BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
767 Recruit PolPracProc	0	0	15	-147	-230	0
775 Empl Comp PolPracProc	17	0	0	0	0	0
777 Process Payroll	104	136	207	14	-192	0
779 Adm Retirement Pgm	75	65	65	48	28	0
785 Plan Emp Trng & Dev	404	85	-247	-181	-493	0
788 Conduct Empl Training	0	75	0	-142	-76	0
789 Attend Training	310	274	86	-1,020	-342	0
797 Attend Safety Training	4	0	0	0	2	0
805 Mg BU & Oth Lbr Agrmnt	0	59	0	0	0	0
807 Co-wide Empl Commun	175	103	26	-98	0	0
815 Dev Adm Acctg Pol Proc	17,484	14,093	4,619	-3,974	-5,272	0
817 Maint Fixed Asset Rcds	-1,383	-1,433	-1,217	-877	-776	0
818 Maint G/L & Stat Info	-387	-6,872	-5,689	-11,139	-21,374	0
819 Adm Tax Return & Reports	329	200	-77	-38	0	0
826 Manage Financing	47	38	0	-80	-175	0
835 Fin Rpts/StatInfo-Int	864	-126	-119	-614	-620	0
836 Fin Rpts/StatInfo-Ext	976	1,578	-2,792	-20,024	-25,674	0
840 Adm Oth Procur Pgm-Misc	0	-163	-9	0	0	0
842 Order Mat Eq Sup & Svcs	115	114	84	97	11	0
843 Proc Invoices Oth Pmt	449	167	104	70	0	0
891 Maint Exist Comp App	604	-3,718	-5	-160	0	0
965 Prov Records Mgt Svcs	0	0	4	1	0	0
Total PAA	**309,885**	**324,421**	**340,605**	**339,226**	**346,860**	**389,266**
PAC Corp Accounting						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	460	0	262
701 Dev & Mg Forecasts	959	1,419	695	11,333	3,326	1,771
735 Rate Case Filings	0	0	5,242	17,426	3,613	9,181

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
738 Othr PUC Reg Filings	137	0	0	0	0	0
755 Maint Rel-BOD	0	0	0	583	64	0
761 Audits-External	831	629	816	1,717	1,607	3,574
780 AdmBen Oth than Flex Ret	27	0	0	0	0	0
788 Conduct Empl Training	0	30	0	0	0	0
789 Attend Training	301	128	514	31	1,050	0
795 Mg Safety Pgm & Trng	0	0	0	0	127	0
815 Dev Adm Acctg Pol Proc	1,370	2,129	1,654	1,603	732	1,574
816 Perf Fuel Accounting	11,682	10,706	12,771	10,245	10,224	15,739
817 Maint Fixed Asset Rcds	0	60	0	107	0	0
818 Maint G/L & Stat Info	162,957	168,780	147,978	173,027	210,214	219,431
819 Adm Tax Return & Reports	82	121	0	0	0	0
826 Manage Financing	288	911	1,060	151	870	0
835 Fin Rpts/StatInfo-Int	5,629	7,540	7,716	7,843	5,348	7,706
836 Fin Rpts/StatInfo-Ext	25,325	30,842	93,658	38,244	39,155	36,856
891 Maint Exist Comp App	3,212	17,360	30	0	0	0
965 Prov Records Mgt Svcs	27	0	0	0	0	0
155 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	91	0	0
701 Dev & Mg Forecasts	224	133	0	-1,869	-424	0
735 Rate Case Filings	0	0	-303	-1,219	-29	0
738 Othr PUC Reg Filings	46	0	0	0	0	0
755 Maint Rel-BOD	0	0	0	-73	-12	0
761 Audits-External	169	48	91	-105	-177	0
780 AdmBen Oth than Flex Ret	0	0	0	0	0	0
789 Attend Training	95	14	75	-5	-9	0
795 Mg Safety Pgm & Trng	0	0	0	0	23	0
815 Dev Adm Acctg Pol Proc	451	411	229	293	96	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
816 Perf Fuel Accounting	-500	-1,126	-1,629	-1,158	-1,104	0
817 Maint Fixed Asset Rcds	0	9	0	5	0	0
818 Maint G/L & Stat Info	12,320	-4,265	-6,025	2,408	-2,443	0
819 Adm Tax Return & Reports	29	-12	0	0	0	0
826 Manage Financing	64	151	91	-4	-1	0
835 Fin Rpts/StatInfo-Int	-150	-664	-869	-926	-470	0
836 Fin Rpts/StatInfo-Ext	658	-1,116	-7,950	-1,170	-1,997	0
891 Maint Exist Comp App	800	562	0	0	0	0
965 Prov Records Mgt Svcs	9	0	0	0	0	0
Total PAC	**227,042**	**234,801**	**255,843**	**259,038**	**269,783**	**296,094**
PAD Cost Accounting						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	194
700 Dev & Adm Business Plans	0	40	0	0	0	0
701 Dev & Mg Forecasts	982	344	782	398	1,541	1,081
720 Improve Bus Processes	150	0	0	0	0	0
723 Mg Incent & Recog Pgm	82	0	0	0	0	0
735 Rate Case Filings	0	0	1,101	11,518	61	0
760 Audits-Internal	318	667	80	0	0	0
765 Empl Pol Prac Proc	221	0	0	119	0	0
767 Recruit PolPracProc	300	243	40	179	0	0
776 Ben Plan PolPracProc	318	202	0	0	0	0
777 Process Payroll	117,326	110,074	123,965	141,725	151,112	133,272
778 Adm Flexible Ben Pgm	225	0	354	0	122	7,108
779 Adm Retirement Pgm	75	0	0	0	0	0
780 AdmBen Oth than Flex Ret	262	0	0	0	0	0
785 Plan Emp Trng & Dev	1,217	1,320	1,183	1,592	3,244	2,579
788 Conduct Empl Training	0	5,087	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
789 Attend Training	760	512	120	0	0	1,748
805 Mg BU & Oth Lbr Agrmnt	0	243	0	0	0	0
815 Dev Adm Acctg Pol Proc	5,270	647	2,734	358	0	0
817 Maint Fixed Asset Rcds	0	0	0	190	0	0
818 Maint G/L & Stat Info	2,022	0	160	0	912	0
836 Fin Rpts/StatInfo-Ext	0	0	4,442	1,073	0	0
840 Adm Oth Procur Pgm-Misc	19,454	15,452	37,651	28,549	18,199	11,799
842 Order Mat Eq Sup & Svcs	187	0	0	0	0	0
843 Proc Invoices Oth Pmt	178,862	163,111	179,954	186,504	186,806	205,488
844 Prep Contr-Svcs & Mat	187	0	0	0	0	0
877 Cmply Sld&HazWste OilRel	0	0	281	0	0	0
891 Maint Exist Comp App	7,885	79,940	0	0	0	0
155 HECO						
701 Dev & Mg Forecasts	28	-91	-13	1	23	0
720 Improve Bus Processes	0	0	0	0	0	0
723 Mg Incent & Recog Pgm	-12	0	0	0	0	0
735 Rate Case Filings	0	0	-41	145	6	0
760 Audits-Internal	-2	-59	-2	0	0	0
765 Empl Pol Prac Proc	-12	0	0	-2	0	0
767 Recruit PolPracProc	-13	-26	-2	6	0	0
776 Ben Plan PolPracProc	-33	-18	0	0	0	0
777 Process Payroll	-11,018	-14,515	-11,126	-12,892	-12,074	0
778 Adm Flexible Ben Pgm	-7	0	1	0	12	0
779 Adm Retirement Pgm	-1	0	0	0	0	0
780 AdmBen Oth than Flex Ret	-3	0	0	0	0	0
785 Plan Emp Trng & Dev	-4	-59	17	16	109	0
788 Conduct Empl Training	0	-733	0	0	0	0
789 Attend Training	-38	-4	-5	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
805 Mg BU & Oth Lbr Agrmnt	0	-23	0	0	0	0
815 Dev Adm Acctg Pol Proc	24	-43	-25	8	0	0
817 Maint Fixed Asset Rcds	0	0	0	-22	0	0
818 Maint G/L & Stat Info	-6	0	14	0	19	0
836 Fin Rpts/StatInfo-Ext	0	0	-662	-198	0	0
840 Adm Oth Procur Pgm-Misc	-997	-798	-2,408	-2,057	-712	0
842 Order Mat Eq Sup & Svcs	-1	0	0	0	0	0
843 Proc Invoices Oth Pmt	-21,246	-22,586	-21,168	-26,453	-21,314	0
844 Prep Contr-Svcs & Mat	-15	0	0	0	0	0
877 Cmply Sld&HazWste OilRel	0	0	-5	0	0	0
891 Maint Exist Comp App	-220	-10,041	2	0	0	0
Total PAD	**302,527**	**328,884**	**317,424**	**330,760**	**328,066**	**363,268**
PAT Property Accounting						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	916	0	0
701 Dev & Mg Forecasts	374	121	521	2,247	1,842	2,412
735 Rate Case Filings	0	0	17,259	7,208	22,034	17,019
736 Pricing Anlys&Proposals	112	0	0	0	0	0
761 Audits-External	1,236	121	1,331	3,113	3,167	6,190
777 Process Payroll	0	0	0	0	0	2,326
778 Adm Flexible Ben Pgm	0	0	0	0	405	0
785 Plan Emp Trng & Dev	412	162	939	0	0	0
788 Conduct Empl Training	0	60	0	0	0	0
789 Attend Training	0	0	642	80	371	0
815 Dev Adm Acctg Pol Proc	2,733	0	2,647	47,257	48,273	52,112
817 Maint Fixed Asset Rcds	165,097	173,207	136,332	125,696	127,926	146,803
818 Maint G/L & Stat Info	58,593	48,411	46,498	45,067	38,713	35,014
819 Adm Tax Return & Reports	9,206	4,713	1,662	3,282	1,782	5,055

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
826 Manage Financing	0	30	0	0	0	0
827 Perf Econ/Fin Anlys	171	0	0	0	0	0
835 Fin Rpts/StatInfo-Int	203	1,141	215	537	127	2,329
836 Fin Rpts/StatInfo-Ext	4,410	24,492	46,633	46,171	13,531	16,339
890 Dev New Comp App	150	0	0	0	0	0
891 Maint Exist Comp App	219	13,778	0	0	0	0
155 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	-225	0	0
701 Dev & Mg Forecasts	-3	-10	-67	-269	-344	0
735 Rate Case Filings	0	0	-2,046	-951	-3,028	0
736 Pricing Anlys&Proposals	3	0	0	0	0	0
761 Audits-External	-101	-14	-210	-289	-261	0
778 Adm Flexible Ben Pgm	0	0	0	0	-54	0
785 Plan Emp Trng & Dev	-37	0	-202	0	0	0
788 Conduct Empl Training	0	-14	0	0	0	0
789 Attend Training	0	0	-159	-16	-78	0
815 Dev Adm Acctg Pol Proc	-159	0	-602	-11,366	-9,553	0
817 Maint Fixed Asset Rcds	5,232	199	223	6,355	7,228	0
818 Maint G/L & Stat Info	9,840	9,534	9,644	10,130	11,129	0
819 Adm Tax Return & Reports	-221	-758	-323	-359	-144	0
826 Manage Financing	0	-4	0	0	0	0
827 Perf Econ/Fin Anlys	43	0	0	0	0	0
835 Fin Rpts/StatInfo-Int	15	-69	4	-61	15	0
836 Fin Rpts/StatInfo-Ext	-177	-1,866	-9,085	-12,344	-2,578	0
890 Dev New Comp App	-8	0	0	0	0	0
891 Maint Exist Comp App	-13	-1,412	0	0	0	0
Total PAT	**257,330**	**271,821**	**251,854**	**272,179**	**260,503**	**285,601**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PBA Admin-ED Engr						
150 HECO						
745 Maint Rel-Leg & Govt Ag	0	0	0	125	79	0
796 Prov & Mg Fire Protect	0	54	0	0	0	0
155 HECO						
745 Maint Rel-Leg & Govt Ag	0	0	0	-9	-10	0
796 Prov & Mg Fire Protect	0	5	0	0	0	0
Total PBA	**0**	**59**	**0**	**116**	**69**	**0**
PBE T&D Engineering						
150 HECO						
711 Adm & Impl IRP Pgm-Base	0	528	3,870	412	0	0
796 Prov & Mg Fire Protect	0	109	0	16	0	0
155 HECO						
711 Adm & Impl IRP Pgm-Base	0	-30	67	25	0	0
796 Prov & Mg Fire Protect	0	2	0	2	0	0
Total PBE	**0**	**609**	**3,937**	**455**	**0**	**0**
PBO Transmission Plng						
150 HECO						
711 Adm & Impl IRP Pgm-Base	45	0	0	0	0	0
155 HECO						
711 Adm & Impl IRP Pgm-Base	10	0	0	0	0	0
Total PBO	**55**	**0**	**0**	**0**	**0**	**0**
PBP Project Mgt Division						
150 HECO						
723 Mg Incent & Recog Pgm	36	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	372	499	151	0	0	0
878 Cmply Sld&HazWste NonOil	0	0	0	-278	0	0
155 HECO						
723 Mg Incent & Recog Pgm	-2	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	-15	-55	21	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
878 Cmply Sld&HazWste NonOil	0	0	0	34	0	0
Total PBP	**392**	**445**	**173**	**-243**	**0**	**0**
PBS Distribution Plng						
150 HECO						
700 Dev & Adm Business Plans	43	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	170	0	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	1	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	8	0	0	0	0	0
Total PBS	**222**	**0**	**0**	**0**	**0**	**0**
PBT Structural						
150 HECO						
796 Prov & Mg Fire Protect	13	0	0	0	0	0
926 Manage Property	8,076	10,167	6,414	6,179	1,151	0
927 Sell/Dispose Prop	0	1,941	44	0	0	0
928 Process Easements	25	0	66	0	2,336	0
930 Mg Const & Reconfig Fac	0	0	1,500	0	0	0
931 Care for Bldgs & Grnds	123	0	0	0	0	0
155 HECO						
926 Manage Property	-391	1,100	50	1,394	-74	0
927 Sell/Dispose Prop	0	269	14	0	0	0
928 Process Easements	-3	0	2	0	-9	0
930 Mg Const & Reconfig Fac	0	0	38	0	0	0
931 Care for Bldgs & Grnds	-1	0	0	0	0	0
Total PBT	**7,842**	**13,476**	**8,129**	**7,574**	**3,404**	**0**
PBY Substn, Protect & Tel						
150 HECO						
711 Adm & Impl IRP Pgm-Base	0	0	1,613	0	0	0
796 Prov & Mg Fire Protect	0	274	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
895 Op & Maint Mainframe	0	5,473	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	0	0	4,314	0
931 Care for Bldgs & Grnds	0	1,692	0	0	0	0
155 HECO						
711 Adm & Impl IRP Pgm-Base	0	0	-22	0	0	0
796 Prov & Mg Fire Protect	0	56	0	0	0	0
895 Op & Maint Mainframe	0	322	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	0	0	-1,849	0
931 Care for Bldgs & Grnds	0	114	0	0	0	0
Total PBY	**0**	**7,930**	**1,590**	**0**	**2,466**	**0**
PBZ T&D Technical Svcs						
150 HECO						
745 Maint Rel-Leg & Govt Ag	503	0	0	0	0	0
796 Prov & Mg Fire Protect	0	136	0	0	0	0
817 Maint Fixed Asset Rcds	0	5,399	0	0	0	0
155 HECO						
745 Maint Rel-Leg & Govt Ag	191	0	0	0	0	0
796 Prov & Mg Fire Protect	0	36	0	0	0	0
817 Maint Fixed Asset Rcds	0	61	0	0	0	0
Total PBZ	**695**	**5,633**	**0**	**0**	**0**	**0**
PDA Admin-C&M						
150 HECO						
745 Maint Rel-Leg & Govt Ag	436	1,156	816	0	0	0
155 HECO						
745 Maint Rel-Leg & Govt Ag	74	239	93	0	0	0
Total PDA	**510**	**1,395**	**909**	**0**	**0**	**0**
PDD Training Section						
150 Ward Avenue Bldg						
933 Prov&Mg Svcs-Security	0	0	52	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 Ward Avenue Bldg						
933 Prov&Mg Svcs-Security	0	0	-5	0	0	0
Total PDD	**0**	**0**	**46**	**0**	**0**	**0**
PDH Customer Demand						
150 HECO						
931 Care for Bldgs & Grnds	297	0	0	0	0	0
155 HECO						
931 Care for Bldgs & Grnds	-15	0	0	0	0	0
Total PDH	**283**	**0**	**0**	**0**	**0**	**0**
PDJ West Overhead						
150 HECO						
931 Care for Bldgs & Grnds	97	0	0	0	0	0
933 Prov&Mg Svcs-Security	0	0	138	0	0	0
155 HECO						
931 Care for Bldgs & Grnds	0	0	0	0	0	0
933 Prov&Mg Svcs-Security	0	0	38	0	0	0
Total PDJ	**97**	**0**	**175**	**0**	**0**	**0**
PDK East Overhead-Koolau						
150 King Street Bldg						
931 Care for Bldgs & Grnds	0	0	0	0	309	0
155 King Street Bldg						
931 Care for Bldgs & Grnds	0	0	0	0	8	0
Total PDK	**0**	**0**	**0**	**0**	**318**	**0**
PDL East Overhead-Ward						
150 King Street Bldg						
931 Care for Bldgs & Grnds	0	0	327	0	582	0
933 Prov&Mg Svcs-Security	0	0	17	0	0	0
155 King Street Bldg						
931 Care for Bldgs & Grnds	0	0	190	0	167	0
933 Prov&Mg Svcs-Security	0	0	-4	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PDL	**0**	**0**	**529**	**0**	**749**	**0**
PEA Admin-Info Tech&Svcs						
150 HECO						
775 Empl Comp PolPracProc	0	0	487	0	0	0
797 Attend Safety Training	0	0	70	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	2,375	0	0	0	0
155 HECO						
775 Empl Comp PolPracProc	0	0	-93	0	0	0
797 Attend Safety Training	0	0	-13	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-115	0	0	0	0
Total PEA	**0**	**2,260**	**450**	**0**	**0**	**0**
PEB Admin-Off Svcs						
150 HECO						
701 Dev & Mg Forecasts	1,329	0	0	0	0	0
721 Dev Meas & Anlz Perf	37	0	0	0	0	0
767 Recruit PolPracProc	12,168	0	0	0	0	0
785 Plan Emp Trng & Dev	3,831	2,607	0	0	0	0
788 Conduct Empl Training	0	136	0	0	0	0
789 Attend Training	150	0	0	0	0	0
844 Prep Contr-Svcs & Mat	300	0	0	0	0	0
895 Op & Maint Mainframe	331	0	0	0	0	0
896 Op & Maint LAN	97,644	16,108	0	0	0	0
901 Prov IT Cust Assist	2,546	0	0	0	0	0
965 Prov Records Mgt Svcs	48,405	24,902	0	0	0	0
966 Handle & Deliver Mail	1,455	8,397	0	0	0	0
967 Prov Printing Svcs	2,527	7,862	0	0	0	0
155 HECO						
701 Dev & Mg Forecasts	232	0	0	0	0	0
721 Dev Meas & Anlz Perf	4	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
767 Recruit PolPracProc	2,244	0	0	0	0	0
785 Plan Emp Trng & Dev	867	99	0	0	0	0
788 Conduct Empl Training	0	-5	0	0	0	0
789 Attend Training	32	0	0	0	0	0
844 Prep Contr-Svcs & Mat	72	0	0	0	0	0
895 Op & Maint Mainframe	-60	0	0	0	0	0
896 Op & Maint LAN	2,328	1,406	0	0	0	0
901 Prov IT Cust Assist	615	0	0	0	0	0
965 Prov Records Mgt Svcs	7,116	305	0	0	0	0
966 Handle & Deliver Mail	153	-215	0	0	0	0
967 Prov Printing Svcs	476	-184	0	0	0	0
Total PEB	**184,802**	**61,419**	**0**	**0**	**0**	**0**
PEC Customer Care						
150 HECO						
112 Dev & Mng Cust Rel	0	0	0	153	255	3,935
600 Resp to Cus Inq/Svc Req	0	121	0	14,967	12,318	0
735 Rate Case Filings	0	0	0	368	242	0
788 Conduct Empl Training	0	147	0	0	0	689
805 Mg BU & Oth Lbr Agrmnt	0	594	0	0	0	0
891 Maint Exist Comp App	0	124	0	0	0	0
896 Op & Maint LAN	0	0	0	0	796	0
897 Op & Maint Desktop-Bus	0	0	0	0	1,033	0
931 Care for Bldgs & Grnds	0	0	0	981	0	0
965 Prov Records Mgt Svcs	0	76,995	125,440	150,863	146,861	151,269
966 Handle & Deliver Mail	0	355	0	0	0	0
967 Prov Printing Svcs	0	19,675	6,994	0	14,215	0
968 Prov Word Process Svcs	0	0	0	0	13,029	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
112 Dev & Mng Cust Rel	0	0	0	20	38	0
600 Resp to Cus Inq/Svc Req	0	40	0	1,604	280	0
735 Rate Case Filings	0	0	0	-2	34	0
788 Conduct Empl Training	0	-5	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-68	0	0	0	0
891 Maint Exist Comp App	0	-17	0	0	0	0
896 Op & Maint LAN	0	0	0	0	122	0
897 Op & Maint Desktop-Bus	0	0	0	0	26	0
931 Care for Bldgs & Grnds	0	0	0	-113	0	0
965 Prov Records Mgt Svcs	0	-2,011	-7,416	-17,464	-15,686	0
966 Handle & Deliver Mail	0	-12	0	0	0	0
967 Prov Printing Svcs	0	-447	-236	0	-444	0
968 Prov Word Process Svcs	0	0	0	0	619	0
Total PEC	**0**	**95,491**	**124,781**	**151,378**	**173,737**	**155,892**
PED Development Svcs						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	242	0	9,186	13,003	0
752 Maint Rel-Media	0	0	181	0	0	0
765 Empl Pol Prac Proc	0	30	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	3,035	0	0	0	0
840 Adm Oth Procur Pgm-Misc	0	91	393	0	0	0
891 Maint Exist Comp App	0	0	0	0	1,464	77,857
896 Op & Maint LAN	0	20	0	0	0	0
897 Op & Maint Desktop-Bus	0	0	0	0	64	0
965 Prov Records Mgt Svcs	0	0	4,214	0	0	0
155 HECO						
600 Resp to Cus Inq/Svc Req	0	-37	0	496	956	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
752 Maint Rel-Media	0	0	32	0	0	0
765 Empl Pol Prac Proc	0	2	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-414	0	0	0	0
840 Adm Oth Procur Pgm-Misc	0	-13	14	0	0	0
891 Maint Exist Comp App	0	0	0	0	-265	0
896 Op & Maint LAN	0	3	0	0	0	0
897 Op & Maint Desktop-Bus	0	0	0	0	-3	0
965 Prov Records Mgt Svcs	0	0	-740	0	0	0
Total PED	**0**	**2,958**	**4,095**	**9,682**	**15,218**	**77,857**
PEI Infrastruct & Oper						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	102	325	0	0	0
735 Rate Case Filings	0	0	45	0	0	3,635
738 Othr PUC Reg Filings	0	0	0	23	0	0
765 Empl Pol Prac Proc	0	0	11	0	0	0
767 Recruit PolPracProc	0	0	45	0	0	0
789 Attend Training	0	91	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	0	101	0	0	0
891 Maint Exist Comp App	0	0	0	0	0	8,401
896 Op & Maint LAN	0	0	0	0	64	0
897 Op & Maint Desktop-Bus	0	0	0	0	72	0
909 Reg Compliance-Telecom	0	30	257	0	0	0
931 Care for Bldgs & Grnds	6,580	4,741	20,773	1,680	0	0
967 Prov Printing Svcs	0	0	22,250	42,012	27,964	45,649
968 Prov Word Process Svcs	0	0	29,377	42,214	25,860	45,649
155 HECO						
600 Resp to Cus Inq/Svc Req	0	21	22	0	0	0
735 Rate Case Filings	0	0	1	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
738 Othr PUC Reg Filings	0	0	0	-2	0	0
765 Empl Pol Prac Proc	0	0	0	0	0	0
767 Recruit PolPracProc	0	0	-4	0	0	0
789 Attend Training	0	-19	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	0	-10	0	0	0
896 Op & Maint LAN	0	0	0	0	19	0
897 Op & Maint Desktop-Bus	0	0	0	0	3	0
900 Op Desktop OffcTelecom	2	0	0	0	0	0
909 Reg Compliance-Telecom	0	-1	-30	0	0	0
931 Care for Bldgs & Grnds	519	-182	-1,201	-134	0	0
967 Prov Printing Svcs	0	0	517	-1,461	-1,966	0
968 Prov Word Process Svcs	0	0	-2,608	-1,777	664	0
Total PEI	**7,101**	**4,782**	**69,868**	**82,556**	**52,679**	**103,334**
PEM Mailing Services						
150 HECO						
600 Resp to Cus Inq/Svc Req	128	0	0	0	0	0
701 Dev & Mg Forecasts	131	0	0	0	0	0
723 Mg Incent & Recog Pgm	171	0	0	0	0	0
736 Pricing Anlys&Proposals	0	87	0	0	0	0
767 Recruit PolPracProc	349	0	0	0	0	0
788 Conduct Empl Training	0	0	0	181	0	0
797 Attend Safety Training	388	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	161	0	0	0	0
965 Prov Records Mgt Svcs	1,134	0	0	0	0	0
966 Handle & Deliver Mail	291,370	310,995	311,130	364,745	298,265	294,306
967 Prov Printing Svcs	0	0	702	0	0	0
155 HECO						
600 Resp to Cus Inq/Svc Req	-3	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
701 Dev & Mg Forecasts	-2	0	0	0	0	0
723 Mg Incent & Recog Pgm	-76	0	0	0	0	0
736 Pricing Anlys&Proposals	0	-47	0	0	0	0
767 Recruit PolPracProc	-5	0	0	0	0	0
788 Conduct Empl Training	0	0	0	-53	0	0
797 Attend Safety Training	-126	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-50	0	0	0	0
965 Prov Records Mgt Svcs	-26	0	0	0	0	0
966 Handle & Deliver Mail	-101,008	-138,604	-133,639	-176,834	-117,243	0
967 Prov Printing Svcs	0	0	-312	0	0	0
Total PEM	**192,424**	**172,542**	**177,882**	**188,039**	**181,022**	**294,306**
PEP Project & Bus Mgt						
150 HECO						
112 Dev & Mng Cust Rel	24,090	3,886	272	153	0	0
720 Improve Bus Processes	20	0	0	0	0	0
735 Rate Case Filings	0	0	0	2,638	0	0
745 Maint Rel-Leg & Govt Ag	11,813	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	450	0	0	0	0
896 Op & Maint LAN	0	0	0	0	60	0
909 Reg Compliance-Telecom	123	3,382	3,142	0	0	0
933 Prov&Mg Svcs-Security	0	0	60	0	-60	0
155 HECO						
112 Dev & Mng Cust Rel	3,826	268	30	16	0	0
720 Improve Bus Processes	10	0	0	0	0	0
735 Rate Case Filings	0	0	0	41	0	0
745 Maint Rel-Leg & Govt Ag	1,004	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	8	0	0	0	0
896 Op & Maint LAN	0	0	0	0	4	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
907 Mg E&D Sys-Telecom	0	0	0	0	0	0
909 Reg Compliance-Telecom	17	584	519	0	0	0
933 Prov&Mg Svcs-Security	0	0	4	0	-4	0
Total PEP	**40,903**	**8,578**	**4,027**	**2,848**	**0**	**0**
PER Publish & Recds Svcs						
150 HECO						
700 Dev & Adm Business Plans	0	0	246	0	0	0
701 Dev & Mg Forecasts	13,439	79	0	0	0	0
765 Empl Pol Prac Proc	1,028	22	0	0	0	0
777 Process Payroll	130	68	0	0	0	0
789 Attend Training	22	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	45	0	0	0	0
842 Order Mat Eq Sup & Svcs	845	1,502	0	0	0	0
843 Proc Invoices Oth Pmt	2,145	45	0	0	0	0
844 Prep Contr-Svcs & Mat	5,179	147	0	0	0	0
965 Prov Records Mgt Svcs	74,764	18,973	0	0	0	0
967 Prov Printing Svcs	146,941	135,536	18,864	0	0	0
968 Prov Word Process Svcs	41,341	40,434	10,352	0	0	0
155 HECO						
700 Dev & Adm Business Plans	0	0	-23	0	0	0
701 Dev & Mg Forecasts	5	2	0	0	0	0
765 Empl Pol Prac Proc	138	-2	0	0	0	0
777 Process Payroll	1	2	0	0	0	0
789 Attend Training	0	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	1	0	0	0	0
842 Order Mat Eq Sup & Svcs	10	0	0	0	0	0
843 Proc Invoices Oth Pmt	5	1	0	0	0	0
844 Prep Contr-Svcs & Mat	-14	3	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
965 Prov Records Mgt Svcs	-3,412	-662	0	0	0	0
967 Prov Printing Svcs	4,074	191	38	0	0	0
968 Prov Word Process Svcs	-761	635	-1	0	0	0
Total PER	**285,881**	**197,020**	**29,477**	**0**	**0**	**0**
PFA Admin-WFS & Dev						
150 HECO						
700 Dev & Adm Business Plans	10,422	11,681	3,105	2,256	1,711	3,658
701 Dev & Mg Forecasts	9,704	8,465	7,116	11,382	10,721	8,029
720 Improve Bus Processes	0	0	391	1,076	255	0
721 Dev Meas & Anlz Perf	16,119	12,471	8,483	6,837	2,751	2,077
722 Org Dev Strat	110	6,019	3,069	6,478	454	0
723 Mg Incent & Recog Pgm	171	0	0	0	0	0
735 Rate Case Filings	0	0	1,653	1,162	11,505	2,658
745 Maint Rel-Leg & Govt Ag	545	371	1,723	2,104	3,843	0
749 Maint Rel-Ind Assoc	13,273	9,272	6,291	6,277	425	6,149
760 Audits-Internal	0	0	0	407	845	0
761 Audits-External	0	1,948	0	75	208	0
765 Empl Pol Prac Proc	118,643	132,516	108,052	118,343	111,784	100,634
766 Maint Employee Recds	62,768	58,970	60,743	55,428	39,120	31,402
767 Recruit PolPracProc	12,652	14,323	38,556	9,612	7,548	1,060
775 Empl Comp PolPracProc	1,831	379	373	422	324	100
777 Process Payroll	0	2,495	2,566	2,117	1,598	2,786
785 Plan Emp Trng & Dev	23,479	18,990	16,730	16,985	13,935	16,816
787 Dev Empl Training	0	0	0	0	113	0
789 Attend Training	2,178	474	334	629	1,127	0
797 Attend Safety Training	41	0	605	106	275	66
805 Mg BU & Oth Lbr Agrmnt	189	60	0	0	0	0
807 Co-wide Empl Commun	545	0	3,450	2,195	5,462	1,161

