WP Reference	(A)	(B)	(C)
		12/31/03 Unamortized Balance	12/31/04 Unamortized Balance	12/31/05 Unamortized Balance
Issuance and Redemption	WP-2103 p.4	\$ 14,997,484	\$ 14,073,928	\$ 14,530,186
Investment Income Differential	WP-2103 p.8	3,775,594	4,082,968	3,976,771
Issuance Discount	WP-2103 p.10	2,744,287	2,615,035	2,483,242
Total		<u>\$ 21,517,365</u>	<u>\$ 20,771,932</u>	<u>\$ 20,990,198</u>
<b>Test Year 2005 Average = [Total(B)+Total(C)]/2</b>				<u><b>\$ 20,881,065</b></u>

Totals may not add due to rounding

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Summary of 2005 Annual Amortizations

	(A) = WP-2103, p.4	(B) = WP-2103, p.8	(C) = WP-2103, p.10	(D) = (A)+(B)+(C)
Series (Refunded Issue)	Issuance and Redemption	Investment Income Differential	Discount	Total
1993	\$ 44,604	\$ 10,665	\$ 33,651	\$ 88,919
1995A	75,214	1,281	25,784	102,279
1996A	39,893	2,018	37,422	79,333
1996B	17,184	549	1,661	19,393
1997A	54,136	17,037	-	71,173
Refunding 1998A (1982)	54,247	-	-	54,247
(1987)	45,762	35,977	-	81,739
Subtotal	<u>116,739</u>	<u>1,200</u>	<u>-</u>	<u>117,939</u>
	<u>216,748</u>	<u>37,177</u>	<u>-</u>	<u>253,925</u>
Refunding 1999B (1988)	39,627	-	17,953	57,580
(1988 Conv)	17,243	-	-	17,243
Subtotal	<u>43,030</u>	<u>-</u>	<u>17,953</u>	<u>117,853</u>
1999C	37,330	26,168	-	63,498
Refunding 1999D (1990A)	20,830	-	-	20,830
Subtotal	<u>29,573</u>	<u>(1,162)</u>	<u>-</u>	<u>28,411</u>
	<u>50,403</u>	<u>(1,162)</u>	<u>-</u>	<u>49,241</u>
Refunding 2000 (1990B)	59,427	-	5,847	65,274
(1990C)	36,597	(399)	-	36,198
Subtotal	<u>51,386</u>	<u>27,660</u>	<u>-</u>	<u>79,046</u>
	<u>147,410</u>	<u>27,261</u>	<u>5,847</u>	<u>180,518</u>
2002A	52,946	43,618	9,476	106,040
Refunding 2003B (1992)	78,137	-	-	78,137
Subtotal	<u>70,239</u>	<u>46,261</u>	<u>-</u>	<u>116,500</u>
	<u>148,376</u>	<u>46,261</u>	<u>-</u>	<u>194,637</u>
Refunding 2005A	81,046	-	-	81,046
Total	<u>\$ 1,065,191</u>	<u>\$ 210,873</u>	<u>\$ 131,794</u>	<u>\$ 1,407,858</u>

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Schedule of Issuing Expenses (Includes Amortization Differential)

Series (Refunded Issue)	(A)		(B)		(C)		(D)=(B)-(C)		(E)		(F)=(D)-(E)	
	2003 Annual Amortization	12/31/03 Unamortized Balance	2004 Annual Amortization	12/31/04 Unamortized Balance	2005 Annual Amortization	12/31/05 Unamortized Balance						
1993	\$ 44,604	\$ 884,644	\$ 44,604	\$ 840,040	\$ 44,604	\$ 795,436						
1995A **	55,214	605,423	55,214	576,592	75,214	907,761						
1996A	39,893	890,949	39,893	851,056	39,893	811,163						
1996B	17,184	166,130	17,184	148,946	17,184	131,762						
1997A	54,136	479,453	54,136	425,317	54,136	371,181						
Refunding 1998A (1982)	54,247	447,541	54,247	393,294	54,247	339,047						
(1987)	45,762	377,537	45,762	331,775	45,762	286,013						
Subtotal	116,739	963,094	116,739	846,355	116,739	729,616						
	216,748	1,788,172	216,748	1,571,424	216,748	1,354,676						
Refunding 1999B (1988)	39,627	591,104	39,627	551,477	39,627	511,850						
(1988 Conv)	17,243	899,076	17,243	838,803	17,243	778,530						
Subtotal	43,030	(incl.above)	43,030	(incl.above)	43,030	(incl.above)						
	99,900	1,490,180	99,900	1,390,280	99,900	1,290,380						
1999C	37,330	964,370	37,330	927,040	37,330	889,710						
Refunding 1999D (1990A)	20,830	333,285	20,830	312,455	20,830	291,625						
Subtotal	29,573	473,169	29,573	443,596	29,573	414,023						
	50,403	806,454	50,403	756,051	50,403	705,648						
Refunding 2000 (1990B)	59,427	980,549	59,427	921,122	59,427	861,695						
(1990C)	36,597	603,853	36,597	567,256	36,597	530,659						
Subtotal	51,386	869,276	51,386	817,890	51,386	766,504						
	147,410	2,453,678	147,410	2,306,268	147,410	2,158,858						
2002A *	35,901	1,661,236	38,740	1,622,496	52,946	1,569,550						
Refunding 2003B (1992)	49,856	1,478,091	78,137	1,399,954	78,137	1,321,817						
Subtotal	77,145	1,328,704	70,239	1,258,465	70,239	1,188,225						
	127,001	2,806,795	148,376	2,658,419	148,376	2,510,042						
Refunding 2005A ***					81,046	1,034,019						
Total	\$ 925,724	\$ 14,997,484	\$ 949,938	\$ 14,073,928	\$ 1,065,191	\$ 14,530,186						

\* Same as above footnote. Refer to WP-2103, p.7 for calculation of issuance costs amortization.