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
836 Fin Rpts/StatInfo-Ext	0	0	5,605	136	0	0
843 Proc Invoices Oth Pmt	0	604	934	368	580	557
891 Maint Exist Comp App	6,401	29,917	257	0	0	0
896 Op & Maint LAN	0	0	166	0	0	0
965 Prov Records Mgt Svcs	0	0	46	611	78	0
155 HECO						
700 Dev & Adm Business Plans	-1,811	-1,694	-463	-252	-206	0
701 Dev & Mg Forecasts	-874	-1,532	-1,492	-2,248	-2,329	0
720 Improve Bus Processes	0	0	-35	-169	-51	0
721 Dev Meas & Anlz Perf	-932	-1,104	-761	-1,026	50	0
722 Org Dev Strat	-7	-557	-379	-1,111	-50	0
723 Mg Incent & Recog Pgm	-2	0	0	0	0	0
735 Rate Case Filings	0	0	-320	-194	-2,618	0
745 Maint Rel-Leg & Govt Ag	-96	-48	-277	-431	-760	0
749 Maint Rel-Ind Assoc	-2,610	-1,302	-750	-944	-82	0
760 Audits-Internal	0	0	0	35	0	0
761 Audits-External	0	-177	0	7	-21	0
765 Empl Pol Prac Proc	-15,497	-15,501	-15,260	-20,880	-21,369	0
766 Maint Employee Recds	-3,554	-3,105	-1,377	824	1,097	0
767 Recruit PolPracProc	-1,032	-1,383	-4,117	-1,724	-1,266	0
775 Empl Comp PolPracProc	-100	-17	-23	-19	-11	0
777 Process Payroll	0	-582	-595	-524	-390	0
785 Plan Emp Trng & Dev	-4,878	-3,793	-1,954	-2,860	-2,630	0
787 Dev Empl Training	0	0	0	0	-16	0
789 Attend Training	-350	-36	-74	-62	-235	0
797 Attend Safety Training	-2	0	-82	-20	-36	0
805 Mg BU & Oth Lbr Agrmnt	-23	-5	0	0	0	0
807 Co-wide Empl Commun	-183	0	-787	-383	-1,168	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
836 Fin Rpts/StatInfo-Ext	0	0	-366	5	0	0
843 Proc Invoices Oth Pmt	0	-141	-216	-92	-141	0
891 Maint Exist Comp App	-188	-774	-39	0	0	0
896 Op & Maint LAN	0	0	27	0	0	0
965 Prov Records Mgt Svcs	0	0	-11	-149	-8	0
Total PFA	**246,931**	**277,206**	**240,898**	**212,790**	**182,426**	**177,152**
PFB Employee Benefits						
150 HECO						
723 Mg Incent & Recog Pgm	55	294	0	166	159	116
765 Empl Pol Prac Proc	3,836	514	418	2,727	835	3,509
775 Empl Comp PolPracProc	0	4,737	10,360	8,261	0	9,451
807 Co-wide Empl Commun	0	99	98	113	0	0
836 Fin Rpts/StatInfo-Ext	0	0	5,867	11,376	1,663	9,780
933 Prov&Mg Svcs-Security	41	0	0	0	0	0
155 HECO						
723 Mg Incent & Recog Pgm	-6	-56	0	-35	-30	0
765 Empl Pol Prac Proc	-182	-46	-5	-102	50	0
775 Empl Comp PolPracProc	0	-789	-1,984	-1,618	0	0
807 Co-wide Empl Commun	0	-1	4	-24	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-653	-779	-86	0
933 Prov&Mg Svcs-Security	5	0	0	0	0	0
Total PFB	**3,748**	**4,751**	**14,105**	**20,084**	**2,590**	**22,855**
PFC Compensation						
150 HECO						
700 Dev & Adm Business Plans	2,523	283	662	450	1,792	131
701 Dev & Mg Forecasts	76	91	0	100	0	0
720 Improve Bus Processes	606	81	0	0	0	0
721 Dev Meas & Anlz Perf	5,668	1,253	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
723 Mg Incent & Recog Pgm	327,091	322,726	425,878	435,276	-315,657	2,359
735 Rate Case Filings	0	0	0	0	304	0
749 Maint Rel-Ind Assoc	2,720	1,577	2,247	3,118	59	652
765 Empl Pol Prac Proc	1,131	0	45	0	0	0
766 Maint Employee Recds	108	0	0	0	0	0
767 Recruit PolPracProc	0	362	251	0	0	0
775 Empl Comp PolPracProc	86,879	95,942	108,271	104,025	70,078	64,338
776 Ben Plan PolPracProc	2,434	81	105	552	1,706	590
777 Process Payroll	49	0	0	0	478	0
778 Adm Flexible Ben Pgm	2,140	0	1,536	2,220	1,012	44,628
779 Adm Retirement Pgm	493	0	0	0	6,939	0
780 AdmBen Oth than Flex Ret	43	1,102	0	0	923	0
785 Plan Emp Trng & Dev	1,002	0	0	0	0	0
789 Attend Training	1,354	604	1,360	1,519	1,645	250
797 Attend Safety Training	87	30	95	31	0	116
805 Mg BU & Oth Lbr Agrmnt	273	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	0	0	64	0
843 Proc Invoices Oth Pmt	49	0	0	0	0	0
965 Prov Records Mgt Svcs	163	0	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	26	-14	-128	-29	-27	0
701 Dev & Mg Forecasts	3	-1	0	-10	0	0
720 Improve Bus Processes	-20	-5	0	0	0	0
721 Dev Meas & Anlz Perf	-157	-4	0	0	0	0
723 Mg Incent & Recog Pgm	-287	-406	-420	-81	-26	0
735 Rate Case Filings	0	0	0	0	-56	0
749 Maint Rel-Ind Assoc	2	-37	-130	-600	1	0
765 Empl Pol Prac Proc	45	0	3	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
766 Maint Employee Recds	4	0	0	0	0	0
767 Recruit PolPracProc	0	-43	-56	0	0	0
775 Empl Comp PolPracProc	299	-11,327	-10,667	-4,109	-4,035	0
776 Ben Plan PolPracProc	36	-1	-12	36	-246	0
777 Process Payroll	2	0	0	0	-96	0
778 Adm Flexible Ben Pgm	87	0	-147	-188	-85	0
779 Adm Retirement Pgm	24	0	0	0	-1,365	0
780 AdmBen Oth than Flex Ret	2	-14	0	0	-172	0
785 Plan Emp Trng & Dev	-44	0	0	0	0	0
789 Attend Training	33	24	-177	-141	63	0
797 Attend Safety Training	-2	0	-10	0	0	0
805 Mg BU & Oth Lbr Agrmnt	-1	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	0	0	-12	0
843 Proc Invoices Oth Pmt	2	0	0	0	0	0
965 Prov Records Mgt Svcs	7	0	0	0	0	0
Total PFC	**434,946**	**412,305**	**528,706**	**542,168**	**-236,712**	**113,064**
PFD Client Svcs & Consult						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	242	0	0	1,719	0
700 Dev & Adm Business Plans	10,331	6,807	1,746	4,710	8,183	6,051
701 Dev & Mg Forecasts	6,359	3,341	1,904	10,432	8,733	8,739
720 Improve Bus Processes	959	846	2,745	2,554	223	820
721 Dev Meas & Anlz Perf	6,070	5,164	5,397	10,163	11,202	15,564
722 Org Dev Strat	31,138	24,510	9,198	21,332	8,590	22,975
735 Rate Case Filings	0	0	211	1,572	4,396	2,228
738 Othr PUC Reg Filings	0	0	0	0	139	0
749 Maint Rel-Ind Assoc	1,824	4,364	2,356	2,611	1,501	4,762
760 Audits-Internal	0	0	0	77	971	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
761	Audits-External	0	0	0	0	387	0
765	Empl Pol Prac Proc	41,449	25,988	29,606	30,897	21,102	39,999
766	Maint Employee Recds	3,349	1,860	2,360	12,228	6,492	8,266
767	Recruit PolPracProc	278,954	282,167	405,928	449,262	431,334	359,003
777	Process Payroll	829	292	70	611	788	0
797	Attend Safety Training	136	0	574	160	172	1,904
807	Co-wide Empl Commun	386	0	0	540	415	0
835	Fin Rpts/StatInfo-Int	0	0	0	47	0	0
836	Fin Rpts/StatInfo-Ext	0	0	861	215	0	0
842	Order Mat Eq Sup & Svcs	22	6	0	225	326	0
843	Proc Invoices Oth Pmt	354	141	1,348	2,937	2,799	4,342
891	Maint Exist Comp App	155	280	0	0	0	0
965	Prov Records Mgt Svcs	0	0	0	818	36	0
155	HECO						
600	Resp to Cus Inq/Svc Req	0	-30	0	0	-168	0
700	Dev & Adm Business Plans	-255	-262	-398	-692	-1,054	0
701	Dev & Mg Forecasts	-655	-419	-280	-1,066	-1,052	0
720	Improve Bus Processes	3	-55	-143	-256	-17	0
721	Dev Meas & Anlz Perf	-483	-313	-352	-854	-670	0
722	Org Dev Strat	-1,606	-1,520	-1,031	-2,114	-592	0
735	Rate Case Filings	0	0	-19	-213	-506	0
738	Othr PUC Reg Filings	0	0	0	0	-27	0
749	Maint Rel-Ind Assoc	38	-460	-125	-276	-145	0
760	Audits-Internal	0	0	0	-1	-170	0
761	Audits-External	0	0	0	0	-1	0
765	Empl Pol Prac Proc	-3,066	-2,050	-3,306	-2,463	-1,839	0
766	Maint Employee Recds	-345	-202	-326	-943	-951	0
767	Recruit PolPracProc	-22,172	-29,171	-59,520	-53,673	-48,939	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
777 Process Payroll	-93	-27	-5	-79	-199	0
797 Attend Safety Training	-10	0	-86	-20	-19	0
807 Co-wide Empl Commun	-48	0	0	-63	-58	0
835 Fin Rpts/StatInfo-Int	0	0	0	-4	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-48	-15	0	0
842 Order Mat Eq Sup & Svcs	-2	-2	0	-27	-42	0
843 Proc Invoices Oth Pmt	-43	-16	-250	-467	-379	0
891 Maint Exist Comp App	-2	-32	0	0	0	0
965 Prov Records Mgt Svcs	0	0	0	-147	-7	0
Total PFD	**353,577**	**321,447**	**398,417**	**488,020**	**452,674**	**474,652**
PFI Org Development						
150 HECO						
700 Dev & Adm Business Plans	3,160	7,023	2,348	3,207	6,386	3,282
701 Dev & Mg Forecasts	2,947	5,687	4,520	12,224	7,357	10,032
720 Improve Bus Processes	0	0	80	357	0	3,228
721 Dev Meas & Anlz Perf	9,913	5,095	5,155	6,473	6,959	8,060
722 Org Dev Strat	128,008	131,875	115,054	117,486	128,182	84,214
735 Rate Case Filings	0	0	1,761	159	766	2,825
749 Maint Rel-Ind Assoc	0	687	80	1,031	1,522	499
765 Empl Pol Prac Proc	1,085	2,313	1,120	1,002	0	393
766 Maint Employee Recds	1,485	1,202	771	979	289	0
767 Recruit PolPracProc	1,490	23,401	75,276	1,916	1,778	0
775 Empl Comp PolPracProc	0	1,354	0	0	0	0
777 Process Payroll	1,094	457	104	285	380	372
785 Plan Emp Trng & Dev	6,234	454	9,677	15,480	11,890	14,092
789 Attend Training	822	0	1,765	3,247	2,765	2,572
797 Attend Safety Training	37	0	407	31	124	23
805 Mg BU & Oth Lbr Agrmnt	0	40	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
807 Co-wide Empl Commun	4,238	2,705	2,971	4,418	3,592	4,050
836 Fin Rpts/StatInfo-Ext	0	0	1,565	100	0	0
842 Order Mat Eq Sup & Svcs	0	28	0	0	241	0
843 Proc Invoices Oth Pmt	0	316	377	818	661	557
844 Prep Contr-Svcs & Mat	0	0	0	0	531	0
891 Maint Exist Comp App	43	2,387	0	0	0	0
933 Prov&Mg Svcs-Security	281	0	0	0	0	0
965 Prov Records Mgt Svcs	*0*	*0*	*0*	*564*	*681*	*0*
155 HECO						
700 Dev & Adm Business Plans	-158	-451	-165	-17	-34	0
701 Dev & Mg Forecasts	-402	-583	-349	-1,186	-1,230	0
720 Improve Bus Processes	0	0	-14	-42	0	0
721 Dev Meas & Anlz Perf	-1,358	-471	-776	-420	-256	0
722 Org Dev Strat	-11,968	-9,329	-8,291	-3,316	-271	0
735 Rate Case Filings	0	0	-214	94	-74	0
749 Maint Rel-Ind Assoc	0	-71	-12	-41	34	0
765 Empl Pol Prac Proc	-156	-238	-100	-191	0	0
766 Maint Employee Recds	-190	-105	-84	37	-59	0
767 Recruit PolPracProc	-166	-2,411	-7,841	-157	-99	0
775 Empl Comp PolPracProc	0	-70	0	0	0	0
777 Process Payroll	-168	-56	-7	-56	-74	0
785 Plan Emp Trng & Dev	-616	-45	-543	-601	11	0
789 Attend Training	-49	0	33	-304	-18	0
797 Attend Safety Training	-6	0	-23	0	-5	0
805 Mg BU & Oth Lbr Agrmnt	0	-2	0	0	0	0
807 Co-wide Empl Commun	-577	-347	-294	-748	-593	0
836 Fin Rpts/StatInfo-Ext	0	0	-229	3	0	0
842 Order Mat Eq Sup & Svcs	0	-3	0	0	-47	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
843 Proc Invoices Oth Pmt	0	-23	-31	-172	-131	0
844 Prep Contr-Svcs & Mat	0	0	0	0	-101	0
891 Maint Exist Comp App	-5	-164	0	0	0	0
933 Prov&Mg Svcs-Security	-30	0	0	0	0	0
965 Prov Records Mgt Svcs	0	0	0	-72	-150	0
Total PFI	**144,986**	**170,657**	**204,092**	**162,589**	**171,007**	**134,199**
PFS Corporate Safety						
150 HECO						
723 Mg Incent & Recog Pgm	3,475	3,237	882	649	3,397	0
750 Maint Rel- Cust	12,060	15,722	11,055	13,202	10,985	0
891 Maint Exist Comp App	0	76	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	0	0	166	0
931 Care for Bldgs & Grnds	0	0	370	0	0	0
933 Prov&Mg Svcs-Security	137	544	272	0	0	0
155 HECO						
723 Mg Incent & Recog Pgm	409	257	-43	95	-10	0
750 Maint Rel- Cust	542	-771	-491	85	620	0
891 Maint Exist Comp App	0	5	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	0	0	13	0
931 Care for Bldgs & Grnds	0	0	62	0	0	0
933 Prov&Mg Svcs-Security	-13	-139	-31	0	0	0
Total PFS	**16,610**	**18,931**	**12,076**	**14,032**	**15,171**	**0**
PHA Admin-Facilities						
150 HECO						
700 Dev & Adm Business Plans	5,086	4,467	3,567	5,366	6,394	0
701 Dev & Mg Forecasts	4,836	2,397	1,242	8,527	3,765	4,876
720 Improve Bus Processes	237	0	0	0	0	0
721 Dev Meas & Anlz Perf	102	0	49	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
745 Maint Rel-Leg & Govt Ag	189	0	49	0	57	0
747 Mg Environ Initiatives	237	0	0	0	0	0
749 Maint Rel-Ind Assoc	0	0	587	0	454	0
767 Recruit PolPracProc	1,870	198	0	0	0	0
777 Process Payroll	683	406	267	581	457	1,115
785 Plan Emp Trng & Dev	2,131	1,286	807	3,866	510	0
788 Conduct Empl Training	0	45	0	0	0	0
789 Attend Training	0	142	171	166	0	0
807 Co-wide Empl Commun	521	0	0	0	0	0
843 Proc Invoices Oth Pmt	238	23	12	154	433	1,115
891 Maint Exist Comp App	0	45	0	0	0	0
927 Sell/Dispose Prop	0	1,457	0	0	0	0
930 Mg Const & Reconfig Fac	13,045	19,879	18,456	17,253	22,335	24,134
931 Care for Bldgs & Grnds	40,916	48,390	42,635	22,629	31,307	27,167
933 Prov&Mg Svcs-Security	18,166	20,958	30,397	47,377	38,202	46,774
934 Prov&Mg Svcs-Custodial	8,673	11,299	10,208	10,678	12,782	12,144
155 HECO						
700 Dev & Adm Business Plans	80	33	93	-25	-227	0
701 Dev & Mg Forecasts	-196	-91	-95	-276	-393	0
720 Improve Bus Processes	5	0	0	0	0	0
721 Dev Meas & Anlz Perf	-1	0	2	0	0	0
745 Maint Rel-Leg & Govt Ag	0	0	-6	0	-3	0
747 Mg Environ Initiatives	3	0	0	0	0	0
749 Maint Rel-Ind Assoc	0	0	38	0	-8	0
767 Recruit PolPracProc	19	-2	0	0	0	0
777 Process Payroll	-37	-24	-20	-25	-49	0
785 Plan Emp Trng & Dev	14	-7	16	-206	-26	0
788 Conduct Empl Training	0	-3	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
789 Attend Training	0	-4	11	-9	0	0
807 Co-wide Empl Commun	1	0	0	0	0	0
843 Proc Invoices Oth Pmt	-14	-2	-1	-8	-37	0
891 Maint Exist Comp App	0	-3	0	0	0	0
930 Mg Const & Reconfig Fac	364	219	672	187	-778	0
931 Care for Bldgs & Grnds	-1,488	-2,350	-1,815	-485	-2,521	0
933 Prov&Mg Svcs-Security	433	217	-242	-1,156	-2,622	0
934 Prov&Mg Svcs-Custodial	187	118	320	101	-472	0
Total PHA	**96,300**	**109,094**	**107,417**	**114,695**	**109,559**	**117,324**
PHB Facilities Operation						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	230	132	0	0
700 Dev & Adm Business Plans	976	657	302	452	96	0
701 Dev & Mg Forecasts	436	0	0	75	0	0
720 Improve Bus Processes	0	324	-99	0	0	0
747 Mg Environ Initiatives	58	0	0	0	0	0
749 Maint Rel-Ind Assoc	0	0	0	75	0	0
750 Maint Rel- Cust	0	62	0	0	277	0
765 Empl Pol Prac Proc	0	0	0	53	0	0
777 Process Payroll	0	0	0	937	1,451	0
785 Plan Emp Trng & Dev	0	0	408	0	0	0
788 Conduct Empl Training	0	249	0	0	0	0
789 Attend Training	1,438	48	1,020	1,029	285	0
797 Attend Safety Training	5,126	5,862	7,429	7,404	5,891	27,386
843 Proc Invoices Oth Pmt	0	0	0	33	0	0
900 Op Desktop OffcTelecom	13	0	0	0	28	0
926 Manage Property	73	1,594	1,122	317	0	0
930 Mg Const & Reconfig Fac	0	0	3,353	874	1,005	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
931 Care for Bldgs & Grnds	21,561	81,205	87,296	100,876	101,685	103,968
933 Prov&Mg Svcs-Security	0	1,217	3,868	2,112	3,163	0
934 Prov&Mg Svcs-Custodial	460,740	433,066	417,054	426,857	415,619	438,512
966 Handle & Deliver Mail	0	50	51	158	0	0
155 HECO						
600 Resp to Cus Inq/Svc Req	0	0	61	-7	2	0
700 Dev & Adm Business Plans	-150	-82	24	84	12	0
701 Dev & Mg Forecasts	39	0	0	8	0	0
720 Improve Bus Processes	0	45	8	0	0	0
747 Mg Environ Initiatives	5	0	0	0	0	0
749 Maint Rel-Ind Assoc	0	0	0	8	0	0
750 Maint Rel- Cust	0	11	0	0	52	0
765 Empl Pol Prac Proc	0	0	0	10	0	0
777 Process Payroll	0	0	0	-399	-651	0
785 Plan Emp Trng & Dev	0	0	95	0	0	0
788 Conduct Empl Training	0	-90	0	0	0	0
789 Attend Training	-374	1	-391	-10	64	0
797 Attend Safety Training	-1,263	-473	-787	-436	-314	0
843 Proc Invoices Oth Pmt	0	0	0	-17	0	0
900 Op Desktop OffcTelecom	4	0	0	0	-7	0
926 Manage Property	6	230	-425	-48	0	0
927 Sell/Dispose Prop	0	31	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	1,086	-15	129	0
931 Care for Bldgs & Grnds	-4,518	7,697	13,914	12,535	5,499	0
933 Prov&Mg Svcs-Security	0	160	955	-18	-646	0
934 Prov&Mg Svcs-Custodial	-148,169	-116,111	-98,750	-117,229	-117,654	0
966 Handle & Deliver Mail	0	10	10	22	0	0
Total PHB	**336,002**	**415,764**	**437,833**	**435,871**	**415,985**	**569,867**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PHF Facilities Planning						
150 HECO						
700 Dev & Adm Business Plans	6,137	617	2,436	14,519	22,253	1,967
701 Dev & Mg Forecasts	11,448	0	6,703	15,813	19,307	16,344
720 Improve Bus Processes	0	211	0	0	0	0
721 Dev Meas & Anlz Perf	0	0	0	239	0	0
723 Mg Incent & Recog Pgm	27	0	0	0	0	0
747 Mg Environ Initiatives	412	0	0	0	0	0
777 Process Payroll	3,169	2,364	2,396	2,524	3,323	1,996
785 Plan Emp Trng & Dev	1,572	0	90	0	122	333
788 Conduct Empl Training	0	0	688	0	0	2,361
789 Attend Training	96	505	755	3,929	800	985
797 Attend Safety Training	59	60	660	80	0	1,541
842 Order Mat Eq Sup & Svcs	0	0	0	0	0	10,190
843 Proc Invoices Oth Pmt	14,061	17,113	13,437	11,866	16,090	7,379
844 Prep Contr-Svcs & Mat	0	0	0	0	0	2,466
891 Maint Exist Comp App	27	0	0	0	0	0
926 Manage Property	0	863	2,106	1,349	1,759	0
928 Process Easements	0	0	441	0	0	0
930 Mg Const & Reconfig Fac	31,888	3,526	5,926	11,872	2,535	112,904
931 Care for Bldgs & Grnds	102,350	117,677	187,894	200,862	249,178	156,073
933 Prov&Mg Svcs-Security	110	0	358	1,165	6,739	0
934 Prov&Mg Svcs-Custodial	75	60	0	0	9,613	0
155 HECO						
700 Dev & Adm Business Plans	98	31	-191	-3,230	-7,021	0
701 Dev & Mg Forecasts	268	0	-313	-4,236	-5,442	0
720 Improve Bus Processes	0	3	0	0	0	0
721 Dev Meas & Anlz Perf	0	0	0	-65	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
723 Mg Incent & Recog Pgm	2	0	0	0	0	0
747 Mg Environ Initiatives	15	0	0	0	0	0
777 Process Payroll	-65	-72	-45	-563	-742	0
785 Plan Emp Trng & Dev	59	0	2	0	-23	0
788 Conduct Empl Training	0	0	-107	0	0	0
789 Attend Training	0	-72	30	-513	54	0
797 Attend Safety Training	1	0	23	-17	0	0
843 Proc Invoices Oth Pmt	-85	-243	-284	-1,849	-3,830	0
891 Maint Exist Comp App	4	0	0	0	0	0
926 Manage Property	0	259	543	-52	-73	0
928 Process Easements	0	0	-63	0	0	0
930 Mg Const & Reconfig Fac	2,827	-29	451	923	-59	0
931 Care for Bldgs & Grnds	16,287	10,963	-4,657	-10,921	-7,173	0
933 Prov&Mg Svcs-Security	18	0	-4	-286	-1,333	0
934 Prov&Mg Svcs-Custodial	3	3	0	0	-1,892	0
Total PHF	**190,863**	**153,840**	**219,273**	**243,409**	**304,181**	**314,540**
PHS Security						
150 HECO						
700 Dev & Adm Business Plans	1,615	267	1,200	2,049	284	0
720 Improve Bus Processes	112	0	0	0	0	0
721 Dev Meas & Anlz Perf	37	0	0	0	0	0
749 Maint Rel-Ind Assoc	1,198	647	3,048	3,822	0	0
767 Recruit PolPracProc	0	0	0	0	159	0
777 Process Payroll	0	162	0	0	0	0
785 Plan Emp Trng & Dev	768	542	0	0	243	0
789 Attend Training	75	849	0	318	440	0
797 Attend Safety Training	0	566	562	362	41	0
843 Proc Invoices Oth Pmt	0	444	699	982	695	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
926 Manage Property	0	1,049	186	0	243	0
930 Mg Const & Reconfig Fac	0	0	40	318	0	984
931 Care for Bldgs & Grnds	1,598	2,882	3,170	267	579	0
933 Prov&Mg Svcs-Security	639,138	619,893	450,443	759,628	470,780	426,366
934 Prov&Mg Svcs-Custodial	0	0	20	468	81	0
155 HECO						
700 Dev & Adm Business Plans	-199	-49	-259	-536	3	0
720 Improve Bus Processes	-24	0	0	0	0	0
721 Dev Meas & Anlz Perf	-8	0	0	0	0	0
749 Maint Rel-Ind Assoc	-81	-173	-37	-573	0	0
767 Recruit PolPracProc	0	0	0	0	-14	0
777 Process Payroll	0	-43	0	0	0	0
785 Plan Emp Trng & Dev	-90	-41	0	0	-53	0
789 Attend Training	10	0	0	-35	-100	0
797 Attend Safety Training	0	-11	-130	-141	-3	0
843 Proc Invoices Oth Pmt	0	-74	-86	-278	56	0
926 Manage Property	0	-234	-51	0	25	0
930 Mg Const & Reconfig Fac	0	0	-9	-73	0	0
931 Care for Bldgs & Grnds	-105	-425	-892	-73	-80	0
933 Prov&Mg Svcs-Security	-57,498	-65,215	-96,480	-253,907	-115,364	0
934 Prov&Mg Svcs-Custodial	0	0	-5	-214	10	0
Total PHS	**586,548**	**561,035**	**361,420**	**512,383**	**358,025**	**427,350**
PIA Admin-PS Services						
150 HECO						
122 Eval & Neg New Cont	2,259	0	0	787	725	0
711 Adm & Impl IRP Pgm-Base	0	0	214	761	807	0
720 Improve Bus Processes	0	0	48	0	0	0
745 Maint Rel-Leg & Govt Ag	0	0	0	0	435	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
836 Fin Rpts/StatInfo-Ext	0	0	0	203	1,988	0
155 HECO						
122 Eval & Neg New Cont	-3	0	0	-129	-202	0
711 Adm & Impl IRP Pgm-Base	0	0	-20	-138	-238	0
720 Improve Bus Processes	0	0	-6	0	0	0
745 Maint Rel-Leg & Govt Ag	0	0	0	0	-126	0
836 Fin Rpts/StatInfo-Ext	0	0	0	-32	-613	0
Total PIA	**2,256**	**0**	**235**	**1,452**	**2,776**	**0**
PIB Admin-PS O&M						
150 HECO						
817 Maint Fixed Asset Rcds	0	0	6,237	198	0	0
819 Adm Tax Return & Reports	0	0	1,130	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	1,670	2,741	0	6,026
878 Cmply Sld&HazWste NonOil	0	0	0	211	0	0
155 HECO						
817 Maint Fixed Asset Rcds	0	0	-727	-37	0	0
819 Adm Tax Return & Reports	0	0	-132	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-204	-524	0	0
878 Cmply Sld&HazWste NonOil	0	0	0	45	0	0
Total PIB	**0**	**0**	**7,974**	**2,633**	**0**	**6,026**
PIT Traveling Maintenance						
150 Ward Avenue Bldg						
933 Prov&Mg Svcs-Security	0	0	0	68	0	0
155 Ward Avenue Bldg						
933 Prov&Mg Svcs-Security	0	0	0	-32	0	0
Total PIT	**0**	**0**	**0**	**37**	**0**	**0**
PIW Waiau Stn Oper						
150 HECO						
711 Adm & Impl IRP Pgm-Base	0	213	132	1,048	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
711 Adm & Impl IRP Pgm-Base	0	35	19	839	0	0
Total PIW	**0**	**248**	**151**	**1,887**	**0**	**0**
PIX Waiau Stn Maint						
150 HECO						
711 Adm & Impl IRP Pgm-Base	0	0	0	35	0	0
876 Comply Ongo-Wstewtr	0	0	3,759	10,839	1,530	0
931 Care for Bldgs & Grnds	0	0	0	0	437	0
155 HECO						
711 Adm & Impl IRP Pgm-Base	0	0	0	11	0	0
876 Comply Ongo-Wstewtr	0	0	1,091	1,359	-50	0
931 Care for Bldgs & Grnds	0	0	0	0	58	0
Total PIX	**0**	**0**	**4,850**	**12,244**	**1,975**	**0**
PJA Admin-Environ						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	820
700 Dev & Adm Business Plans	0	0	0	145	862	0
701 Dev & Mg Forecasts	28,809	6,035	1,357	2,992	2,741	0
711 Adm & Impl IRP Pgm-Base	0	482	85	77	0	0
713 Adm & Impl DSM Pgm-Base	0	0	0	130	0	0
720 Improve Bus Processes	22,121	23,926	22,374	16,639	14,309	54,513
745 Maint Rel-Leg & Govt Ag	10,013	4,594	8,581	18,210	6,568	0
747 Mg Environ Initiatives	47	554	509	302	2,894	0
749 Maint Rel-Ind Assoc	762	247	477	83	192	0
755 Maint Rel-BOD	686	1,467	159	158	0	0
760 Audits-Internal	379	0	0	0	1,143	0
765 Empl Pol Prac Proc	47	4,253	0	184	0	0
766 Maint Employee Recds	276	85	870	551	748	0
767 Recruit PolPracProc	0	0	1,381	0	0	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
777	Process Payroll	5,357	5,663	6,383	7,573	6,663	13,084
785	Plan Emp Trng & Dev	1,498	260	2,627	3,790	2,700	0
787	Dev Empl Training	166	3,684	6,439	3,692	5,765	0
788	Conduct Empl Training	116	332	0	0	0	0
789	Attend Training	5,767	7,173	14,145	4,826	4,731	0
797	Attend Safety Training	0	0	244	0	0	0
805	Mg BU & Oth Lbr Agrmnt	0	149	0	0	0	0
807	Co-wide Empl Commun	521	0	0	0	0	0
825	Manage Cash	2,940	1,832	1,524	923	2,424	0
826	Manage Financing	142	0	0	0	0	0
836	Fin Rpts/StatInfo-Ext	379	356	10,405	1,201	1,614	0
842	Order Mat Eq Sup & Svcs	1,343	1,161	1,105	399	346	0
843	Proc Invoices Oth Pmt	5,529	3,931	3,798	2,196	121	0
844	Prep Contr-Svcs & Mat	11,414	8,921	4,880	1,815	1,489	0
860	Deter Envir Permit	0	495	0	0	0	0
867	Apply Land Use Permits	798	1,198	1,069	24	505	0
876	Comply Ongo-Wstewtr	0	0	0	0	136	0
877	Cmply Sld&HazWste OilRel	14,383	14,408	10,855	1,382	3,013	0
878	Cmply Sld&HazWste NonOil	0	0	30	7,958	4,654	17,541
885	Envir Rule/Reg Making	0	0	196	0	0	0
891	Maint Exist Comp App	0	285	0	0	0	0
928	Process Easements	0	22	46	0	0	0
960	Mg Svc & Process Doc	0	544	0	0	0	0
965	Prov Records Mgt Svcs	0	0	0	0	2,289	0
966	Handle & Deliver Mail	3,646	3,765	2,841	2,576	2,322	0
967	Prov Printing Svcs	0	0	851	0	0	0
968	Prov Word Process Svcs	0	0	716	0	0	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
700 Dev & Adm Business Plans	0	0	0	-15	-111	0
701 Dev & Mg Forecasts	-4,193	-750	-116	-170	-399	0
711 Adm & Impl IRP Pgm-Base	0	-50	-7	-10	0	0
713 Adm & Impl DSM Pgm-Base	0	0	0	-15	0	0
720 Improve Bus Processes	584	-2,613	-1,616	-3,133	-2,098	0
745 Maint Rel-Leg & Govt Ag	-3	-594	-594	-201	-1,046	0
747 Mg Environ Initiatives	4	-44	-81	-31	-642	0
749 Maint Rel-Ind Assoc	5	-44	-28	-8	-23	0
755 Maint Rel-BOD	-27	-318	-4	-34	0	0
760 Audits-Internal	18	0	0	0	136	0
765 Empl Pol Prac Proc	2	-401	0	-40	0	0
766 Maint Employee Recds	-34	-10	-104	-59	-87	0
767 Recruit PolPracProc	0	0	10	0	0	0
777 Process Payroll	-256	-317	-502	-1,433	-1,162	0
785 Plan Emp Trng & Dev	14	-8	-356	-750	-560	0
787 Dev Empl Training	-1	147	53	659	689	0
788 Conduct Empl Training	22	20	0	0	0	0
789 Attend Training	12	-1,424	86	-71	-436	0
797 Attend Safety Training	0	0	-4	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	4	0	0	0	0
807 Co-wide Empl Commun	10	0	0	0	0	0
825 Manage Cash	-209	-100	-89	-180	-346	0
826 Manage Financing	9	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	20	-3	311	-28	23	0
842 Order Mat Eq Sup & Svcs	-67	-16	-42	-85	-67	0
843 Proc Invoices Oth Pmt	191	-279	-312	-248	-24	0
844 Prep Contr-Svcs & Mat	-1,331	-1,179	-554	-190	-178	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
860 Deter Envir Permit	0	-111	0	0	0	0
867 Apply Land Use Permits	-45	-71	-64	-3	-59	0
876 Comply Ongo-Wstewtr	0	0	0	0	16	0
877 Cmply Sld&HazWste OilRel	2,065	248	-286	-14	257	0
878 Cmply Sld&HazWste NonOil	0	0	-3	1,100	346	0
885 Envir Rule/Reg Making	0	0	-7	0	0	0
891 Maint Exist Comp App	0	-33	0	0	0	0
928 Process Easements	0	-2	-7	0	0	0
960 Mg Svc & Process Doc	0	-108	0	0	0	0
965 Prov Records Mgt Svcs	0	0	0	0	140	0
966 Handle & Deliver Mail	-201	-206	-251	-432	-364	0
967 Prov Printing Svcs	0	0	4	0	0	0
968 Prov Word Process Svcs	0	0	4	0	0	0
Total PJA	***113,729***	***87,560***	***99,386***	***72,439***	***62,232***	***85,958***
PJB Air Quality & Noise						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	624
700 Dev & Adm Business Plans	359	0	0	1,368	0	0
701 Dev & Mg Forecasts	3,619	1,074	240	684	0	0
711 Adm & Impl IRP Pgm-Base	0	104	420	0	0	0
713 Adm & Impl DSM Pgm-Base	0	0	0	1,440	261	0
720 Improve Bus Processes	14,891	15,438	300	504	0	0
745 Maint Rel-Leg & Govt Ag	815	0	0	0	0	0
747 Mg Environ Initiatives	4,477	764	0	5,148	0	33,631
749 Maint Rel-Ind Assoc	701	658	1,186	3,237	4,697	0
760 Audits-Internal	293	0	0	0	0	0
785 Plan Emp Trng & Dev	1,174	485	0	72	223	0
787 Dev Empl Training	0	0	30	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
789 Attend Training	1,394	2,583	6,334	12,738	6,422	0
805 Mg BU & Oth Lbr Agrmnt	0	225	0	0	0	0
807 Co-wide Empl Commun	65	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	130	0	1,381	0	0	0
843 Proc Invoices Oth Pmt	0	35	60	180	298	0
844 Prep Contr-Svcs & Mat	326	208	0	0	633	0
885 Envir Rule/Reg Making	0	208	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	135	0	0	0
155 HECO						
700 Dev & Adm Business Plans	107	0	0	245	0	0
701 Dev & Mg Forecasts	382	140	94	76	0	0
711 Adm & Impl IRP Pgm-Base	0	16	153	0	0	0
713 Adm & Impl DSM Pgm-Base	0	0	0	298	-14	0
720 Improve Bus Processes	4,966	2,286	91	92	0	0
745 Maint Rel-Leg & Govt Ag	225	0	0	0	0	0
747 Mg Environ Initiatives	24	24	0	-70	0	0
749 Maint Rel-Ind Assoc	41	0	256	186	218	0
760 Audits-Internal	96	0	0	0	0	0
785 Plan Emp Trng & Dev	351	0	0	5	6	0
787 Dev Empl Training	0	0	12	0	0	0
789 Attend Training	27	-275	1,181	-285	-1,175	0
805 Mg BU & Oth Lbr Agrmnt	0	-18	0	0	0	0
807 Co-wide Empl Commun	20	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	45	0	243	0	0	0
843 Proc Invoices Oth Pmt	0	1	14	11	17	0
844 Prep Contr-Svcs & Mat	61	1	0	0	36	0
930 Mg Const & Reconfig Fac	0	0	27	0	0	0
Total PJB	**34,588**	**23,957**	**12,158**	**25,929**	**11,621**	**34,255**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PJC Chemistry						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	1,483
701 Dev & Mg Forecasts	946	959	1,131	0	0	0
720 Improve Bus Processes	3,409	3,790	558	0	0	17,854
745 Maint Rel-Leg & Govt Ag	28	122	0	0	0	0
749 Maint Rel-Ind Assoc	1,308	0	0	0	0	0
765 Empl Pol Prac Proc	0	0	635	0	0	0
777 Process Payroll	1,419	1,522	3,152	0	0	0
785 Plan Emp Trng & Dev	237	61	31	0	0	0
789 Attend Training	7,834	5,464	12,225	12,633	2,725	0
795 Mg Safety Pgm & Trng	139	0	0	0	0	0
797 Attend Safety Training	2,519	2,374	2,811	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	76	0	0	0	0
842 Order Mat Eq Sup & Svcs	1,099	1,339	5,414	0	0	0
843 Proc Invoices Oth Pmt	515	76	3,671	90	0	0
844 Prep Contr-Svcs & Mat	83	0	0	0	0	0
867 Apply Land Use Permits	56	0	0	0	0	0
877 Cmply Sld&HazWste OilRel	0	228	0	0	0	0
891 Maint Exist Comp App	0	137	0	0	0	0
931 Care for Bldgs & Grnds	417	152	31	0	0	0
155 HECO						
701 Dev & Mg Forecasts	129	14	-54	0	0	0
720 Improve Bus Processes	40	-152	-28	0	0	0
745 Maint Rel-Leg & Govt Ag	-1	-1	0	0	0	0
749 Maint Rel-Ind Assoc	38	0	0	0	0	0
765 Empl Pol Prac Proc	0	0	-47	0	0	0
777 Process Payroll	145	49	-188	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
785 Plan Emp Trng & Dev	16	5	3	0	0	0
789 Attend Training	270	-120	-1,211	-756	-7	0
795 Mg Safety Pgm & Trng	11	0	0	0	0	0
797 Attend Safety Training	19	-98	-259	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-2	0	0	0	0
842 Order Mat Eq Sup & Svcs	133	40	-151	0	0	0
843 Proc Invoices Oth Pmt	73	3	-160	3	0	0
844 Prep Contr-Svcs & Mat	3	0	0	0	0	0
867 Apply Land Use Permits	4	0	0	0	0	0
877 Cmply Sld&HazWste OilRel	0	-24	0	0	0	0
891 Maint Exist Comp App	0	5	0	0	0	0
931 Care for Bldgs & Grnds	18	0	-2	0	0	0
Total PJC	**20,908**	**16,021**	**27,561**	**11,970**	**2,718**	**19,337**
PJW Water & Haz Mat						
150 HECO						
112 Dev & Mng Cust Rel	0	133	25	0	0	0
122 Eval & Neg New Cont	0	0	0	243	34	0
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	2,998
700 Dev & Adm Business Plans	145	0	0	0	0	0
701 Dev & Mg Forecasts	1,555	3,502	779	1,960	1,562	0
720 Improve Bus Processes	4,050	13,134	7,140	5,361	6,167	0
738 Othr PUC Reg Filings	0	58	99	0	0	0
745 Maint Rel-Leg & Govt Ag	3,865	3,236	5,036	1,547	1,732	0
747 Mg Environ Initiatives	0	0	182	0	0	0
749 Maint Rel-Ind Assoc	622	739	572	356	629	0
755 Maint Rel-BOD	456	498	381	333	68	0
760 Audits-Internal	123	149	522	518	358	0
767 Recruit PolPracProc	29	1,062	1,996	32	171	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
775 Empl Comp PolPracProc	0	0	0	0	17	0
777 Process Payroll	72	75	133	0	0	0
785 Plan Emp Trng & Dev	1,743	1,743	2,394	2,631	3,915	0
787 Dev Empl Training	926	913	2,932	3,741	20,023	0
788 Conduct Empl Training	152	274	66	615	392	0
789 Attend Training	9,620	10,421	16,145	17,268	9,015	0
797 Attend Safety Training	101	133	61	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	50	0	0	0	0
836 Fin Rpts/StatInfo-Ext	347	573	2,642	843	666	0
842 Order Mat Eq Sup & Svcs	0	0	46	0	0	0
843 Proc Invoices Oth Pmt	362	589	530	648	175	0
844 Prep Contr-Svcs & Mat	854	1,892	596	640	324	0
860 Deter Envir Permit	0	17	0	0	0	0
867 Apply Land Use Permits	0	0	33	0	0	0
876 Comply Ongo-Wstewtr	0	0	323	0	0	0
877 Cmply Sld&HazWste OilRel	6,495	1,195	1,242	4,603	239	56,745
878 Cmply Sld&HazWste NonOil	14	813	1,118	2,008	2,934	0
885 Envir Rule/Reg Making	0	0	83	3,556	11,006	0
925 Purchase Real Property	35	0	0	0	0	0
928 Process Easements	0	149	1,209	32	478	0
930 Mg Const & Reconfig Fac	0	0	33	0	0	0
931 Care for Bldgs & Grnds	0	141	8	0	0	0
965 Prov Records Mgt Svcs	0	0	0	0	1,286	0
155 HECO						
112 Dev & Mng Cust Rel	0	20	5	0	0	0
122 Eval & Neg New Cont	0	0	0	49	7	0
700 Dev & Adm Business Plans	38	0	0	0	0	0
701 Dev & Mg Forecasts	127	338	83	393	309	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
720	Improve Bus Processes	866	-129	525	1,233	1,230	0
738	Othr PUC Reg Filings	0	7	19	0	0	0
745	Maint Rel-Leg & Govt Ag	672	276	698	237	35	0
747	Mg Environ Initiatives	0	0	-30	0	0	0
749	Maint Rel-Ind Assoc	41	33	3	47	74	0
755	Maint Rel-BOD	128	61	77	93	13	0
760	Audits-Internal	35	17	97	117	85	0
767	Recruit PolPracProc	10	205	385	8	49	0
775	Empl Comp PolPracProc	0	0	0	0	4	0
777	Process Payroll	20	11	26	0	0	0
785	Plan Emp Trng & Dev	436	233	475	576	735	0
787	Dev Empl Training	253	-136	-88	939	3,306	0
788	Conduct Empl Training	-4	13	8	67	34	0
789	Attend Training	-271	-1,183	-918	433	75	0
797	Attend Safety Training	2	21	3	0	0	0
805	Mg BU & Oth Lbr Agrmnt	0	-14	0	0	0	0
836	Fin Rpts/StatInfo-Ext	96	51	501	205	145	0
842	Order Mat Eq Sup & Svcs	0	0	-4	0	0	0
843	Proc Invoices Oth Pmt	100	108	101	179	35	0
844	Prep Contr-Svcs & Mat	161	249	105	167	76	0
860	Deter Envir Permit	0	5	0	0	0	0
867	Apply Land Use Permits	0	0	7	0	0	0
876	Comply Ongo-Wstewtr	0	0	-10	0	0	0
877	Cmply Sld&HazWste OilRel	570	-56	60	787	6	0
878	Cmply Sld&HazWste NonOil	6	-153	-234	-270	-241	0
885	Envir Rule/Reg Making	0	0	17	763	1,816	0
925	Purchase Real Property	71	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
928 Process Easements	0	24	184	10	99	0
930 Mg Const & Reconfig Fac	0	0	1	0	0	0
931 Care for Bldgs & Grnds	0	23	2	0	0	0
965 Prov Records Mgt Svcs	0	0	0	0	250	0
Total PJW	**34,923**	**41,508**	**48,424**	**52,968**	**69,331**	**59,743**
PKB Admin-MgtAcc FinSvc						
150 HECO						
700 Dev & Adm Business Plans	25,119	31,416	27,946	21,856	24,066	22,884
701 Dev & Mg Forecasts	92,395	94,749	93,597	87,193	103,624	95,975
720 Improve Bus Processes	1,034	155	0	61	1,648	1,387
721 Dev Meas & Anlz Perf	2,119	1,755	895	275	3,676	2,775
735 Rate Case Filings	54	56	17,001	19,580	9,701	18,452
738 Othr PUC Reg Filings	0	1,138	1,044	485	1,600	0
739 PUC Cap Proj Filings	744	802	1,439	5,353	769	4,567
745 Maint Rel-Leg & Govt Ag	0	26	0	394	154	0
749 Maint Rel-Ind Assoc	418	0	0	0	0	0
755 Maint Rel-BOD	3,802	5,942	5,977	5,194	2,873	3,354
756 Maint Rel-Invest	1,187	4,614	2,759	3,553	4,962	4,140
760 Audits-Internal	345	1,293	113	61	308	0
761 Audits-External	25	0	0	0	0	0
765 Empl Pol Prac Proc	74	52	0	136	0	0
767 Recruit PolPracProc	0	1,422	1,580	3,709	231	0
775 Empl Comp PolPracProc	98	103	0	0	0	0
777 Process Payroll	975	1,061	1,044	1,815	2,010	2,229
779 Adm Retirement Pgm	0	28	0	0	0	0
785 Plan Emp Trng & Dev	4,915	2,339	3,367	2,875	2,023	4,397
787 Dev Empl Training	934	0	0	0	0	0
788 Conduct Empl Training	611	1,245	1,665	1,656	0	1,935

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
789 Attend Training	1,607	1,256	1,107	873	429	93
797 Attend Safety Training	196	74	625	115	62	58
805 Mg BU & Oth Lbr Agrmnt	0	5,975	0	0	0	0
807 Co-wide Empl Commun	637	462	318	455	540	93
815 Dev Adm Acctg Pol Proc	709	1,829	192	351	62	2,914
817 Maint Fixed Asset Rcds	986	0	0	0	0	0
818 Maint G/L & Stat Info	3,498	30	2,915	1,472	366	3,476
825 Manage Cash	4,255	4,708	8,420	7,436	14,047	10,695
826 Manage Financing	31,862	26,455	24,986	26,731	28,911	32,327
827 Perf Econ/Fin Anlys	6,454	6,596	4,895	2,103	7,106	7,077
835 Fin Rpts/StatInfo-Int	21,986	13,630	15,400	12,274	27,468	18,397
836 Fin Rpts/StatInfo-Ext	3,445	5,167	9,140	5,692	5,460	7,515
843 Proc Invoices Oth Pmt	49	0	0	24	0	0
891 Maint Exist Comp App	20,355	28,974	29,175	21,883	8,843	31,005
965 Prov Records Mgt Svcs	116	0	0	830	86	581
155 HECO						
700 Dev & Adm Business Plans	3,858	4,665	2,385	213	2,825	0
701 Dev & Mg Forecasts	-232	-950	-2,861	-1,924	337	0
720 Improve Bus Processes	74	47	0	4	-46	0
721 Dev Meas & Anlz Perf	352	329	72	0	-234	0
735 Rate Case Filings	3	-10	1,792	93	1,466	0
738 Othr PUC Reg Filings	0	383	123	0	297	0
739 PUC Cap Proj Filings	117	218	256	-234	117	0
745 Maint Rel-Leg & Govt Ag	0	1	0	-30	35	0
749 Maint Rel-Ind Assoc	31	0	0	0	0	0
755 Maint Rel-BOD	636	345	551	29	380	0
756 Maint Rel-Invest	184	891	359	-137	607	0
760 Audits-Internal	23	187	18	8	53	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
761 Audits-External	5	0	0	0	0	0
765 Empl Pol Prac Proc	20	0	0	8	0	0
767 Recruit PolPracProc	0	69	144	158	4	0
775 Empl Comp PolPracProc	5	9	0	0	0	0
777 Process Payroll	75	75	86	20	-3	0
779 Adm Retirement Pgm	0	-6	0	0	0	0
785 Plan Emp Trng & Dev	426	-133	338	-39	-96	0
787 Dev Empl Training	-66	0	0	0	0	0
788 Conduct Empl Training	-7	-192	-133	-166	0	0
789 Attend Training	318	218	74	-13	106	0
797 Attend Safety Training	-9	0	-17	1	2	0
805 Mg BU & Oth Lbr Agrmnt	0	346	0	0	0	0
807 Co-wide Empl Commun	35	63	26	-15	-12	0
815 Dev Adm Acctg Pol Proc	139	455	5	13	13	0
817 Maint Fixed Asset Rcds	-69	0	0	0	0	0
818 Maint G/L & Stat Info	-280	-5	-289	-135	-32	0
825 Manage Cash	659	1,227	1,066	131	1,674	0
826 Manage Financing	3,586	2,860	2,105	1,830	3,468	0
827 Perf Econ/Fin Anlys	1,151	1,314	625	92	1,174	0
835 Fin Rpts/StatInfo-Int	-1,978	-957	-1,439	-1,075	-1,948	0
836 Fin Rpts/StatInfo-Ext	539	667	622	58	411	0
843 Proc Invoices Oth Pmt	-2	0	0	-3	0	0
891 Maint Exist Comp App	-120	-3,591	-2,834	-1,637	796	0
965 Prov Records Mgt Svcs	8	0	0	-103	5	0
Total PKB	**240,485**	**251,880**	**258,675**	**231,582**	**262,423**	**276,326**
PKC Budgets						
150 HECO						
700 Dev & Adm Business Plans	37,922	45,949	19,697	30,041	17,238	44,693

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
701	Dev & Mg Forecasts	118,818	128,569	145,862	156,861	247,359	187,153
711	Adm & Impl IRP Pgm-Base	27	0	0	0	0	0
720	Improve Bus Processes	247	0	121	0	74	0
721	Dev Meas & Anlz Perf	42,804	31,619	16,876	10,458	2,139	7,985
723	Mg Incent & Recog Pgm	27	0	0	0	0	0
735	Rate Case Filings	2,766	2,507	18,604	17,166	25,024	16,395
736	Pricing Anlys&Proposals	0	60	0	0	0	0
738	Othr PUC Reg Filings	0	0	60	135	0	0
739	PUC Cap Proj Filings	45,152	46,538	45,489	44,880	45,394	45,972
749	Maint Rel-Ind Assoc	0	0	0	1,472	0	0
755	Maint Rel-BOD	11,203	13,364	19,156	12,729	6,446	24,898
756	Maint Rel-Invest	4,985	4,349	5,664	9,929	4,839	5,902
760	Audits-Internal	315	408	0	0	64	1,049
761	Audits-External	219	0	0	307	0	0
765	Empl Pol Prac Proc	0	0	121	45	294	0
767	Recruit PolPracProc	0	0	453	1,178	0	0
777	Process Payroll	0	0	15	0	0	0
785	Plan Emp Trng & Dev	342	91	227	189	917	1,031
787	Dev Empl Training	274	649	302	0	0	0
788	Conduct Empl Training	2,314	1,978	1,163	874	239	3,022
789	Attend Training	1,479	649	5,302	889	1,178	665
797	Attend Safety Training	507	60	861	123	113	74
805	Mg BU & Oth Lbr Agrmnt	0	30	0	0	0	0
807	Co-wide Empl Commun	55	0	0	0	0	0
815	Dev Adm Acctg Pol Proc	794	1,148	3,935	1,143	894	5,288
817	Maint Fixed Asset Rcds	1,424	0	0	0	0	0
818	Maint G/L & Stat Info	3,013	2,703	1,692	2,937	1,387	2,502

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
825 Manage Cash	575	151	363	123	435	262
826 Manage Financing	2,383	2,255	3,091	2,941	3,289	0
835 Fin Rpts/StatInfo-Int	64,052	57,282	52,311	62,055	58,843	95,653
836 Fin Rpts/StatInfo-Ext	3,177	7,550	26,572	7,632	6,362	9,399
890 Dev New Comp App	1,246	0	544	429	-307	13,444
891 Maint Exist Comp App	15,421	18,588	7,417	6,563	13,768	23,871
901 Prov IT Cust Assist	0	242	0	0	0	0
926 Manage Property	0	332	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	1,048	-506	-255	433	-1,128	0
701 Dev & Mg Forecasts	2,350	-1,913	-1,723	-5,155	-21,913	0
711 Adm & Impl IRP Pgm-Base	-1	0	0	0	0	0
720 Improve Bus Processes	-53	0	6	0	-22	0
721 Dev Meas & Anlz Perf	10,951	5,747	3,243	2,359	-334	0
723 Mg Incent & Recog Pgm	7	0	0	0	0	0
735 Rate Case Filings	409	90	1,229	1,284	-3,039	0
736 Pricing Anlys&Proposals	0	14	0	0	0	0
738 Othr PUC Reg Filings	0	0	13	-29	0	0
739 PUC Cap Proj Filings	1,380	-1,178	-483	135	-199	0
749 Maint Rel-Ind Assoc	0	0	0	-179	0	0
755 Maint Rel-BOD	164	-117	904	388	-31	0
756 Maint Rel-Invest	-103	-26	59	-365	-590	0
760 Audits-Internal	67	4	0	0	9	0
761 Audits-External	-17	0	0	90	0	0
765 Empl Pol Prac Proc	0	0	31	-10	-120	0
767 Recruit PolPracProc	0	0	88	-112	0	0
777 Process Payroll	0	0	3	0	0	0
785 Plan Emp Trng & Dev	55	1	25	40	-271	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
787 Dev Empl Training	75	3	-5	0	0	0
788 Conduct Empl Training	501	220	86	87	27	0
789 Attend Training	-15	51	251	-32	-131	0
797 Attend Safety Training	20	0	45	0	-17	0
805 Mg BU & Oth Lbr Agrmnt	0	-1	0	0	0	0
807 Co-wide Empl Commun	3	0	0	0	0	0
815 Dev Adm Acctg Pol Proc	193	225	846	200	65	0
817 Maint Fixed Asset Rcds	230	0	0	0	0	0
818 Maint G/L & Stat Info	348	138	90	152	-83	0
825 Manage Cash	44	13	43	16	-107	0
826 Manage Financing	37	186	256	-205	-906	0
835 Fin Rpts/StatInfo-Int	-82	-2,453	-1,434	-2,367	-5,215	0
836 Fin Rpts/StatInfo-Ext	485	644	2,789	239	-1,591	0
890 Dev New Comp App	77	0	-27	22	-22	0
891 Maint Exist Comp App	2,109	1,103	476	595	1,228	0
901 Prov IT Cust Assist	0	1	0	0	0	0
926 Manage Property	0	71	0	0	0	0
Total PKC	**381,821**	**369,386**	**382,451**	**368,686**	**401,597**	**489,259**
PKF Financial Analysis						
150 HECO						
112 Dev & Mng Cust Rel	1,594	0	0	0	0	1,180
122 Eval & Neg New Cont	0	566	-365	40	203	0
600 Resp to Cus Inq/Svc Req	0	2,019	594	0	0	0
700 Dev & Adm Business Plans	1,213	211	0	61	0	0
701 Dev & Mg Forecasts	82	11,453	483	751	159	393
711 Adm & Impl IRP Pgm-Base	739	1,162	602	325	501	0
713 Adm & Impl DSM Pgm-Base	150	0	0	0	0	0
720 Improve Bus Processes	41	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
722 Org Dev Strat	0	81	0	0	0	0
735 Rate Case Filings	0	0	41,443	45,656	38,598	44,843
745 Maint Rel-Leg & Govt Ag	824	1,657	602	119	0	0
749 Maint Rel-Ind Assoc	0	121	0	0	0	0
750 Maint Rel- Cust	448	0	0	0	0	0
756 Maint Rel-Invest	262	0	0	0	0	0
767 Recruit PolPracProc	0	0	80	239	0	0
785 Plan Emp Trng & Dev	467	212	241	0	0	0
788 Conduct Empl Training	524	0	0	0	0	0
789 Attend Training	931	569	3,222	491	321	0
797 Attend Safety Training	198	60	488	31	32	0
805 Mg BU & Oth Lbr Agrmnt	0	30	0	0	0	0
825 Manage Cash	0	0	0	0	239	0
826 Manage Financing	2,010	4,656	1,115	1,886	5,901	0
827 Perf Econ/Fin Anlys	129,815	127,697	86,069	127,804	133,014	140,513
835 Fin Rpts/StatInfo-Int	0	0	0	0	875	0
836 Fin Rpts/StatInfo-Ext	0	1,642	19,630	0	0	0
926 Manage Property	75	81	0	0	0	0
155 HECO						
112 Dev & Mng Cust Rel	-34	0	0	0	0	0
122 Eval & Neg New Cont	0	31	6	7	27	0
600 Resp to Cus Inq/Svc Req	0	-23	-11	0	0	0
700 Dev & Adm Business Plans	100	18	0	5	0	0
701 Dev & Mg Forecasts	7	-611	32	51	2	0
711 Adm & Impl IRP Pgm-Base	81	85	53	15	60	0
713 Adm & Impl DSM Pgm-Base	7	0	0	0	0	0
720 Improve Bus Processes	1	0	0	0	0	0
735 Rate Case Filings	0	0	2,035	575	2,005	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
739 PUC Cap Proj Filings	0	0	2	0	0	0
745 Maint Rel-Leg & Govt Ag	67	64	58	15	0	0
750 Maint Rel- Cust	29	0	0	0	0	0
756 Maint Rel-Invest	32	0	0	0	0	0
767 Recruit PolPracProc	0	0	3	30	0	0
785 Plan Emp Trng & Dev	35	0	33	0	0	0
788 Conduct Empl Training	-6	0	0	0	0	0
789 Attend Training	92	56	88	39	41	0
797 Attend Safety Training	19	0	13	-2	4	0
805 Mg BU & Oth Lbr Agrmnt	0	-4	0	0	0	0
825 Manage Cash	0	0	0	0	3	0
826 Manage Financing	146	-107	59	61	145	0
827 Perf Econ/Fin Anlys	13,877	6,599	5,388	9,161	12,017	0
835 Fin Rpts/StatInfo-Int	0	0	0	0	-73	0
836 Fin Rpts/StatInfo-Ext	0	116	1,238	0	0	0
926 Manage Property	6	-1	0	0	0	0
Total PKF	**153,830**	**158,441**	**163,199**	**187,360**	**194,075**	**186,930**
PKI Risk Management						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	1,885
701 Dev & Mg Forecasts	4,711	0	0	0	0	0
735 Rate Case Filings	0	0	23,301	4,403	2,704	5,823
749 Maint Rel-Ind Assoc	579	162	120	0	1,890	1,312
777 Process Payroll	1,071	792	750	3,921	3,276	3,327
785 Plan Emp Trng & Dev	131	0	572	0	41	4,201
789 Attend Training	640	1,283	1,875	1,019	2,549	5,481
797 Attend Safety Training	147	126	662	107	161	0
807 Co-wide Empl Commun	0	101	0	40	302	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
815 Dev Adm Acctg Pol Proc	0	358	347	0	0	0
826 Manage Financing	75	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	6,546	561	0	0
842 Order Mat Eq Sup & Svcs	54	108	90	98	58	2,166
843 Proc Invoices Oth Pmt	64	65	157	185	139	2,166
891 Maint Exist Comp App	0	43	0	0	0	0
155 HECO						
701 Dev & Mg Forecasts	527	0	0	0	0	0
735 Rate Case Filings	0	0	3,287	547	803	0
749 Maint Rel-Ind Assoc	25	18	24	0	584	0
777 Process Payroll	66	49	52	-3	-11	0
780 AdmBen Oth than Flex Ret	10	0	0	0	0	0
785 Plan Emp Trng & Dev	27	0	-5	0	12	0
789 Attend Training	128	64	-88	165	346	0
797 Attend Safety Training	-4	0	4	-7	-7	0
807 Co-wide Empl Commun	0	0	0	10	23	0
815 Dev Adm Acctg Pol Proc	0	21	-10	0	0	0
826 Manage Financing	18	0	0	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-251	-12	0	0
842 Order Mat Eq Sup & Svcs	3	8	6	6	5	0
843 Proc Invoices Oth Pmt	4	5	11	12	12	0
891 Maint Exist Comp App	0	3	0	0	0	0
Total PKI	**8,275**	**3,206**	**37,449**	**11,050**	**12,886**	**26,360**
PKM ERP Administration						
150 HECO						
700 Dev & Adm Business Plans	177	0	0	0	0	0
701 Dev & Mg Forecasts	0	0	0	518	0	2,994
720 Improve Bus Processes	1,647	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
735 Rate Case Filings	0	0	401	239	0	0
745 Maint Rel-Leg & Govt Ag	0	0	12,514	0	0	0
749 Maint Rel-Ind Assoc	0	0	1,404	0	255	0
778 Adm Flexible Ben Pgm	0	0	0	0	0	1,410
785 Plan Emp Trng & Dev	56	0	0	0	0	0
788 Conduct Empl Training	0	1,031	0	0	0	0
789 Attend Training	3,276	1,248	0	2,321	764	0
797 Attend Safety Training	167	0	296	70	48	0
817 Maint Fixed Asset Rcds	0	0	0	8,213	0	0
818 Maint G/L & Stat Info	0	60	0	1,012	0	0
825 Manage Cash	1,082	0	0	0	0	0
826 Manage Financing	0	0	0	0	8	0
835 Fin Rpts/StatInfo-Int	0	0	0	0	0	2,656
836 Fin Rpts/StatInfo-Ext	0	242	3,867	3,144	0	0
891 Maint Exist Comp App	167,716	170,223	112,208	81,185	132,230	132,161
899 Maintain Applications	0	0	2,276	0	0	0
155 HECO						
700 Dev & Adm Business Plans	-15	0	0	0	0	0
701 Dev & Mg Forecasts	0	0	0	51	0	0
720 Improve Bus Processes	-140	0	0	0	0	0
735 Rate Case Filings	0	0	18	19	0	0
745 Maint Rel-Leg & Govt Ag	0	0	312	0	0	0
749 Maint Rel-Ind Assoc	0	0	-68	0	6	0
785 Plan Emp Trng & Dev	-3	0	0	0	0	0
788 Conduct Empl Training	0	-37	0	0	0	0
789 Attend Training	-1	0	0	-266	18	0
797 Attend Safety Training	-8	0	10	3	-4	0
807 Co-wide Empl Commun	-1	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
817 Maint Fixed Asset Rcds	0	0	0	-1,221	0	0
818 Maint G/L & Stat Info	0	0	0	-179	0	0
825 Manage Cash	6	0	0	0	0	0
826 Manage Financing	0	0	0	0	-1	0
836 Fin Rpts/StatInfo-Ext	0	-5	-48	-372	-3	0
891 Maint Exist Comp App	-2,793	-6,110	3,272	-2,005	2,890	0
899 Maintain Applications	0	0	79	0	0	0
Total PKM	**171,167**	**166,652**	**136,540**	**92,732**	**136,212**	**139,222**
PKS Securities Team						
150 HECO						
700 Dev & Adm Business Plans	520	574	0	0	0	0
701 Dev & Mg Forecasts	767	423	0	0	0	0
720 Improve Bus Processes	96	60	0	0	0	0
735 Rate Case Filings	781	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	356	211	0	0	0	0
756 Maint Rel-Invest	520	196	15	0	0	0
767 Recruit PolPracProc	0	393	0	0	0	0
785 Plan Emp Trng & Dev	247	0	0	0	0	0
789 Attend Training	2,073	15	0	0	0	0
797 Attend Safety Training	178	30	0	0	0	0
817 Maint Fixed Asset Rcds	0	151	0	0	0	0
826 Manage Financing	67,293	26,179	952	0	0	0
835 Fin Rpts/StatInfo-Int	507	0	0	0	0	0
842 Order Mat Eq Sup & Svcs	137	0	0	0	0	0
843 Proc Invoices Oth Pmt	14	272	0	0	0	0
844 Prep Contr-Svcs & Mat	1,917	0	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	65	65	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
701 Dev & Mg Forecasts	50	73	0	0	0	0
720 Improve Bus Processes	30	14	0	0	0	0
735 Rate Case Filings	63	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	99	-54	0	0	0	0
756 Maint Rel-Invest	71	41	4	0	0	0
767 Recruit PolPracProc	0	72	0	0	0	0
785 Plan Emp Trng & Dev	25	0	0	0	0	0
789 Attend Training	475	0	0	0	0	0
797 Attend Safety Training	21	0	0	0	0	0
817 Maint Fixed Asset Rcds	0	36	0	0	0	0
826 Manage Financing	2,176	982	227	0	0	0
835 Fin Rpts/StatInfo-Int	19	0	0	0	0	0
842 Order Mat Eq Sup & Svcs	2	0	0	0	0	0
843 Proc Invoices Oth Pmt	1	60	0	0	0	0
844 Prep Contr-Svcs & Mat	170	0	0	0	0	0
Total PKS	**78,674**	**29,793**	**1,197**	**0**	**0**	**0**
PKT Treasury						
150 HECO						
112 Dev & Mng Cust Rel	0	0	0	0	0	787
700 Dev & Adm Business Plans	681	741	287	125	42	1,049
701 Dev & Mg Forecasts	2,702	979	1,337	2,050	1,509	4,787
710 Dev & Mg Fcst-Sales/Load	0	0	0	31	24	0
720 Improve Bus Processes	41	0	0	0	0	0
721 Dev Meas & Anlz Perf	5,336	815	363	567	0	787
735 Rate Case Filings	0	98	7,615	19,184	14,302	21,477
745 Maint Rel-Leg & Govt Ag	0	0	60	1,426	350	3,935
749 Maint Rel-Ind Assoc	349	0	0	0	327	0
752 Maint Rel-Media	0	0	0	92	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
756 Maint Rel-Invest	0	0	317	414	98	1,574
760 Audits-Internal	0	0	8	0	0	0
767 Recruit PolPracProc	0	1,035	35	0	0	0
785 Plan Emp Trng & Dev	113	0	0	123	255	0
787 Dev Empl Training	0	0	0	31	0	0
788 Conduct Empl Training	55	0	0	0	0	0
789 Attend Training	154	194	503	1,084	66	3,640
797 Attend Safety Training	225	48	371	84	64	0
805 Mg BU & Oth Lbr Agrmnt	0	23	0	0	0	0
807 Co-wide Empl Commun	27	0	0	0	0	0
818 Maint G/L & Stat Info	82	0	0	0	0	0
825 Manage Cash	87,504	99,483	132,391	142,495	133,912	131,586
826 Manage Financing	438	5,843	20,447	30,191	38,872	29,150
836 Fin Rpts/StatInfo-Ext	0	0	6,309	5,836	780	0
843 Proc Invoices Oth Pmt	466	121	906	61	62	0
155 HECO						
700 Dev & Adm Business Plans	46	-7	-55	-24	-2	0
701 Dev & Mg Forecasts	78	-55	-122	-161	-405	0
710 Dev & Mg Fcst-Sales/Load	0	0	0	8	3	0
720 Improve Bus Processes	21	0	0	0	0	0
721 Dev Meas & Anlz Perf	35	-43	-43	-23	0	0
735 Rate Case Filings	0	3	1,470	1,089	587	0
745 Maint Rel-Leg & Govt Ag	0	0	14	259	-10	0
749 Maint Rel-Ind Assoc	75	0	0	0	22	0
752 Maint Rel-Media	0	0	0	-15	0	0
756 Maint Rel-Invest	0	0	76	-42	13	0
760 Audits-Internal	0	0	-3	0	0	0
767 Recruit PolPracProc	0	-31	1	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
785 Plan Emp Trng & Dev	17	0	0	23	-62	0
787 Dev Empl Training	0	0	0	3	0	0
788 Conduct Empl Training	31	0	0	0	0	0
789 Attend Training	8	-2	27	-189	2	0
797 Attend Safety Training	47	0	-20	-10	-10	0
805 Mg BU & Oth Lbr Agrmnt	0	1	0	0	0	0
807 Co-wide Empl Commun	0	0	0	0	0	0
818 Maint G/L & Stat Info	2	0	0	0	0	0
825 Manage Cash	15,714	13,795	-17,195	-17,240	-22,364	0
826 Manage Financing	113	273	1,382	914	-2,385	0
836 Fin Rpts/StatInfo-Ext	0	0	-1,084	-859	-72	0
843 Proc Invoices Oth Pmt	9	-7	62	17	8	0
Total PKT	**114,367**	**123,305**	**155,458**	**187,546**	**165,986**	**198,773**
PNA Internal Audit						
150 HECO						
701 Dev & Mg Forecasts	1,516	3,122	3,423	882	355	832
722 Org Dev Strat	870	525	341	0	0	0
735 Rate Case Filings	0	0	231	86	8	0
736 Pricing Anlys&Proposals	0	0	30	0	0	0
755 Maint Rel-BOD	17,340	15,305	8,221	318	3,487	2,080
760 Audits-Internal	184,219	232,165	60,492	97,436	155,566	240,230
761 Audits-External	5,167	7,306	4,482	1,679	2,934	4,023
765 Empl Pol Prac Proc	0	0	0	8,825	3,883	3,279
767 Recruit PolPracProc	0	0	723	0	0	0
776 Ben Plan PolPracProc	0	0	0	107	0	0
777 Process Payroll	572	0	0	0	10,477	0
785 Plan Emp Trng & Dev	2,631	2,173	2,038	836	5,682	4,540
788 Conduct Empl Training	0	174	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
789 Attend Training	2,004	3,264	6,080	3,504	10,289	10,845
797 Attend Safety Training	0	0	166	61	0	0
805 Mg BU & Oth Lbr Agrmnt	0	121	0	0	0	0
815 Dev Adm Acctg Pol Proc	0	509	302	0	0	0
818 Maint G/L & Stat Info	0	0	0	0	382	0
835 Fin Rpts/StatInfo-Int	0	0	483	0	0	0
836 Fin Rpts/StatInfo-Ext	1,495	27,498	298,046	136,275	155,726	96,092
840 Adm Oth Procur Pgm-Misc	0	332	60	0	0	0
877 Cmply Sld&HazWste OilRel	1,749	1,639	0	0	0	0
891 Maint Exist Comp App	348	10,962	0	0	0	0
155 HECO						
701 Dev & Mg Forecasts	-212	-637	-803	-167	-75	0
722 Org Dev Strat	-158	-85	-109	0	0	0
735 Rate Case Filings	0	0	-7	-81	-2	0
736 Pricing Anlys&Proposals	0	0	-6	0	0	0
755 Maint Rel-BOD	-4,732	-3,044	-2,284	-69	-924	0
760 Audits-Internal	-12,278	-34,989	-13,290	-24,309	-34,437	0
761 Audits-External	-127	-949	-997	-617	-536	0
765 Empl Pol Prac Proc	0	0	0	-1,822	-655	0
767 Recruit PolPracProc	0	0	-137	0	0	0
776 Ben Plan PolPracProc	0	0	0	-6	0	0
777 Process Payroll	-92	0	0	0	-2,535	0
785 Plan Emp Trng & Dev	-412	-186	-367	-243	-1,077	0
788 Conduct Empl Training	0	-28	0	0	0	0
789 Attend Training	36	-438	-1,541	-484	-2,332	0
797 Attend Safety Training	0	0	-22	-9	0	0
805 Mg BU & Oth Lbr Agrmnt	0	1	0	0	0	0
815 Dev Adm Acctg Pol Proc	0	-54	-55	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
818 Maint G/L & Stat Info	0	0	0	0	-75	0
835 Fin Rpts/StatInfo-Int	0	0	-81	0	0	0
836 Fin Rpts/StatInfo-Ext	-350	-4,789	-78,611	-46,092	-40,828	0
840 Adm Oth Procur Pgm-Misc	0	-32	-16	0	0	0
877 Cmply Sld&HazWste OilRel	119	-264	0	0	0	0
891 Maint Exist Comp App	-23	-472	0	0	0	0
Total PNA	**199,683**	**259,127**	**286,791**	**176,111**	**265,313**	**361,919**
PNC Legal						
150 HECO						
122 Eval & Neg New Cont	1,272	2,844	3,055	6,246	7,090	5,814
700 Dev & Adm Business Plans	237	0	0	2,435	227	0
701 Dev & Mg Forecasts	14,902	8,177	6,412	6,098	8,166	13,154
711 Adm & Impl IRP Pgm-Base	0	0	0	640	-384	0
713 Adm & Impl DSM Pgm-Base	0	0	0	404	0	0
720 Improve Bus Processes	6,330	4,061	4,200	2,787	2,236	7,800
722 Org Dev Strat	1,456	2,139	2,004	1,328	1,928	0
735 Rate Case Filings	0	0	0	6	4,752	0
738 Othr PUC Reg Filings	47	736	2,531	1,191	1,975	0
745 Maint Rel-Leg & Govt Ag	3,660	3,285	2,146	3,378	6,551	4,912
755 Maint Rel-BOD	0	0	24	0	0	0
760 Audits-Internal	4,529	5,437	7,751	2,106	2,004	0
765 Empl Pol Prac Proc	51,216	54,506	42,799	51,673	46,341	44,286
767 Recruit PolPracProc	3,445	2,229	314	0	0	0
777 Process Payroll	20,702	18,965	22,774	23,160	23,448	6,409
785 Plan Emp Trng & Dev	118	12	12	0	71	2,613
788 Conduct Empl Training	0	0	0	0	0	2,326
789 Attend Training	9,798	7,001	9,420	13,691	9,473	0
797 Attend Safety Training	285	254	590	585	1,191	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
805 Mg BU & Oth Lbr Agrmnt	472	17	0	0	0	1,454
807 Co-wide Empl Commun	4,510	4,479	8,493	4,038	5,601	4,407
836 Fin Rpts/StatInfo-Ext	923	2,287	10,120	3,717	3,305	0
843 Proc Invoices Oth Pmt	12,194	12,902	20,100	18,202	21,994	19,155
844 Prep Contr-Svcs & Mat	24,828	31,460	32,854	38,117	35,561	46,851
875 Comply Ongo Perm-Air	6,733	6,950	14,502	10,518	8,563	9,157
876 Comply Ongo-Wstewtr	274	0	423	1,233	1,509	5,572
877 Cmply Sld&HazWste OilRel	21,390	21,217	12,261	21,042	27,806	11,531
878 Cmply Sld&HazWste NonOil	132	2,053	2,369	1,592	1,742	2,907
885 Envir Rule/Reg Making	5,461	1,856	1,513	3,678	2,184	5,814
891 Maint Exist Comp App	0	45	0	0	0	0
897 Op & Maint Desktop-Bus	2,959	4,206	1,027	4,158	4,539	3,828
907 Mg E&D Sys-Telecom	2,066	2,968	2,804	2,377	1,404	3,585
925 Purchase Real Property	0	124	0	487	0	0
926 Manage Property	770	5,724	3,251	1,274	1,552	1,947
927 Sell/Dispose Prop	0	45	0	145	1,180	0
928 Process Easements	30,984	27,564	28,133	20,994	19,753	16,592
960 Mg Svc & Process Doc	174,868	183,842	226,231	236,173	287,675	364,141
961 Cond Legal Due Diligence	10,712	19,410	20,815	11,114	15,116	14,080
155 HECO						
122 Eval & Neg New Cont	215	189	30	724	446	0
700 Dev & Adm Business Plans	13	0	0	467	-10	0
701 Dev & Mg Forecasts	2,081	9	-288	-300	-220	0
711 Adm & Impl IRP Pgm-Base	0	0	0	65	-89	0
713 Adm & Impl DSM Pgm-Base	0	0	0	86	0	0
720 Improve Bus Processes	2,124	767	402	582	332	0
722 Org Dev Strat	139	163	244	137	73	0
735 Rate Case Filings	0	0	0	-1	7	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
738	Othr PUC Reg Filings	6	-115	-414	125	-274	0
745	Maint Rel-Leg & Govt Ag	360	-148	-17	91	61	0
755	Maint Rel-BOD	0	0	2	0	0	0
760	Audits-Internal	428	68	127	158	66	0
765	Empl Pol Prac Proc	3,465	-1,737	-9,987	-2,972	-2,937	0
767	Recruit PolPracProc	401	53	-20	0	0	0
777	Process Payroll	1,805	-257	-1,362	374	-462	0
785	Plan Emp Trng & Dev	7	1	2	0	12	0
789	Attend Training	1,409	802	-779	-810	-510	0
797	Attend Safety Training	32	0	-22	86	102	0
805	Mg BU & Oth Lbr Agrmnt	42	-2	0	0	0	0
807	Co-wide Empl Commun	555	414	-110	424	387	0
836	Fin Rpts/StatInfo-Ext	81	89	12	109	4	0
843	Proc Invoices Oth Pmt	-419	-685	-1,265	-1,106	-1,260	0
844	Prep Contr-Svcs & Mat	2,842	-87	-1,973	796	-842	0
875	Comply Ongo Perm-Air	2,685	1,568	1,475	2,361	1,579	0
876	Comply Ongo-Wstewtr	112	0	56	262	277	0
877	Cmply Sld&HazWste OilRel	8,393	4,109	894	4,529	4,288	0
878	Cmply Sld&HazWste NonOil	51	433	173	389	321	0
885	Envir Rule/Reg Making	2,069	412	117	499	362	0
891	Maint Exist Comp App	0	2	0	0	0	0
897	Op & Maint Desktop-Bus	707	287	47	452	209	0
907	Mg E&D Sys-Telecom	486	299	33	251	46	0
925	Purchase Real Property	0	10	0	72	0	0
926	Manage Property	67	689	381	180	168	0
927	Sell/Dispose Prop	0	-5	0	19	90	0
928	Process Easements	5,367	1,296	-324	2,105	807	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
960 Mg Svc & Process Doc	13,225	-1,492	-13,134	1,698	-4,910	0
961 Cond Legal Due Diligence	1,331	127	319	426	131	0
Total PNC	**467,352**	**444,052**	**463,549**	**506,861**	**552,809**	**598,334**
PNG EnergyProjects						
150 HECO						
700 Dev & Adm Business Plans	95	45,910	62,902	68,587	64,394	9,838
701 Dev & Mg Forecasts	0	1,806	15,330	51,472	51,886	58,497
711 Adm & Impl IRP Pgm-Base	0	2,102	5,548	2,424	113	4,919
720 Improve Bus Processes	0	7,726	16,106	39,597	34,288	40,023
721 Dev Meas & Anlz Perf	0	198	0	0	0	0
735 Rate Case Filings	0	0	2,617	5,908	883	8,198
737 Cost Recov & Rate Adj	0	25,535	32,617	6,111	3,747	0
767 Recruit PolPracProc	0	0	0	0	127	0
777 Process Payroll	0	1,129	1,275	1,399	2,841	0
785 Plan Emp Trng & Dev	0	0	0	0	0	2,662
789 Attend Training	0	4,974	11,696	8,745	8,457	11,441
841 New Supp/Contr/Consult	308	7,754	7,887	2,117	48	0
843 Proc Invoices Oth Pmt	0	2,506	2,041	2,870	1,710	0
891 Maint Exist Comp App	0	230	0	0	0	0
965 Prov Records Mgt Svcs	0	0	30	31	0	0
966 Handle & Deliver Mail	0	0	121	0	0	0
155 HECO						
700 Dev & Adm Business Plans	56	5,873	3,766	467	-2,374	0
701 Dev & Mg Forecasts	0	-180	-353	183	-1,193	0
711 Adm & Impl IRP Pgm-Base	0	718	2,045	68	2	0
720 Improve Bus Processes	0	1,360	2,450	3,289	2,754	0
721 Dev Meas & Anlz Perf	0	95	0	0	0	0
735 Rate Case Filings	0	0	394	498	27	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
737 Cost Recov & Rate Adj	0	8,983	5,986	853	-74	0
767 Recruit PolPracProc	0	0	0	0	31	0
777 Process Payroll	0	-119	-145	-150	-309	0
789 Attend Training	0	1,525	2,970	1,469	1,607	0
841 New Supp/Contr/Consult	181	1,986	2,271	317	-5	0
843 Proc Invoices Oth Pmt	0	-261	-225	-289	-187	0
891 Maint Exist Comp App	0	-6	0	0	0	0
965 Prov Records Mgt Svcs	0	0	-1	-1	0	0
966 Handle & Deliver Mail	0	0	-3	0	0	0
Total PNG	**639**	**119,843**	**177,327**	**195,967**	**168,774**	**135,579**
PNI Government Relations						
150 HECO						
701 Dev & Mg Forecasts	0	113	127	95	394	840
720 Improve Bus Processes	130	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	48,292	99,343	106,512	180,580	198,105	132,918
749 Maint Rel-Ind Assoc	0	808	0	0	0	72,117
789 Attend Training	0	0	0	285	940	0
805 Mg BU & Oth Lbr Agrmnt	0	23	0	0	0	0
961 Cond Legal Due Diligence	0	40	0	0	0	0
155 HECO						
701 Dev & Mg Forecasts	0	-9	-12	-6	-19	0
720 Improve Bus Processes	-10	0	0	0	0	0
745 Maint Rel-Leg & Govt Ag	784	-13,257	-8,901	-1,495	-6,440	0
749 Maint Rel-Ind Assoc	0	-270	0	0	0	0
789 Attend Training	0	0	0	-19	-12	0
805 Mg BU & Oth Lbr Agrmnt	0	-2	0	0	0	0
Total PNI	**49,196**	**86,790**	**97,725**	**179,439**	**192,969**	**205,875**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PNL Land & Rights of Way						
150 HECO						
700 Dev & Adm Business Plans	0	0	272	598	8	0
701 Dev & Mg Forecasts	4,889	6,901	3,036	6,231	6,486	5,690
711 Adm & Impl IRP Pgm-Base	0	1,857	0	0	0	0
722 Org Dev Strat	205	1,019	483	392	343	93
723 Mg Incent & Recog Pgm	21	0	0	0	0	0
735 Rate Case Filings	0	0	0	0	36	0
738 Othr PUC Reg Filings	0	0	0	0	48	0
745 Maint Rel-Leg & Govt Ag	1,808	1,336	1,782	1,615	2,348	2,736
753 Maint Rel-Community	62	0	60	12,725	0	0
765 Empl Pol Prac Proc	0	0	0	0	117	0
777 Process Payroll	3,260	0	696	1,334	1,082	836
785 Plan Emp Trng & Dev	7	45	0	0	0	0
788 Conduct Empl Training	0	91	121	0	0	0
789 Attend Training	842	1,737	3,161	5,264	2,831	0
805 Mg BU & Oth Lbr Agrmnt	0	30	0	0	0	0
807 Co-wide Empl Commun	14,613	18,022	16,825	14,676	16,481	18,543
836 Fin Rpts/StatInfo-Ext	0	0	1,186	23	32	0
842 Order Mat Eq Sup & Svcs	0	0	0	47	133	557
843 Proc Invoices Oth Pmt	192	0	0	273	133	1,393
891 Maint Exist Comp App	0	302	0	0	0	0
925 Purchase Real Property	7,422	5,353	3,633	10,492	12,900	1,967
926 Manage Property	69,292	71,619	63,495	66,588	64,499	87,089
927 Sell/Dispose Prop	644	1,355	8,491	10,972	19,820	1,967
928 Process Easements	126,851	140,868	142,007	160,635	164,127	185,058
155 HECO						
700 Dev & Adm Business Plans	0	0	-26	-54	-1	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
701 Dev & Mg Forecasts	397	-408	-402	-555	-735	0
711 Adm & Impl IRP Pgm-Base	0	-248	0	0	0	0
722 Org Dev Strat	-18	-84	-41	-55	-51	0
723 Mg Incent & Recog Pgm	-5	0	0	0	0	0
735 Rate Case Filings	0	0	0	0	-8	0
738 Othr PUC Reg Filings	0	0	0	0	-10	0
745 Maint Rel-Leg & Govt Ag	-134	-117	-287	-217	-347	0
753 Maint Rel-Community	-1	0	-6	-1,648	0	0
765 Empl Pol Prac Proc	0	0	0	0	-8	0
777 Process Payroll	-367	0	-53	-106	-85	0
785 Plan Emp Trng & Dev	-1	-9	0	0	0	0
788 Conduct Empl Training	0	-10	-12	0	0	0
789 Attend Training	-75	-181	-423	-855	-327	0
805 Mg BU & Oth Lbr Agrmnt	0	-4	0	0	0	0
807 Co-wide Empl Commun	-1,153	-2,372	-2,306	-1,658	-1,986	0
836 Fin Rpts/StatInfo-Ext	0	0	-261	-3	-6	0
842 Order Mat Eq Sup & Svcs	0	0	0	-3	-10	0
843 Proc Invoices Oth Pmt	-42	0	0	-20	-10	0
891 Maint Exist Comp App	0	-32	0	0	0	0
925 Purchase Real Property	-1,083	-959	-650	-1,279	-1,873	0
926 Manage Property	-4,538	-7,123	-8,701	-8,536	-8,362	0
927 Sell/Dispose Prop	43	-43	-865	-981	-1,952	0
928 Process Easements	-14,358	-23,322	-20,335	-17,179	-19,844	0
Total PNL	**208,774**	**215,623**	**210,881**	**258,716**	**255,810**	**305,930**
PNP Regulatory Affairs						
150 HECO						
112 Dev & Mng Cust Rel	55	0	0	0	0	1,574
600 Resp to Cus Inq/Svc Req	0	1,573	2,689	1,486	0	3,916