\*\* Includes annual bond insurance premium and redemption premium accruals. Refer to WP-2103, p.5 for calculation.

\*\*\* Refer to page 15 & page 16 for calculation of issuance cost and insurance cost amortization.

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Schedule of Issuance Costs

Series (Refunded Issue)	(A)		(B)		(C)		(D) = (B)-(C)		(E)		(F) = (D)-(E)	
	2003 Annual Amortization	12/31/03 Unamortized Balance	2004 Annual Amortization	12/31/04 Unamortized Balance	2005 Annual Amortization	12/31/05 Unamortized Balance						
1993	\$ 44,604	\$ 884,644	\$ 44,604	\$ 840,040	\$ 44,604	\$ 795,436						
1995A **	55,214	605,423	55,214	576,592	75,214	907,761						
1996A	39,893	890,949	39,893	851,056	39,893	811,163						
1996B	17,184	166,130	17,184	148,946	17,184	131,762						
1997A	54,136	479,453	54,136	425,317	54,136	371,181						
Refunding 1998A (1982)	54,247	447,541	54,247	393,294	54,247	339,047						
(1987)	45,762	377,537	45,762	331,775	45,762	286,013						
	116,739	963,094	116,739	846,355	116,739	729,616						
Refunding 1999B (1988)	39,627	591,104	39,627	551,477	39,627	511,850						
(1988 Conv)	16,915	894,181	16,915	834,236	16,915	774,291						
	43,030	(incl.above)	43,030	(incl.above)	43,030	(incl.above)						
1999C	37,330	964,370	37,330	927,040	37,330	889,710						
Refunding 1999D (1990A)	20,830	333,285	20,830	312,455	20,830	291,625						
	29,573	473,169	29,573	443,596	29,573	414,023						
Refunding 2000 (1990B)	59,427	980,549	59,427	921,122	59,427	861,695						
(1990C)	36,552	603,112	36,552	566,560	36,552	530,008						
	50,197	849,158	50,197	798,961	50,197	748,764						
2002A *	35,901	1,661,236	38,740	1,622,496	52,946	1,569,550						
Refunding 2003B (1992)	49,856	1,478,091	78,137	1,399,954	78,137	1,321,817						
	76,642	1,319,181	69,736	1,249,445	69,736	1,179,708						
Refunding 2005A ***					81,046	1,034,019						
Total	\$ 923,659	\$ 14,962,207	\$ 947,873	\$ 14,040,716	\$ 1,063,126	\$ 14,499,039						

\* Refer to WP-2103, p.7 for calculation of issuance costs amortization.

\*\* Series 1995A includes annual bond insurance premium payment accrual of \$26,383, calculated as follows:

Total Series 1995A Issue	\$ 47,000,000
6.5 Basis Points of Par Outstanding Annually (per MBIA Insurance Policy)	0.065%
Annual insurance premium (rounded)	\$ 31,000
HECO portion = \$40,000,000 / \$47,000,000	85.11%
HECO's portion of annual insurance premium	\$ 26,383

*Insurance still needs to be paid in 2005.*

Also, the Series 1995A 2005 amortization includes amortization related to \$400,000 redemption premium as calculated below:

Redemption premium (Bond redeemed on January 1, 2005)	\$ 400,000
Attorney/Trustee costs	-
Total redemption costs	\$ 400,000
Years to original maturity (Year 2025 per bond documents)	20
Annual amortization	\$ 20,000
Unamortized redemption costs included in 12/31/05 balance	\$ 380,000

\*\*\* Refer to page 15 & page 16 for calculation of issuance cost and insurance cost amortization.

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Schedule of Amortization Differential (Portion of Issuance Costs) \*

Series (Refunded Issue)	(A)	(B)	(C)	(D) = (B)-(C)	(E)	(F) = (D)-(E)
	2003 Annual Amortization	12/31/03 Unamortized Balance	2004 Annual Amortization	12/31/04 Unamortized Balance	2005 Annual Amortization	12/31/05 Unamortized Balance
1993	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1995A	-	-	-	-	-	-
1996A	-	-	-	-	-	-
1996B	-	-	-	-	-	-
1997A	-	-	-	-	-	-
Refunding 1998A (1982) (1987)	-	-	-	-	-	-
Refunding 1999B (1988) (1988 Conv)	328	4,895	328	4,567	328	4,239
1999C	-	-	-	-	-	-
Refunding 1999D (1990A)	-	-	-	-	-	-
Refunding 2000 (1990B) (1990C)	45	741	45	696	45	651
	1,189	20,118	1,189	18,929	1,189	17,740
2002A	-	-	-	-	-	-
Refunding 2003B (1992)	503	9,523	503	9,020	503	8,517
Refunding 2005A	-	-	-	-	-	-
Total	<u>\$ 2,065</u>	<u>\$ 35,277</u>	<u>\$ 2,065</u>	<u>\$ 33,212</u>	<u>\$ 2,065</u>	<u>\$ 31,147</u>

Totals may not add exactly due to rounding.

\* The amortization differential represents the amortization of issuing expenses attributable to the undrawn balance in the construction fund for the various revenue bond series.

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Hawaiian Electric Company, Inc.