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
700	Dev & Adm Business Plans	260	687	0	7,753	605	3,743
701	Dev & Mg Forecasts	444	429	453	1,349	1,082	1,738
711	Adm & Impl IRP Pgm-Base	11,073	10,169	5,740	5,733	2,856	3,345
713	Adm & Impl DSM Pgm-Base	6,889	3,805	1,933	2,575	4,170	4,722
721	Dev Meas & Anlz Perf	1,224	689	210	353	0	393
735	Rate Case Filings	0	0	29,923	80,921	128,494	240,194
737	Cost Recov & Rate Adj	0	1,299	0	0	0	0
738	Othr PUC Reg Filings	197,452	200,363	152,276	188,393	181,017	347,226
739	PUC Cap Proj Filings	36,196	43,639	37,234	34,012	43,393	51,448
745	Maint Rel-Leg & Govt Ag	5,378	2,667	642	5,056	2,285	2,579
760	Audits-Internal	318	0	0	0	0	0
767	Recruit PolPracProc	0	0	361	0	0	0
777	Process Payroll	510	460	224	810	838	836
785	Plan Emp Trng & Dev	599	606	281	318	0	333
788	Conduct Empl Training	0	90	0	0	0	0
789	Attend Training	1,681	365	816	358	121	1,312
797	Attend Safety Training	114	0	141	186	0	0
805	Mg BU & Oth Lbr Agrmnt	0	30	0	0	0	0
835	Fin Rpts/StatInfo-Int	0	0	40	0	0	0
836	Fin Rpts/StatInfo-Ext	0	849	382	279	0	0
842	Order Mat Eq Sup & Svcs	0	23	15	759	838	836
843	Proc Invoices Oth Pmt	238	192	271	846	682	836
844	Prep Contr-Svcs & Mat	0	34	0	0	0	0
891	Maint Exist Comp App	0	113	0	0	0	0
925	Purchase Real Property	284	0	0	0	0	0
965	Prov Records Mgt Svcs	2,405	4,121	3,547	13,055	9,510	12,446
155	HECO						
112	Dev & Mng Cust Rel	16	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
600	Resp to Cus Inq/Svc Req	0	182	415	225	0	0
700	Dev & Adm Business Plans	79	112	0	1,480	179	0
701	Dev & Mg Forecasts	-17	-20	-39	-168	-165	0
711	Adm & Impl IRP Pgm-Base	3,069	2,089	1,449	1,533	749	0
713	Adm & Impl DSM Pgm-Base	1,997	804	489	696	1,118	0
721	Dev Meas & Anlz Perf	-47	-29	-18	-46	0	0
735	Rate Case Filings	0	0	5,307	13,867	29,896	0
737	Cost Recov & Rate Adj	0	310	0	0	0	0
738	Othr PUC Reg Filings	21,752	22,668	20,291	17,961	36,014	0
739	PUC Cap Proj Filings	11,532	9,711	10,433	10,339	12,714	0
745	Maint Rel-Leg & Govt Ag	756	537	156	-235	0	0
760	Audits-Internal	0	0	0	0	0	0
767	Recruit PolPracProc	0	0	94	0	0	0
777	Process Payroll	0	2	-26	-223	-194	0
785	Plan Emp Trng & Dev	12	85	63	86	0	0
788	Conduct Empl Training	0	-3	0	0	0	0
789	Attend Training	230	27	147	-10	-29	0
797	Attend Safety Training	48	0	19	19	0	0
805	Mg BU & Oth Lbr Agrmnt	0	7	0	0	0	0
835	Fin Rpts/StatInfo-Int	0	0	9	0	0	0
836	Fin Rpts/StatInfo-Ext	0	174	91	75	0	0
842	Order Mat Eq Sup & Svcs	0	-1	-2	-218	-192	0
843	Proc Invoices Oth Pmt	-10	-10	-28	-235	-159	0
844	Prep Contr-Svcs & Mat	0	-1	0	0	0	0
891	Maint Exist Comp App	0	-4	0	0	0	0
925	Purchase Real Property	71	0	0	0	0	0
965	Prov Records Mgt Svcs	-100	-167	-311	-3,683	-2,211	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PNP	**304,510**	**308,674**	**275,715**	**385,706**	**453,611**	**677,475**
PNR Technology						
150 HECO						
700 Dev & Adm Business Plans	0	0	121	478	988	0
711 Adm & Impl IRP Pgm-Base	0	5,039	8,132	4,109	1,594	15,928
720 Improve Bus Processes	0	0	2,171	2,962	284	0
735 Rate Case Filings	0	0	0	1,758	3,079	0
738 Othr PUC Reg Filings	0	0	5,060	92	0	0
745 Maint Rel-Leg & Govt Ag	0	1,617	7,630	2,763	4,945	0
747 Mg Environ Initiatives	0	0	0	0	243	0
789 Attend Training	0	302	151	285	255	0
805 Mg BU & Oth Lbr Agrmnt	0	40	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	0	0	11	-63	-197	0
711 Adm & Impl IRP Pgm-Base	0	-979	-751	-497	-131	0
720 Improve Bus Processes	0	0	-69	-540	-64	0
735 Rate Case Filings	0	0	0	-243	-585	0
738 Othr PUC Reg Filings	0	0	-797	-13	0	0
745 Maint Rel-Leg & Govt Ag	0	-269	-1,158	-629	-863	0
747 Mg Environ Initiatives	0	0	0	0	-54	0
789 Attend Training	0	22	11	-141	-17	0
805 Mg BU & Oth Lbr Agrmnt	0	-10	0	0	0	0
Total PNR	**0**	**5,761**	**20,511**	**10,323**	**9,477**	**15,928**
PNS Sox Compliance						
150 HECO						
701 Dev & Mg Forecasts	0	0	0	478	0	0
755 Maint Rel-BOD	0	0	0	1,473	0	0
760 Audits-Internal	0	0	0	657	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
789 Attend Training	0	0	0	3,629	0	0
797 Attend Safety Training	0	0	0	40	0	0
836 Fin Rpts/StatInfo-Ext	0	0	0	87,484	0	0
155 HECO						
701 Dev & Mg Forecasts	0	0	0	-125	0	0
755 Maint Rel-BOD	0	0	0	-419	0	0
760 Audits-Internal	0	0	0	-184	0	0
789 Attend Training	0	0	0	-972	0	0
797 Attend Safety Training	0	0	0	-7	0	0
836 Fin Rpts/StatInfo-Ext	0	0	0	-23,620	0	0
Total PNS	**0**	**0**	**0**	**68,433**	**0**	**0**
PNT Telecommunications						
150 HECO						
103 Pl & Dev Mktg Pgm-NCore	139	0	0	0	0	0
720 Improve Bus Processes	29	0	0	0	0	0
906 Plan the Sys-Telecom	577	0	0	0	0	0
907 Mg E&D Sys-Telecom	4,958	0	0	0	0	0
933 Prov&Mg Svcs-Security	727	0	0	0	0	0
155 HECO						
103 Pl & Dev Mktg Pgm-NCore	60	0	0	0	0	0
720 Improve Bus Processes	2	0	0	0	0	0
906 Plan the Sys-Telecom	115	0	0	0	0	0
907 Mg E&D Sys-Telecom	744	0	0	0	0	0
933 Prov&Mg Svcs-Security	55	0	0	0	0	0
Total PNT	**7,405**	**0**	**0**	**0**	**0**	**0**
PNX Admin-Audit & Complnc						
150 HECO						
700 Dev & Adm Business Plans	0	0	0	202	470	0
701 Dev & Mg Forecasts	0	0	0	9,106	6,929	10,323

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
722 Org Dev Strat	0	0	0	618	539	1,537
735 Rate Case Filings	0	0	24	159	43	0
755 Maint Rel-BOD	0	0	134	7,738	10,062	13,800
760 Audits-Internal	0	0	4,889	67,305	80,820	92,357
761 Audits-External	0	0	0	1,354	28	0
765 Empl Pol Prac Proc	0	0	0	45,964	48,063	82,755
766 Maint Employee Recds	0	0	0	26	0	0
777 Process Payroll	0	0	0	0	9,492	0
785 Plan Emp Trng & Dev	0	0	0	1,782	3,318	2,760
789 Attend Training	0	0	37	2,660	8,082	5,602
797 Attend Safety Training	0	0	0	352	0	0
836 Fin Rpts/StatInfo-Ext	0	0	3,422	39,425	65,167	26,131
928 Process Easements	0	0	0	0	676	0
155 HECO						
700 Dev & Adm Business Plans	0	0	0	-36	-134	0
701 Dev & Mg Forecasts	0	0	0	-1,914	-1,692	0
722 Org Dev Strat	0	0	0	-195	-140	0
735 Rate Case Filings	0	0	38	-81	-19	0
755 Maint Rel-BOD	0	0	-47	-2,217	-3,147	0
760 Audits-Internal	0	0	-810	-17,689	-11,022	0
761 Audits-External	0	0	0	-370	-14	0
765 Empl Pol Prac Proc	0	0	0	-10,359	-12,513	0
766 Maint Employee Recds	0	0	0	-6	0	0
777 Process Payroll	0	0	0	0	-1,800	0
785 Plan Emp Trng & Dev	0	0	0	-610	-876	0
789 Attend Training	0	0	-10	-682	-1,978	0
797 Attend Safety Training	0	0	0	-102	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-548	-10,595	-5,767	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
928 Process Easements	0	0	0	0	-206	0
Total PNX	**0**	**0**	**7,130**	**131,833**	**194,380**	**235,265**
PPA Admin-Ind Rel						
150 HECO						
700 Dev & Adm Business Plans	0	0	49	3,137	0	0
701 Dev & Mg Forecasts	331	692	269	421	369	0
721 Dev Meas & Anlz Perf	0	0	244	0	0	0
723 Mg Incent & Recog Pgm	145,445	72,429	94,815	100,843	-67,883	1,115
745 Maint Rel-Leg & Govt Ag	0	198	220	132	5,953	0
749 Maint Rel-Ind Assoc	0	890	169	158	0	0
765 Empl Pol Prac Proc	92,590	87,115	85,916	77,689	103,347	90,449
766 Maint Employee Recds	9,871	8,526	6,098	4,234	2,243	19,900
767 Recruit PolPracProc	0	0	23	0	0	0
777 Process Payroll	975	1,056	1,057	1,032	1,084	1,115
785 Plan Emp Trng & Dev	95	0	269	0	0	0
788 Conduct Empl Training	450	45	464	263	284	0
789 Attend Training	779	49	1,442	894	454	0
797 Attend Safety Training	91	95	501	24	0	0
805 Mg BU & Oth Lbr Agrmnt	36,531	47,496	44,520	45,847	51,912	45,863
807 Co-wide Empl Commun	0	0	275	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	12	0	0	0
842 Order Mat Eq Sup & Svcs	130	23	0	0	0	0
843 Proc Invoices Oth Pmt	358	305	383	261	241	0
891 Maint Exist Comp App	217	1,908	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	0	0	-1	425	0	0
701 Dev & Mg Forecasts	-22	-44	-8	-23	-46	0
721 Dev Meas & Anlz Perf	0	0	-4	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
723 Mg Incent & Recog Pgm	-2,625	-1,706	-2,268	-2,966	-744	0
745 Maint Rel-Leg & Govt Ag	0	-13	-9	-11	-188	0
749 Maint Rel-Ind Assoc	0	-52	-8	-9	0	0
765 Empl Pol Prac Proc	-6,515	-6,154	-3,589	-3,440	-6,830	0
766 Maint Employee Recds	575	335	227	108	33	0
767 Recruit PolPracProc	0	0	1	0	0	0
777 Process Payroll	-144	-139	-135	-103	-72	0
785 Plan Emp Trng & Dev	-6	0	-14	0	0	0
788 Conduct Empl Training	-34	-6	-20	-14	-31	0
789 Attend Training	-48	-5	-44	-57	-39	0
797 Attend Safety Training	-9	0	-18	-3	0	0
805 Mg BU & Oth Lbr Agrmnt	-3,317	-3,409	-1,109	-2,476	-4,170	0
807 Co-wide Empl Commun	0	0	-19	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-1	0	0	0
842 Order Mat Eq Sup & Svcs	-19	-3	0	0	0	0
843 Proc Invoices Oth Pmt	-52	-39	-52	-23	-17	0
891 Maint Exist Comp App	15	103	0	0	0	0
Total PPA	**275,663**	**209,694**	**229,652**	**226,341**	**85,899**	**158,441**
PPI Labor Rel & Wage Adm						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	242	0	0	0	0
700 Dev & Adm Business Plans	110	479	161	259	0	0
701 Dev & Mg Forecasts	5,450	2,958	2,447	3,428	6,939	3,994
721 Dev Meas & Anlz Perf	542	135	521	4,538	0	0
723 Mg Incent & Recog Pgm	30,332	22,363	6,646	845	24	787
749 Maint Rel-Ind Assoc	463	565	3,029	765	0	0
760 Audits-Internal	0	0	0	119	0	0
765 Empl Pol Prac Proc	24,868	6,813	7,407	10,644	4,008	9,112

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
766 Maint Employee Recds	22	0	0	866	0	0
767 Recruit PolPracProc	452	242	861	1,641	382	0
775 Empl Comp PolPracProc	6,293	12,924	11,534	10,997	10,894	16,482
788 Conduct Empl Training	1,863	60	30	307	159	0
789 Attend Training	3,531	501	348	639	95	0
797 Attend Safety Training	459	1,973	891	368	24	0
805 Mg BU & Oth Lbr Agrmnt	231,886	279,834	280,763	297,006	302,113	288,409
807 Co-wide Empl Commun	65	20	45	153	0	0
836 Fin Rpts/StatInfo-Ext	0	323	4,873	557	0	0
842 Order Mat Eq Sup & Svcs	43	23	93	47	48	0
843 Proc Invoices Oth Pmt	228	23	0	0	0	0
891 Maint Exist Comp App	108	1,013	23	0	0	0
933 Prov&Mg Svcs-Security	68	30	45	0	0	0
965 Prov Records Mgt Svcs	110	0	0	0	0	0
155 HECO						
600 Resp to Cus Inq/Svc Req	0	-20	0	0	0	0
700 Dev & Adm Business Plans	-7	19	17	11	0	0
701 Dev & Mg Forecasts	251	119	88	252	521	0
721 Dev Meas & Anlz Perf	16	0	70	52	0	0
723 Mg Incent & Recog Pgm	-6,236	-4,600	-1,716	-81	1	0
749 Maint Rel-Ind Assoc	-24	8	396	-48	0	0
760 Audits-Internal	0	0	0	4	0	0
765 Empl Pol Prac Proc	-2,251	-491	-1	345	434	0
766 Maint Employee Recds	1	0	0	-129	0	0
767 Recruit PolPracProc	-35	-42	-133	-23	14	0
775 Empl Comp PolPracProc	863	1,188	1,238	647	1,109	0
788 Conduct Empl Training	-397	-17	-9	-3	19	0
789 Attend Training	-17	-13	-27	43	1	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
797 Attend Safety Training	-1	-56	16	22	1	0
805 Mg BU & Oth Lbr Agrmnt	3,880	-10,247	-2,389	9,937	27,223	0
806 Adm Labor Grievances	-23	0	0	0	0	0
807 Co-wide Empl Commun	-2	1	0	1	0	0
836 Fin Rpts/StatInfo-Ext	0	17	581	-2	0	0
842 Order Mat Eq Sup & Svcs	1	0	1	1	3	0
843 Proc Invoices Oth Pmt	8	0	0	0	0	0
891 Maint Exist Comp App	6	43	1	0	0	0
933 Prov&Mg Svcs-Security	-26	-7	2	0	0	0
965 Prov Records Mgt Svcs	2	0	0	0	0	0
Total PPI	**302,900**	**316,425**	**317,852**	**344,206**	**354,014**	**318,784**
PPW Disablity Management						
150 HECO						
700 Dev & Adm Business Plans	0	81	0	0	0	0
720 Improve Bus Processes	0	0	0	0	203	0
745 Maint Rel-Leg & Govt Ag	543	1,132	968	1,774	2,263	1,830
749 Maint Rel-Ind Assoc	3,313	243	707	1,354	264	541
755 Maint Rel-BOD	37	0	0	0	0	0
765 Empl Pol Prac Proc	0	0	0	0	2,316	0
767 Recruit PolPracProc	0	384	382	0	0	0
777 Process Payroll	455	431	574	676	649	697
785 Plan Emp Trng & Dev	0	217	856	325	373	329
789 Attend Training	262	83	1,178	4,031	2,291	3,751
797 Attend Safety Training	65	113	365	94	0	121
805 Mg BU & Oth Lbr Agrmnt	0	831	100	0	0	333
836 Fin Rpts/StatInfo-Ext	0	0	4,232	1,174	950	1,165
891 Maint Exist Comp App	0	90	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
700 Dev & Adm Business Plans	0	-10	0	0	0	0
720 Improve Bus Processes	0	0	0	0	-13	0
745 Maint Rel-Leg & Govt Ag	-105	-107	-115	-118	-109	0
749 Maint Rel-Ind Assoc	-325	-21	-93	-63	-10	0
755 Maint Rel-BOD	-5	0	0	0	0	0
765 Empl Pol Prac Proc	0	0	0	0	-413	0
767 Recruit PolPracProc	0	-44	-63	0	0	0
777 Process Payroll	19	6	-57	-121	-105	0
785 Plan Emp Trng & Dev	0	-12	-65	-27	-15	0
789 Attend Training	-41	-10	-108	-318	-231	0
797 Attend Safety Training	-6	-8	-34	-10	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-53	-8	0	0	0
836 Fin Rpts/StatInfo-Ext	0	0	-582	-67	-22	0
891 Maint Exist Comp App	0	9	0	0	0	0
Total PPW	**4,214**	**3,354**	**8,237**	**8,702**	**8,392**	**8,765**
PQC Corp Communications						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	121	0	4,585	-92	0
700 Dev & Adm Business Plans	2,228	515	261	5,539	2,559	832
701 Dev & Mg Forecasts	3,531	3,072	2,016	2,727	4,668	5,359
713 Adm & Impl DSM Pgm-Base	130	166	402	4,258	8,880	0
720 Improve Bus Processes	2,676	1,999	11,144	3,202	692	3,279
723 Mg Incent & Recog Pgm	0	136	0	0	0	0
735 Rate Case Filings	0	0	5,092	6,598	4,171	6,894
736 Pricing Anlys&Proposals	56	0	0	0	0	0
738 Othr PUC Reg Filings	0	0	0	0	172	0
745 Maint Rel-Leg & Govt Ag	5,064	1,637	2,168	1,830	2,481	2,407

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
747 Mg Environ Initiatives	4,393	3,126	5,810	123	64	984
749 Maint Rel-Ind Assoc	12,471	16,528	6,778	6,498	6,126	7,712
752 Maint Rel-Media	34,897	34,226	28,559	24,729	47,671	41,070
755 Maint Rel-BOD	9	3,329	361	61	831	262
756 Maint Rel-Invest	4,118	5,919	2,888	4,980	3,883	6,239
767 Recruit PolPracProc	131	2,061	3,624	1,523	1,176	0
777 Process Payroll	1,477	1,258	1,220	1,429	1,474	1,454
785 Plan Emp Trng & Dev	3,176	2,385	4,825	2,438	1,723	4,058
787 Dev Empl Training	0	0	130	0	0	0
788 Conduct Empl Training	0	174	0	0	0	0
789 Attend Training	4,417	4,163	8,494	6,011	3,813	4,726
797 Attend Safety Training	0	0	1,184	130	194	0
807 Co-wide Empl Commun	122,617	168,649	139,850	154,709	161,036	184,773
836 Fin Rpts/StatInfo-Ext	140	1,374	2,537	548	213	0
843 Proc Invoices Oth Pmt	3,039	4,027	4,942	5,513	4,381	5,518
875 Comply Ongo Perm-Air	1,959	10	106	0	653	0
877 Cmply Sld&HazWste OilRel	640	604	614	811	145	0
891 Maint Exist Comp App	144	98	0	0	0	0
926 Manage Property	137	0	0	0	0	0
965 Prov Records Mgt Svcs	0	0	0	50	0	0
969 Prov Library/Rsrch Svcs	32,458	30,550	30,571	30,382	30,970	34,002
155 HECO						
600 Resp to Cus Inq/Svc Req	0	-14	0	-515	0	0
700 Dev & Adm Business Plans	-224	-24	-21	287	-59	0
701 Dev & Mg Forecasts	-216	-163	-189	-93	-405	0
713 Adm & Impl DSM Pgm-Base	-7	37	53	601	-1,127	0
720 Improve Bus Processes	219	59	-599	410	10	0
723 Mg Incent & Recog Pgm	0	-12	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
735	Rate Case Filings	0	0	-607	-118	-246	0
736	Pricing Anlys&Proposals	8	0	0	0	0	0
738	Othr PUC Reg Filings	0	0	0	0	-31	0
745	Maint Rel-Leg & Govt Ag	-337	-207	-139	-110	-368	0
747	Mg Environ Initiatives	489	97	57	-15	-13	0
749	Maint Rel-Ind Assoc	-1,157	-1,115	-202	-61	-242	0
752	Maint Rel-Media	808	5,417	11,353	6,833	6,063	0
755	Maint Rel-BOD	0	-187	-17	-1	-93	0
756	Maint Rel-Invest	-394	-883	-288	137	-484	0
767	Recruit PolPracProc	-4	-171	108	-151	127	0
777	Process Payroll	57	36	50	58	101	0
785	Plan Emp Trng & Dev	-80	-105	-294	-230	-182	0
787	Dev Empl Training	0	0	-8	0	0	0
788	Conduct Empl Training	0	5	3	0	0	0
789	Attend Training	180	680	873	233	258	0
797	Attend Safety Training	0	0	128	7	52	0
807	Co-wide Empl Commun	1,549	-7,227	7,081	7,622	3,889	0
836	Fin Rpts/StatInfo-Ext	-8	-152	-228	-40	-16	0
843	Proc Invoices Oth Pmt	103	-137	-105	-11	-101	0
875	Comply Ongo Perm-Air	221	-1	8	0	-4	0
877	Cmply Sld&HazWste OilRel	26	400	344	375	28	0
891	Maint Exist Comp App	-6	3	0	0	0	0
926	Manage Property	-11	0	0	0	0	0
965	Prov Records Mgt Svcs	0	0	0	7	0	0
969	Prov Library/Rsrch Svcs	-1,933	-3,363	-3,083	-2,397	-2,423	0
Total PQC		**239,191**	**279,101**	**277,852**	**281,504**	**292,619**	**309,567**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PQE Educ & Cons Affairs						
150 HECO						
745 Maint Rel-Leg & Govt Ag	0	121	160	0	15,056	0
155 HECO						
745 Maint Rel-Leg & Govt Ag	0	-29	-30	0	-2,692	0
Total PQE	**0**	**92**	**130**	**0**	**12,364**	**0**
PRA Admin-Sys Op						
150 HECO						
930 Mg Const & Reconfig Fac	0	0	0	0	1,604	0
155 HECO						
930 Mg Const & Reconfig Fac	0	0	0	0	9	0
Total PRA	**0**	**0**	**0**	**0**	**1,613**	**0**
PRC Communications						
150 Ward Avenue Bldg						
930 Mg Const & Reconfig Fac	0	0	0	0	1,243	0
933 Prov&Mg Svcs-Security	0	0	0	2,130	0	0
155 Ward Avenue Bldg						
930 Mg Const & Reconfig Fac	0	0	0	0	101	0
933 Prov&Mg Svcs-Security	0	0	0	139	0	0
Total PRC	**0**	**0**	**0**	**2,269**	**1,343**	**0**
PRD Operating Dispatch						
150 HECO						
930 Mg Const & Reconfig Fac	0	0	0	0	1,295	0
155 HECO						
930 Mg Const & Reconfig Fac	0	0	0	0	-89	0
Total PRD	**0**	**0**	**0**	**0**	**1,207**	**0**
PRE Operating Engineering						
150 HECO						
930 Mg Const & Reconfig Fac	0	0	0	0	95	0
933 Prov&Mg Svcs-Security	315	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
930 Mg Const & Reconfig Fac	0	0	0	0	-45	0
933 Prov&Mg Svcs-Security	-22	0	0	0	0	0
Total PRE	**293**	**0**	**0**	**0**	**50**	**0**
PRX Construction Mgt						
150 HECO						
877 Cmply Sld&HazWste OilRel	0	0	0	0	604	0
930 Mg Const & Reconfig Fac	0	0	3,527	0	617	0
931 Care for Bldgs & Grnds	2,184	1,373	2,656	599	230	0
933 Prov&Mg Svcs-Security	539	0	1,793	443	0	0
155 HECO						
877 Cmply Sld&HazWste OilRel	0	0	0	0	65	0
930 Mg Const & Reconfig Fac	0	0	468	0	18	0
931 Care for Bldgs & Grnds	143	139	316	-34	-20	0
933 Prov&Mg Svcs-Security	0	0	229	38	0	0
Total PRX	**2,867**	**1,512**	**8,989**	**1,045**	**1,514**	**0**
PSA Admin-Engy Svcs						
150 HECO						
720 Improve Bus Processes	0	0	186	0	0	0
738 Othr PUC Reg Filings	0	0	0	3,498	19,829	1,230
745 Maint Rel-Leg & Govt Ag	3,599	2,176	122	0	3,054	0
155 HECO						
720 Improve Bus Processes	0	0	-29	0	0	0
738 Othr PUC Reg Filings	0	0	0	-210	-1,542	0
745 Maint Rel-Leg & Govt Ag	563	248	25	0	-151	0
Total PSA	**4,162**	**2,424**	**304**	**3,287**	**21,189**	**1,230**
PSD Cust Efficiency Pgms						
150 HECO						
735 Rate Case Filings	0	0	26,944	6,193	2,804	6,239

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
736 Pricing Anlys&Proposals	664	1,974	3,030	150	322	0
737 Cost Recov & Rate Adj	0	0	0	0	35	0
738 Othr PUC Reg Filings	0	0	242	4,137	16,437	0
745 Maint Rel-Leg & Govt Ag	945	966	6,764	1,610	2,101	4,689
155 HECO						
735 Rate Case Filings	0	0	5,545	1,081	252	0
736 Pricing Anlys&Proposals	-136	-282	-118	-56	-81	0
737 Cost Recov & Rate Adj	0	0	0	0	-9	0
738 Othr PUC Reg Filings	0	0	21	481	2,216	0
745 Maint Rel-Leg & Govt Ag	40	-9	-419	68	-5	0
Total PSD	**1,512**	**2,649**	**42,008**	**13,664**	**24,072**	**10,927**
PSF Forecasts						
150 HECO						
701 Dev & Mg Forecasts	487	0	0	0	0	0
710 Dev & Mg Fcst-Sales/Load	144,610	175,381	55,929	0	0	0
711 Adm & Impl IRP Pgm-Base	47,945	39,188	19,870	0	0	0
713 Adm & Impl DSM Pgm-Base	0	1,027	0	0	0	0
735 Rate Case Filings	0	0	1,646	0	0	0
737 Cost Recov & Rate Adj	5,492	10,483	1,571	0	0	0
745 Maint Rel-Leg & Govt Ag	0	1,474	0	0	0	0
767 Recruit PolPracProc	1,550	40	910	0	0	0
785 Plan Emp Trng & Dev	358	445	562	0	0	0
789 Attend Training	752	0	1,547	0	0	0
797 Attend Safety Training	55	0	392	0	0	0
836 Fin Rpts/StatInfo-Ext	0	483	9,350	0	0	0
155 HECO						
701 Dev & Mg Forecasts	51	0	0	0	0	0
710 Dev & Mg Fcst-Sales/Load	18,452	10,003	5,023	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
711 Adm & Impl IRP Pgm-Base	4,840	2,097	1,377	0	0	0
713 Adm & Impl DSM Pgm-Base	0	44	0	0	0	0
735 Rate Case Filings	0	0	187	0	0	0
737 Cost Recov & Rate Adj	833	347	202	0	0	0
745 Maint Rel-Leg & Govt Ag	0	33	0	0	0	0
767 Recruit PolPracProc	122	3	49	0	0	0
785 Plan Emp Trng & Dev	22	1	41	0	0	0
789 Attend Training	125	0	144	0	0	0
797 Attend Safety Training	6	0	38	0	0	0
836 Fin Rpts/StatInfo-Ext	0	8	252	0	0	0
Total PSF	**225,702**	**241,056**	**99,089**	**0**	**0**	**0**
PSM Forecasts & Research						
150 HECO						
710 Dev & Mg Fcst-Sales/Load	0	0	33,748	76,906	132,965	87,011
711 Adm & Impl IRP Pgm-Base	0	0	20,422	62,752	1,655	57,317
735 Rate Case Filings	0	0	11,441	13,296	5,240	17,851
736 Pricing Anlys&Proposals	5,210	12,909	18,605	2,359	700	1,544
737 Cost Recov & Rate Adj	0	0	272	245	0	0
738 Othr PUC Reg Filings	0	0	321	0	0	0
931 Care for Bldgs & Grnds	0	30	0	0	0	0
155 HECO						
710 Dev & Mg Fcst-Sales/Load	0	0	3,604	1,586	10,248	0
711 Adm & Impl IRP Pgm-Base	0	0	1,359	-306	72	0
735 Rate Case Filings	0	0	1,948	2,178	1,044	0
736 Pricing Anlys&Proposals	766	1,349	-552	-77	53	0
737 Cost Recov & Rate Adj	0	0	23	-3	0	0
738 Othr PUC Reg Filings	0	0	61	0	0	0
931 Care for Bldgs & Grnds	0	4	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PSM	**5,976**	**14,292**	**91,252**	**158,939**	**151,979**	**163,723**
PSN Marketing Services						
150 HECO						
745 Maint Rel-Leg & Govt Ag	0	0	0	5,643	0	0
931 Care for Bldgs & Grnds	0	40	0	0	0	0
155 HECO						
745 Maint Rel-Leg & Govt Ag	0	0	0	600	0	0
931 Care for Bldgs & Grnds	0	3	0	0	0	0
Total PSN	**0**	**44**	**0**	**6,244**	**0**	**0**
PSP Pricing						
150 HECO						
122 Eval & Neg New Cont	0	0	0	3,378	1,082	0
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	5,528
701 Dev & Mg Forecasts	1,011	1,455	842	0	162	0
711 Adm & Impl IRP Pgm-Base	1,801	1,609	774	1,667	454	0
735 Rate Case Filings	0	0	97,508	60,690	48,995	36,310
736 Pricing Anlys&Proposals	108,547	112,671	45,285	97,726	101,557	190,872
737 Cost Recov & Rate Adj	0	12,247	0	0	4,637	7,345
738 Othr PUC Reg Filings	0	0	23,989	1,035	0	0
753 Maint Rel-Community	14	966	50	0	544	0
785 Plan Emp Trng & Dev	262	202	0	521	142	0
789 Attend Training	520	1,208	302	1,196	406	0
797 Attend Safety Training	0	0	352	162	72	0
836 Fin Rpts/StatInfo-Ext	0	0	619	31	81	0
155 HECO						
122 Eval & Neg New Cont	0	0	0	103	61	0
701 Dev & Mg Forecasts	98	53	51	0	-19	0
711 Adm & Impl IRP Pgm-Base	137	67	36	54	33	0
735 Rate Case Filings	0	0	4,635	4,735	-1,973	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
736 Pricing Anlys&Proposals	11,449	5,249	1,930	771	-2,988	0
737 Cost Recov & Rate Adj	0	505	0	0	-272	0
738 Othr PUC Reg Filings	0	0	-393	110	0	0
753 Maint Rel-Community	2	61	5	0	-40	0
785 Plan Emp Trng & Dev	25	6	0	58	-17	0
789 Attend Training	56	34	23	0	-28	0
797 Attend Safety Training	0	0	28	5	-8	0
836 Fin Rpts/StatInfo-Ext	0	0	49	2	-8	0
Total PSP	**123,923**	**136,334**	**176,086**	**172,246**	**152,874**	**240,055**
PSR Cust Tech Applicatns						
150 HECO						
745 Maint Rel-Leg & Govt Ag	0	0	0	955	0	0
931 Care for Bldgs & Grnds	0	151	0	0	0	0
155 HECO						
745 Maint Rel-Leg & Govt Ag	0	0	0	34	0	0
931 Care for Bldgs & Grnds	0	31	0	0	0	0
Total PSR	**0**	**182**	**0**	**990**	**0**	**0**
PVA Admin-Supp Svcs						
150 HECO						
700 Dev & Adm Business Plans	568	0	0	1,971	3,914	0
735 Rate Case Filings	0	0	1,178	276	0	0
788 Conduct Empl Training	0	1,601	1,677	0	0	0
789 Attend Training	0	0	147	2,046	1,997	0
797 Attend Safety Training	14	0	372	161	346	0
807 Co-wide Empl Commun	0	0	0	3,056	7,586	0
840 Adm Oth Procur Pgm-Misc	22,856	22,547	24,347	24,519	3,063	51,987
841 New Supp/Contr/Consult	6,252	9,907	5,415	130	0	0
843 Proc Invoices Oth Pmt	0	0	30	0	32	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
844 Prep Contr-Svcs & Mat	0	92	800	4,034	2,856	11,564
891 Maint Exist Comp App	1,863	37,637	0	0	0	0
960 Mg Svc & Process Doc	0	91	60	0	0	0
155 HECO						
700 Dev & Adm Business Plans	91	0	0	-135	-443	0
735 Rate Case Filings	0	0	-66	-18	0	0
788 Conduct Empl Training	0	-119	-146	0	0	0
789 Attend Training	0	0	-5	-51	-62	0
797 Attend Safety Training	-1	0	18	-12	-51	0
807 Co-wide Empl Commun	0	0	0	-206	-1,362	0
840 Adm Oth Procur Pgm-Misc	3,530	2,744	-900	-1,937	-596	0
841 New Supp/Contr/Consult	-1,038	-1,228	-786	-28	0	0
843 Proc Invoices Oth Pmt	0	0	5	0	-2	0
844 Prep Contr-Svcs & Mat	0	12	-157	-838	-477	0
891 Maint Exist Comp App	276	-422	0	0	0	0
960 Mg Svc & Process Doc	0	15	7	0	0	0
Total PVA	**34,410**	**72,875**	**31,997**	**32,969**	**16,801**	**63,550**
PVF Fleet						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	333
777 Process Payroll	0	0	230	0	0	0
842 Order Mat Eq Sup & Svcs	0	0	230	0	0	0
843 Proc Invoices Oth Pmt	557	0	0	0	0	0
931 Care for Bldgs & Grnds	0	0	1,071	0	0	0
155 HECO						
777 Process Payroll	0	0	-108	0	0	0
842 Order Mat Eq Sup & Svcs	0	0	-108	0	0	0
843 Proc Invoices Oth Pmt	-20	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
931 Care for Bldgs & Grnds	0	0	-277	0	0	0
Total PVF	**537**	**0**	**1,038**	**0**	**0**	**333**
PVL Electric & Welding Svcs						
150 HECO						
112 Dev & Mng Cust Rel	50	0	0	0	0	0
700 Dev & Adm Business Plans	0	0	0	236	66	0
701 Dev & Mg Forecasts	3,834	0	0	0	0	4,386
720 Improve Bus Processes	0	153	99	0	0	0
738 Othr PUC Reg Filings	126	0	0	0	0	0
750 Maint Rel- Cust	0	0	99	0	0	0
766 Maint Employee Recds	9,638	9,542	7,242	1,189	196	0
767 Recruit PolPracProc	0	0	0	16	0	0
777 Process Payroll	9,627	9,761	7,943	3,833	305	0
785 Plan Emp Trng & Dev	4,106	153	0	802	0	17,544
787 Dev Empl Training	0	0	2,120	3,428	6,510	0
788 Conduct Empl Training	10,479	30,206	0	0	0	0
789 Attend Training	0	1,131	8,259	7,584	9,085	46,112
796 Prov & Mg Fire Protect	1,892	642	166	662	99	0
797 Attend Safety Training	0	734	7,280	7,541	5,849	5,106
805 Mg BU & Oth Lbr Agrmnt	0	10,520	0	268	0	0
840 Adm Oth Procur Pgm-Misc	177	122	132	0	99	0
841 New Supp/Contr/Consult	0	0	0	16,274	174	0
842 Order Mat Eq Sup & Svcs	9,885	9,646	19,160	4,507	479	0
843 Proc Invoices Oth Pmt	0	0	0	17,118	109	0
877 Cmply Sld&HazWste OilRel	0	61	0	0	477	0
878 Cmply Sld&HazWste NonOil	0	0	33	32	296	0
896 Op & Maint LAN	580	0	0	0	0	0
926 Manage Property	0	31	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
927 Sell/Dispose Prop	0	118	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	4,405	819	477	11,563
931 Care for Bldgs & Grnds	43,657	34,495	35,449	24,411	27,216	16,973
933 Prov&Mg Svcs-Security	3,259	550	1,209	2,048	379	0
934 Prov&Mg Svcs-Custodial	555	933	11,419	6,955	6,066	0
960 Mg Svc & Process Doc	0	0	0	126	0	0
966 Handle & Deliver Mail	0	61	33	158	148	0
155 HECO						
112 Dev & Mng Cust Rel	5	0	0	0	0	0
700 Dev & Adm Business Plans	0	0	0	-12	1	0
701 Dev & Mg Forecasts	1,400	0	0	0	0	0
720 Improve Bus Processes	0	-9	-8	0	0	0
738 Othr PUC Reg Filings	17	0	0	0	0	0
750 Maint Rel- Cust	0	0	-8	0	0	0
766 Maint Employee Recds	-1,876	-1,431	-299	-7	-40	0
767 Recruit PolPracProc	0	0	0	1	0	0
777 Process Payroll	-1,874	-1,471	-325	-172	-69	0
785 Plan Emp Trng & Dev	1,512	48	0	250	0	0
787 Dev Empl Training	0	0	-38	474	332	0
788 Conduct Empl Training	3,291	-1,355	0	0	0	0
789 Attend Training	0	72	234	695	396	0
796 Prov & Mg Fire Protect	361	8	-1	23	-4	0
797 Attend Safety Training	0	32	-109	557	83	0
805 Mg BU & Oth Lbr Agrmnt	0	-120	0	-7	0	0
840 Adm Oth Procur Pgm-Misc	24	4	-9	11	-1	0
841 New Supp/Contr/Consult	0	0	0	-466	-30	0
842 Order Mat Eq Sup & Svcs	-1,905	-1,452	1,170	-356	-103	0
843 Proc Invoices Oth Pmt	0	0	0	-562	-31	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
877 Cmply Sld&HazWste OilRel	0	-5	0	0	39	0
878 Cmply Sld&HazWste NonOil	0	0	-1	-2	158	0
896 Op & Maint LAN	196	0	0	0	0	0
926 Manage Property	0	-2	0	0	0	0
927 Sell/Dispose Prop	0	20	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	39	70	25	0
931 Care for Bldgs & Grnds	10,544	4,927	7,213	7,229	9,320	0
933 Prov&Mg Svcs-Security	846	-8	-27	137	7	0
934 Prov&Mg Svcs-Custodial	191	6	192	465	283	0
960 Mg Svc & Process Doc	0	0	0	-4	0	0
966 Handle & Deliver Mail	0	7	8	23	28	0
Total PVL	**110,597**	**108,133**	**113,079**	**106,354**	**68,424**	**101,684**
PVM Materials Management						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	2,369
700 Dev & Adm Business Plans	0	1,575	0	2,146	0	0
788 Conduct Empl Training	0	674	1,852	0	0	0
789 Attend Training	0	0	0	1,727	1,911	0
807 Co-wide Empl Commun	0	0	0	1,478	0	0
891 Maint Exist Comp App	587	8,814	0	0	0	4,197
930 Mg Const & Reconfig Fac	0	0	24,748	40	0	11,552
155 HECO						
700 Dev & Adm Business Plans	0	-110	0	65	0	0
788 Conduct Empl Training	0	-34	6	0	0	0
789 Attend Training	0	0	0	63	-30	0
807 Co-wide Empl Commun	0	0	0	217	0	0
891 Maint Exist Comp App	-15	-776	0	0	0	0
930 Mg Const & Reconfig Fac	0	0	4,702	-3	0	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PVM	**573**	**10,142**	**31,308**	**5,733**	**1,882**	**18,118**
PVP Purchasing						
150 HECO						
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	998
700 Dev & Adm Business Plans	0	0	783	2,755	4,733	0
767 Recruit PolPracProc	0	0	2,157	0	4,119	0
788 Conduct Empl Training	0	2,371	1,854	0	0	0
789 Attend Training	2,588	1,615	5,951	5,873	7,762	30,281
797 Attend Safety Training	0	449	1,446	831	871	901
807 Co-wide Empl Commun	0	0	0	1,718	2,040	0
840 Adm Oth Procur Pgm-Misc	104,619	89,275	54,644	29,823	95,834	67,796
841 New Supp/Contr/Consult	746	1,921	1,577	-10,442	6,538	1,155
842 Order Mat Eq Sup & Svcs	238,386	211,609	247,983	232,736	315,252	504,376
843 Proc Invoices Oth Pmt	57,169	48,007	52,994	54,489	92,188	93,358
844 Prep Contr-Svcs & Mat	18,723	24,369	35,973	90,949	122,710	48,592
891 Maint Exist Comp App	301	21,933	0	0	0	0
960 Mg Svc & Process Doc	0	162	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	0	0	-18	13	-219	0
767 Recruit PolPracProc	0	0	-21	0	-426	0
788 Conduct Empl Training	0	-306	-25	0	0	0
789 Attend Training	-403	-140	-275	-232	-751	0
797 Attend Safety Training	0	-52	-23	-59	-58	0
807 Co-wide Empl Commun	0	0	0	-95	-159	0
840 Adm Oth Procur Pgm-Misc	22,865	16,318	-1,775	863	-8,085	0
841 New Supp/Contr/Consult	-80	-273	-72	-155	-22	0
842 Order Mat Eq Sup & Svcs	-17,723	-21,731	-20,218	-28,326	-35,619	0
843 Proc Invoices Oth Pmt	-1,498	-915	-1,589	-2,223	-2,870	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
844 Prep Contr-Svcs & Mat	-2,101	-3,450	-1,353	-4,490	-13,431	0
891 Maint Exist Comp App	-26	-2,554	0	0	0	0
960 Mg Svc & Process Doc	0	47	0	0	0	0
Total PVP	**423,566**	**388,657**	**379,995**	**374,029**	**590,406**	**747,457**
PWA Admin-CID						
150 HECO						
711 Adm & Impl IRP Pgm-Base	0	0	158	0	0	0
745 Maint Rel-Leg & Govt Ag	0	2,000	1,104	0	0	0
876 Comply Ongo-Wstewtr	0	104	0	0	0	0
155 HECO						
711 Adm & Impl IRP Pgm-Base	0	0	5	0	0	0
745 Maint Rel-Leg & Govt Ag	0	-70	-25	0	0	0
876 Comply Ongo-Wstewtr	0	-3	0	0	0	0
Total PWA	**0**	**2,031**	**1,241**	**0**	**0**	**0**
PWX Engineering & Meter						
150 HECO						
736 Pricing Anlys&Proposals	31,104	22,639	12,514	9,615	1,202	0
155 HECO						
736 Pricing Anlys&Proposals	922	510	846	-599	-42	0
Total PWX	**32,026**	**23,148**	**13,360**	**9,016**	**1,160**	**0**
PYA Admin-Plng & Engr						
150 HECO						
701 Dev & Mg Forecasts	230	1,484	0	0	0	0
711 Adm & Impl IRP Pgm-Base	9,646	5,797	3,121	1,009	142	0
720 Improve Bus Processes	1,118	1,032	796	646	142	0
745 Maint Rel-Leg & Govt Ag	66	0	0	0	0	0
788 Conduct Empl Training	0	66	0	0	0	0
789 Attend Training	428	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	11,372	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
807 Co-wide Empl Commun	887	0	0	0	0	0
891 Maint Exist Comp App	0	1,872	0	0	0	0
155 HECO						
701 Dev & Mg Forecasts	-23	-31	0	0	0	0
711 Adm & Impl IRP Pgm-Base	-918	-173	-50	-27	-17	0
720 Improve Bus Processes	-119	-50	-16	-19	-17	0
745 Maint Rel-Leg & Govt Ag	-9	0	0	0	0	0
788 Conduct Empl Training	0	-2	0	0	0	0
789 Attend Training	13	0	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-542	0	0	0	0
807 Co-wide Empl Commun	-117	0	0	0	0	0
891 Maint Exist Comp App	0	-54	0	0	0	0
Total PYA	**11,202**	**20,772**	**3,851**	**1,610**	**250**	**0**
PYB Generation Planning						
150 HECO						
700 Dev & Adm Business Plans	0	25,679	43,197	32,091	75	0
710 Dev & Mg Fcst-Sales/Load	0	242	0	0	0	0
711 Adm & Impl IRP Pgm-Base	8,393	19,733	136,887	22,102	640	51,034
735 Rate Case Filings	0	0	0	13,867	30,497	0
789 Attend Training	3,389	3,807	6,788	6,269	75	0
797 Attend Safety Training	95	134	174	425	0	0
836 Fin Rpts/StatInfo-Ext	14,442	935	6,127	18,578	25,909	0
155 HECO						
700 Dev & Adm Business Plans	0	278	-3,377	-3,160	-5	0
710 Dev & Mg Fcst-Sales/Load	0	4	0	0	0	0
711 Adm & Impl IRP Pgm-Base	692	1,769	2,675	1,851	107	0
735 Rate Case Filings	0	0	0	-398	-589	0
789 Attend Training	52	88	-453	-1,059	-1	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
797 Attend Safety Training	-4	0	-5	4	0	0
836 Fin Rpts/StatInfo-Ext	843	-10	22	860	105	0
Total PYB	**27,901**	**52,659**	**192,035**	**91,430**	**56,813**	**51,034**
PYC Support Staff						
150 HECO						
891 Maint Exist Comp App	0	37	0	0	0	0
155 HECO						
891 Maint Exist Comp App	0	-3	0	0	0	0
Total PYC	**0**	**34**	**0**	**0**	**0**	**0**
PYE PS Technical Svcs						
150 HECO						
789 Attend Training	0	1,000	0	0	36	0
841 New Supp/Contr/Consult	0	0	1,285	0	0	0
155 HECO						
789 Attend Training	0	152	0	0	1	0
841 New Supp/Contr/Consult	0	0	49	0	0	0
Total PYE	**0**	**1,152**	**1,335**	**0**	**36**	**0**
PYF PP Electrical Engr						
150 HECO						
789 Attend Training	0	1,211	114	0	0	0
155 HECO						
789 Attend Training	0	68	18	0	0	0
Total PYF	**0**	**1,279**	**131**	**0**	**0**	**0**
PYG PP Drafting						
150 HECO						
795 Mg Safety Pgm & Trng	219	0	0	0	0	0
875 Comply Ongo Perm-Air	0	0	0	0	118	0
155 HECO						
795 Mg Safety Pgm & Trng	5	0	0	0	0	0
875 Comply Ongo Perm-Air	0	0	0	0	-42	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PYG	**224**	**0**	**0**	**0**	**76**	**0**
PYJ PP Project Mgt						
150 HECO						
700 Dev & Adm Business Plans	6,390	0	0	0	0	0
711 Adm & Impl IRP Pgm-Base	574	1,852	3,443	3,032	333	0
788 Conduct Empl Training	0	3,630	0	0	0	0
789 Attend Training	0	1,185	0	0	0	0
877 Cmply Sld&HazWste OilRel	3,518	12,223	5,130	0	0	0
155 HECO						
700 Dev & Adm Business Plans	491	0	0	0	0	0
711 Adm & Impl IRP Pgm-Base	56	197	767	232	25	0
788 Conduct Empl Training	0	435	0	0	0	0
789 Attend Training	0	84	0	0	0	0
877 Cmply Sld&HazWste OilRel	-114	-326	425	0	0	0
Total PYJ	**10,915**	**19,280**	**9,765**	**3,265**	**358**	**0**
PYM PP Mechanical Engr						
150 HECO						
700 Dev & Adm Business Plans	65	0	0	0	0	0
720 Improve Bus Processes	97	285	70	0	0	0
788 Conduct Empl Training	0	250	0	0	0	0
789 Attend Training	0	2,103	35	0	0	0
841 New Supp/Contr/Consult	0	570	0	0	0	0
875 Comply Ongo Perm-Air	0	0	0	0	8,131	0
891 Maint Exist Comp App	0	1,747	70	0	0	0
155 HECO						
700 Dev & Adm Business Plans	11	0	0	0	0	0
720 Improve Bus Processes	46	105	29	0	0	0
788 Conduct Empl Training	0	-56	0	0	0	0
789 Attend Training	0	45	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
841 New Supp/Contr/Consult	0	-13	0	0	0	0
875 Comply Ongo Perm-Air	0	0	0	0	-3,264	0
891 Maint Exist Comp App	0	-314	-19	0	0	0
Total PYM	**218**	**4,724**	**184**	**0**	**4,867**	**0**
PYP Integrated Res Plng						
150 HECO						
700 Dev & Adm Business Plans	0	34	0	80	24,158	3,327
711 Adm & Impl IRP Pgm-Base	54,856	96,156	93,925	127,410	89,006	140,253
735 Rate Case Filings	0	0	0	83	0	0
745 Maint Rel-Leg & Govt Ag	3,615	0	0	0	0	0
767 Recruit PolPracProc	0	710	3,088	2,240	1,157	0
789 Attend Training	1,029	1,150	843	10,954	1,412	8,054
797 Attend Safety Training	64	34	144	139	172	0
836 Fin Rpts/StatInfo-Ext	627	0	0	0	0	0
155 HECO						
700 Dev & Adm Business Plans	0	7	0	11	680	0
711 Adm & Impl IRP Pgm-Base	5,890	6,553	-849	-6,903	-4,816	0
735 Rate Case Filings	0	0	0	-14	0	0
745 Maint Rel-Leg & Govt Ag	293	0	0	0	0	0
767 Recruit PolPracProc	0	109	239	48	85	0
789 Attend Training	117	167	22	-806	-140	0
797 Attend Safety Training	-4	0	-13	-3	-21	0
836 Fin Rpts/StatInfo-Ext	-26	0	0	0	0	0
Total PYP	**66,461**	**104,918**	**97,400**	**133,238**	**111,692**	**151,634**
PYT Transmission Plng						
150 HECO						
711 Adm & Impl IRP Pgm-Base	0	1,643	10,013	2,698	0	0
789 Attend Training	0	582	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
805 Mg BU & Oth Lbr Agrmnt	0	68	0	0	0	0
877 Cmply Sld&HazWste OilRel	0	171	0	0	0	0
155 HECO						
711 Adm & Impl IRP Pgm-Base	0	178	152	392	0	0
789 Attend Training	0	42	0	0	0	0
805 Mg BU & Oth Lbr Agrmnt	0	-3	0	0	0	0
877 Cmply Sld&HazWste OilRel	0	-6	0	0	0	0
Total PYT	**0**	**2,676**	**10,165**	**3,090**	**0**	**0**
Total 920	**12,475,984**	**12,900,438**	**13,586,939**	**14,238,781**	**11,787,497**	**14,428,166**
924 PROPERTY INSURANCE						
PDA Admin-C&M						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	100	0	0	0	0	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	6	-6	29	0	0	0
Total PDA	**106**	**-6**	**29**	**0**	**0**	**0**
PDD Training Section						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	628	345	212	536	0	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-229	7	-122	-250	0	0
Total PDD	**399**	**352**	**90**	**286**	**0**	**0**
PDF Field Operation						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	302	349	1,154	569	655	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	30	-11	210	34	-168	0
Total PDF	**332**	**338**	**1,363**	**602**	**487**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDJ West Overhead						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	1,640	1,548	3,433	2,609	4,682	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-35	501	701	426	401	0
Total PDJ	**1,605**	**2,050**	**4,134**	**3,035**	**5,083**	**0**
PDK East Overhead-Koolau						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	187	890	1,405	4,070	1,902	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-51	22	305	819	347	0
Total PDK	**136**	**912**	**1,710**	**4,888**	**2,249**	**0**
PDL East Overhead-Ward						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	2,334	1,701	2,536	4,594	8,121	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	661	1,018	526	1,060	166	0
Total PDL	**2,995**	**2,719**	**3,062**	**5,653**	**8,287**	**0**
PDP Planning						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	0	0	0	0	72	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	0	0	0	0	-6	0
Total PDP	**0**	**0**	**0**	**0**	**66**	**0**
PDS Operations						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	178	424	98	653	302	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	12	25	37	125	-12	0
Total PDS	**191**	**449**	**135**	**778**	**290**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDT Transmission & Trng						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	603	0	0	0	0	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-62	0	0	0	0	0
Total PDT	**541**	**0**	**0**	**0**	**0**	**0**
PDU Underground						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	847	2,489	3,849	910	5,286	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-132	558	609	58	375	0
Total PDU	**715**	**3,048**	**4,458**	**968**	**5,661**	**0**
PJW Water & Haz Mat						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	58	-58	0	0	0	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-1	1	0	0	0	0
Total PJW	**57**	**-57**	**0**	**0**	**0**	**0**
PKB Admin-MgtAcc FinSvc						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	0	52	0	0	0	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	0	15	0	0	0	0
Total PKB	**0**	**67**	**0**	**0**	**0**	**0**
PKF Financial Analysis						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	0	162	0	0	0	0
Total PKF	**0**	**162**	**0**	**0**	**0**	**0**
PKI Risk Management						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	126,641	141,459	144,317	148,392	146,560	159,716

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
951 Prov Risk Mgt Svcs-Prop	-723	-5,109	-7,541	-7,430	-7,385	0
Total PKI	**125,918**	**136,351**	**136,776**	**140,963**	**139,175**	**159,716**
PNC Legal						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	6,923	5,848	7,504	14,566	15,594	13,853
155 HECO						
951 Prov Risk Mgt Svcs-Prop	908	113	-350	-936	-3,095	0
Total PNC	**7,831**	**5,961**	**7,154**	**13,630**	**12,499**	**13,853**
PRD Operating Dispatch						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	0	50	0	0	0	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	0	-3	0	0	0	0
Total PRD	**0**	**47**	**0**	**0**	**0**	**0**
PRS Substation						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	0	0	0	0	118	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	0	0	0	0	-24	0
Total PRS	**0**	**0**	**0**	**0**	**94**	**0**
PRX Construction Mgt						
150 HECO						
951 Prov Risk Mgt Svcs-Prop	3,095	-1,293	-327	0	314	0
155 HECO						
951 Prov Risk Mgt Svcs-Prop	453	-289	-27	0	-1	0
Total PRX	**3,548**	**-1,583**	**-354**	**0**	**314**	**0**
Total 924	**144,371**	**150,810**	**158,556**	**170,804**	**174,204**	**173,569**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
925 INJURIES & DAMAGES						
P5V VP-Gen Counsel						
150 HECO						
950 Prov Risk Mgt Svcs-Liab	0	0	194	0	0	0
155 HECO						
950 Prov Risk Mgt Svcs-Liab	0	0	-29	0	0	0
Total P5V	**0**	**0**	**165**	**0**	**0**	**0**
P8V Sr VP-Operations						
150 HECO						
795 Mg Safety Pgm & Trng	0	0	145	154	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	0	20	16	0	0
Total P8V	**0**	**0**	**166**	**170**	**0**	**0**
PAA Admin-Gen Acctg						
150 HECO						
953 Prov Risk Mgt Svcs-WC	531	896	754	474	787	836
155 HECO						
953 Prov Risk Mgt Svcs-WC	102	125	133	63	73	0
Total PAA	**634**	**1,021**	**887**	**538**	**860**	**836**
PBE T&D Engineering						
108 HECO						
098 Payroll Cost Center	1,999	40	0	0	0	0
150 HECO						
795 Mg Safety Pgm & Trng	0	963	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	169	0	0	0	0
Total PBE	**1,999**	**1,172**	**0**	**0**	**0**	**0**
PBP Project Mgt Division						
108 HECO						
098 Payroll Cost Center	0	1,375	65	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PBP	**0**	**1,375**	**65**	**0**	**0**	**0**
PBT Structural						
150 HECO						
795 Mg Safety Pgm & Trng	0	972	671	0	421	0
950 Prov Risk Mgt Svcs-Liab	1,998	0	0	391	81	0
155 HECO						
795 Mg Safety Pgm & Trng	0	276	-11	0	3	0
950 Prov Risk Mgt Svcs-Liab	-23	0	0	98	23	0
Total PBT	**1,974**	**1,248**	**660**	**489**	**527**	**0**
PBZ T&D Technical Svcs						
150 HECO						
795 Mg Safety Pgm & Trng	0	1,213	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	27	0	0	0	0
Total PBZ	**0**	**1,240**	**0**	**0**	**0**	**0**
PCB Cust Acctg & Bill						
108 HECO						
098 Payroll Cost Center	0	561	0	0	0	0
Total PCB	**0**	**561**	**0**	**0**	**0**	**0**
PCF Customer Field Services						
150 HECO						
953 Prov Risk Mgt Svcs-WC	356	0	0	0	0	0
155 HECO						
953 Prov Risk Mgt Svcs-WC	-90	0	0	0	0	0
Total PCF	**266**	**0**	**0**	**0**	**0**	**0**
PCG Fld Svc & Collection						
108 HECO						
098 Payroll Cost Center	232	11,901	0	258	0	0
150 HECO						
795 Mg Safety Pgm & Trng	0	0	45	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
795 Mg Safety Pgm & Trng	0	0	-11	0	0	0
Total PCG	**232**	**11,901**	**34**	**258**	**0**	**0**
PCH Customer Assist Ctr						
108 HECO						
098 Payroll Cost Center	15,059	733	87	5	16	0
Total PCH	**15,059**	**733**	**87**	**5**	**16**	**0**
PCM Meter Reading						
108 HECO						
098 Payroll Cost Center	5,424	0	876	5,042	6,051	0
Total PCM	**5,424**	**0**	**876**	**5,042**	**6,051**	**0**
PCP Pmt Proc & Supp Ctr						
108 HECO						
098 Payroll Cost Center	0	1,571	6,274	4,138	5,071	0
Total PCP	**0**	**1,571**	**6,274**	**4,138**	**5,071**	**0**
PDA Admin-C&M						
150 HECO						
795 Mg Safety Pgm & Trng	0	1,166	0	0	346	0
155 HECO						
795 Mg Safety Pgm & Trng	0	-12,407	0	0	-31	0
Total PDA	**0**	**-11,241**	**0**	**0**	**315**	**0**
PDC Control Section						
150 HECO						
795 Mg Safety Pgm & Trng	0	954	0	0	283	0
155 HECO						
795 Mg Safety Pgm & Trng	0	71	0	0	44	0
Total PDC	**0**	**1,025**	**0**	**0**	**327**	**0**
PDD Training Section						
108 HECO						
098 Payroll Cost Center	1,366	1,497	2,048	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
150 HECO						
795 Mg Safety Pgm & Trng	6,778	25,199	86	0	360	0
155 HECO						
795 Mg Safety Pgm & Trng	-2,097	-11,655	2	0	-129	0
Total PDD	**6,047**	**15,041**	**2,135**	**0**	**231**	**0**
PDF Field Operation						
108 HECO						
098 Payroll Cost Center	2,221	10,964	4,965	4,876	42,809	0
150 HECO						
795 Mg Safety Pgm & Trng	134	0	0	0	1,288	0
155 HECO						
795 Mg Safety Pgm & Trng	13	0	0	0	1	0
Total PDF	**2,369**	**10,964**	**4,965**	**4,876**	**44,098**	**0**
PDH Customer Demand						
108 HECO						
098 Payroll Cost Center	856	0	0	0	0	0
150 HECO						
795 Mg Safety Pgm & Trng	14,752	0	51	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-4,287	0	10	0	0	0
Total PDH	**11,320**	**0**	**61**	**0**	**0**	**0**
PDJ West Overhead						
108 HECO						
098 Payroll Cost Center	7,158	8,362	27,843	52,908	6,875	0
150 HECO						
795 Mg Safety Pgm & Trng	26,268	28,116	16,777	18,058	7,362	0
950 Prov Risk Mgt Svcs-Liab	194	0	413	2,049	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-2,442	-2,796	-3,014	-2,732	-826	0
950 Prov Risk Mgt Svcs-Liab	-16	0	45	-16	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PDJ	**31,162**	**33,682**	**42,064**	**70,268**	**13,411**	**0**
PDK East Overhead-Koolau						
108 HECO						
098 Payroll Cost Center	3,308	-3,211	2,460	-165	8,864	0
150 HECO						
795 Mg Safety Pgm & Trng	30,090	0	5,982	3,173	1,910	0
950 Prov Risk Mgt Svcs-Liab	0	0	0	216	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-4,189	0	-754	-146	-238	0
950 Prov Risk Mgt Svcs-Liab	0	0	0	14	0	0
Total PDK	**29,210**	**-3,211**	**7,688**	**3,092**	**10,536**	**0**
PDL East Overhead-Ward						
108 HECO						
098 Payroll Cost Center	7,310	13,806	6,239	13,592	18,831	0
150 HECO						
795 Mg Safety Pgm & Trng	7,457	27,870	19,511	3,843	4,372	0
155 HECO						
795 Mg Safety Pgm & Trng	-658	-2,007	-1,994	-931	-610	0
Total PDL	**14,109**	**39,669**	**23,755**	**16,504**	**22,593**	**0**
PDM Maint Demand Div						
150 HECO						
795 Mg Safety Pgm & Trng	0	242	0	0	0	0
950 Prov Risk Mgt Svcs-Liab	0	0	0	89	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	52	0	0	0	0
950 Prov Risk Mgt Svcs-Liab	0	0	0	12	0	0
Total PDM	**0**	**295**	**0**	**101**	**0**	**0**
PDP Planning						
150 HECO						
795 Mg Safety Pgm & Trng	0	3,805	0	0	1,383	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
795 Mg Safety Pgm & Trng	0	979	0	0	39	0
Total PDP	**0**	**4,785**	**0**	**0**	**1,422**	**0**
PDS Operations						
150 HECO						
795 Mg Safety Pgm & Trng	842	484	0	0	708	95,826
155 HECO						
795 Mg Safety Pgm & Trng	-67	29	0	0	-10	0
Total PDS	**774**	**513**	**0**	**0**	**698**	**95,826**
PDT Transmission & Trng						
108 HECO						
098 Payroll Cost Center	20,508	548	0	0	0	0
150 HECO Distrib Operations						
795 Mg Safety Pgm & Trng	13,458	0	0	0	0	0
155 HECO Distrib Operations						
795 Mg Safety Pgm & Trng	-1,756	0	0	0	0	0
Total PDT	**32,210**	**548**	**0**	**0**	**0**	**0**
PDU Underground						
108 HECO						
098 Payroll Cost Center	27,297	0	7,558	-1,980	1,239	0
150 HECO						
795 Mg Safety Pgm & Trng	595	1,738	2,751	0	1,963	0
950 Prov Risk Mgt Svcs-Liab	112	0	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-42	45	-239	0	-118	0
950 Prov Risk Mgt Svcs-Liab	-7	0	0	0	0	0
Total PDU	**27,955**	**1,783**	**10,071**	**-1,980**	**3,085**	**0**
PEC Customer Care						
150 HECO						
795 Mg Safety Pgm & Trng	0	0	0	0	391	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
795 Mg Safety Pgm & Trng	0	0	0	0	55	0
Total PEC	**0**	**0**	**0**	**0**	**447**	**0**
PED Development Svcs						
108 HECO						
098 Payroll Cost Center	0	0	0	42	0	0
Total PED	**0**	**0**	**0**	**42**	**0**	**0**
PFA Admin-WFS & Dev						
150 HECO						
795 Mg Safety Pgm & Trng	2,979	174	302	4,068	1,037	2,052
155 HECO						
795 Mg Safety Pgm & Trng	-223	0	6	248	-9	0
Total PFA	**2,755**	**174**	**308**	**4,315**	**1,028**	**2,052**
PFB Employee Benefits						
150 HECO						
795 Mg Safety Pgm & Trng	445	211	181	153	2,244	131
953 Prov Risk Mgt Svcs-WC	54,823	2,386	166	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	54	10	13	12	181	0
953 Prov Risk Mgt Svcs-WC	4,383	-15	9	0	0	0
Total PFB	**59,705**	**2,592**	**369**	**165**	**2,425**	**131**
PFC Compensation						
150 HECO						
953 Prov Risk Mgt Svcs-WC	726	0	0	0	365	0
155 HECO						
953 Prov Risk Mgt Svcs-WC	21	0	0	0	-19	0
Total PFC	**747**	**0**	**0**	**0**	**346**	**0**
PFD Client Svcs & Consult						
150 HECO						
795 Mg Safety Pgm & Trng	96	136	106	65	41	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
953 Prov Risk Mgt Svcs-WC	2,849	0	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	4	-3	-19	-8	-8	0
953 Prov Risk Mgt Svcs-WC	-86	0	0	0	0	0
Total PFD	**2,863**	**133**	**87**	**57**	**33**	**0**
PFI Org Development						
150 HECO						
795 Mg Safety Pgm & Trng	110	75	0	0	159	0
155 HECO						
795 Mg Safety Pgm & Trng	-5	0	0	0	10	0
Total PFI	**105**	**75**	**0**	**0**	**169**	**0**
PFS Corporate Safety						
108 HECO						
098 Payroll Cost Center	0	0	988	0	0	0
150 HECO						
112 Dev & Mng Cust Rel	0	219	196	0	0	2,361
600 Resp to Cus Inq/Svc Req	0	0	0	0	0	262
700 Dev & Adm Business Plans	0	551	1,519	1,653	0	0
701 Dev & Mg Forecasts	1,367	566	521	3,444	1,425	3,993
721 Dev Meas & Anlz Perf	37	0	0	0	0	0
749 Maint Rel-Ind Assoc	1,273	1,452	26,970	1,700	1,309	0
767 Recruit PolPracProc	0	0	0	0	191	0
777 Process Payroll	1,274	1,247	1,176	1,244	679	1,357
785 Plan Emp Trng & Dev	0	707	0	438	203	0
789 Attend Training	15,760	19,565	18,076	17,399	13,694	23,887
795 Mg Safety Pgm & Trng	340,499	478,000	436,905	459,263	506,397	520,030
796 Prov & Mg Fire Protect	94,353	91,709	88,349	93,190	94,677	101,889
797 Attend Safety Training	0	0	0	0	0	693
842 Order Mat Eq Sup & Svcs	3,190	3,948	4,364	4,162	4,390	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
843 Proc Invoices Oth Pmt	3,750	3,227	4,160	4,471	3,624	0
930 Mg Const & Reconfig Fac	0	0	799	0	194	0
950 Prov Risk Mgt Svcs-Liab	19,215	16,818	17,943	23,728	19,282	65,270
155 HECO						
112 Dev & Mng Cust Rel	0	-28	-30	0	0	0
700 Dev & Adm Business Plans	0	71	64	70	0	0
701 Dev & Mg Forecasts	202	32	77	316	124	0
721 Dev Meas & Anlz Perf	5	0	0	0	0	0
749 Maint Rel-Ind Assoc	185	63	-8,819	282	116	0
767 Recruit PolPracProc	0	0	0	0	6	0
777 Process Payroll	151	97	89	84	71	0
785 Plan Emp Trng & Dev	0	0	0	84	-15	0
789 Attend Training	-1,045	-1,577	195	350	114	0
795 Mg Safety Pgm & Trng	348	-19,057	1,099	6,756	1,415	0
796 Prov & Mg Fire Protect	12,063	15,441	16,750	14,669	11,169	0
842 Order Mat Eq Sup & Svcs	-445	-633	-633	-786	-446	0
843 Proc Invoices Oth Pmt	71	205	322	230	267	0
930 Mg Const & Reconfig Fac	0	0	210	0	30	0
950 Prov Risk Mgt Svcs-Liab	-1,531	-1,459	-1,554	-206	329	0
Total PFS	**490,722**	**611,165**	**609,737**	**632,540**	**659,247**	**719,741**
PHA Admin-Facilities						
150 HECO						
795 Mg Safety Pgm & Trng	17,804	21,931	19,703	21,145	26,602	24,185
797 Attend Safety Training	327	564	703	602	328	0
155 HECO						
795 Mg Safety Pgm & Trng	416	234	687	194	-930	0
797 Attend Safety Training	5	0	29	-35	-12	0
Total PHA	**18,553**	**22,729**	**21,121**	**21,906**	**25,988**	**24,185**

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PHB Facilities Operation						
108 HECO						
098 Payroll Cost Center	0	1,575	0	0	0	0
150 HECO						
795 Mg Safety Pgm & Trng	0	0	508	2,156	1,025	0
796 Prov & Mg Fire Protect	0	75	1,122	369	0	0
950 Prov Risk Mgt Svcs-Liab	0	75	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	0	111	325	197	0
796 Prov & Mg Fire Protect	0	10	297	-62	0	0
950 Prov Risk Mgt Svcs-Liab	0	31	0	0	0	0
Total PHB	**0**	**1,766**	**2,038**	**2,790**	**1,222**	**0**
PHF Facilities Planning						
150 HECO						
795 Mg Safety Pgm & Trng	0	0	166	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	0	7	0	0	0
Total PHF	**0**	**0**	**174**	**0**	**0**	**0**
PHS Security						
108 HECO						
098 Payroll Cost Center	0	0	0	75	0	0
150 HECO						
795 Mg Safety Pgm & Trng	135	0	40	0	0	0
796 Prov & Mg Fire Protect	0	121	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-17	0	-9	0	0	0
796 Prov & Mg Fire Protect	0	-56	0	0	0	0
Total PHS	**118**	**65**	**31**	**75**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PIB Admin-PS O&M						
108 HECO						
098 Payroll Cost Center	0	0	0	0	207	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	0	0	98	0	0	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	0	0	-15	0	0	0
Total PIB	**0**	**0**	**84**	**0**	**207**	**0**
PIH Honolulu Stn Oper						
108 HECO						
098 Payroll Cost Center	0	116	479	0	1,980	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	266	0	290	0	0	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	4	0	24	0	0	0
Total PIH	**269**	**116**	**792**	**0**	**1,980**	**0**
PIK Kahe Stn Oper						
108 HECO						
098 Payroll Cost Center	42,925	17,368	17,494	434	0	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	682	1,545	194	543	42	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	-2	55	-1	9	0	0
Total PIK	**43,605**	**18,968**	**17,686**	**987**	**42**	**0**
PIL Kahe Stn Maint						
108 HECO						
098 Payroll Cost Center	76,149	3,389	20,163	23,933	13,777	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	1,315	3,243	2,464	1,782	1,603	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	-17	112	58	38	147	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PIL	**77,447**	**6,744**	**22,686**	**25,753**	**15,528**	**0**
PIN Honolulu Stn Maint						
108 HECO						
098 Payroll Cost Center	2,076	0	161	3,471	3,016	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	2,078	2,127	1,478	831	1,515	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	119	128	18	-3	34	0
Total PIN	**4,273**	**2,255**	**1,657**	**4,298**	**4,565**	**0**
PIO Operations Admin						
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	0	0	183	99	141	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	0	0	0	-12	-29	0
Total PIO	**0**	**0**	**182**	**87**	**112**	**0**
PIP Plan & Engr						
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	1,885	599	579	217	1,582	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	-2	-51	-71	2	33	0
Total PIP	**1,883**	**548**	**509**	**219**	**1,615**	**0**
PIT Traveling Maintenance						
108 HECO						
098 Payroll Cost Center	51,252	20,055	7,788	1,496	1,818	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	8,210	7,940	3,689	2,488	3,239	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	-483	332	205	152	45	0
Total PIT	**58,979**	**28,327**	**11,682**	**4,136**	**5,102**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PIW Waiau Stn Oper						
108 HECO						
098 Payroll Cost Center	21,949	115,653	64,449	18,468	9,417	0
150 HECO						
795 Mg Safety Pgm & Trng	0	0	32	0	75	0
953 Prov Risk Mgt Svcs-WC	51	0	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	0	2	0	-1	0
953 Prov Risk Mgt Svcs-WC	-1	0	0	0	0	0
Total PIW	**21,999**	**115,653**	**64,484**	**18,468**	**9,490**	**0**
PIX Waiau Stn Maint						
108 HECO						
098 Payroll Cost Center	1,885	670	3,057	1,474	8,593	0
150 HECO Production Maint						
795 Mg Safety Pgm & Trng	1,401	975	1,146	105	181	0
155 HECO Production Maint						
795 Mg Safety Pgm & Trng	321	119	212	-5	-21	0
Total PIX	**3,606**	**1,765**	**4,415**	**1,574**	**8,753**	**0**
PJA Admin-Environ						
108 HECO						
098 Payroll Cost Center	0	0	0	598	5,718	0
Total PJA	**0**	**0**	**0**	**598**	**5,718**	**0**
PKB Admin-MgtAcc FinSvc						
150 HECO						
795 Mg Safety Pgm & Trng	55	0	0	0	0	0
953 Prov Risk Mgt Svcs-WC	0	40	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-3	0	0	0	0	0
953 Prov Risk Mgt Svcs-WC	0	-7	0	0	0	0
Total PKB	**51**	**33**	**0**	**0**	**0**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PKC Budgets						
150 HECO						
795 Mg Safety Pgm & Trng	27	0	0	0	0	0
953 Prov Risk Mgt Svcs-WC	0	0	0	736	0	0
155 HECO						
795 Mg Safety Pgm & Trng	5	0	0	0	0	0
953 Prov Risk Mgt Svcs-WC	0	0	0	6	0	0
Total PKC	**32**	**0**	**0**	**742**	**0**	**0**
PKI Risk Management						
150 HECO						
950 Prov Risk Mgt Svcs-Liab	236,107	262,293	244,523	260,733	262,295	225,014
953 Prov Risk Mgt Svcs-WC	1,743	2,467	2,053	1,788	1,413	5,265
155 HECO						
950 Prov Risk Mgt Svcs-Liab	2,215	-8,326	-4,718	-932	-2,287	0
953 Prov Risk Mgt Svcs-WC	160	141	144	102	60	0
Total PKI	**240,225**	**256,575**	**242,003**	**261,691**	**261,481**	**230,279**
PNC Legal						
150 HECO						
795 Mg Safety Pgm & Trng	2,307	3,410	6,877	5,605	6,609	7,268
950 Prov Risk Mgt Svcs-Liab	20,013	13,089	26,616	26,293	115,813	25,515
953 Prov Risk Mgt Svcs-WC	2,142	971	870	1,895	2,957	4,651
155 HECO						
795 Mg Safety Pgm & Trng	150	-329	-862	126	-447	0
950 Prov Risk Mgt Svcs-Liab	841	-1,374	-5,426	-1,505	-3,800	0
953 Prov Risk Mgt Svcs-WC	208	121	-205	-238	-569	0
Total PNC	**25,661**	**15,888**	**27,870**	**32,175**	**120,562**	**37,434**
PPI Labor Rel & Wage Adm						
150 HECO						
795 Mg Safety Pgm & Trng	14,126	8,992	11,356	11,363	10,482	9,837
953 Prov Risk Mgt Svcs-WC	493	0	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
795 Mg Safety Pgm & Trng	470	-410	192	175	328	0
953 Prov Risk Mgt Svcs-WC	-52	0	0	0	0	0
Total PPI	**15,037**	**8,582**	**11,548**	**11,538**	**10,810**	**9,837**
PPW Disablity Management						
150 HECO						
953 Prov Risk Mgt Svcs-WC	156,124	146,598	143,766	116,785	99,353	94,487
155 HECO						
953 Prov Risk Mgt Svcs-WC	-7,747	-12,536	-14,375	-8,683	-5,358	0
Total PPW	**148,377**	**134,063**	**129,391**	**108,102**	**93,995**	**94,487**
PQC Corp Communications						
150 HECO						
795 Mg Safety Pgm & Trng	4,124	513	378	842	2,015	656
950 Prov Risk Mgt Svcs-Liab	0	0	0	153	0	0
953 Prov Risk Mgt Svcs-WC	219	0	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	-371	-20	-49	-79	-246	0
950 Prov Risk Mgt Svcs-Liab	0	0	0	-24	0	0
953 Prov Risk Mgt Svcs-WC	-29	0	0	0	0	0
Total PQC	**3,943**	**494**	**328**	**892**	**1,769**	**656**
PQE Educ & Cons Affairs						
108 HECO						
098 Payroll Cost Center	0	0	0	250	0	0
Total PQE	**0**	**0**	**0**	**250**	**0**	**0**
PRD Operating Dispatch						
108 HECO						
098 Payroll Cost Center	824	0	0	3,339	458	0
Total PRD	**824**	**0**	**0**	**3,339**	**458**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PRE Operating Engineering						
108 HECO						
098 Payroll Cost Center	0	0	262	0	0	0
150 HECO						
795 Mg Safety Pgm & Trng	121	25	0	52	0	0
155 HECO						
795 Mg Safety Pgm & Trng	28	-1	0	11	0	0
Total PRE	**149**	**24**	**262**	**63**	**0**	**0**
PRS Substation						
108 HECO						
098 Payroll Cost Center	5,379	0	0	0	1,357	0
Total PRS	**5,379**	**0**	**0**	**0**	**1,357**	**0**
PRX Construction Mgt						
150 HECO						
950 Prov Risk Mgt Svcs-Liab	183	0	0	0	0	0
155 HECO						
950 Prov Risk Mgt Svcs-Liab	4	0	0	0	0	0
Total PRX	**186**	**0**	**0**	**0**	**0**	**0**
PVF Fleet						
108 HECO						
098 Payroll Cost Center	16,010	0	0	31	0	0
Total PVF	**16,010**	**0**	**0**	**31**	**0**	**0**
PVL Electric & Welding Svcs						
108 HECO						
098 Payroll Cost Center	6,702	52	0	24	0	0
150 HECO						
795 Mg Safety Pgm & Trng	631	245	431	95	230	0
950 Prov Risk Mgt Svcs-Liab	0	0	0	79	33	0
155 HECO						
795 Mg Safety Pgm & Trng	72	-10	-5	4	24	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
950 Prov Risk Mgt Svcs-Liab	0	0	0	0	15	0
Total PVL	**7,405**	**286**	**425**	**201**	**302**	**0**
PWA Admin-CID						
150 HECO						
795 Mg Safety Pgm & Trng	0	0	0	0	962	0
155 HECO						
795 Mg Safety Pgm & Trng	0	0	0	0	-218	0
Total PWA	**0**	**0**	**0**	**0**	**744**	**0**
PWP Planning & Design						
150 HECO						
795 Mg Safety Pgm & Trng	0	952	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	110	0	0	0	0
Total PWP	**0**	**1,062**	**0**	**0**	**0**	**0**
PWX Engineering & Meter						
108 HECO						
098 Payroll Cost Center	0	0	4,490	7,232	13,175	0
150 HECO						
795 Mg Safety Pgm & Trng	0	927	0	0	0	0
155 HECO						
795 Mg Safety Pgm & Trng	0	21	0	0	0	0
Total PWX	**0**	**948**	**4,490**	**7,232**	**13,175**	**0**
Total 925	**1,431,653**	**1,345,704**	**1,274,312**	**1,247,769**	**1,357,913**	**1,215,463**
926000 EMPLOYEE PENSIONS AND BENEFITS						
PCF Customer Field Services						
150 HECO						
776 Ben Plan PolPracProc	112	0	0	0	0	0
155 HECO						
776 Ben Plan PolPracProc	-27	0	0	0	0	0
Total PCF	**86**	**0**	**0**	**0**	**0**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDA Admin-C&M						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	145	301	54	-70,285	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	-1	49	6	-4,427	0	0
Total PDA	**144**	**349**	**60**	**-74,712**	**0**	**0**
PDC Control Section						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	429	4,696	8,681	8,318	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	33	167	742	311	0	0
Total PDC	**461**	**4,863**	**9,423**	**8,629**	**0**	**0**
PDD Training Section						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	25,645	6,173	20,539	41,539	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	3,815	1,245	1,920	6,303	0	0
Total PDD	**29,460**	**7,418**	**22,459**	**47,842**	**0**	**0**
PDF Field Operation						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	0	0	273	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	0	0	36	0	0
Total PDF	**0**	**0**	**0**	**309**	**0**	**0**
PDH Customer Demand						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	238	0	346	0	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	-19	0	84	0	0	0
Total PDH	**219**	**0**	**429**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDJ West Overhead						
150 HECO						
776 Ben Plan PolPracProc	0	0	0	0	55	0
786 Mg & Adm Apprentice Pgm	129	0	1,289	0	0	0
155 HECO						
776 Ben Plan PolPracProc	0	0	0	0	19	0
786 Mg & Adm Apprentice Pgm	-13	0	188	0	0	0
Total PDJ	**116**	**0**	**1,477**	**0**	**74**	**0**
PDK East Overhead-Koolau						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	0	894	0	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	0	-30	0	0	0
Total PDK	**0**	**0**	**863**	**0**	**0**	**0**
PDL East Overhead-Ward						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	97	0	0	0	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	1	0	0	0	0	0
Total PDL	**98**	**0**	**0**	**0**	**0**	**0**
PDP Planning						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	116	0	0	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	11	0	0	0	0
Total PDP	**0**	**127**	**0**	**0**	**0**	**0**
PDS Operations						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	139	787	410	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	9	138	0	0	0
Total PDS	**139**	**796**	**547**	**0**	**0**	**0**
PDT Transmission & Trng						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	1,077	0	0	0	0
Total PDT	**0**	**1,077**	**0**	**0**	**0**	**0**
PDU Underground						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	0	13,385	20,156	0	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	0	0	-1,487	-2,223	0	0
Total PDU	**0**	**0**	**11,898**	**17,933**	**0**	**0**
PEA Admin-Info Tech&Svcs						
150 HECO						
776 Ben Plan PolPracProc	0	0	23	0	0	0
780 AdmBen Oth than Flex Ret	0	0	348	0	0	0
155 HECO						
776 Ben Plan PolPracProc	0	0	-4	0	0	0
780 AdmBen Oth than Flex Ret	0	0	-67	0	0	0
Total PEA	**0**	**0**	**300**	**0**	**0**	**0**
PEM Mailing Services						
150 HECO						
779 Adm Retirement Pgm	171	0	0	0	0	0
155 HECO						
779 Adm Retirement Pgm	-82	0	0	0	0	0
Total PEM	**90**	**0**	**0**	**0**	**0**	**0**
PER Publish & Recds Svcs						
150 HECO						
776 Ben Plan PolPracProc	0	0	78	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
776 Ben Plan PolPracProc	0	0	-4	0	0	0
Total PER	**0**	**0**	**74**	**0**	**0**	**0**
PFA Admin-WFS & Dev						
150 HECO						
776 Ben Plan PolPracProc	642	0	2,005	0	0	0
779 Adm Retirement Pgm	58	0	60	383	0	0
780 AdmBen Oth than Flex Ret	0	0	0	772	142	0
788 Conduct Empl Training	189	1,662	724	3,248	1,349	2,850
155 HECO						
776 Ben Plan PolPracProc	-95	0	-557	0	0	0
779 Adm Retirement Pgm	-3	0	2	-59	0	0
780 AdmBen Oth than Flex Ret	0	0	0	-123	-28	0
788 Conduct Empl Training	-39	-230	-187	-826	25	0
Total PFA	**753**	**1,432**	**2,047**	**3,396**	**1,488**	**2,850**
PFB Employee Benefits						
150 HECO						
700 Dev & Adm Business Plans	3,758	8,233	2,524	2,827	4,618	2,615
701 Dev & Mg Forecasts	18,243	19,509	24,187	30,944	25,934	33,708
720 Improve Bus Processes	252	184	30	509	57	0
721 Dev Meas & Anlz Perf	6,665	7,928	363	130	0	131
722 Org Dev Strat	27	0	0	0	0	0
735 Rate Case Filings	0	0	9,194	14,024	26,259	12,523
738 Othr PUC Reg Filings	0	0	0	0	227	0
745 Maint Rel-Leg & Govt Ag	730	6,352	196	118	57	51
749 Maint Rel-Ind Assoc	4,056	2,570	2,271	2,344	321	2,472
755 Maint Rel-BOD	0	20	0	0	0	0
760 Audits-Internal	27	860	242	2,086	502	1,541
761 Audits-External	584	76	45	912	1,282	656