Computation of Amortization of Issuing Expenses  
Refunding 2005A Special Purpose Revenue Bonds  
G/L Account #181443

(A)	(B)	(C) = (A)+(B)	(D)	(E) = (C)/(D)	(F)	(G) = (E)*(F)	(H) = (C)-(G)
Beginning Balance	Additions	Amortizable Base	Months to Maturity	Amortization Based on 100% Drawn	Proportion of Bonds Drawn	Month Amortization Expense	Ending Balance
Jan-05	\$ 4,338	\$ 302,420	\$ 306,758	240	\$ 1,278	100%	\$ 305,480
Feb-05	305,480	53,550	359,030	239	1,502	100%	357,527
Mar-05	357,527	28,879	386,406	238	1,624	100%	384,783
Apr-05	384,783	170,213 *	554,996	237	2,342	100%	552,654
May-05	552,654		552,654	236	2,342	100%	550,312
Jun-05	550,312		550,312	235	2,342	100%	547,970
Jul-05	547,970		547,970	234	2,342	100%	545,629
Aug-05	545,629		545,629	233	2,342	100%	543,287
Sep-05	543,287		543,287	232	2,342	100%	540,945
Oct-05	540,945		540,945	231	2,342	100%	538,603
Nov-05	538,603		538,603	230	2,342	100%	536,262
Dec-05	536,262		536,262	229	2,342	100%	533,920
2005 Total						\$ 25,480	

\* Estimate of remaining issuing expenses to be paid. Allocated to HECO in the same proportion as bond proceeds.

Estimated Remaining Exp	200,000	
HECO Portion		\$ 40,000,000
Total Proceeds		\$ 47,000,000
		85.11%

HECO Share of expense 170,213

Totals may not add exactly due to rounding

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Hawaiian Electric Company, Inc.

Computation of Amortization of Insurance Expenses  
Refunding 2005A Special Purpose Revenue Bonds  
Account #181443

(A)	(B)	(C) = (A)+(B)	(D)	(E) = (C)/(D)	(F)	(G) = (E)*(F)	(H) = (C)-(G)
Beginning Balance	Additions	Amortizable Base	Months to Maturity	Amortization Based on 100% Drawn	Proportion of Bonds Drawn	Month Amortization Expense	Ending Balance
Jan-05 -	\$ 555,666	* \$ 555,666	120	\$ 4,631	100%	\$ 4,631	\$ 551,035
Feb-05 551,035	-	551,035	119	4,631	100%	4,631	546,404
Mar-05 546,404	-	546,404	118	4,631	100%	4,631	541,774
Apr-05 541,774	-	541,774	117	4,631	100%	4,631	537,143
May-05 537,143	-	537,143	116	4,631	100%	4,631	532,513
Jun-05 532,513	-	532,513	115	4,631	100%	4,631	527,882
Jul-05 527,882	-	527,882	114	4,631	100%	4,631	523,252
Aug-05 523,252	-	523,252	113	4,631	100%	4,631	518,621
Sep-05 518,621	-	518,621	112	4,631	100%	4,631	513,991
Oct-05 513,991	-	513,991	111	4,631	100%	4,631	509,360
Nov-05 509,360	-	509,360	110	4,631	100%	4,631	504,730
Dec-05 504,730	-	504,730	109	4,631	100%	4,631	500,099
2005 Total						\$ 55,567	

\* Lump sum insurance payment with a term of 10 years. After 10 years insurance will be paid annually.

Totals may not add exactly due to rounding

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Schedule of Investment Income Differential

Series (Refunded Issue)	(A)	(B)	(C)	(D) = (B)-(C)	(E)	(F) = (D)-(E)
	2003 Annual Amortization	12/31/03 Unamortized Balance	2004 Annual Amortization	12/31/04 Unamortized Balance	2005 Annual Amortization	12/31/05 Unamortized Balance
1993	\$ 10,665	\$ 211,513	\$ 10,665	\$ 200,848	\$ 10,665	\$ 190,184
1995A	1,281	26,897	1,281	25,616	1,281	24,335
1996A	2,018	45,073	2,018	43,055	2,018	41,036
1996B	549	12,573	549	12,024	549	11,476
1997A	17,037	404,626	17,037	387,589	17,037	370,552
Refunding 1998A (1982)	-	-	-	-	-	-
(1987)	35,977	296,812	35,977	260,835	35,977	224,857
	1,200	9,901	1,200	8,701	1,200	7,501
Refunding 1999B (1988)	-	-	-	-	-	-
(1988 Conv)	-	-	-	-	-	-
1999C	26,168	676,018	26,168	649,850	26,168	623,681
Refunding 1999D (1990A)	-	-	-	-	-	-
(1990A)	(1,162)	(18,592)	(1,162)	(17,430)	(1,162)	(16,268)
Refunding 2000 (1990B)	-	-	-	-	-	-
(1990C)	(399)	(6,590)	(399)	(6,191)	(399)	(5,791)
	27,660	467,922	27,660	440,262	27,660	412,601
2002A *	11,244	774,343	24,798	1,248,972	43,618	1,310,029
Refunding 2003B (1992)	-	-	-	-	-	-
	46,261	875,098	46,261	828,837	46,261	782,577
Refunding 2005A	-	-	-	-	-	-
Total	<u>\$ 178,498</u>	<u>\$ 3,775,594</u>	<u>\$ 192,053</u>	<u>\$ 4,082,968</u>	<u>\$ 210,873</u>	<u>\$ 3,976,771</u>

\* Refer to WP-2103, p.9 for investment income differential calculation.

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Revenue Bonds  
Schedule of Issuance Discount

Series (Refunded Issue)	(A)	(B)	(C)	(D) = (B)-(C)	(E)	(F) = (D)-(E)
	2003 Annual Amortization	12/31/03 Unamortized Balance	2004 Annual Amortization	12/31/04 Unamortized Balance	2005 Annual Amortization	12/31/05 Unamortized Balance
1993	\$ 33,651	\$ 667,403	\$ 33,651	\$ 633,752	\$ 33,651	\$ 600,102
1995A	25,784	541,461	25,784	515,677	25,784	489,893
1996A	37,422	835,760	37,422	798,338	37,422	760,916
1996B	1,661	38,060	1,661	36,399	1,661	34,738
1997A	-	-	-	-	-	-
Refunding 1998A (1982)	-	-	-	-	-	-
(1987)	-	-	-	-	-	-
Refunding 1999B (1988)	17,953	267,806	17,953	249,853	17,953	231,899
(1988 Conv)	-	-	-	-	-	-
1999C	-	-	-	-	-	-
Refunding 1999D (1990A)	-	-	-	-	-	-
Refunding 2000 (1990B)	5,847	96,483	5,847	90,636	5,847	84,788
(1990C)	-	-	-	-	-	-
2002A *	6,452	297,314	6,933	290,381	9,476	280,905
Refunding 2003B (1992)	-	-	-	-	-	-
Refunding 2005A	-	-	-	-	-	-
Total	<u>\$ 128,770</u>	<u>\$ 2,744,287</u>	<u>\$ 129,252</u>	<u>\$ 2,615,035</u>	<u>\$ 131,794</u>	<u>\$ 2,483,242</u>

\* Refer to WP-2103, p.11 for discount calculation.

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Revenue Bonds  
General Ledger Accounting Codes

Series <u>(Refunded Issue)</u>	Issuance and Redemption Unamortized Costs	Issuance and Redemption Amortization Costs	Investment Income Differential Unamortized Costs	Investment Income Differential Amortization Costs	Discount Unamortized Costs	Discount Amortization Costs	Construction Fund Balance (Principal Only)
1993	18130000/04	42812000	25338000/04	40303009	18150000/04	42812000	n/a
1995A	18131000/04	42813000	25339000/04	40303010	18151000/04	42813000	n/a
1996A	18132000/04	42814000	25340000/04	40303011	18152000/04	42814000	n/a
1996B	18133000/04	42815000	25341000/04	40303012	18153000/04	42815000	n/a
1997A	18134000/04	42816000	25342000/04	40303013	n/a	n/a	n/a
Refunding 1998A (1982)	18135000/04 18671P00/04	42817000 42802000	n/a 25330000/04 18675000/04 *	n/a 40303001	n/a n/a	n/a n/a	n/a n/a
(1987)	18671R00/04	42804000	25332000/04 18675020/24 *	40303001	n/a	n/a	n/a
Refunding 1999B (1988)	18138000/04 18671Y00/04 25333100 18675030/34 *	42820000 42805000	n/a n/a	n/a n/a	18156000/04 n/a	42820000 n/a	n/a n/a
1988 Conv	n/a	42806000	n/a	n/a	n/a	n/a	n/a
1999C	18136000/04	42821000	25344000/04	40303014	n/a	n/a	n/a
Refunding 1999D (1990A)	18139000/04 18671Z00/04	42822000 42807000	n/a 25334000/04 18675040/44 *	n/a 40303005	n/a n/a	n/a n/a	n/a n/a
Refunding 2000 (1990B)	18140000/04 18671200/04 25335100 18675060/64 *	42823000 42808000	n/a 25335000/04 18675050/54 *	n/a 40303006	18157000/04 n/a	42823000 n/a	n/a n/a
(1990C)	18671300/04 25336100 18675080/84 *	42809000	25336000/04 18675070/74 *	40303007	n/a	n/a	n/a
2002A	18141000/04	42824000	25345000/04	40303015	18158000/04	42824000	22420119
Refunding 2003B (1992)	18142000/04 18671400/04 25337100 18675100/04 *	42826000 42810000	n/a 25337000/04 18675090/94 *	n/a 40303008	n/a n/a	n/a n/a	n/a n/a
Refunding 2005A	18144430	42827000	n/a	n/a	n/a	n/a	n/a

\* Effective 7/1/04, the costs recorded in the above 2533 account have been reclassified to this 1867 account.

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Hawaiian Electric Company, Inc.

Common Equity  
Test Year 2005 Average  
(\$ Thousands)

	WP Reference	Total
Book Common Equity as of December 31, 2003	WP-2106, p.1	\$ 582,563
Restoration	WP-2106 p.2	<u>3,580</u>
Common Equity Investment as of December 31, 2003		586,143
2004 Estimated Net Change in Retained Earnings	HECO-2107	<u>52,861</u>
Common Equity as of December 31, 2004		639,004 (A)
2005 Estimated Net Change in Retained Earnings	HECO-2107	<u>5,902</u>
Common Equity as of December 31, 2005		<u>\$ 644,906 (B)</u>
<b>Test Year 2005 Average = [(A)+(B)]/2</b>		<b><u>\$ 641,955</u></b>

Totals may not add exactly due to rounding.

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Hawaiian Electric Company, Inc.

Sources and Applications of Funds  
(\$ Thousands)

	Recorded 2003	Forecast 2004	Forecast 2005
<b>Application of Funds:</b>			
Capital Expenditures	\$ 94,885	\$ 128,681	\$ 112,959
Less: CIAC & Advances	6,071	8,237	14,745
Less: AFUDC	5,311	7,545	8,010
Net Capital Expenditures	\$ 83,503	\$ 112,899	\$ 90,204
Debt Redemption	\$ 40,000	\$ -	\$ -
Hybrid Redemption	-	60,000	-
<b>Total Applications</b>	<b>\$ 123,503</b>	<b>\$ 172,899</b>	<b>\$ 90,204</b>
<b>Sources of Funds:</b>			
<b>Internal Sources:</b>			
Retained Earnings	\$ 12,113	\$ 52,861	\$ 5,902
Depreciation & Amortization	72,285	71,259	75,460
Deferred Taxes & ITC	6,095	4,650	(4,272)
Other (Misc. Net Changes in Working Capital)	(16,217)	(14,258)	21,116
<b>Total Internal Sources</b>	<b>\$ 74,276</b>	<b>\$ 114,512</b>	<b>\$ 98,206</b>
<b>External Sources:</b>			
Increase (Decrease) in Short-Term Borrowings	\$ 7,000	\$ 27,085	\$ (20,713)
Drawdown of Revenue Bond Proceeds	42,227	1,302	12,711
Sale of Hybrid Securities	-	30,000	-
<b>Total External Financing</b>	<b>\$ 49,227</b>	<b>\$ 58,387</b>	<b>\$ (8,002)</b>
<b>Total Sources</b>	<b>\$ 123,503</b>	<b>\$ 172,899</b>	<b>\$ 90,204</b>

Totals may not add exactly due to rounding.