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY		RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
766	Maint Employee Recds	0	0	0	47	0	0
767	Recruit PolPracProc	12	1,551	1,061	1,206	635	0
776	Ben Plan PolPracProc	118,495	137,403	133,830	159,670	159,052	129,921
777	Process Payroll	5,251	5,940	6,727	6,464	5,979	8,341
779	Adm Retirement Pgm	81,001	76,818	68,179	75,954	70,584	96,000
780	AdmBen Oth than Flex Ret	10,810	76,539	99,138	89,660	67,968	110,707
785	Plan Emp Trng & Dev	2,574	1,440	3,630	1,234	2,642	2,530
788	Conduct Empl Training	251	0	60	153	207	1,092
789	Attend Training	927	633	4,115	2,886	3,615	3,512
797	Attend Safety Training	147	176	1,008	270	265	416
805	Mg BU & Oth Lbr Agrmnt	0	15,407	464	0	0	11,526
842	Order Mat Eq Sup & Svcs	628	344	325	646	0	232
843	Proc Invoices Oth Pmt	1,452	2,552	2,057	1,920	2,670	2,219
844	Prep Contr-Svcs & Mat	0	0	2,764	299	382	197
891	Maint Exist Comp App	0	370	0	0	0	0
965	Prov Records Mgt Svcs	0	0	116	188	0	186
155	HECO						
700	Dev & Adm Business Plans	-193	-750	-128	-66	-298	0
701	Dev & Mg Forecasts	-1,517	-2,266	-2,510	-2,885	-2,416	0
720	Improve Bus Processes	-24	-8	-2	-39	0	0
721	Dev Meas & Anlz Perf	-558	-752	-46	-8	0	0
722	Org Dev Strat	-5	0	0	0	0	0
735	Rate Case Filings	0	0	-238	-409	-2,022	0
738	Othr PUC Reg Filings	0	0	0	0	-12	0
745	Maint Rel-Leg & Govt Ag	-46	-1,005	8	-7	-2	0
749	Maint Rel-Ind Assoc	-300	-375	61	-27	-28	0
755	Maint Rel-BOD	0	0	0	0	0	0
760	Audits-Internal	-9	-106	-12	-84	-94	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
761 Audits-External	-64	-6	0	-52	-276	0
766 Maint Employee Recds	0	0	0	-4	0	0
767 Recruit PolPracProc	-1	-1	48	9	-20	0
776 Ben Plan PolPracProc	-8,894	-8,754	74	-8,639	-13,017	0
777 Process Payroll	-497	-571	-524	-667	-613	0
779 Adm Retirement Pgm	-6,111	-4,685	-3,802	-9,681	-9,208	0
780 AdmBen Oth than Flex Ret	-1,554	-125	-725	241	2,603	0
785 Plan Emp Trng & Dev	-292	-96	-71	-78	-134	0
788 Conduct Empl Training	-43	0	5	15	18	0
789 Attend Training	-55	-37	-188	-301	-315	0
797 Attend Safety Training	-18	-1	-10	-18	-29	0
805 Mg BU & Oth Lbr Agrmnt	0	-915	18	0	0	0
842 Order Mat Eq Sup & Svcs	-34	-5	-49	-120	0	0
843 Proc Invoices Oth Pmt	-90	-271	-181	-172	-208	0
844 Prep Contr-Svcs & Mat	0	0	-89	-20	-51	0
891 Maint Exist Comp App	0	-22	0	0	0	0
965 Prov Records Mgt Svcs	0	0	-22	-37	0	0
Total PFB	**235,587**	**344,155**	**354,142**	**371,442**	**347,131**	**420,577**
PFD Client Svcs & Consult						
150 HECO						
779 Adm Retirement Pgm	68	0	0	0	0	0
780 AdmBen Oth than Flex Ret	0	0	0	1,518	13,427	0
785 Plan Emp Trng & Dev	12,602	13,154	12,226	19,554	23,497	28,097
788 Conduct Empl Training	5,250	1,185	5,078	22,145	7,625	17,886
789 Attend Training	5,971	1,004	1,898	10,841	2,278	2,713
155 HECO						
779 Adm Retirement Pgm	-20	0	0	0	0	0
780 AdmBen Oth than Flex Ret	0	0	0	-558	-4,907	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
785 Plan Emp Trng & Dev	-763	-1,435	-1,864	-2,955	-2,788	0
788 Conduct Empl Training	-675	-96	-700	-2,841	-553	0
789 Attend Training	-445	-40	-262	-1,294	-236	0
Total PFD	**21,989**	**13,773**	**16,378**	**46,410**	**38,342**	**48,696**
PFI Org Development						
150 HECO						
780 AdmBen Oth than Flex Ret	1,049	1,442	821	2,650	2,326	2,263
787 Dev Empl Training	0	0	0	0	0	2,946
788 Conduct Empl Training	407	661	5,284	8,225	860	6,138
155 HECO						
780 AdmBen Oth than Flex Ret	-149	-142	-52	-427	-453	0
788 Conduct Empl Training	-51	-83	-480	-1,104	-82	0
Total PFI	**1,255**	**1,878**	**5,572**	**9,345**	**2,651**	**11,348**
PHA Admin-Facilities						
150 HECO						
786 Mg & Adm Apprentice Pgm	95	0	98	0	255	0
935 Prov&Mg Svcs-Food	35	0	0	0	0	0
155 HECO						
786 Mg & Adm Apprentice Pgm	3	0	3	0	-5	0
935 Prov&Mg Svcs-Food	0	0	0	0	0	0
Total PHA	**133**	**0**	**101**	**0**	**251**	**0**
PHB Facilities Operation						
150 Ward Avenue Bldg						
935 Prov&Mg Svcs-Food	340	199	179	251	803	0
155 Ward Avenue Bldg						
935 Prov&Mg Svcs-Food	-35	98	57	56	-67	0
Total PHB	**305**	**298**	**235**	**307**	**736**	**0**
PHF Facilities Planning						
150 Ward Avenue Bldg						
935 Prov&Mg Svcs-Food	466	2,054	1,178	61	1,592	1,574

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 Ward Avenue Bldg						
935 Prov&Mg Svcs-Food	49	112	78	5	63	0
Total PHF	**515**	**2,165**	**1,256**	**66**	**1,655**	**1,574**
PPA Admin-Ind Rel						
150 HECO						
786 Mg & Adm Apprentice Pgm	2,785	4,121	5,021	9,322	9,157	3,344
155 HECO						
786 Mg & Adm Apprentice Pgm	169	205	197	301	126	0
Total PPA	**2,954**	**4,326**	**5,218**	**9,623**	**9,283**	**3,344**
PPI Labor Rel & Wage Adm						
150 HECO						
780 AdmBen Oth than Flex Ret	41	0	0	0	0	0
786 Mg & Adm Apprentice Pgm	9,139	14,637	22,333	30,866	19,804	9,837
155 HECO						
780 AdmBen Oth than Flex Ret	-5	0	0	0	0	0
786 Mg & Adm Apprentice Pgm	240	-165	112	142	215	0
Total PPI	**9,414**	**14,473**	**22,445**	**31,008**	**20,019**	**9,837**
PPW Disablity Management						
150 HECO						
776 Ben Plan PolPracProc	8,708	11,662	8,740	10,470	11,443	9,912
779 Adm Retirement Pgm	65	0	0	0	0	0
780 AdmBen Oth than Flex Ret	0	21,088	23,664	34,584	51,616	24,548
155 HECO						
776 Ben Plan PolPracProc	-619	-1,173	-843	-657	-384	0
779 Adm Retirement Pgm	4	0	0	0	0	0
780 AdmBen Oth than Flex Ret	0	-1,738	-2,409	-3,842	-4,245	0
Total PPW	**8,159**	**29,840**	**29,152**	**40,555**	**58,430**	**34,460**
PVL Electric & Welding Svcs						
150 Ward Avenue Bldg						
935 Prov&Mg Svcs-Food	328	0	0	16	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 Ward Avenue Bldg						
935 Prov&Mg Svcs-Food	50	0	0	3	0	0
Total PVL	**378**	**0**	**0**	**18**	**0**	**0**
PWX Engineering & Meter						
150 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	214	298	1,210	2,379	128	0
155 HECO Distrib Operations						
786 Mg & Adm Apprentice Pgm	9	-4	33	71	2	0
Total PWX	**223**	**293**	**1,242**	**2,450**	**130**	**0**
Total 926000	**312,476**	**427,262**	**485,321**	**514,621**	**480,190**	**532,686**
926010 EMPL BENEFITS - FLEX CREDITS						
PEA Admin-Info Tech&Svcs						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	0	359
Total PEA	**0**	**0**	**0**	**0**	**0**	**359**
PEC Customer Care						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	0	499
Total PEC	**0**	**0**	**0**	**0**	**0**	**499**
PED Development Svcs						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	3,798	50,788
155 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	650	0
Total PED	**0**	**0**	**0**	**0**	**4,449**	**50,788**
PEI Infrastruct & Oper						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	0	197
Total PEI	**0**	**0**	**0**	**0**	**0**	**197**

BLOCK OF ACCT ACCOUNT RA EXPENSE ELEMENT ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PFA Admin-WFS & Dev						
150 HECO						
778 Adm Flexible Ben Pgm	0	502	8,152	12,061	2,077	36,923
155 HECO						
778 Adm Flexible Ben Pgm	0	-43	-789	-914	-35	0
Total PFA	**0**	**459**	**7,363**	**11,147**	**2,042**	**36,923**
PFB Employee Benefits						
150 HECO						
778 Adm Flexible Ben Pgm	57,040	56,829	51,722	52,048	43,434	91,170
155 HECO						
778 Adm Flexible Ben Pgm	-2,017	-2,759	-3,584	-6,374	-6,046	0
Total PFB	**55,024**	**54,070**	**48,138**	**45,674**	**37,388**	**91,170**
PFD Client Svcs & Consult						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	180	310	245	10,041
155 HECO						
778 Adm Flexible Ben Pgm	0	0	-31	-45	-43	0
Total PFD	**0**	**0**	**149**	**264**	**202**	**10,041**
PFI Org Development						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	171	0	0	13,403
155 HECO						
778 Adm Flexible Ben Pgm	0	0	-12	0	0	0
Total PFI	**0**	**0**	**159**	**0**	**0**	**13,403**
PFS Corporate Safety						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	0	4,824
Total PFS	**0**	**0**	**0**	**0**	**0**	**4,824**
PPA Admin-Ind Rel						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	0	0	0	3,785

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PPA	**0**	**0**	**0**	**0**	**0**	**3,785**
PPI Labor Rel & Wage Adm						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	2,078	0	122	11,628
155 HECO						
778 Adm Flexible Ben Pgm	0	0	-120	0	-3	0
Total PPI	**0**	**0**	**1,958**	**0**	**119**	**11,628**
PPW Disablity Management						
150 HECO						
778 Adm Flexible Ben Pgm	0	0	2,593	2,487	1,116	25,169
155 HECO						
778 Adm Flexible Ben Pgm	0	0	-239	-149	-4	0
Total PPW	**0**	**0**	**2,354**	**2,338**	**1,112**	**25,169**
Total 926010	**55,024**	**54,529**	**60,120**	**59,423**	**45,311**	**248,786**
9301 INSTITUTN/GOODWILL ADVERT EXP						
PHB Facilities Operation						
150 HECO						
754 Adm Inst or Goodwill Ad	0	971	0	0	0	0
155 HECO						
754 Adm Inst or Goodwill Ad	0	124	0	0	0	0
Total PHB	**0**	**1,096**	**0**	**0**	**0**	**0**
PQC Corp Communications						
150 HECO						
754 Adm Inst or Goodwill Ad	8,714	7,446	5,079	2,345	738	1,625
155 HECO						
754 Adm Inst or Goodwill Ad	782	230	260	-28	26	0
Total PQC	**9,497**	**7,676**	**5,338**	**2,317**	**763**	**1,625**
PVL Electric & Welding Svcs						
150 HECO						
754 Adm Inst or Goodwill Ad	6,097	5,573	6,823	4,784	2,963	8,204

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
754 Adm Inst or Goodwill Ad	1,714	604	652	223	171	0
Total PVL	**7,811**	**6,177**	**7,475**	**5,007**	**3,134**	**8,204**
Total 9301	**17,308**	**14,949**	**12,813**	**7,323**	**3,897**	**9,829**
9302 MISCELLANEOUS GENERAL EXPENSES						
P1W VP-Cust Solutions						
150 HECO						
731 Dev & Demo New Tech	0	0	0	0	1,105	0
155 HECO						
731 Dev & Demo New Tech	0	0	0	0	-275	0
Total P1W	**0**	**0**	**0**	**0**	**830**	**0**
P2V VP-Energy Delivery						
150 HECO						
731 Dev & Demo New Tech	0	0	0	0	0	262
Total P2V	**0**	**0**	**0**	**0**	**0**	**262**
P2W VP-Special Projects						
150 HECO						
731 Dev & Demo New Tech	0	0	0	0	0	1,051
753 Maint Rel-Community	0	0	776	1,739	1,216	1,314
155 HECO						
753 Maint Rel-Community	0	0	-10	-59	-96	0
Total P2W	**0**	**0**	**766**	**1,680**	**1,119**	**2,365**
P3V VP-Govt & Comm Affairs						
150 HECO						
730 Rsrch New Technology	0	44	12,185	371	0	0
731 Dev & Demo New Tech	0	0	0	0	0	775
155 HECO						
730 Rsrch New Technology	0	14	2,568	86	0	0
Total P3V	**0**	**58**	**14,753**	**457**	**0**	**775**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
P9P President						
150 HECO						
731 Dev & Demo New Tech	742	8	0	0	0	3,416
155 HECO						
731 Dev & Demo New Tech	1,018	0	0	0	0	0
Total P9P	**1,760**	**8**	**0**	**0**	**0**	**3,416**
P9S Sr VP-Energy Solutions						
150 HECO						
731 Dev & Demo New Tech	274	0	4,000	269	2,431	2,628
155 HECO						
731 Dev & Demo New Tech	0	0	402	32	743	0
Total P9S	**274**	**0**	**4,402**	**302**	**3,175**	**2,628**
PAA Admin-Gen Acctg						
150 HECO						
730 Rsrch New Technology	0	0	85	0	0	0
753 Maint Rel-Community	222	30	55	117	198	0
155 HECO						
730 Rsrch New Technology	0	0	10	0	0	0
753 Maint Rel-Community	13	-4	-2	3	-28	0
Total PAA	**235**	**26**	**148**	**120**	**170**	**0**
PAC Corp Accounting						
150 HECO						
753 Maint Rel-Community	34	0	78	207	326	0
155 HECO						
753 Maint Rel-Community	7	0	-7	-6	-43	0
Total PAC	**41**	**0**	**71**	**201**	**283**	**0**
PAD Cost Accounting						
150 HECO						
753 Maint Rel-Community	46	34	111	93	214	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
753 Maint Rel-Community	1	-4	-21	-9	-25	0
Total PAD	**47**	**30**	**90**	**84**	**189**	**0**
PAT Property Accounting						
150 HECO						
753 Maint Rel-Community	21	101	39	64	104	0
155 HECO						
753 Maint Rel-Community	2	-13	7	12	0	0
Total PAT	**24**	**88**	**46**	**76**	**104**	**0**
PBA Admin-ED Engr						
150 HECO						
730 Rsrch New Technology	0	0	11	0	0	0
731 Dev & Demo New Tech	0	0	0	0	0	603
155 HECO						
730 Rsrch New Technology	0	0	-2	0	0	0
Total PBA	**0**	**0**	**9**	**0**	**0**	**603**
PBE T&D Engineering						
150 HECO						
730 Rsrch New Technology	0	0	1,871	679	0	0
753 Maint Rel-Community	0	0	0	0	200	0
155 HECO						
730 Rsrch New Technology	0	0	149	18	0	0
753 Maint Rel-Community	0	0	0	0	8	0
Total PBE	**0**	**0**	**2,020**	**698**	**207**	**0**
PBO Transmission Plng						
150 HECO						
731 Dev & Demo New Tech	255	0	0	0	0	0
155 HECO						
731 Dev & Demo New Tech	25	0	0	0	0	0
Total PBO	**280**	**0**	**0**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PBP Project Mgt Division						
150 HECO						
730 Rsrch New Technology	0	347	150	88	0	0
753 Maint Rel-Community	0	521	0	0	0	0
155 HECO						
730 Rsrch New Technology	0	97	9	1	0	0
753 Maint Rel-Community	0	119	0	0	0	0
Total PBP	**0**	**1,084**	**159**	**89**	**0**	**0**
PBT Structural						
150 HECO						
730 Rsrch New Technology	0	0	16	67	0	0
155 HECO						
730 Rsrch New Technology	0	0	1	7	0	0
Total PBT	**0**	**0**	**17**	**74**	**0**	**0**
PBY Substn, Protect & Tel						
150 HECO						
730 Rsrch New Technology	-5,479	1,532	8,723	1,036	440	0
731 Dev & Demo New Tech	0	0	0	0	197	1,411
155 HECO						
730 Rsrch New Technology	98	501	4,649	42	-113	0
731 Dev & Demo New Tech	0	0	0	0	5	0
Total PBY	**-5,381**	**2,033**	**13,372**	**1,078**	**529**	**1,411**
PBZ T&D Technical Svcs						
150 HECO						
730 Rsrch New Technology	32	4,198	1,956	11,007	0	0
731 Dev & Demo New Tech	0	0	0	0	0	397
155 HECO						
730 Rsrch New Technology	-2	429	130	-1,438	0	0
Total PBZ	**31**	**4,628**	**2,086**	**9,569**	**0**	**397**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PCA Admin-Cust Svc						
150 HECO						
731 Dev & Demo New Tech	0	0	0	0	0	615
753 Maint Rel-Community	347	0	8,045	21,689	64	0
155 HECO						
753 Maint Rel-Community	-23	0	-1,770	-4,859	-6	0
Total PCA	**324**	**0**	**6,275**	**16,830**	**58**	**615**
PCB Cust Acctg & Bill						
150 HECO						
730 Rsrch New Technology	0	0	242	0	0	0
731 Dev & Demo New Tech	0	0	0	0	72	0
753 Maint Rel-Community	0	0	0	142	35	0
155 HECO						
730 Rsrch New Technology	0	0	4	0	0	0
731 Dev & Demo New Tech	0	0	0	0	-12	0
753 Maint Rel-Community	0	0	0	-29	5	0
Total PCB	**0**	**0**	**245**	**113**	**100**	**0**
PCD Credit						
150 HECO						
753 Maint Rel-Community	0	0	255	237	0	0
155 HECO						
753 Maint Rel-Community	0	0	-71	-67	0	0
Total PCD	**0**	**0**	**185**	**170**	**0**	**0**
PCF Customer Field Services						
150 HECO						
753 Maint Rel-Community	0	0	30	2,521	201	0
155 HECO						
753 Maint Rel-Community	0	0	-10	-804	-48	0
Total PCF	**0**	**0**	**21**	**1,717**	**153**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PCG Fld Svc & Collection						
150 HECO						
753 Maint Rel-Community	43	0	381	340	216	0
155 HECO						
753 Maint Rel-Community	5	0	35	37	26	0
Total PCG	**48**	**0**	**416**	**377**	**242**	**0**
PCH Customer Assist Ctr						
150 HECO						
753 Maint Rel-Community	0	0	0	1,583	305	0
155 HECO						
753 Maint Rel-Community	0	0	0	133	86	0
Total PCH	**0**	**0**	**0**	**1,716**	**391**	**0**
PCM Meter Reading						
150 HECO						
753 Maint Rel-Community	0	0	673	759	348	0
155 HECO						
753 Maint Rel-Community	0	0	-95	-129	-16	0
Total PCM	**0**	**0**	**577**	**631**	**333**	**0**
PCP Pmt Proc & Supp Ctr						
150 HECO						
753 Maint Rel-Community	150	0	103	0	0	0
155 HECO						
753 Maint Rel-Community	-63	0	-16	0	0	0
Total PCP	**87**	**0**	**87**	**0**	**0**	**0**
PCS Customer Acct Svcs						
150 HECO						
731 Dev & Demo New Tech	0	0	0	0	223	0
753 Maint Rel-Community	300	477	258	1,211	101	0
155 HECO						
731 Dev & Demo New Tech	0	0	0	0	-48	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
753 Maint Rel-Community	34	60	32	158	3	0
Total PCS	**334**	**537**	**290**	**1,370**	**278**	**0**
PDA Admin-C&M						
150 HECO						
730 Rsrch New Technology	0	1,220	0	110	0	0
731 Dev & Demo New Tech	0	0	0	0	0	688
155 HECO						
730 Rsrch New Technology	0	305	0	1	0	0
Total PDA	**0**	**1,525**	**0**	**111**	**0**	**688**
PDD Training Section						
150 HECO						
730 Rsrch New Technology	1,213	1,043	1,083	253	0	0
753 Maint Rel-Community	0	0	98	0	0	0
155 HECO						
730 Rsrch New Technology	-279	-259	-124	-95	0	0
753 Maint Rel-Community	0	0	26	0	0	0
Total PDD	**934**	**784**	**1,082**	**157**	**0**	**0**
PDF Field Operation						
150 HECO						
730 Rsrch New Technology	0	0	0	562	0	0
155 HECO						
730 Rsrch New Technology	0	0	0	-116	0	0
Total PDF	**0**	**0**	**0**	**445**	**0**	**0**
PDH Customer Demand						
150 HECO						
730 Rsrch New Technology	342	1,166	973	0	0	0
155 HECO						
730 Rsrch New Technology	-21	54	296	0	0	0
Total PDH	**321**	**1,220**	**1,269**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDJ West Overhead						
150 HECO						
730 Rsrch New Technology	0	2,121	0	379	0	0
753 Maint Rel-Community	0	135	0	2,742	0	0
155 HECO						
730 Rsrch New Technology	0	57	0	36	0	0
753 Maint Rel-Community	0	-17	0	-369	0	0
Total PDJ	**0**	**2,295**	**0**	**2,789**	**0**	**0**
PDK East Overhead-Koolau						
150 HECO						
730 Rsrch New Technology	0	0	516	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	115	0	0	0
Total PDK	**0**	**0**	**631**	**0**	**0**	**0**
PDL East Overhead-Ward						
150 HECO						
730 Rsrch New Technology	3,203	14,036	7,684	16,047	0	0
753 Maint Rel-Community	0	0	3,025	0	0	0
155 HECO						
730 Rsrch New Technology	376	514	2,052	-547	0	0
753 Maint Rel-Community	0	0	-806	0	0	0
Total PDL	**3,579**	**14,550**	**11,955**	**15,499**	**0**	**0**
PDP Planning						
150 HECO						
730 Rsrch New Technology	0	694	0	63	0	0
155 HECO						
730 Rsrch New Technology	0	94	0	7	0	0
Total PDP	**0**	**787**	**0**	**70**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDS Operations						
150 HECO						
730 Rsrch New Technology	0	0	102	267	0	0
155 HECO						
730 Rsrch New Technology	0	0	25	63	0	0
Total PDS	**0**	**0**	**127**	**330**	**0**	**0**
PDU Underground						
150 HECO						
730 Rsrch New Technology	298	124	725	0	0	0
155 HECO						
730 Rsrch New Technology	-38	24	-77	0	0	0
Total PDU	**260**	**149**	**648**	**0**	**0**	**0**
PDZ System Demand						
150 HECO						
730 Rsrch New Technology	69	77	131	0	0	0
155 HECO						
730 Rsrch New Technology	-6	-15	-33	0	0	0
Total PDZ	**63**	**62**	**98**	**0**	**0**	**0**
PEA Admin-Info Tech&Svcs						
150 HECO						
730 Rsrch New Technology	0	11,992	12,320	0	0	0
731 Dev & Demo New Tech	0	0	0	0	0	1,230
753 Maint Rel-Community	0	282	0	47	24	0
155 HECO						
730 Rsrch New Technology	0	-1,218	695	0	0	0
753 Maint Rel-Community	0	-39	0	-9	-6	0
Total PEA	**0**	**11,017**	**13,016**	**39**	**19**	**1,230**
PEB Admin-Off Svcs						
150 HECO						
753 Maint Rel-Community	1,535	91	0	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
753 Maint Rel-Community	208	-3	0	0	0	0
Total PEB	**1,743**	**88**	**0**	**0**	**0**	**0**
PEC Customer Care						
150 HECO						
730 Rsrch New Technology	0	0	0	11,041	0	0
753 Maint Rel-Community	621	222	0	148	621	0
155 HECO						
730 Rsrch New Technology	0	0	0	1,891	0	0
753 Maint Rel-Community	75	16	0	15	25	0
Total PEC	**696**	**238**	**0**	**13,095**	**646**	**0**
PED Development Svcs						
150 HECO						
730 Rsrch New Technology	178	8,383	3,761	422	0	0
731 Dev & Demo New Tech	0	0	0	0	127	374
753 Maint Rel-Community	68	337	0	1,288	1,907	0
155 HECO						
730 Rsrch New Technology	18	-282	475	-6	0	0
731 Dev & Demo New Tech	0	0	0	0	11	0
753 Maint Rel-Community	12	-23	0	163	173	0
Total PED	**276**	**8,416**	**4,237**	**1,867**	**2,218**	**374**
PEI Infrastruct & Oper						
150 HECO						
730 Rsrch New Technology	0	5,151	3,131	0	0	0
753 Maint Rel-Community	959	151	0	0	0	0
155 HECO						
730 Rsrch New Technology	0	-423	-336	0	0	0
753 Maint Rel-Community	186	30	0	0	0	0
Total PEI	**1,145**	**4,909**	**2,795**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PEM Mailing Services						
150 HECO						
753 Maint Rel-Community	9,520	0	0	3,239	3,586	0
155 HECO						
753 Maint Rel-Community	-2,894	0	0	-1,124	-991	0
Total PEM	**6,625**	**0**	**0**	**2,115**	**2,595**	**0**
PEP Project & Bus Mgt						
150 HECO						
730 Rsrch New Technology	4,077	113,153	81,510	17,166	0	0
753 Maint Rel-Community	0	106	15	0	0	0
155 HECO						
730 Rsrch New Technology	796	-982	9,594	2,229	0	0
753 Maint Rel-Community	0	4	2	0	0	0
Total PEP	**4,872**	**112,281**	**91,121**	**19,395**	**0**	**0**
PER Publish & Recds Svcs						
150 HECO						
753 Maint Rel-Community	0	23	0	0	0	0
155 HECO						
753 Maint Rel-Community	0	1	0	0	0	0
Total PER	**0**	**23**	**0**	**0**	**0**	**0**
PFA Admin-WFS & Dev						
150 HECO						
753 Maint Rel-Community	872	4,464	7,292	1,421	4,030	66
155 HECO						
753 Maint Rel-Community	70	-413	-596	-299	-831	0
Total PFA	**942**	**4,052**	**6,695**	**1,122**	**3,199**	**66**
PFB Employee Benefits						
150 HECO						
753 Maint Rel-Community	2,761	1,883	6,528	698	501	715

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
753 Maint Rel-Community	-200	-179	-585	-96	-59	0
Total PFB	**2,561**	**1,704**	**5,943**	**603**	**442**	**715**
PFC Compensation						
150 HECO						
753 Maint Rel-Community	648	0	246	51	41	33
155 HECO						
753 Maint Rel-Community	19	0	-13	1	-2	0
Total PFC	**667**	**0**	**233**	**52**	**38**	**33**
PFD Client Svcs & Consult						
150 HECO						
753 Maint Rel-Community	2,396	885	5,029	861	379	0
155 HECO						
753 Maint Rel-Community	-144	-117	-400	-73	-39	0
Total PFD	**2,252**	**768**	**4,629**	**789**	**340**	**0**
PFI Org Development						
150 HECO						
753 Maint Rel-Community	902	388	94	189	246	525
155 HECO						
753 Maint Rel-Community	-66	-11	-7	11	-15	0
Total PFI	**836**	**377**	**86**	**201**	**232**	**525**
PFS Corporate Safety						
150 HECO						
730 Rsrch New Technology	0	0	317	0	0	0
753 Maint Rel-Community	0	362	105	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	-61	0	0	0
753 Maint Rel-Community	0	-12	4	0	0	0
Total PFS	**0**	**350**	**366**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PHA Admin-Facilities						
150 HECO						
753 Maint Rel-Community	218	173	0	53	0	0
155 HECO						
753 Maint Rel-Community	-2	0	0	1	0	0
Total PHA	**216**	**173**	**0**	**54**	**0**	**0**
PHB Facilities Operation						
150 HECO						
730 Rsrch New Technology	0	174	153	26	0	0
753 Maint Rel-Community	131	1,295	0	66	0	0
155 HECO						
730 Rsrch New Technology	0	24	38	5	0	0
753 Maint Rel-Community	-31	129	0	17	0	0
Total PHB	**100**	**1,623**	**191**	**114**	**0**	**0**
PHF Facilities Planning						
150 HECO						
753 Maint Rel-Community	75	121	0	0	0	0
155 HECO						
753 Maint Rel-Community	3	-7	0	0	0	0
Total PHF	**78**	**113**	**0**	**0**	**0**	**0**
PHS Security						
150 HECO						
753 Maint Rel-Community	5,687	0	0	0	0	0
155 HECO						
753 Maint Rel-Community	-1,464	0	0	0	0	0
Total PHS	**4,223**	**0**	**0**	**0**	**0**	**0**
PIP Plan & Engr						
150 HECO						
731 Dev & Demo New Tech	0	65	0	0	0	0
Total PIP	**0**	**65**	**0**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PJA Admin-Environ						
150 HECO						
731 Dev & Demo New Tech	0	0	17	0	0	0
753 Maint Rel-Community	1,752	1,079	444	746	2,260	0
155 HECO						
731 Dev & Demo New Tech	0	0	-2	0	0	0
753 Maint Rel-Community	-43	-106	-36	-94	-276	0
Total PJA	**1,709**	**973**	**423**	**652**	**1,983**	**0**
PJB Air Quality & Noise						
150 HECO						
731 Dev & Demo New Tech	0	557	6,424	0	0	0
753 Maint Rel-Community	913	1,462	30	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	0	-10	0	0
731 Dev & Demo New Tech	0	-16	-619	0	0	0
753 Maint Rel-Community	46	39	5	0	0	0
Total PJB	**959**	**2,042**	**5,841**	**-10**	**0**	**0**
PJC Chemistry						
150 HECO						
753 Maint Rel-Community	974	244	372	0	106	0
155 HECO						
753 Maint Rel-Community	-48	-3	-51	0	1	0
Total PJC	**926**	**241**	**320**	**0**	**107**	**0**
PJW Water & Haz Mat						
150 HECO						
730 Rsrch New Technology	0	0	0	0	34	0
731 Dev & Demo New Tech	0	0	122	0	0	0
753 Maint Rel-Community	4,522	414	588	849	1,402	0
155 HECO						
730 Rsrch New Technology	0	0	0	0	8	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
731 Dev & Demo New Tech	0	0	2	0	0	0
753 Maint Rel-Community	-677	-34	-172	-126	-91	0
Total PJW	**3,845**	**380**	**540**	**723**	**1,353**	**0**
PKB Admin-MgtAcc FinSvc						
150 HECO						
730 Rsrch New Technology	0	0	367	0	0	0
753 Maint Rel-Community	212	321	100	0	56	0
155 HECO						
730 Rsrch New Technology	0	0	58	0	0	0
753 Maint Rel-Community	-4	54	-2	0	-5	0
Total PKB	**208**	**375**	**523**	**0**	**51**	**0**
PKC Budgets						
150 HECO						
753 Maint Rel-Community	55	204	166	115	194	0
155 HECO						
753 Maint Rel-Community	9	6	11	23	-21	0
Total PKC	**64**	**210**	**177**	**138**	**173**	**0**
PKF Financial Analysis						
150 HECO						
730 Rsrch New Technology	0	0	6,819	736	0	0
753 Maint Rel-Community	27	30	50	0	356	0
155 HECO						
730 Rsrch New Technology	0	0	71	42	0	0
753 Maint Rel-Community	5	2	5	0	6	0
Total PKF	**32**	**32**	**6,946**	**778**	**362**	**0**
PKI Risk Management						
150 HECO						
753 Maint Rel-Community	320	206	183	334	1,773	0
155 HECO						
753 Maint Rel-Community	45	27	35	22	131	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PKI	**365**	**233**	**218**	**356**	**1,903**	**0**
PKM ERP Administration						
150 HECO						
730 Rsrch New Technology	0	0	1,424	31,635	0	0
753 Maint Rel-Community	366	0	131	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	100	2,215	0	0
753 Maint Rel-Community	-1	0	5	0	0	0
Total PKM	**365**	**0**	**1,659**	**33,850**	**0**	**0**
PKS Securities Team						
150 HECO						
753 Maint Rel-Community	137	0	0	0	0	0
155 HECO						
753 Maint Rel-Community	27	0	0	0	0	0
Total PKS	**164**	**0**	**0**	**0**	**0**	**0**
PKT Treasury						
150 HECO						
753 Maint Rel-Community	94	49	40	826	1,824	0
155 HECO						
753 Maint Rel-Community	2	12	-5	-177	-383	0
Total PKT	**97**	**61**	**36**	**648**	**1,441**	**0**
PNA Internal Audit						
150 HECO						
753 Maint Rel-Community	0	0	732	61	0	0
155 HECO						
753 Maint Rel-Community	0	0	-151	-10	0	0
Total PNA	**0**	**0**	**581**	**51**	**0**	**0**
PNC Legal						
150 HECO						
730 Rsrch New Technology	1,024	1,273	18,082	1,749	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
731 Dev & Demo New Tech	0	0	846	247	0	775
753 Maint Rel-Community	1,785	1,088	242	31,295	638	0
155 HECO						
730 Rsrch New Technology	100	161	48	173	0	0
731 Dev & Demo New Tech	0	0	93	53	0	0
753 Maint Rel-Community	365	78	-11	617	-20	0
Total PNC	**3,273**	**2,599**	**19,301**	**34,134**	**618**	**775**
PNG EnergyProjects						
150 HECO						
730 Rsrch New Technology	0	0	0	92	32	0
731 Dev & Demo New Tech	0	2,223	1,184	0	95	0
753 Maint Rel-Community	0	0	46	0	301	0
155 HECO						
730 Rsrch New Technology	0	0	0	54	4	0
731 Dev & Demo New Tech	0	780	357	0	26	0
753 Maint Rel-Community	0	0	-5	0	14	0
Total PNG	**0**	**3,003**	**1,582**	**146**	**472**	**0**
PNI Government Relations						
150 HECO						
753 Maint Rel-Community	16,079	8,174	1,113	166	121	0
155 HECO						
753 Maint Rel-Community	-1,304	-668	-86	-14	-3	0
Total PNI	**14,775**	**7,506**	**1,027**	**152**	**119**	**0**
PNL Land & Rights of Way						
150 HECO						
730 Rsrch New Technology	0	0	45	8	0	0
155 HECO						
730 Rsrch New Technology	0	0	-9	-1	0	0
Total PNL	**0**	**0**	**37**	**6**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PNP Regulatory Affairs						
150 HECO						
730 Rsrch New Technology	-103	0	0	0	0	0
753 Maint Rel-Community	0	0	619	1,049	121	0
155 HECO						
730 Rsrch New Technology	-20	0	0	0	0	0
753 Maint Rel-Community	0	0	-87	-51	-29	0
Total PNP	**-122**	**0**	**532**	**998**	**91**	**0**
PNR Technology						
150 HECO						
730 Rsrch New Technology	0	362	544	1,122	41	0
731 Dev & Demo New Tech	0	16,438	11,636	19,820	1,126	0
753 Maint Rel-Community	0	0	30	0	1,778	0
155 HECO						
730 Rsrch New Technology	0	26	43	-154	-14	0
731 Dev & Demo New Tech	0	-453	154	-2,017	-113	0
753 Maint Rel-Community	0	0	3	0	-247	0
Total PNR	**0**	**16,374**	**12,410**	**18,771**	**2,571**	**0**
PNS Sox Compliance						
150 HECO						
753 Maint Rel-Community	0	0	0	132	0	0
155 HECO						
753 Maint Rel-Community	0	0	0	-38	0	0
Total PNS	**0**	**0**	**0**	**94**	**0**	**0**
PNT Telecommunications						
150 HECO						
731 Dev & Demo New Tech	73	0	0	0	0	0
155 HECO						
731 Dev & Demo New Tech	5	0	0	0	0	0
Total PNT	**78**	**0**	**0**	**0**	**0**	**0**

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PNX Admin-Audit & Complnc						
150 HECO						
753 Maint Rel-Community	0	0	0	1,025	539	0
155 HECO						
753 Maint Rel-Community	0	0	0	-192	-135	0
Total PNX	**0**	**0**	**0**	**833**	**404**	**0**
PPA Admin-Ind Rel						
150 HECO						
753 Maint Rel-Community	5,821	3,335	8,242	2,875	4,157	3,158
155 HECO						
753 Maint Rel-Community	312	32	73	78	33	0
Total PPA	**6,132**	**3,367**	**8,316**	**2,953**	**4,191**	**3,158**
PPI Labor Rel & Wage Adm						
150 HECO						
753 Maint Rel-Community	206	1,194	5,218	123	0	0
155 HECO						
753 Maint Rel-Community	8	-11	75	-4	0	0
Total PPI	**214**	**1,183**	**5,292**	**118**	**0**	**0**
PPW Disablity Management						
150 HECO						
753 Maint Rel-Community	330	0	189	70	0	74
155 HECO						
753 Maint Rel-Community	-15	0	-21	1	0	0
Total PPW	**315**	**0**	**168**	**72**	**0**	**74**
PQC Corp Communications						
150 HECO						
730 Rsrch New Technology	-822	0	0	518	30	0
731 Dev & Demo New Tech	0	0	0	0	0	541
753 Maint Rel-Community	32,134	29,204	22,896	44,629	24,426	36,016

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
730 Rsrch New Technology	-44	0	0	-17	-4	0
753 Maint Rel-Community	2,031	51	1,630	583	1,055	0
Total PQC	**33,298**	**29,255**	**24,525**	**45,712**	**25,507**	**36,556**
PQE Educ & Cons Affairs						
150 HECO						
731 Dev & Demo New Tech	0	293	0	0	0	0
753 Maint Rel-Community	113,260	148,133	103,646	128,608	137,907	146,940
155 HECO						
731 Dev & Demo New Tech	0	-61	0	0	0	0
753 Maint Rel-Community	-16,633	-29,528	-14,851	-27,898	-23,809	0
Total PQE	**96,627**	**118,837**	**88,794**	**100,710**	**114,098**	**146,940**
PRA Admin-Sys Op						
150 HECO						
730 Rsrch New Technology	0	0	1,769	0	0	0
753 Maint Rel-Community	0	0	12	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	-13	0	0	0
753 Maint Rel-Community	0	0	-1	0	0	0
Total PRA	**0**	**0**	**1,768**	**0**	**0**	**0**
PRC Communications						
150 HECO						
730 Rsrch New Technology	0	11,856	2,088	3,230	0	0
155 HECO						
730 Rsrch New Technology	0	472	139	185	0	0
Total PRC	**0**	**12,327**	**2,227**	**3,415**	**0**	**0**
PRD Operating Dispatch						
150 HECO						
730 Rsrch New Technology	0	0	74	241	0	0
731 Dev & Demo New Tech	0	0	0	0	0	425

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
753 Maint Rel-Community	0	0	79	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	0	3	0	0
753 Maint Rel-Community	0	0	2	0	0	0
Total PRD	**0**	**0**	**156**	**244**	**0**	**425**
PRE Operating Engineering						
150 HECO						
730 Rsrch New Technology	0	98	0	108	0	0
753 Maint Rel-Community	0	4	83	0	0	0
155 HECO						
730 Rsrch New Technology	0	15	0	12	0	0
753 Maint Rel-Community	0	1	5	0	0	0
Total PRE	**0**	**118**	**87**	**120**	**0**	**0**
PRS Substation						
150 HECO						
730 Rsrch New Technology	-30	0	0	67	0	0
753 Maint Rel-Community	0	0	0	17	0	0
155 HECO						
730 Rsrch New Technology	-120	0	0	-11	0	0
753 Maint Rel-Community	0	0	0	-4	0	0
Total PRS	**-149**	**0**	**0**	**69**	**0**	**0**
PSA Admin-Engy Svcs						
150 HECO						
730 Rsrch New Technology	0	0	2,762	76	0	0
731 Dev & Demo New Tech	0	0	0	0	0	615
753 Maint Rel-Community	0	0	59	213	557	0
155 HECO						
730 Rsrch New Technology	0	0	691	-9	0	0
753 Maint Rel-Community	0	0	1	-32	45	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PSA	**0**	**0**	**3,514**	**249**	**602**	**615**
PSD Cust Efficiency Pgms						
150 HECO						
730 Rsrch New Technology	0	0	0	245	0	0
753 Maint Rel-Community	78	0	92	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	0	64	0	0
753 Maint Rel-Community	8	0	15	0	0	0
Total PSD	**85**	**0**	**106**	**309**	**0**	**0**
PSF Forecasts						
150 HECO						
753 Maint Rel-Community	123	302	141	0	0	0
155 HECO						
753 Maint Rel-Community	4	-8	3	0	0	0
Total PSF	**127**	**294**	**143**	**0**	**0**	**0**
PSM Forecasts & Research						
150 HECO						
730 Rsrch New Technology	1,129	3,697	322	210	0	0
731 Dev & Demo New Tech	0	0	0	0	1,798	665
753 Maint Rel-Community	314	0	0	0	255	0
155 HECO						
730 Rsrch New Technology	113	220	20	30	0	0
731 Dev & Demo New Tech	0	0	0	0	202	0
753 Maint Rel-Community	56	0	0	0	5	0
Total PSM	**1,612**	**3,916**	**342**	**240**	**2,259**	**665**
PSN Marketing Services						
150 HECO						
730 Rsrch New Technology	0	30	211	0	0	0
155 HECO						
730 Rsrch New Technology	0	2	14	0	0	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PSN	**0**	**32**	**226**	**0**	**0**	**0**
PSR Cust Tech Applicatns						
150 HECO						
730 Rsrch New Technology	0	0	6,510	2,483	5,219	0
731 Dev & Demo New Tech	0	0	151	24,553	19,058	0
753 Maint Rel-Community	1,055	0	214	0	182	0
155 HECO						
730 Rsrch New Technology	0	0	1,291	548	278	0
731 Dev & Demo New Tech	0	0	33	5,286	2,357	0
753 Maint Rel-Community	83	0	28	0	18	0
Total PSR	**1,137**	**0**	**8,228**	**32,870**	**27,111**	**0**
PVA Admin-Supp Svcs						
150 HECO						
753 Maint Rel-Community	0	0	30	0	0	0
155 HECO						
753 Maint Rel-Community	0	0	5	0	0	0
Total PVA	**0**	**0**	**35**	**0**	**0**	**0**
PVF Fleet						
155 HECO						
753 Maint Rel-Community	0	0	0	50	0	0
Total PVF	**0**	**0**	**0**	**50**	**0**	**0**
PVL Electric & Welding Svcs						
150 HECO						
730 Rsrch New Technology	0	4,908	1,424	32	0	0
731 Dev & Demo New Tech	378	46	0	0	569	0
753 Maint Rel-Community	101	1,013	1,738	1,087	593	0
155 HECO						
730 Rsrch New Technology	0	-39	-108	3	0	0
731 Dev & Demo New Tech	84	0	0	0	-4	0
753 Maint Rel-Community	12	-136	7	46	-3	0

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PVL	**576**	**5,793**	**3,061**	**1,167**	**1,154**	**0**
PVM Materials Management						
150 HECO						
753 Maint Rel-Community	0	0	9,069	0	0	0
155 HECO						
753 Maint Rel-Community	0	0	-550	0	0	0
Total PVM	**0**	**0**	**8,519**	**0**	**0**	**0**
PVP Purchasing						
150 HECO						
753 Maint Rel-Community	238	0	85	0	0	0
155 HECO						
753 Maint Rel-Community	-2	0	0	0	0	0
Total PVP	**236**	**0**	**85**	**0**	**0**	**0**
PWA Admin-CID						
150 HECO						
730 Rsrch New Technology	0	0	10,166	3,937	1,484	0
731 Dev & Demo New Tech	0	0	0	0	3,474	9,464
753 Maint Rel-Community	0	2,728	184	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	-1,683	29	-152	0
731 Dev & Demo New Tech	0	0	0	0	-255	0
753 Maint Rel-Community	0	218	-4	0	0	0
Total PWA	**0**	**2,946**	**8,664**	**3,966**	**4,552**	**9,464**
PWP Planning & Design						
150 HECO						
730 Rsrch New Technology	0	0	1,602	4,096	0	0
753 Maint Rel-Community	0	413	189	0	0	0
155 HECO						
730 Rsrch New Technology	0	0	-47	435	0	0
753 Maint Rel-Community	0	19	3	0	0	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
Total PWP	**0**	**432**	**1,747**	**4,531**	**0**	**0**
PWX Engineering & Meter						
150 HECO						
730 Rsrch New Technology	397	7,728	6,088	14,866	3,082	0
731 Dev & Demo New Tech	0	0	0	0	23,415	99,775
753 Maint Rel-Community	0	66	386	0	0	0
155 HECO						
730 Rsrch New Technology	26	67	104	871	43	0
731 Dev & Demo New Tech	0	0	0	0	-645	0
753 Maint Rel-Community	0	1	5	0	0	0
Total PWX	**424**	**7,863**	**6,583**	**15,737**	**25,895**	**99,775**
PYA Admin-Plng & Engr						
150 HECO						
731 Dev & Demo New Tech	1,413	32	0	32	0	0
753 Maint Rel-Community	0	0	0	68	20	0
155 HECO						
730 Rsrch New Technology	0	0	0	3	0	0
731 Dev & Demo New Tech	-159	-3	0	-1	0	0
753 Maint Rel-Community	0	0	0	2	0	0
Total PYA	**1,255**	**30**	**0**	**104**	**20**	**0**
PYB Generation Planning						
150 HECO						
731 Dev & Demo New Tech	0	3,566	0	0	0	0
155 HECO						
731 Dev & Demo New Tech	0	-39	0	0	0	0
Total PYB	**0**	**3,527**	**0**	**0**	**0**	**0**
PYF PP Electrical Engr						
150 HECO						
731 Dev & Demo New Tech	176	385	0	0	0	3,871
753 Maint Rel-Community	0	0	0	60	0	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
155 HECO						
731 Dev & Demo New Tech	-10	39	0	0	0	0
753 Maint Rel-Community	0	0	0	-2	0	0
Total PYF	**166**	**425**	**0**	**58**	**0**	**3,871**
PYG PP Drafting						
150 HECO						
731 Dev & Demo New Tech	0	0	0	0	0	1,888
Total PYG	**0**	**0**	**0**	**0**	**0**	**1,888**
PYJ PP Project Mgt						
150 HECO						
730 Rsrch New Technology	4,093	815	0	0	0	0
155 HECO						
730 Rsrch New Technology	612	-34	0	0	0	0
Total PYJ	**4,704**	**781**	**0**	**0**	**0**	**0**
PYM PP Mechanical Engr						
150 HECO						
730 Rsrch New Technology	1,163	2,888	420	0	36	0
731 Dev & Demo New Tech	1,357	2,602	0	0	0	0
753 Maint Rel-Community	0	0	0	109	0	0
155 HECO						
730 Rsrch New Technology	-59	-344	-14	7	-2	0
731 Dev & Demo New Tech	68	-23	0	0	0	0
753 Maint Rel-Community	0	0	0	-1	0	0
Total PYM	**2,529**	**5,123**	**406**	**114**	**35**	**0**
PYP Integrated Res Plng						
150 HECO						
753 Maint Rel-Community	0	0	0	0	332	0
155 HECO						
753 Maint Rel-Community	0	0	0	0	0	0
Total PYP	**0**	**0**	**0**	**0**	**332**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT ACCOUNT RA EXPENSE ELEMENT ACTIVITY	RECORDED					BUDGET
	2002	2003	2004	2005	2006	2007
Total 9302	**206,515**	**406,340**	**416,305**	**401,327**	**235,295**	**320,310**
Total A & G Operation	**14,643,331**	**15,300,032**	**15,994,367**	**16,640,048**	**14,084,305**	**16,928,808**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
A & G Maintenance						
932 ADMIN AND GENL MAINTENANCE						
PBT Structural						
150 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	31	0	0	0	0	0
155 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	1	0	0	0	0	0
Total PBT	**32**	**0**	**0**	**0**	**0**	**0**
PDD Training Section						
150 HECO						
932 Repair Bldgs & Grnds	0	34	0	0	0	0
155 HECO						
932 Repair Bldgs & Grnds	0	-8	0	0	0	0
Total PDD	**0**	**26**	**0**	**0**	**0**	**0**
PDF Field Operation						
150 HECO						
932 Repair Bldgs & Grnds	1,761	3,883	3,688	5,380	5,634	0
155 HECO						
932 Repair Bldgs & Grnds	-57	108	63	175	195	0
Total PDF	**1,704**	**3,990**	**3,752**	**5,555**	**5,830**	**0**
PDJ West Overhead						
150 HECO						
932 Repair Bldgs & Grnds	0	0	0	0	36	0
155 HECO						
932 Repair Bldgs & Grnds	0	0	0	0	-1	0
Total PDJ	**0**	**0**	**0**	**0**	**36**	**0**
PDK East Overhead-Koolau						
155 HECO						
932 Repair Bldgs & Grnds	-18	0	0	0	0	0
Total PDK	**-18**	**0**	**0**	**0**	**0**	**0**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PDL East Overhead-Ward						
150 HECO						
932 Repair Bldgs & Grnds	0	0	0	0	55	0
155 HECO						
932 Repair Bldgs & Grnds	0	0	0	0	-12	0
Total PDL	**0**	**0**	**0**	**0**	**43**	**0**
PFS Corporate Safety						
150 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	336	0	0	0	0
155 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	18	0	0	0	0
Total PFS	**0**	**354**	**0**	**0**	**0**	**0**
PHA Admin-Facilities						
150 King Street Bldg						
932 Repair Bldgs & Grnds	0	99	0	26	57	0
155 King Street Bldg						
932 Repair Bldgs & Grnds	0	-1	0	0	-1	0
Total PHA	**0**	**98**	**0**	**26**	**56**	**0**
PHB Facilities Operation						
150 HECO						
932 Repair Bldgs & Grnds	23,941	20,676	23,283	26,574	24,098	0
155 HECO						
932 Repair Bldgs & Grnds	-488	1,816	1,352	-1,104	-1,011	0
Total PHB	**23,453**	**22,491**	**24,635**	**25,470**	**23,087**	**0**
PHF Facilities Planning						
150 HECO						
932 Repair Bldgs & Grnds	922	10,424	3,474	3,815	10,661	95,562
155 HECO						
932 Repair Bldgs & Grnds	135	3,044	1,075	-205	-753	0
Total PHF	**1,057**	**13,468**	**4,549**	**3,610**	**9,908**	**95,562**

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT / ACCOUNT / RA / EXPENSE ELEMENT / ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
PHS Security						
150 King Street Bldg						
932 Repair Bldgs & Grnds	173	513	95	0	0	6,130
155 King Street Bldg						
932 Repair Bldgs & Grnds	-16	-115	-15	0	0	0
Total PHS	**157**	**397**	**81**	**0**	**0**	**6,130**
PRS Substation						
150 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	0	0	0	199	0
155 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	0	0	0	-3	0
Total PRS	**0**	**0**	**0**	**0**	**196**	**0**
PRX Construction Mgt						
150 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	895	0	4,018	0	0	12,426
155 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	44	0	931	0	0	0
Total PRX	**940**	**0**	**4,949**	**0**	**0**	**12,426**
PSR Cust Tech Applicatns						
150 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	0	60	0	0	0
155 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	0	10	0	0	0
Total PSR	**0**	**0**	**70**	**0**	**0**	**0**
PVL Electric & Welding Svcs						
150 HECO						
931 Care for Bldgs & Grnds	36,632	14,618	13,658	4,950	21,444	849
932 Repair Bldgs & Grnds	29,727	10,274	2,517	9,929	13,431	40,738
155 HECO						
931 Care for Bldgs & Grnds	7,834	-34	-565	81	135	0

HAWAIIAN ELECTRIC COMPANY, INC.
RATE CASE SUMMARY REPORT DIRECT LABOR CHARGES BY EXPENSE ELEMENT
COMPARATIVE

BLOCK OF ACCT ACCOUNT RA EXPENSE ELEMENT ACTIVITY	RECORDED 2002	2003	2004	2005	2006	BUDGET 2007
932 Repair Bldgs & Grnds	7,959	110	31	1,180	1,132	0
Total PVL	**82,152**	**24,968**	**15,641**	**16,139**	**36,142**	**41,587**
PVM Materials Management						
150 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	0	0	211	0	0
155 Ward Avenue Bldg						
932 Repair Bldgs & Grnds	0	0	0	10	0	0
Total PVM	**0**	**0**	**0**	**222**	**0**	**0**
Total 932	**109,478**	**65,793**	**53,677**	**51,021**	**75,297**	**155,704**
Total A & G Maintenance	**109,478**	**65,793**	**53,677**	**51,021**	**75,297**	**155,704**
Grand Total A&G	**14,752,809**	**15,365,826**	**16,048,044**	**16,691,068**	**14,159,603**	**17,084,512**

CA-IR-37

Ref: T-1, page 11, line 17.

Please provide the following information regarding the referenced EPRI Solutions, Inc. ("ESI") work that is described:

a. A complete copy of the "report" prepared and issued by ESI.

b. A copy of the engagement letter/contract memorializing the scope and nature of ESI work and funding for same.

c. State whether any drafts were prepared by ESI and submitted to HECO prior to finalization of the document provided in response to part (a).

d. If your response to part (c) is affirmative, please provide complete copies of each draft report, explaining the changes that were made to such draft(s) and the reasons for such changes.

HECO Response:

a. The final report prepared by ESI, dated October 11, 2006, was filed with the PUC and the Division of Consumer Advocacy on October 20, 2006. The ESI final report and the October 20, 2006 transmittal letter and attachments are included as Attachment 1 of this response. Attachment 1 is voluminous and is available for inspection at HECO's Regulatory Affairs Division office, Suite 1301, Central Pacific Plaza, 220 South King Street, Honolulu, Hawaii. Please contact Dean Matsuura at 543-4622 to make arrangements to inspect the requested information.

b. A copy of the Scope of Work for the ESI study, including estimated costs, is included as Attachment 2 of this response. Attachment 2 contains confidential information and will be

provided pursuant to Protective Order No. 23378, issued April 23, 2007.

c. Yes.

d. ESI submitted one draft report to HECO, and two preliminary drafts. The drafts were dated May 15, 2006, June 13, 2006, and July 17, 2006. HECO objects to providing "drafts" of reports on the grounds that the final report, and not drafts, represents the recommendations and report of ESI; preliminary drafts are deemed to be confidential, may be subject to the attorney-client privilege, and are not intended to be disclosed or made public; and requirements to produce preliminary drafts will unduly hamper the consultant/company relationship by discouraging the exchange of preliminary thoughts in written form. HECO further objects to the request that each change from draft to draft to final be "explained", and that "reasons" be provided for each change, based on the foregoing grounds and on the further grounds that such a request is overly broad and unduly burdensome.

Without waiving the foregoing objections, HECO will provide copies of the three draft reports (which are voluminous documents) under Protective Order No. 23378, issued April 23, 2007. These drafts are included as Attachments 3, 4, and 5 of this response. (ESI also submitted a version of the June 13th draft on July 5, 2006, but did not designate it as a draft, and the revisions are incorporated in the July 17th draft.)

From the May to the June preliminary drafts, changes were made to group the candidate actions by subject matter (such as scheduled overhauls, corrective/preventative maintenance, organizational changes, training, etc.), to add to the definitions and explanations to facilitate comprehension of complex material (since the report would not only be used internally, but would be provided to regulators), as well as to correct errors and improve readability. The major changes from the June draft to the July draft were the

addition of an Executive Summary, and some editing of the text in an attempt to better capture the intended benefits of the candidate actions that ESI was recommending. There were only a few minor corrections and editing changes from the July draft to the final report.

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

October 20, 2006

FILED
2006 OCT 20 P 1:23
PUBLIC UTILITIES COMMISSION

William A. Bonnet
Vice President
Government & Community Affairs

The Honorable Chairman and Members of the
Hawaii Public Utilities Commission
465 South King Street
Kekuanaoa Building, 1st Floor
Honolulu, Hawaii 96813

Dear Chairman Caliboso:

Subject: Report on Review of HECO's Power Supply Operations, Maintenance and Outage Management Programs by EPRI Solutions, Inc.

Enclosed for the Commission's information is a report prepared by the consultant EPRI Solutions, Inc ("ESI") on its review of Hawaiian Electric Company, Inc.'s ("HECO") Power Supply operations, maintenance and outage management programs (i.e., our practices, processes and policies).

Background

As part of a preliminary discussion of our Adequacy of Supply (AOS) situation for 2006 with the Commission and Consumer Advocate on February 24, 2006, we provided historical and forward-looking information regarding (1) maintenance and planned outages, effective forced outage rates and equivalent availability factors for HECO and firm IPP generating units providing power to our system, and other planning assumptions and forecasts (such as the peak load forecast, and projected CHP, energy efficiency DSM and load management DSM impacts on peak loads), (2) the impact of such information on HECO's projected reserve margin shortfall, and (3) actions being taken to mitigate the reserve margin situation.

As indicated in that discussion, and in the 2006 AOS Report submitted March 6, 2006, HECO anticipated reserve capacity shortfalls in 2006 and projected that these shortfalls will continue at least until 2009, which is the earliest that HECO expects to be able to permit, acquire, install and place into commercial operation its next central station generating unit. Until sufficient generating capacity can be added to the system, HECO will experience a higher risk of generation-related customer outages, and more frequent, longer duration reserve capacity shortfalls. HECO has taken a number of actions to minimize the risk of generation-related shortfalls including initiatives to improve the availability and reliability of HECO's generating units.

As part of these efforts, HECO asked ESI to review HECO's Power Supply operations, maintenance and outage management programs (i.e., our practices, processes and policies) from an objective viewpoint and help us identify other candidate actions with the potential to improve generation availability and reliability. At the February 24, 2006 discussion with the Commission and Consumer Advocate, we indicated that we would provide the ESI report to the Commission and the Consumer Advocate when it was finalized.

Scope of ESI Review

The scope of the ESI review included the following:

1. Review the circumstances that contribute to the current situation such as decreasing reserve margins, condition of the generating fleet including independent power producers ("IPPs"), and human factors such as decreasing work force experience due to employee retirements,
2. Conduct a benchmarking study comparing HECO unit and fleet performance with mainland counterparts,
3. Review operations and maintenance practices,
4. Conduct plant personnel interviews, and
5. Identify candidate actions with the potential to improve generation availability and reliability.

Summary of Findings

ESI presented the following general observations based on its review:

1. On a comparative basis, HECO has been performing well. HECO is getting significantly more from its existing units than its industry peers;
2. As system demand has grown, HECO has experienced lower reserve margins;
3. A combination of factors has contributed to a deterioration of Equivalent Availability Factor (EAF) in recent years which may result in a decline of reliable service; and
4. Requirements for high capacity factors and extensive maintenance have made it difficult for HECO to sustain the high EAF achieved in the past.

ESI identified 26 candidate actions for consideration by HECO relative to their potential to improve HECO's generation availability and reliability. These candidate actions were divided into five groups:

1. Scheduled overhauls and outages,
2. Corrective and preventive maintenance,
3. Organization,
4. Technology application and data analysis, and
5. Training.

Overall, HECO is in agreement with the findings of the ESI report and agrees that the candidate actions presented by ESI represent opportunities to improve the availability and reliability of HECO's generation. For many of the candidate actions, HECO already has in place programs and projects to address the candidate actions, or these programs and projects are in the process of being implemented.

The following sections provide information on selected candidate actions from each of the five groups listed above, and a brief description of HECO's projects and programs that address these candidate actions.

1. Scheduled Overhauls and Outages

This group of nine candidate actions focused on improving the planning and implementation of overhauls. The primary driver is the benefit to be gained by shortening the duration of overhauls. Specific actions include establishing an outage manager position, improving the documentation of the work done during overhauls and conducting formal "lessons learned" sessions at the end of each overhaul.

Establish Outage Manager Position
A reorganization of the Power Supply Operations and Maintenance Department (PSO&M) in June 2006 included creation of a new position (Senior Supervisor, Overhauls) and the position has been filled. This person will fulfill the role of an Outage Manager. Please see Attachment A to this letter for more information on the June 2006 reorganization of the PSO&M Department.

Improve documentation of the work done during overhauls
The PSO&M Maintenance Superintendent has been tasked with implementing processes as necessary to improve documentation of work performed.

Conduct formal "lessons learned" sessions at the end of each overhaul
The Senior Supervisor, Overhauls has been designated as accountable for the turnover of information following overhauls.

2. Corrective and Preventative Maintenance

There were six candidate actions presented to improve the Power Supply Reliability Optimization ("PSRO") program. Specific candidate actions include placing a higher priority on performing routine preventative maintenance, improving the prioritization process for new work, and having the operators perform routine maintenance tasks.

Place higher priority on performing routine preventive maintenance
As part of the PSO&M reorganization of June 2006, the Predictive Maintenance ("PdM") group has been fortified with additional O&M Engineers and the role of the PdM group in the maintenance planning processes has been elevated.

Improve the prioritization process for new work
Preliminary review by HECO of work orders indicates that the high volume of high priority work orders is accurate. The Operations Division is taking a more active role in prioritizing the work on a more consistent basis at all three power plants.

Have operators perform routine maintenance tasks
HECO operators are performing many critical inspections and monitoring performance of the equipment.

3. Organization

The three candidate actions in this group focused on increasing management presence in the power plants. One candidate action is to evaluate the need for plant managers or empower the senior supervisors to provide leadership at each plant. Another candidate action is to establish a work group to review equivalent forced outage rate ("EFOR") incidents on a quarterly basis and to recommend appropriate actions.

Evaluate the need for plant managers or empower the Senior Supervisors
The PSO&M reorganization of June 2006 included re-establishment of Station Superintendents at the Kahe and Waiau/Honolulu Power Plants. The Senior Supervisor at each plant will be more focused on plant operations, development of shift supervisors, and administrative matters. The new Station Superintendent positions have been filled.

Establish a work group to review EFOR incidents on a quarterly basis and to recommend appropriate actions.
A formal root cause analysis ("RCA") program ("Taproot") has been launched. It will be targeted to major, recurring problems that adversely affect EFOR and EAF. EFOR and EAF are being tracked daily. PSO&M reviews results monthly. Major contributors to EFOR and EAF are identified and referred for RCA.

4. Technology Application and Analysis

The three candidate actions in this group focused on making better use of the currently available technologies and tools. This included both software tools and hardware tools.

Resolve software interface issues between the Ellipse software and other Maintenance Management System ("MMS")
Improvements to Ellipse (e.g., Emerson enhancement at HELCO) are being investigated. HECO is also increasing the use of the EPRI's PaSTA software tool for work scheduling.

Annually review North American Electric Reliability Council ("NERC") Generating Availability Data System ("GADS") data to benchmark HECO against industry peers.
NERC-GADS benchmarking can be used, in part, to assess the effectiveness of the PSO&M practices at a point in time, but not as a real-time guide for making daily decisions. System Owners prepare annual state of the system reports for the senior management team, and these reports help guide strategic planning for the PSO&M and PSED departments.

5. Training

The five candidate actions in the Training group focused on increased training throughout Power Supply. The target audiences for increased training included shift supervisors, operators, system owners and subject matter experts. Specific topics to be covered by the increased training included root cause analysis, commissioning of new equipment and systems, troubleshooting and maintenance planning.

Develop mentoring and training program for frontline supervisors and operators
The "team training" concept utilized by the US Navy is being adapted to utilize PSO&M's most knowledgeable personnel to mentor and train its less experience employees. This is a new, high priority assignment for the newly established position of Senior Supervisor for Training. This new position was established as part of the June 2006 reorganization of the PSO&M and has been filled. Again, for more information on the reorganization, please refer to Attachment A.

Implement a formal and structured root cause analysis methodology
A formal root cause analysis ("RCA") program has been launched. It will be targeted to major, recurring problems that adversely affect EFOR and EAF.

Improve troubleshooting capabilities.
As part of the PSO&M reorganization of June 2006, the O&M Engineers have been consolidated into a new, larger group. One of the primary responsibilities of this group will be to lead and support troubleshooting efforts.

As stated above, HECO is in agreement with the findings of the ESI report and agrees that the candidate actions presented by ESI represent opportunities to improve the availability and reliability of HECO's generation. For the majority of the candidate actions, HECO already has in place programs and projects to address the candidate actions. For the remainder of the candidate actions, HECO is implementing initiatives to address the candidate actions.

Thank you for the opportunity to presents this information. If you have any questions or need additional information, please contact me.

Very truly yours,

Enclosures

cc: Division of Consumer Advocacy (with Enclosure)

Review of HECO's Power Supply Operations, Maintenance and Outage Management Programs

Prepared for:
Hawaiian Electric Company, Inc.

Prepared by:
EPRI Solutions, Inc.

Date:
October 11, 2006

This report contains information and data developed as part of an independent assessment and the report shall not be altered — in whole or in part — without the express permission of the author. The client shall have the right to duplicate, use, or disclose the data to the extent provided in the contract and this restriction does not limit the client's right to use information contained herein available from another source or a deliverable in accordance with the terms and conditions of the contract.

EXECUTIVE SUMMARY

On a comparative basis the Hawaiian Electric Company (HECO) steam-electric generating units have been performing very well. Industry benchmarking confirms that HECO is getting significantly more from its existing units than its industry peers. Until 2004, performance indicators – Equivalent Availability Factor (EAF) and Equivalent Forced Outage Rate (EFOR) -- compare quite favorably with the industry despite operating at high load and capacity factors. For example, HECO operates units at a Net Capacity Factor (NCF) that is well above industry averages, and in many cases, double that of other similar units.

However, as system demand has grown since 1999, the HECO system has experienced lower reserve margins (Figure 1).

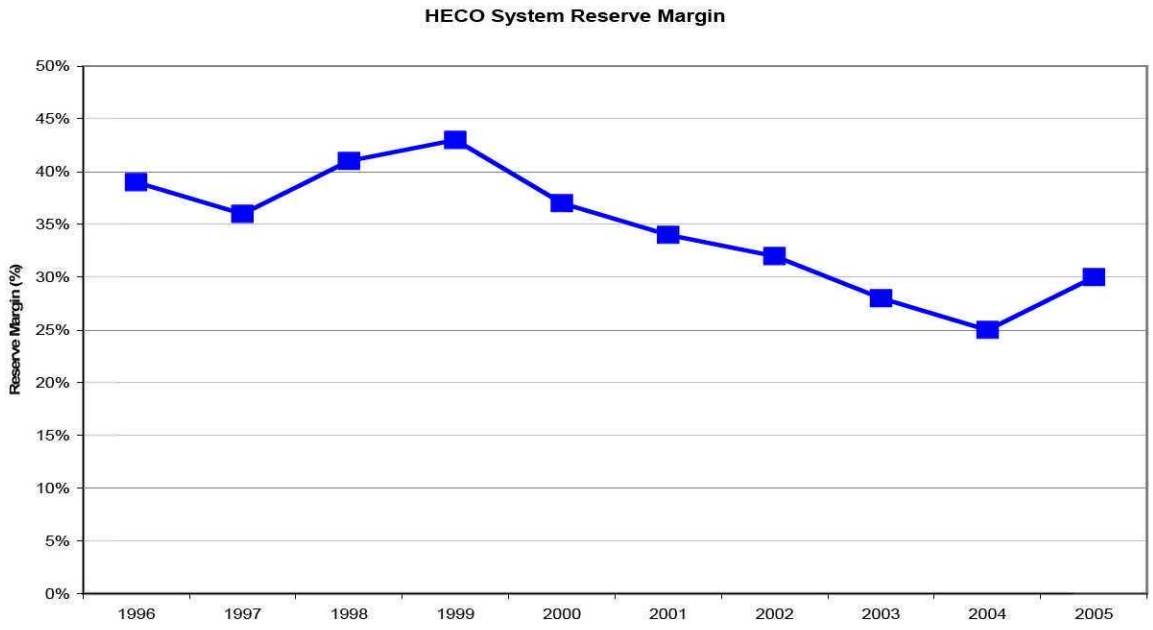

Figure 1 – HECO Reserve Margin History (Reference 6)

As the reserve margins are lowered, existing generating units are operating harder (higher service hours and cyclic operation). Additionally, major overhauls and other types of maintenance have been implemented to sustain reliable performance.

The combination of operating conditions and the continued need for major overhauls and other types of maintenance have contributed to the deterioration in the Equivalent Availability Factor (EAF) in recent years. This deterioration of EAF may result in a decline of reliable service. Sustaining acceptable levels of reliability at high capacity factors will continue to require extensive maintenance, repair, and refurbishment on a continuing, and is some cases an accelerated, basis. Therefore, these circumstances have made it difficult for the HECO units to continue to perform at the high levels of availability achieved in the past (Figure 2).

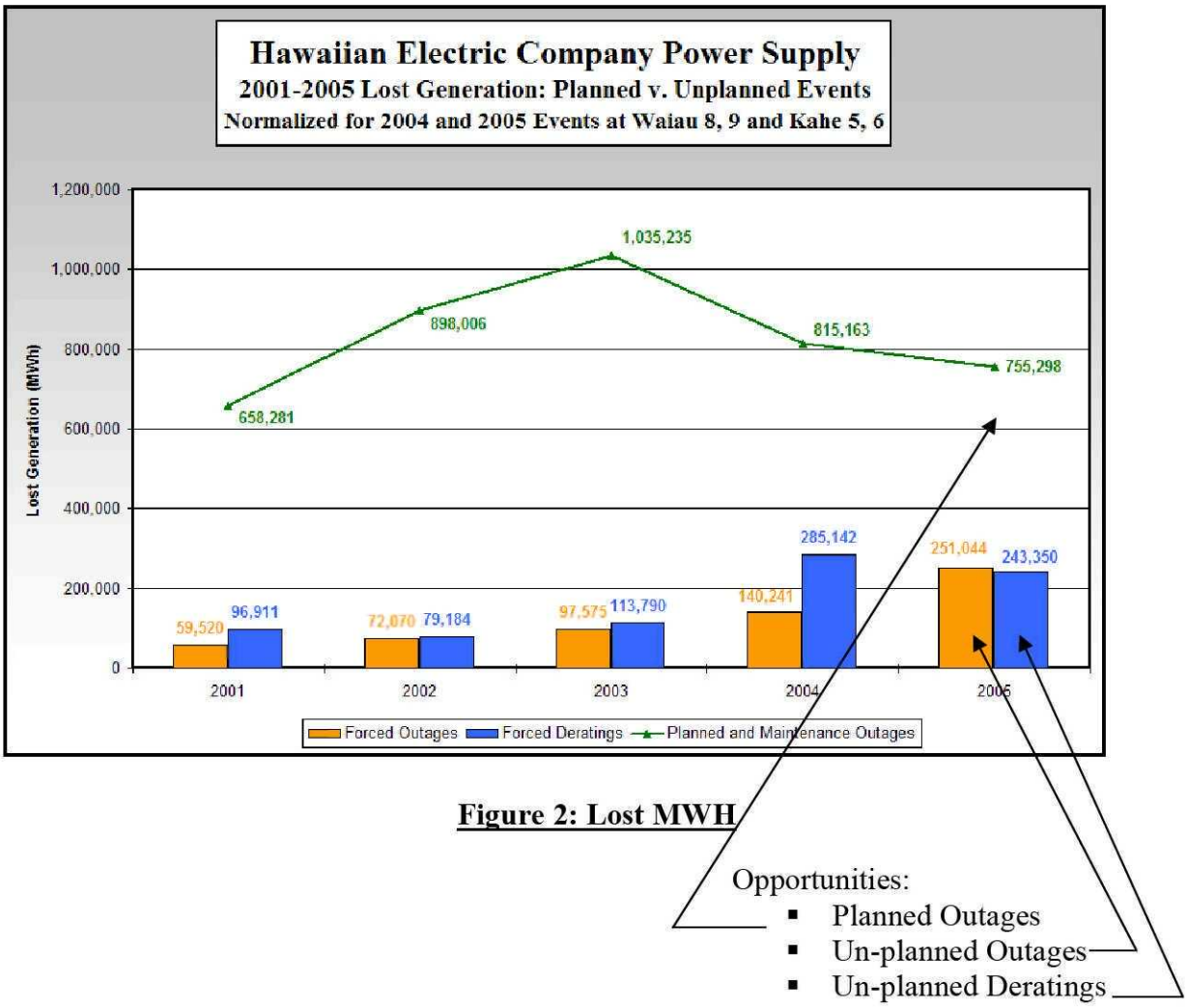

Figure 2: Lost MWH

HECO requested that EPRI Solutions review its operations, maintenance and outage management programs from an objective viewpoint and identify candidate actions with the potential to improve its generation availability and reliability. The scope of the review included the following:

- A review of the circumstances that contribute to the current situation such as the decreasing reserve margins, condition of the generating fleet including IPP's, and human factors such as decreasing experience due to employee retirements.
- A review of maintenance practices
- A benchmark study comparing HECO unit and fleet performance with mainland counterparts
- Plant personnel interviews

Based on this review, EPRI Solutions has developed candidate actions that have the potential to assist HECO in improving its programs and achieving their objective of sustaining generation reliability and availability in a low reserve margin environment. These candidate actions have been grouped into the following five focus areas:

- Scheduled Overhauls & Outages: There are several potential opportunities to improve the overall efficiency and performance of plant outages and overhauls by enhancing the focus and accountability for the overall outage in the areas of outage task management, outage scope definition, pre-outage preparation, and post-outage critiques.

- Corrective & Preventive Maintenance: HECO's Power Supply Reliability Optimization (PSRO) initiative is underway and designed to optimize unit reliability and production costs. Several potential opportunities may provide improvement in the maintenance process. These include implementation of the complete maintenance basis, evaluation of additional manpower and skill set requirements, improved coordination and deployment of resources, and better definition of task priorities to ensure that high priority items are truly high priority.

- Organization: There are several opportunities that have been identified to improve responsibilities and accountabilities within the organization. For example, the superintendents, instead of the senior supervisors, appear to be taking the lead on resolving daily plant issues, and are not spending sufficient time on higher level day-to-day management and supervisory activities. Also, the senior supervisors that report to the superintendents do not appear empowered and in control of the overall plant performance. There does not appear to be a formal process for continual evaluation, prioritization, and identification of measures taken to minimize or eliminate negative impacts on EFOR and EAF.

- Technology Application & Data Analysis: There is an opportunity to expand the use and application of the existing technologies and data that exist within HECO. While benefits are being realized, there are opportunities to improve root cause analysis capability, task prioritization, and work management efficiency by expanding, integrating, and/or combining the capabilities of existing tools (OSI PI and Process Books, the DCS data acquisition system, PlantView, Ellipse, and PaSTA) with available NERC-GADS and benchmarking data to improve generating unit and equipment availability and reliability by shortening the time required to perform root cause analysis and permanently resolving equipment problems.

- Training: Several areas involving training and familiarization with technologies were identified as opportunities for improvement. Some examples include:

    - A significant number of newly hired Shift Supervisors and Operators, and newly assigned System Owners that will need training and support to close the "experience gap" resulting from employee retirements, the installation of new technologies, etc. The experience gap also limits their opportunity to effectively interface with other staff.

    - Related to the item above, there are opportunities to improve maintenance, operations and the engineers' ability to detect and troubleshoot problems by applying root cause analysis tools and techniques prior to initiating the maintenance action or outage.

    - With regard to equipment upgrades there are indications that HECO Operators and System Owners are unable to take full advantage of the capabilities of upgraded equipment due to a lack of understanding of the new technology.

    - An understanding of the technical capabilities and services provided by the Predictive Maintenance staff should be expanded to the operations and maintenance staff.

    - There may be an opportunity to better utilize current operation and maintenance resources by providing cross-training and multi-skill development opportunities.

The candidate actions in each of these areas provide HECO opportunities to further improve their operations, maintenance and outage management programs and to sustain a reasonable level of reliability in a low reserve margin situation. A detailed list of candidate actions grouped into these five focus areas was developed for consideration by HECO and is presented in Appendix B to this report.

TABLE OF CONTENTS

EXECUTIVE SUMMARY **2**

TABLE OF CONTENTS **6**

LIST OF FIGURES **7**

LIST OF TABLES **8**

***1* PROJECT BACKGROUND** **9**

1.1 Objectives 9

1.2 Scope of Work 9

1.3 Deliverables 10

***2* CURRENT SITUATION** **11**

2.1 State of Generation 11

2.2 Performance 16

***3* MAINTENANCE BACKGROUND** **23**

3.1 Historical Perspectives 23

3.2 Methods of Improving Equipment Condition 27

***4* ASSESSMENT RESULTS** **29**

4.1 Benchmarking 29

4.2 Observations 45

4.3 Candidate Actions 47

***5* REFERENCES** **59**

***A* GLOSSARY OF TERMS** **60**

***B* CANDIDATE ACTION LIST** **67**

LIST OF FIGURES

FIGURE 1: HECO Reserve Margin History.....2

FIGURE 2: Lost MWH 3

FIGURE 3: Typical Daily Load Profile 14

FIGURE 4: Historical EAF Performance..... 18

FIGURE 5: Historical EFOR Performance.....19

FIGURE 6: Equivalent Availability Factor (EAF) of HECO's Steam Fleet 33

FIGURE 7: Equivalent Forced Outage Rate (EFOR) of HECO's Steam Fleet 33

FIGURE 8: Net Capacity Factor (NCF) of HECO's Steam Fleet 35

FIGURE 9: Annual Lost Generation of HECO's Fleet 38

FIGURE 10: Annual Lost Generation of HECO's Fleet Normalized 39

FIGURE 11: Actual Unit-by-Unit Lost Generation of HECO's Fleet 40

FIGURE 12: "Normalized" Unit-by-Unit Lost Generation of HECO's Fleet 40

FIGURE 13: Boiler Overhaul Durations 41

FIGURE 14: Reported System-by-System EFOR Contribution of HECO's Fleet 42

FIGURE 15: "Normalized" System-by-System EFOR Contribution of HECO's Fleet 43

FIGURE 16: HECO vs. Industry Average – System-by-System EFOR Contribution.....44

LIST OF TABLES

TABLE 1: HECO and IPP Generating Units as of May 2006 12

TABLE 2: Annual Equivalent Availability Factor (EAF) of HECO's Steam Units.....34

TABLE 3: 5-year Average Net Capacity Factor (NCF) of Steam Units.....36

TABLE 4: 5-year Average Equivalent Availability Factor (EAF) of Steam Units.....37

TABLE 5: HECO – Number of Forced Outages and Deratings 2001-2005.....43

1 PROJECT BACKGROUND

The Hawaiian Electric Company (HECO) has retained the services of EPRI Solutions to review its operations, maintenance and outage management programs and to identify candidate actions to improve its generation assets availability and reliability.