Hawaiian Electric Company, Inc.

2005

PLANT ADDITIONS

(\$ Thousands)

	<u>2005</u>	<u>Reference</u>
Projects	\$57,576	page 4
Programs	49,374	page 8
Total	<u><u>\$106,950</u></u>	

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Hawaiian Electric Company, Inc.

2005 PLANT ADDITIONS - PROJECTS

<u>Grand</u> <u>parent</u>	<u>Project #</u>	<u>Project Title</u>	<u>Expenditures</u>					
			<u>Project</u> <u>to Date</u>					
			<u>Recorded</u>	<u>12/31/04</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	
	P0000086	Waiau WW Oil Detectors		59,611	12,706	0	0	72,317
	P0000143	Salt Lake Blvd Widening Ph2		1,746,403	697,257	3,303,125	0	5,746,785
	P0000172	Iwilei Fuel Oil Pump Rpl		84,599	128,650	0	0	213,249
	P0000211	W6 Cycle Chem Instr.		431,663	191,787	0	0	623,450
	P0000215	K2 Cycle Chem Instr.		168,404	232,782	0	0	401,186
	P0000231	W8 BFP Rec Ctrl Valves Upg		97,395	6,641	0	0	104,036
	P0000233	W7&8 Service Air Compressor		205,660	129,087	0	0	334,747
	P0000238	K6 BFP Rec Ctrl Valves Upg		0	75,413	0	0	75,413
	P0000287	Waiau 1&2 Admin Bldg ReRoof		0	546,044	1,174	0	547,218
	P0000299	W9 Compressor Wash		0	117,015	0	0	117,015
	P0000300	W10 Compressor Wash		0	122,791	0	0	122,791
	P0000302	Waiau FWH #72 Replacement		242,229	51,833	0	0	294,062
	P0000336	K5 Burner Front Roof		7,068	63,785	0	0	70,853
	P0000338	K6 Burner Front Roof		7,899	64,057	0	0	71,956
	P0000449	Kahe Electronic Parts Store		32,414	25,439	0	0	57,853
	P0000452	Waiau Electric Parts Store		22,991	10,077	0	0	33,068
	P0000454	K6 Fan Enclosure		48,865	547,249	0	0	596,114
	P0000469	K5&6 Service Air Compressors		125,452	59,079	0	0	184,531
	P0000474	WSC Privatization		1,229,570	312,603	0	0	1,542,173
	P0000491	K-H#2/Wai-Wah Str 86/25		31,589	767,665	0	0	799,254
	P0000493	W6 HP Turbine Blades		1,143,151	589,330	0	0	1,732,481
	P0000497	Waiau WW Pond Closure		41,274	196,052	0	0	237,326
	P0000509	PM-Ewa Nui MW Replace		11,042	216,658	0	0	227,700
	P0000565	W10 DCS Processor Upgrade		24,358	440,637	0	0	464,995
	P0000598	Kahekili Hy Ltg OH/UG Conv		66,780	77,931	0	0	144,711
	P0000609	K2 Blr Access Door Addition		42,240	51,814	0	0	94,054
	P0000623	K1-4 & K5-6 Fire Main Tie-in		0	115,673	0	0	115,673
	P0000625	HPP Swyd Cable Tray Sprinkler		104,763	7,797	0	0	112,560
	P0000634	W7&8 Boiler Wash Sump Pump		12,721	90,943	0	0	103,664
	P0000641	K6 AEH Limit Switch Upgrd		1,366	7,634	0	0	9,000
	P0000646	Kahe 24FWH Replacement		248,828	151,172	0	0	400,000
	P0000647	Kahe 23FWH Replacement		99,356	300,644	0	0	400,000
	P0000657	W10 Exhaust Duct Replacement		193,766	563,749	0	0	757,515
	P0000658	W9 Exhaust Duct Replacement		469,210	847,792	0	0	1,317,002
	P0000659	Kahe 25FWH Replacement		208,294	191,706	0	0	400,000
	P0000667	Kahe Sewer System Upgrade		261,696	509,110	0	0	770,806
	P0000675	W6 Control/DC Cables to Swyd		64,705	22,157	0	0	86,862
	P0000676	K2 Opacity Monitor Upgrade		0	129,676	0	0	129,676
	P0000682	W6 Annunciator Upgrade		6,465	49,291	0	0	55,756
	P0000699	Fire sprinkler-tsf oil stora		29,928	10,224	0	0	40,152
	P0000764	H-1 Widening Waimalu Reloc		94,908	23,406	98,466	0	216,780
	P0000774	Kukui Gardens Conversion		774,040	-5,084	0	0	768,956
	P0000786	Kahe 1 BW Sump Upgrade		112,920	48,444	0	0	161,364
	P0000788	Kahe 2 BW Sump Upgrade		69,682	46,316	0	0	115,998
	P0000789	Kahe 3 BW Sump Upgrade		105,007	62,540	0	0	167,547
	P0000790	Kahe 4 BW Sump Upgrade		61,762	77,109	0	0	138,871
	P0000791	Kahe 5 BW Sump Upgrade		69,431	59,922	0	0	129,353
	P0000792	Kahe 6 BW Sump Upgrade		58,698	52,776	0	0	111,474
	P0000797	W3-W4 Svc Air Compr		0	236,069	0	0	236,069
	P0000798	W6 Instr Air Compr		0	120,454	0	0	120,454
	P0000804	W6 Operator Console Upgrade		154,736	187,293	0	0	342,029
	P0000806	K06 CWP MOV Replacement		279,681	74,229	0	0	353,910
	P0000809	K6 Annunciator Replacement		170	656,636	0	0	656,806
	P0000813	K3&4 Control Room AC		0	122,450	0	0	122,450
	P0000821	K2 Battery Bank Replacement		0	200,361	0	0	200,361
	P0000825	C&M Renovation		0	624,727	0	0	624,727
	P0000826	ITS Renovation		0	379,513	0	0	379,513
	P0000860	K2 Annunciator Replacement		6,179	666,782	0	0	672,961

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Hawaiian Electric Company, Inc.

2005 PLANT ADDITIONS - PROJECTS

<u>Grand parent</u>	<u>Project #</u>	<u>Project Title</u>	<u>Project to Date Recorded</u>				
			<u>12/31/04</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
	P0000873	Kahe 2 Sootblower Controls	20,638	434,096	0	0	454,734
	P0000901	Kahe Reclaimed Oil Transfer	184,116	101,902	0	0	286,018
	P0000911	Palehua East A 46kV Reloc	24,134	385,866	0	0	410,000
	P0000917	Village Park - DB Cable Rpl	117,224	1,424,119	0	0	1,541,343
	P0000923	Kahala #2 4KV Tsf Replace	269,118	37,125	0	0	306,243
	P0000926	Mililani Mauka North Gully	163,798	189,887	0	0	353,685
	P0000932	Beretania North V4259 Repl	0	124,540	0	0	124,540
	P0000939	Waiau CT Separation	235,186	392,051	0	0	627,237
	P0000940	Pearl Highlands 2nd Fdr	48,005	250,775	0	0	298,780
	P0000956	Waiau WWTF ChemFeed Mods	0	122,912	0	0	122,912
	P0000958	K6 SSH Element Replacement	29,777	1,546,997	0	0	1,576,774
	P0000961	W82 TVL SCREEN REPL	101,509	66,551	0	0	168,060
	P0000962	W71 TVL SCREEN REPL	0	172,954	0	0	172,954
	P0000964	K62 TVL SCREEN REPL	72,309	107,206	0	0	179,515
	P0000969	Waiau Maint Shop Mods	69,211	46,846	0	0	116,057
	P0000975	Tripler-Koolau Baseyard Comm	0	428,660	0	0	428,660
	P0000981	K5/6 Brkr Deck AC	0	121,798	0	0	121,798
	P0000982	Waiau 3/4 Elevator Upgrade	0	120,579	0	0	120,579
	P0000983	Waiau 5/6 Elevator Upgrade	0	122,393	0	0	122,393
	P0000999	W3&4 Turb Roof Drain Piping	0	87,039	0	0	87,039
	P0001003	Ward Ave Turnstile Gate	0	117,970	0	0	117,970
	P0001005	King St CCTV Cameras	0	132,999	0	0	132,999
	P0001008	W72 TVL SCREEN REPL	98,515	65,916	0	0	164,431
	P0001011	W81 TVL SCREEN REPL	98,515	54,688	0	0	153,203
	P0001015	Wahiawa-Waialua #2 P23X-P33	40,538	345,659	0	0	386,197
	P0001016	Lurline/Mariposa Cable Repl	12,367	379,710	0	0	392,077
	P0001019	Structure 22 Wailupe #2 Repl	44,602	197,613	0	0	242,215
	P0001022	Employee Smart Cards	14,901	18,699	0	0	33,600
	P0001024	Kahe 52 Traveling Screen	124,565	2,095	0	0	126,660
	P0001029	Mobile Substation Storage	4,117	106,729	0	0	110,846
	P0001030	H8&9 Roof Drain Piping	0	207,609	0	0	207,609
	P0001031	K6 Flame Scanner Det Replace	0	169,173	1	0	169,174
	P0001032	Honouliuli Reserv 46kV Reloc	9,077	231,741	0	0	240,818
	P0001047	HECO Vault 15 Relocate	8,135	452,198	0	0	460,333
	P0001055	Customer Solutions Consolidn	2,553	324,696	0	0	327,249
	P0001056	DSM Expansion	1,823	150,256	0	0	152,079
	P0001060	Lualualei Homestead Rd Impr.	7,052	107,481	1,000	0	115,533
	P0001062	Kahe Lightning Protection	0	94,788	0	0	94,788
	P0001063	Palehua East B Temp OH Reloc	0	65,767	0	0	65,767
	P0001065	Purchase Spare 20/33 MVA Tsf	0	637,131	0	0	637,131
	P0001066	Waiaawa4 Ckt Extension	0	120,746	0	0	120,746
	P0001067	Air Heater Rotor Stop Alarm	0	88,643	25,236	0	113,879
	P0001068	Replace EW 8%, 10 MVA Tsf	107,576	428,964	0	0	536,540
	P0001077	Manoa Sub 4 kV Upgrade	0	198,075	0	0	198,075
	P0001079	W8 Aux Xfmr Replacement	0	224,940	0	0	224,940
	P0001080	Ko Olina Parcel 50 46/12kV	0	132,775	0	0	132,775
	P0001081	Auahi Street 12kV OH to UG	0	181,879	0	0	181,879
	P0001082	Waiau-Makalapa #2 NCI Repl	0	310,821	0	0	310,821
	P0001083	W3 Aux Transformer Replace	0	193,265	0	0	193,265
	P0001126	ITS Relocation to Pauahi	0	687,976	0	0	687,976
	P8290000	Tripler Wahiaawa mwr replace	310,396	323,882	0	0	634,278
	P8470000	Koolau/Tripler MWR Repl	424,010	370,883	0	0	794,893
	P9497000	Honolulu Spur	77,081	49,980	0	0	127,061
	P9511000	Generation Hotline Upgrd	31,910	169,049	0	0	200,959
Y00021	P0000277	New Kuahua Substation	1,094,327	221,219	3,695,111	26,301	5,036,958
Y00021	P0000278	Makalapa Substation Prot	165,607	49,164	213,221	3,229	431,221
Y00021	P0000279	Puuloa Substation Prot	35,233	47,650	79,429	1	162,313
Y00021	P0000280	Makalapa-Kuahua FO Line	183,860	18,154	589,723	0	791,737
Y00021	P0000281	Makalapa-Puuloa FO Line	23,217	1,951	566,965	1	592,134

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Hawaiian Electric Company, Inc.

2005 PLANT ADDITIONS - PROJECTS

<u>Grand</u>	<u>Project</u>	<u>to Date</u>					
<u>parent</u>	<u>Project #</u>	<u>Project Title</u>	<u>12/31/04</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
Y00021	P0000282	Kuahua 46kv Ln Reconnect	12,785	10,951	475,207	318	499,261
Y00023	P0000499	Ward A/C Imprv Phase II	677,461	3,081,331	0	0	3,758,792
Y00027	P0000562	Mokuone 46-12KV Line Ext	3,780,308	1,265,674	956,000	0	6,001,982
Y00029	P0000711	Remote PBXs	0	340,543	0	0	340,543
Y00029	P0001035	King/CPP PBX Replacement	248,439	317,191	0	0	565,630
Y00039	P0000833	Mamala Substation	59,607	1,855,428	0	0	1,915,035
Y00039	P0000834	46kV Fdrs to Mamala Sub	40,344	734,602	3,000,000	0	3,774,946
Y00039	P0000835	Comm Links Mamala Sub	5,973	517,325	0	0	523,298
			<u>34,456,168</u>	<u>13,004,658</u>	<u>29,850</u>	<u>65,929,564</u>	
			From 2004 (page 6)			4,680,479	
			2006 Plant Additions			-13,004,658	
			2007 Plant Additions			-29,850	
						<u>57,575,535</u>	

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Hawaiian Electric Company, Inc.

2005 PLANT ADDITIONS

<u>parent</u>	<u>Project #</u>	<u>Project Title</u>	<u>Expenditures</u>
<u>Grand</u>			<u>2005</u>
P0000057	H9 Blr Elec Warm Sys		6,918
P0000078	K5 Boiler Controls Upgrade		22,378
P0000079	K6 Boiler Controls Upgrade		75,270
P0000097	Waiau 8 Sootblower Ctls Upg		2,351
P0000208	W3 Cycle Chem Instr.		1,654
P0000213	W8 Cycle Chem Instr.		1,368
P0000254	W3 Stack & Breeching Rpl		6,595
P0000260	W3 Data Acq & Monitoring		952
P0000274	W3&4 Boider Bldg ReRoof		12,170
P0000289	Halawa Cap Bank Brk 4436		1,270
P0000294	Pukele Tie Breaker-Sw Rpl		1,270
P0000297	W3 Condenser Refurbishment		122,507
P0000303	Waiau FWH #82 Replacement		2,798
P0000313	W8 APH Sootblower Upgrade		460
P0000330	Waiau 3 Ignitor Replacement		3,617
P0000423	Kailua Rd UG Conversion		818,043
P0000459	Waiau 3 ERV Replacement		104,407
P0000466	K3&4 Service Air Compressor		46,080
P0000485	WPP FWH #35 Replacement		6,328
P0000507	Kam Hy Resurf Waiahole-Cr Ln		26,303
P0000575	Nimitz Hwy Rehab-UA #1691		501
P0000582	H9 Turbine Supv Instr		1,087
P0000605	W3 and W4 Stack Drain		9,871
P0000608	Sand Isle WWTP Disinfection		31,446
P0000611	Kaneohe Bay Dr Improvements		68,708
P0000624	Kahe Tank Farm Fire Main		12,041
P0000638	W3 Air Heater Tube Replmnt		10,325
P0000651	K5 AEH Limit Switch Upgrd		533
P0000664	W3 UPS Installation		1,033
P0000666	Waiau Maint Shop Office		5,393
P0000669	Kakaako ID10		27,740
P0000690	W5 Annunciator Upgrade		42,468
P0000741	W5 Demin raw wtr piping		43,772
P0000750	K5 Reheater Element Replacements		1,856
P0000784	K22 TVL Screen Repl		13,252
P0000803	W3 Operator Console Upgrade		1,416
P0000832	W3 Main Xfmr Replacement		1,639
P0000840	Security/Campbell Station		4,961
P0000841	Security/School Street Sub		4,882
P0000851	Purchasing Warehouse Renov		6,647
P0000855	K6 Aux Transformer		56,955

## Hawaiian Electric Company, Inc.

## **2005 PLANT ADDITIONS**

**Straggling Costs for Projects with Plant Additions Dates Prior to 2005**

<u>parent</u>	<u>Project #</u>	<u>Project Title</u>	<u>2005</u>
	P0000889	Airport 12KV Ckts Install	2,825
	P0000893	H8 Generator Rotor Rewind	190
	P0000909	Kahe 13-14 FT Berm Upgrade	15,721
	P0000910	Kahe 11-12 FT Berm Upgrade	35,383
	P0000927	Mililani Mauka Unit 134A	-26
	P0000933	K2 to CW Basin Pipe Trench	3,124
	P0000941	Tree Wire - Lai Road	16,873
	P0000942	Waiau Tank 4 Bottom Replmt	107,489
	P0000944	Ala Wai Canal 46kV Dredging	196
	P0000970	W5 Mixed Bed Polisher	9,935
	P0001023	ACCESS SYSTEM	41,213
	P0001039	Purch Spare 8%, 10MVA Tsf	143
	P0001048	Kunia TSF Replacement	139,554
	P0001057	Energy Projects Relocation	10,919
	P0001058	Ward Ave Electronic Key Box	1,027
	P0001071	Data Center Cabinets	5,945
	P6740000	Iwilei Ntwk Bkr Failure	2,777
	P9401000	Kahe Fire Pump Inst	20,440
	P9492000	K6 A/H Acoustic Sootblower	1,628
	P9904000	H1 WIDENING AIEA	100,500
Y00027	P0000563	Mokuone 46-12KV Substation 1	55,758
Y00029	P0000710	King and Ward PBXs	95,773
Y00032	P0000064	Waiau Fuel Pipeline Project	1,844,432
Y00032	P0000747	Valve Station Service	703
Y00032	P0000748	Barbers Point TF 46kV Substation	1,612
Y00050	P0000886	Wal-Mart Sams Keeaumoku'	557,080

4,680,479

Hawaiian Electric Company, Inc.

PLANT ADDITIONS - PROGRAMS

<u>Project #</u>	<u>Project Title</u>	<u>2005</u>
P0000062	Ce-Terminating Trust Esmnts	588,813
P0000063	Conv Halawa School 138kv	5,000
P0000089	Pwr Quality Monitor Install	112,109
P0000120	Corr (Inc Emg) OH Trsf Rpl	325,964
P0000121	Corr (Inc Emg) UG Trsf Rpl	308,281
P0000122	Cor (Inc Emg) Mis Cable Rpl	1,771,120
P0000123	Corr (Inc Emg) OH Dist Rpl	974,095
P0000124	Cor (Inc Emg) OH Subtrn Rpl	428,737
P0000445	Trayer Sub Sw Repl Prog	39,234
P0000500	Misc Office Furniture	112,517
P0000501	Misc Office Equipment	69,425
P0000502	Waiau Minor Gen Addns	47,304
P0000503	Ward Ave Minor Addns	161,458
P0000504	King St Minor Addns	93,712
P0000505	Other Minor Gen Plt Addns	83,913
P0000510	Circ Water Temp Monitors	14,562
P0000511	BFP Automated Test	154,034
P0000590	PP Security Hardware Upgrade	154,304
P0000601	Gen Prot Relay Replacement	242,261
P0000619	Kahe Demin/WWTF Smk Detect	29,115
P0000626	W3-8 Cable Rm Smoke Detector	36,205
P0000627	W3-8 Swgr Rm Smoke Detector	36,205
P0000628	K1-6 Cable Rm Smoke Detector	34,940
P0000629	K1-6 Swgr Rm Smoke Detectors	35,191
P0000652	Misc Mainframe Hardware	182,783
P0000653	Collaborative Communications	63,917
P0000674	Waiau Start-Up SWGR Replace	1,787
P0000678	Kahe H2 Gas Dryers	92,838
P0000679	Waiau H2 Gas Dryers	89,195
P0000685	Waiau Start-Up Cable Replace	949
P0000692	CSD Technical Support Prgrm	27,000
P0000733	Trns Sub RTU Migration Pgm	761,916
P0000934	Kahe Turbine Drains	87,579
P0000936	Waiau Turbine Drains	87,878
P0000953	Kahe FWH Press/Temp Instr	56,754
P0000968	Process Parameter Monitoring	344,869
P0000993	Kahe/Waiau WWTF PLC Upgrade	154,915
P0001014	Security CCTV System	386,098
P0001125	DG Substation	2,093,753
P1081000	Capitalized Tools & Equip	878,909
P1243000	Purchase PCs-ITS	1,005,215
P1244000	Copiers/Faxes/Printers	193,599
P1250000	Vehicle Purchases	1,819,198
P1251000	Misc Tel Eqpt NT	6,056
P1370000	Distr R/W Purch (Blanket)	74,095
P1373000	46kv R/W Purch (blanket)	100,000
P1429000	Misc PowerPlant Additions	1,077,773
P1470000	Minor Trans Sub Addns	673,728

Hawaiian Electric Company, Inc.

PLANT ADDITIONS - PROGRAMS

<u>Project #</u>	<u>Project Title</u>	<u>2005</u>
P1480000	Minor Dist Sub Addns	965,843
P1500000	Misc CM Fac-Op & Ctrl (TD)	477,842
P1505000	Other Misc Comm Fac SOD	115,521
P1510000	Misc OH Svc & Extn (CID)	2,412,750
P1580000	Minor OH Dist Addn (CID)	841,772
P1670000	P&I&Test Meters & Mtr Eq	753,782
P1680000	Tsf & Equip Pur/Svc (CID)	4,987,855
P1690000	Minor T&D Customer Programs	358,354
P1700000	Misc UG Svc & Extn (CID)	11,707,273
P1789000	Preventive OH Transf Repl	478,433
P1793000	Preventive UG Transf Repl	703,570
P1810000	Prev Misc Cable Failure Rpl	3,100,361
P1820000	Minor UG Addns (CID)	961,637
P1870000	Power Station Misc	240,000
P1990000	Minor T&D System Programs	654,656
P1991000	Minor Dist Design UG Addns	2,188
P3400000	Prev OH Dist Repl	1,206,252
P3401000	Prev OH Subtrans Repl	1,652,283
P3402000	Prev OH Trans Repl	1,268,386
P9028000	Mobile Radio F1/F2 Replace	193,977
P9544000	FO Tank Level Gauge Upgrade	172,250

49,374,288

Hawaiian Electric Company, Inc.

DIESEL OIL INVENTORY 2000-2004

Line	Year	(A) Barrels Consumed Per Day	(B) Average Ending Inventory (Barrel)	(C) = (B) / (A) (C) Average Days Supply
1.	2000	60	18,522	308
2.	2001	61	23,992	393
3.	2002	79	24,010	306
4.	2003	170	23,827	140
5.	2004	371	37,194	100
6.	2000 - 2004 Average Central Station Inventory	148	25,509	
7.	DG Inventory		500	
6.	Total Diesel Oil Inventory		<u>26,009</u>	