HECO is responsible for ensuring reliable power to Oahu. The electrical system on Oahu is an island system that requires HECO to operate many of its plants in a load following or peak load operating mode. The demand growth over the past decade has resulted in lower reserve margins on the HECO system and has resulted in harder operating conditions (higher service hours and cyclic operation) on the HECO generating units. The impact of the current operating requirements is putting severe pressure on the existing generation units. A system operating at lower reserve margins causes additional wear and tear on the generation units due to the inability to take frequent derates and outages for routine maintenance (in order to support the reserve margin requirements). These operating conditions have placed a significant burden on the plant assets and HECO has experienced increased forced outage rates in 2004 and 2005. The purpose of this preliminary assessment is to understand the current situation on Oahu and identify potential causes for the current performance trends and to identify candidate actions that may lead to improved performance.

1.1 Objectives

EPRI Solutions conducted a preliminary assessment of HECO's operations, maintenance and outage management programs and also performed an industry peer group unit performance benchmark analysis to identify:

1) Candidate actions with the potential for immediate improvements;

2) Candidate actions with the potential for longer term benefits but which require more involved process improvements or larger resource commitments; and

3) Candidate areas for further study with the potential to yield additional improvement opportunities.

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1.2 Scope of Work

The preliminary assessment focused on defining the following:

- Unit-specific and system EFOR/EAF performance trends and events
- Key contributors to low EAF and high EFOR on a unit and system basis
- Factors under management control impacting EAF and EFOR
- Factors not under management control impacting EAF and EFOR
- Generating unit dispatching practices and their impacts on EAF and EFOR
- Grid vulnerabilities introduced when units are out of service due to multiple and concurrent forced or planned outages (Waiau, Kahe, Honolulu, AES, KPLP, HRRV)
- Operations and maintenance constraints due to requirements in IPP power purchase agreements (PPAs)
- Forced and planned outage frequency and durations drivers (50, 90 and 150 MW Class Units)
- Benchmarking and prioritization of PSRO System Owner responsibilities
- Trends for planned unit outages and an evaluation of the effectiveness of planned outages to improve EAF and EFOR.

1.3 Deliverables

The results of the industry performance benchmark and preliminary assessment along with findings, conclusions and candidate actions are documented in this report.

2 CURRENT SITUATION

The current state of the HECO generation system is presented in two parts:

- A description of the HECO generation system and the environment in which it functions (State of Generation).
- A description of the current system performance.

The information presented here provides the current status of the HECO generation system, which serves as the basis for this review and analysis.

2.1 State of Generation

System Description

The Oahu power system is a "power island" system. A "power island" system is isolated from all other power systems. This is a critical feature of the environment in which HECO operates. On the mainland, utility power systems are interconnected to neighboring utility systems and can rely on this larger power grid for reserve margin and system stability. An "island" system must operate and maintain reserve margin and system stability on its own.

As an island utility, HECO must operate and maintain its generating units, as well as coordinate operation and maintenance of the facilities of the Independent Power Producers (IPP's), so that there is sufficient generation capacity at all times to serve the island demand. Also, sufficient spinning reserve and quick load pickup (explained below) must be available to minimize interruption caused by the sudden loss of the largest generating unit.

The HECO generation assets, as well as the assets of the IPP's, are shown in Table 1. The table indicates the owner, unit, generating unit capability, type of unit, intended operating mode, installation date, and age. The generating units shown in the table represent the sum of the firm generation capacity for Oahu, which totals 1,669MW.

Table 1: HECO and IPP Generating Units as of May 2006 (Reference 1)

Unit	Capability (MW)	Type	Operating Mode	Installation Date	Age (Years)
HECO Units					
Honolulu 8	56	Steam, Non-Reheat	Cycling	1954	52
Honolulu 9	57	Steam, Non-Reheat	Cycling	1957	49
Waiau 3	49	Steam, Non-Reheat	Cycling	1947	59
Waiau 4	49	Steam, Non-Reheat	Cycling	1950	56
Waiau 5	57	Steam, Non-Reheat	Cycling	1959	47
Waiau 6	56	Steam, Non-Reheat	Cycling	1961	45
Waiau 7	92	Steam, Reheat	Base	1966	40
Waiau 8	94	Steam, Reheat	Base	1968	38
Waiau 9	53	Combustion Turbine	Peaking	1973	33
Waiau 10	50	Combustion Turbine	Peaking	1973	33
Kahe 1	92	Steam, Reheat	Base	1963	43
Kahe 2	89	Steam, Reheat	Base	1964	42
Kahe 3	92	Steam, Reheat	Base	1970	36
Kahe 4	92	Steam, Reheat	Base	1972	34
Kahe 5	142	Steam, Reheat	Base	1974	32
Kahe 6	142	Steam, Reheat	Base	1981	25
Independent Power Producer Units					
H-Power	46	Steam, Non-Reheat	Base	1990	16
KPLP (1)	208	Combined Cycle	Base	1991	15
AES	180	Steam, Reheat	Base	1992	14

Notes:
(1) KPLP is a dual-train combined cycle generating plant comprising two combustion turbines, two heat recovery boilers and one steam turbine. For system operations purposes, KPLP is treated as two generating units and is not considered the largest unit on the HECO system.

For purposes of this study, the units are classified by their different operating modes as follows:

- Baseloaded Unit: A unit that is operated 24 hours per day, 7 days per week, except for periods when they are down for maintenance or forced outage. These units are the most efficient units (reheat or combined cycle) on the system (except for H-Power).

- Cycling Unit: A unit that is available for daily start up and shut down to support daily peak loads. These units are less efficient (non-reheat) HECO units that were originally designed for baseload operation.

- Peaking Unit: A unit that is intended to support spinning reserve and quick load pickup requirements during brief periods at the highest peak demand period of the day, or to support emergency generation during periods of generation shortfall. These units are quick starting units (combustion turbines) capable of coming on line within 20 minutes as compared to steam units that may take hours.

System Operation

The HECO system description and system operation have been previously discussed in various HECO dockets and other forums with the regulatory agency and other public agencies. The descriptions and data in this section draw heavily from information provided in these documents (which are referenced throughout this section). Specifically, HECO's recent rate case testimony provides detailed information on the system and its operation (See Reference 2).

The HECO system (including IPPs) is a "power island" and must meet system load, reserve margin and system stability requirements with its own resources. As indicated in Table 1, the generation capability for Oahu comes from a mix of HECO-owned baseloaded, cycling, and peaking units, and IPP-owned baseloaded units. The system operation is performed by HECO through an energy management system (EMS) that dispatches the loading of each available generating unit to satisfy reliability and cost criteria. On Oahu, the EMS controls the loading of the 14 HECO steam-electric generating units, 2 HECO combustion turbines, and the IPP generating units. The EMS dispatches a combination of baseloaded, cycling, and peaking units to serve the system load with sufficient spinning reserve and quick load pickup criteria to respond to unanticipated emergencies such as the loss of the largest generating unit.

The system demand is the electric energy consumed by customers. Daily system demand patterns vary over a 24-hour period from a minimum to a peak as shown in Figure 3. To maintain reliability and quality, supply must exactly match demand at any point in time. If demand is allowed to exceed supply, system frequency will begin to sag below 60 Hz, and if it sags too low, customers will be shed from the system via automatic and/or manual means in an attempt to reestablish the balance between supply and demand. If demand exceeds supply, and if customers are shed off line due to severe frequency depression, they can expect to remain without power until either additional supply (generation) can be brought on line, or other equivalent loads are taken off line, i.e., rolling blackouts. In order to protect the system from a supply shortage, generating units are dispatched to meet the system demand and provide sufficient spinning reserve (on-line reserve generation capacity) and quick load pickup to recover from the loss of the largest operating unit. Spinning reserve and quick load pickup are accomplished by operating selected units at less than full load such that the units have a combined reserve that can make up for the loss of the largest operating unit. The criteria for spinning reserve and quick load pickup are described below.

- Spinning reserve is a system operating criteria that is maintained to avoid customer disruptions caused by the sudden loss of the largest generating unit. Spinning reserve is basically the sum of the full load capacity of all generating units that are on line less the

system demand. In order to satisfy the spinning reserve criteria, this difference must be equal to or greater than the capacity of the largest running unit. This means that the system will normally carry enough spinning reserve so that in the event the largest operating unit trips off line, and after the system stabilizes, there is enough generation (supply) to meet the demand while still maintaining normal system frequency (60 Hz) and voltage.

- Quick load pickup is a system operating criteria that is intended to avoid the operation of load shedding relays in sudden and severe system frequency depression (Demand > Supply) situations caused by the trip out, or forced outage, of an operating unit. Quick load pickup is defined as maintaining sufficient operating unit capability such that, upon tripout of any operating unit, the remaining operating units will have sufficient reserves to stabilize system frequency within three seconds after an operating unit tripout. Generally, the generating units are designed to pick up approximately 50-60% of their remaining capability (difference between actual loading and full load capability) within three seconds of a sudden severe frequency depression.

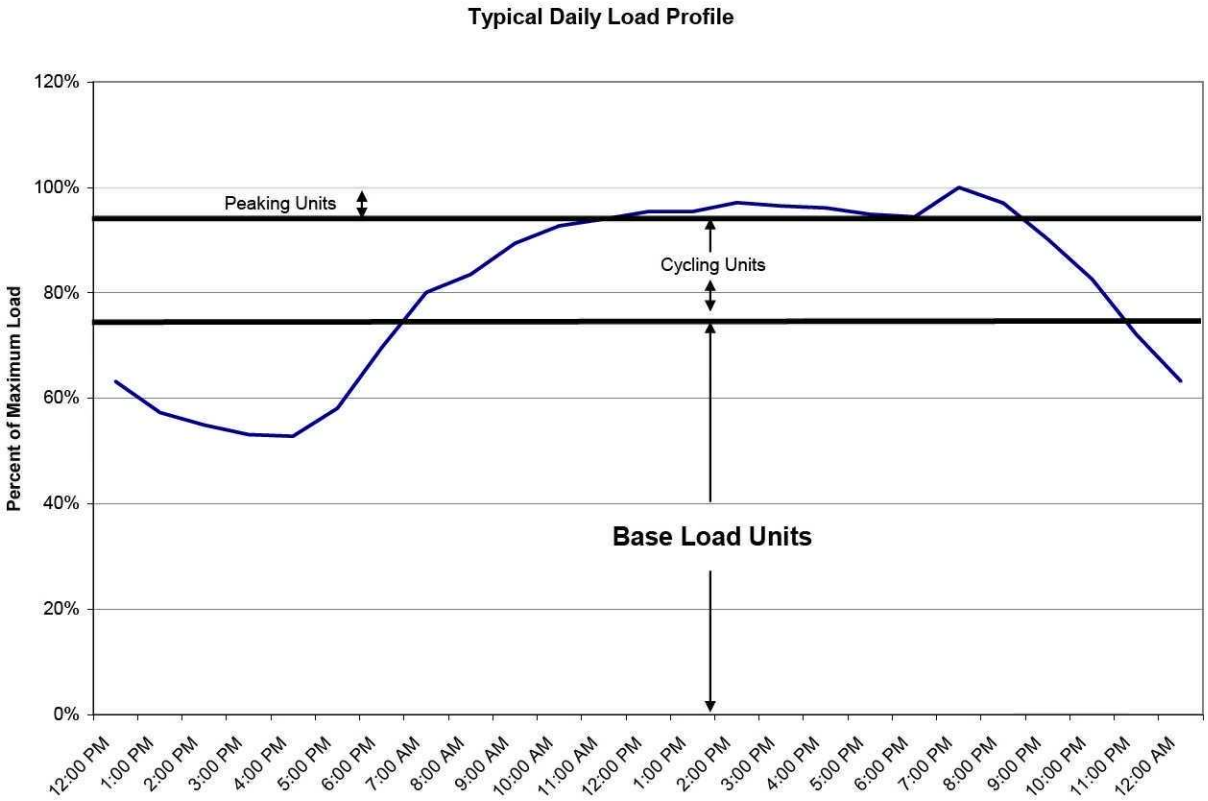

Figure 3: Typical Daily Load Profile (Reference 3)

Insufficient spinning reserve or insufficient quick load pickup does not impact customer power reliability or quality as long as there is sufficient supply to meet peak demand. If all available operating units are used at their respective maximum capacity just to meet demand (i.e., zero quick load pickup to stabilize the system if an operating unit trips and/or zero spinning reserve to meet the load if an operating unit trips), the trip of any operating unit will trigger a frequency depression and subsequent underfrequency load shedding may occur. If the system frequency drops to 58.5 Hz for 10 seconds due to the imbalance between Demand and Supply (Demand > Supply) caused by a forced outage, a portion of the system load will be shed automatically. This automatic protective action is necessary to protect the island system from total collapse.

This condition may occur during periods when there is a reserve capacity shortfall caused by multiple generating units being down for maintenance or forced outage, or if the system peak grows at such a rate that it effectively uses up available reserve capacity, or a combination of these events.

In order to ensure reliable operation, and to meet stringent operating permit and insurance requirements, units are periodically shutdown for periods of time (measured in weeks) to perform overhauls (also referred to as "planned outages"). In addition, operating units may require scheduled short duration (several days to a few weeks) maintenance outages to repair equipment problems requiring a unit shutdown. Occasionally units also experience unscheduled forced outages due to a number of causes including protective trips caused by equipment or control problems, operator-initiated trips, or other malfunctions. In the event that multiple units are unavailable due to any combination of the above, a generation shortfall situation may occur where spinning reserve and quick load pickup cannot be maintained through the system peak periods. Whether the customers are impacted or not depends on the system load at the time, and the amount of available capacity.

Current Environment

In the past, system demand was lower and the HECO system had sufficient reserve capacity to handle combinations of simultaneous outages (planned, maintenance, and forced). The Adequacy of Supply Report (Reference 4) submitted in March 2004 projected a significantly higher demand than was anticipated prior to 2003. This projected demand has moved up the need for additional capacity; however, a realistic installation date for new capacity is 2009 (Reference 5). Therefore, HECO has to carefully manage the island's generating units to ensure that sufficient supply exists for the demand. This situation emphasizes the need for effective management of the generation fleet to meet system load, spinning reserve and quick load pickup requirements.

Effective management of the generation fleet includes efficient scheduling and management of planned and maintenance outages and a focus on reducing forced outages to mitigate the impact of the reduced reserve margin. The trends shown in Figure 1 (in the Executive Summary) show a reduction in reserve margin. The difference between the demand and the capacity represents the reserve margin which is available to accommodate unit planned and unplanned outages and deratings. As evident from these data, the reserve margin has reduced significantly over the past

5 years. This situation puts a premium on reducing the duration of planned outages as well as minimizing maintenance and forced outages.

HECO has implemented or is evaluating a variety of mitigation actions to address the potential reserve margin shortfalls. The mitigation actions related to HECO's operating and maintenance practices, processes and policies include:

- Maintaining staffing levels to support 24/7 operations at all fourteen of HECO steam-electric generating units.
- Continuing efforts to implement additional maintenance personnel to allow operational maintenance during day and night periods.
- Continuing to invest in projects to improve the reliability of the generating units and to improve the flexibility in their operations.
- Continuing to optimize planned maintenance schedules to minimize the occurrence of reserve capacity shortfalls, target maintenance based on the most current assessments of unit component conditions, and adjust them for any unanticipated outages of units.
- Continuing to work with IPP partners to increase availability and reduce the impact of IPP maintenance on system reliability by careful coordination of HECO and IPP maintenance schedules.

EPRI Solutions agrees that these mitigation measures will assist in reducing the potential for capacity shortfalls. The full range of mitigation measures is discussed in the Adequacy of Supply report submitted to the Hawaii Public Utilities Commission on March 6, 2006 (Reference 5).

In addition to the established mitigation measures above, the current and anticipated future operating environment highlights the need to explore ways to reduce the duration and number of generation unit outages while still accomplishing the maintenance that needs to get done. This is one of the motivators for this study.

2.2 Performance

The previous section described the HECO generation fleet, its current operating environment, maintenance outage scheduling, and the current steps to mitigate reserve margin shortfall challenges. This section describes the performance of the HECO generating units and fleet as they relate to plant availability and unplanned outages. Given the current operating environment, there is a premium on the availability and reliability of the HECO fleet and IPP's relative to minimizing outages and increasing unit availabilities for dispatch.

There are several key measures commonly used to track the performance of individual generating units and also a fleet of generating units, including:

- Capacity Factor (CF)
- Equivalent Availability Factor (EAF)
- Equivalent Forced Outage Rate (EFOR)

The recent trends in CF, EAF and EFOR for HECO units are indicative of the challenges facing HECO's island system. A high-level perspective with pertinent background information is provided to facilitate an understanding of the current challenges and to provide a means to identify additional opportunities to help mitigate negative impacts on unit availability and reliability.

The load growth on the HECO system has increased over the past decade, such that all generating units are operating significantly harder than in the recent past. As a result, many factors such as the age of the existing generating units, more frequent reserve capacity shortfall situations, reduced flexibility in outage scheduling, and limited opportunities to perform repairs are impacting the availability (EAF) and reliability (EFOR) of the units.

The performance of the HECO units around these key operating parameters is described below. The following discussion shows that while HECO continues to outperform industry peers, HECO's performance trends are showing signs of degradation over the past few years. This decrease in performance and the impact on overall system reliability is another motivator for this study.

Capacity Factor (CF)

The capacity factor is a percentage of the output of a generating unit relative to its maximum potential output over a given period of time. The HECO units are operating harder at a level well above the industry average. However, this high capacity factor is also an indicator of the wear and tear that these plants experience relative to the industry for these types of units. A more detailed discussion of the capacity factor and its impact on the plants is provided in Section 4.1.

Equivalent Availability Factor (EAF)

The equivalent availability factor (EAF) is a percentage that represents the availability of the full capacity of the generating units whether they operate or remain available on standby. HECO monitors their performance in EAF and also compares their performance to the industry at large. Figure 4 shows the historical HECO EAF performance through 2005 and the performance of the industry peer group through 2004.

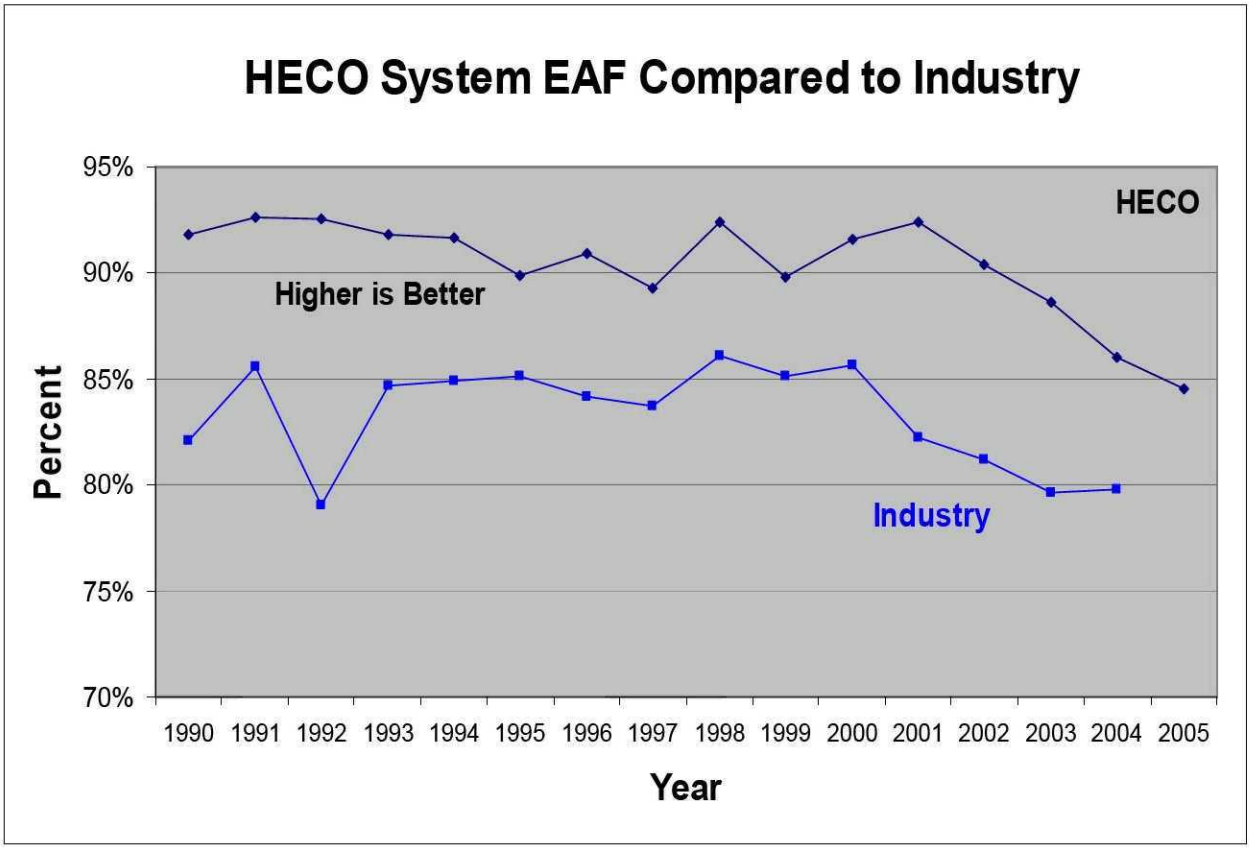

Figure 4: Historical EAF Performance (Reference 7)

HECO has outperformed the industry peer group over the years, but this is a requirement for an "island" utility. Since there is no support from a neighboring utility through the power grid, HECO must maintain high availability values to meet demand. Since the current situation shows a narrowing gap between available supply and demand, there is more urgency in maintaining a high availability factor. Figure 4 also indicates that HECO's EAF performance has declined over the past few years. These EAF trends are discussed below and also in Section 4.1.

Equivalent Forced Outage Rate (EFOR)

Equivalent forced outage rate (EFOR) is a percentage that represents the sum of the equivalent full load outage durations for each unplanned unit derating and all unit hours lost due to forced outages. Again, HECO's performance has been consistently better than the industry peer group. However, there has been degradation in the EFOR over the past few years. This degradation in EFOR has occurred while HECO has been significantly investing in maintenance and improvement projects. Figure 5 shows the EFOR performance as measured by HECO through 2005. The EFOR trends are discussed below and also in Section 4.1. The industry data for years 2003 and 2004 are also further discussed in Section 4.1.

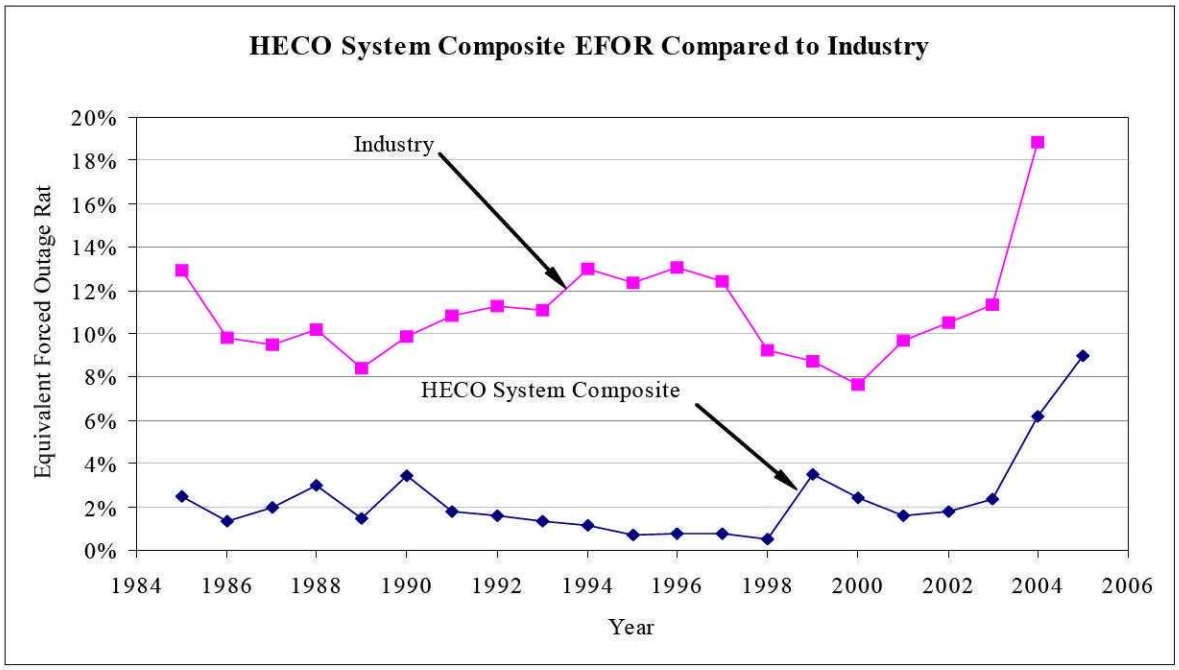

Figure 5: Historical EFOR Performance (Reference 8)

Major Factors Affecting HECO's EAF and EFOR

Several factors have contributed to lower EAF and higher EFOR trends in the HECO system in recent years (as discussed in Reference 2), including:

1. Reduced flexibility for scheduling maintenance.

   Power is supplied to the HECO system by 14 steam-electric generators and 2 combustion turbines owned by HECO, and three major independent power producers (Kalaeloa (KPLP), AES and H-Power). To ensure reliable operation and meet stringent operating permit and insurance requirements, units are routinely shut down for periods of time (measured in weeks) to perform overhauls called planned outages ("PO"). In addition, operating units may require scheduled short duration (several days to a few weeks) maintenance outages ("MO") to repair equipment problems requiring a unit shutdown. Occasionally units also experience unscheduled forced outages ("FO") due to a number of causes including protective trips caused by equipment or control problems, operator-initiated trips, or other malfunctions. In the event that multiple units are unavailable due to any combination of the above, a generation shortfall situation may occur where spinning reserve and quick load pickup cannot be maintained through the system peak periods.

   The reduction in reserve capacity available to allow unit outages (while meeting spinning reserve and quick load pickup requirements) for maintenance is due, in part, to growing system demand. This reduction in reserve capacity adversely impacts unit outage scheduling flexibility by often delaying unit outages to meet spinning reserve and

quickload pickup requirements. Of the types of outages mentioned above, maintenance outages are less predictable on a short term basis, and forced outages and/or unit derates are completely unpredictable. The reduced scheduling flexibility often creates increased risk to the system, particularly when units must continue to operate with manageable problems until sufficient reserve capacity is available to schedule a shutdown.

2. Age of generating units and associated infrastructure.

   The average age of HECO non-reheat and reheat steam units in 2006 is approximately 49 years and 34 years, respectively. The two peaking combustion turbines, Waiau 9 and 10 are 31 years old. The ages for the IPP generating units at H-Power, Kalaeloa and AES are 16, 15, and 14 years, respectively. As generating units age, there will be an increase in the scope of routine maintenance, repair and improvement projects required for the units and associated infrastructure to continue to operate reliably. The increase in the scope of these projects will require more comprehensive planned outages.

   Fossil fuel generating units have traditionally been designed for a thirty to forty year life. Due to escalating construction costs, difficulties in securing new sites, new advances in technology, and regulatory requirements, utilities have recognized the economic and generating system advantages of continuing to operate existing plants. To maintain a reasonable level of reliability, more equipment repairs and upgrades are required due to the aging of these existing generating units, especially those subjected to higher levels of cyclic duty.

   The ages of the HECO units have been a factor in the lower EAF and higher EFOR in the HECO plants in the last two years. HECO is undertaking a significant program to modernize their major plant equipment, which has required significant outage time. Generating units are made up of very complex systems and equipment that wear and tear at different rates as they age. Older mechanical and electrical equipment is prone to break down more frequently than newer equipment. Also, acquiring replacement parts for older equipment has become more challenging due to obsolescence. Substitute parts are often "reverse engineered" by parties other than the original equipment manufacturer (OEM). This may require several iterations to refine the design. This can increase the amount of time a unit remains out of service, thereby increasing the EFOR statistic. One example is the Waiau Unit 3 outage which required two outages (a planned outage of 18 weeks and a forced outage of 10.5 weeks) to correct a design flaw in the replacement condenser waterbox.

3. Operating duty

   The outlook back in 2002 recognized that the reduced reserve capacity caused by growing demand would have an impact on unit outages (such as longer duration outages and increased scope of repairs). However, the impact on outages and outage scheduling for the generation fleet as a whole was underestimated.

The consequences of a higher duty cycle (i.e., running units harder) increase as a unit ages, because the older units, over time, become less efficient than the newer units. When the non-reheat steam units were first installed on the HECO system, they started out as base loaded units because they tended to be the largest and most efficient. Over time, newer, larger and more efficient units were added to the HECO system (i.e. the reheat steam units). The reheat units then became the baseloaded units, leaving the relatively less efficient non-reheat units to cycle. As a consequence of this change in their mode of operation from baseloaded (when they were new) to cycling (when they were older), wear and tear on equipment increased as the units got older.

Please note that the HECO baseloaded reheat steam units are also impacted by daily minimum loads on their respective auxiliary equipment. This is attributed to the addition of IPP baseloaded capacity in the early 90's that required HECO baseloaded units to share the minimum load with IPP baseloaded units. Due to the relative differences in efficiency between the HECO reheat units and the IPP units, HECO baseloaded units are operated down to their respective minimum loads to meet system requirements while IPP baseloaded units operate close to their maximum output. In order to operate safely at minimum loads, HECO baseloaded units must cycle (on/off operation) critical auxiliaries on a daily basis. This mode of operation increases the wear and tear on critical auxiliaries and increases the potential for breakdown and subsequent operation with a derating.

The increase in on/off cycling of HECO's two peaking units and six non-reheat units is evidenced in the increase in total service hours. Both trends indicate a significant increase in system demand since 2002 similar to the late 80's, and before 406 MW of additional capacity was added by the IPP's in the early 90's.

4. Human Factors

Human factors impacting HECO's situation includes an aging workforce, a tight labor market, and the need for outside contractors. The loss of experienced workers from an aging workforce is an industry-wide problem as workers retire and leave with their wealth of knowledge and experience, especially on the older units. Formal training alone is not sufficient to transfer the knowledge that comes with experience.

Hawaii's robust economy has made it difficult to find qualified employees in both merit and bargaining unit positions. Maintenance is particularly impacted with the short supply of qualified engineers and trades and crafts journeymen. While outside contractors are utilized to supplement HECO's labor workforce, for health, safety and environmental reasons, their numbers are limited by the ratio of contractors to employees.

Not withstanding the human factor challenges raised above, HECO has taken steps to mitigate the reserve capacity and unit reliability issues by continuing to add operational staff to allow 24x7 operation on all generating units. Also, efforts continue to increase the maintenance staff capability to meet the diversified demands of the fleet. The additional maintenance staffing enhance maintenance flexibility and capability by

allowing more maintenance to be performed during off peak hours, more work within a scheduled outage, and potentially resulting in shorter duration outages.

5. Environmental, safety and other regulations

   Significant resources are needed to comply with increasingly stringent environmental and safety compliance requirements impacting the operation and maintenance of HECO's generating units, the disposal of wastes generated from the process, and the assurance of employee and public safety.

3 MAINTENANCE BACKGROUND

This section provides a description of the history and strategy of the HECO maintenance program. This discussion provides historical perspectives on the HECO strategy for maintaining their generation assets as well as describing the recent efforts to improve the condition of the plant to adapt to the current needs.

3.1 Historical Perspectives

The maintenance strategy for the HECO generating units is governed by operating permit requirements, risk management requirements, reliability needs, and environmental and safety compliance requirements. The age of the units is another factor that impacts the scope of maintenance.

The HECO steam generating units were designed and commissioned as baseloaded units. Today, the age of these units vary from 24 – 56 years with an average age of approximately 49 years, and the operating requirements of the units have changed. The maintenance approach for the HECO generating units over the past 35 years is summarized below to describe the care regime for the equipment. The information for developing the historical perspective is based on Reference 2 as well as discussions with the HECO staff.

General

Power plants are made up of thousands of pieces of equipment, controls and infrastructure, and every component that makes up a power plant wears and/or fails at a different rate. Maintenance is performed to inspect, restore and/or repair worn or broken pieces of equipment to maintain operating performance and reliability. As a power plant and associated infrastructure age, the scope, cost and schedule to maintain each component becomes more complex and dynamic. Unit outages are constantly being prioritized to accommodate required repairs within the operating reserve margins at the time.

Reliability and efficiency of HECO's assets are managed through a complex process of identifying, categorizing, prioritizing and planning work. Work that requires an outage to repair falls into one of three categories – Planned Outages (overhauls planned years in advance), Maintenance Outages (planned days to months in advance), and Forced Outages (immediate action required). Certain types of operational maintenance may be performed with the unit in service (i.e., an outage is not required), and may include routine maintenance and inspections (i.e., Preventive Maintenance and Predictive Maintenance) and repairs that may be implemented while on redundant equipment or while the unit is derated to isolate the subject equipment being worked on.

Planned outages, (or overhauls,) are time driven and planned years in advance. These outages are driven by the overhaul of major equipment. For the steam units, the timing of overhauls is usually driven by the need to perform a boiler internal inspection to renew the boiler operating permit. For the combustion turbines, planned outages are primarily driven by projected service hours or the number of startups. Planned outages are relatively long duration outages lasting 4 to 12 plus weeks depending on the scope of the overhaul. Scope of work during an overhaul normally includes shutdown-required maintenance backlog work, necessary equipment refurbishment, Original Equipment Manufacturer/Industry recommendations, superheater and high-energy piping assessment studies, and long lead items identified for correction at future outages.

Maintenance outages are short duration outages generally lasting several days to several weeks. These types of outages are scheduled when system conditions permit the loss of capacity while repairs are in progress. Maintenance outages do not require an immediate shutdown; however, shutdown delays generally exacerbates the unit's "risk" condition, i.e., performance may deteriorate and cost for repairs may increase. While the unit is down for corrective repairs, other less critical shutdown-required backlog items are included in the scope if time permits and if needed parts and materials are available at the time of the outage. Another characteristic of a maintenance outage is that these types of outages are generally not forecast very far in advance.

Forced outages are immediate, unplanned outages where the unit is either automatically (i.e., protective relay trip) or manually (i.e., operator initiated) shutdown depending on the nature of the problem. This is the most costly outage where diversion of resources is immediate, parts/materials/services may or may not be readily available, repairs are performed to completion (high labor overtime and penalty cost), and operation of less efficient cycling and/or peaking units may be required to meet system load demands. Other less critical shutdown-required backlog items are included in the scope if time permits, and if the necessary parts and materials are available at the time of the outage.

Operational maintenance is distinguished from outage maintenance in that it does not require a unit shutdown, but may involve planned and unplanned work that requires a unit derating, where the unit is able to continue operations at reduced capacity while repairs and/or maintenance are performed. Operational maintenance includes three categories – Routine, Unplanned, and Other maintenance.

- Routine maintenance includes work on equipment that is generated through preventive maintenance (time based) and/or predictive maintenance (condition based) activities.

- Unplanned maintenance often involves derating of the unit to perform corrective maintenance to repair or replace equipment that failed in operation. Unplanned maintenance may be routine if it has been previously performed at the plant or if it is considered routine for the industry.

- Other types of maintenance include infrastructure repairs, grounds keeping, and repairs to portable tools and equipment used to maintain the generating assets.

HECO's approach to performing maintenance of their plants is consistent with the industry approach. The strategy employed by HECO has been developed based on the operating strategy of their generating assets. The maintenance strategies employed over the past 35 years are discussed below.

1970's

The maintenance approach for the generating units in the 1970's was predicated on the following:

- Units were operated as originally intended (baseloaded, cycling and peaking units).
.
- Overhauls of the major equipment items were scheduled at:

    - Boilers every 2 years
    - Turbine and generators (combined) every 6 years

    The typical overhaul schedule required outages ranging in duration from 3 weeks (boilers) to 8 weeks (turbine / generators). There were annual boiler overhauls at Kahe in the late 1970's to perform boiler tube repairs, but the normal 2 year interval overhauls were resumed in 1980.

This maintenance strategy was consistent with the intended operation of the units and provided for effective maintenance practices to keep the plant equipment in good operating condition. These outage intervals and durations were also consistent with general industry practice. At this time, there was sufficient capacity to meet the demand, reserve margin, and system stability requirements.

1980's

In 1981, the last HECO generation unit, Kahe 6, was constructed and commissioned for operation. During the 1980's, load demand was high and there was a premium for keeping the units available and running. The response to this high demand scenario changed the operating environment and required outages of shorter duration. This was accomplished by defining shorter outages with a smaller scope (instead of the previous longer overhaul outages). One of the outcomes was to separate the turbine and generator major overhaul outages into shorter duration component overhauls.

Also, during the late 1980's, HECO decided to secure additional firm generation for the system from Independent Power Producers (IPP's). HECO negotiated long term Power Purchase Agreements (PPA's) with several IPP's for additional generation capacity (beginning in the early 1990's). The IPP generating units were designed to operate as baseloaded units.

During the mid to late 1980's, all available units were run with a heavier duty cycle as rapidly growing demand placed pressure on reserve capacity, and maintenance was streamlined to accommodate the high demand. However, HECO maintained a very high equivalent availability factor and lower than industry average equivalent forced outage rate.

Also, with the negotiation of significant IPP capacity contracts in the works, several HECO cycling units and the combustion turbine units were scheduled for retirement within the next 15 years. In anticipation of unit retirements, the maintenance strategy was changed on those units to reduce the maintenance scope (or for some equipment, run to failure), and identify equipment and parts that could be effectively used on other similar units to maintain reliability.

1990's

During the early 1990's, over 400 MW's of baseloaded IPP capacity was added to the HECO system in just three years – 1990 to 1992. The operation of these IPP plants had a major impact on the operation of the HECO generating units and therefore, on the maintenance strategy. The key items affecting the operating and maintenance strategies during the first half of the 1990's were:

- With the addition of significant IPP capacity to the HECO system in the early 1990's, the smaller and less efficient HECO cycling and peaking units were not required to run often to meet demand and satisfy spinning reserve and quick load pickup requirements. This resulted in very low service hours, high EAF and low EFOR because the units were kept on standby. Maintenance intervals during the first half of the 1990's were still based on 2 year boiler inspections and 6-7 year turbine/generator inspections for steam units, and 2-year combustor inspections, 4-year hot gas path, and 8 year major overhauls for the two combustion turbines at Waiau. Typical streamlined maintenance included extending the turbine and generator overhaul intervals on selected units from 6-7 years to 9+ years based on future run time estimates; and changing the types of inspections to allow for simpler, less time intensive inspections.

- Major controls upgrade projects on the HECO units were accelerated in response to new operating conditions with the addition of baseloaded IPP units. Major boiler combustion control upgrade and burner adjustment programs were implemented on the HECO baseloaded units to mitigate operational issues at minimum load. Also, the cycling and peaking unit controls were upgraded due to obsolescence.

- Operation staffing was reduced on several units since they were in less operational demand (reduced operating hours). The staffs at Honolulu 8 and 9 and Waiau 3 and 4 were reduced from 24 / 7 to 16 /5 operation.

- Boiler operating permit renewal intervals were extended from a 2 year cycle to a 3 year cycle reflective of lower operating hours and a thorough review of HECO's maintenance practices.

During the mid-1990's a 20-year overhaul schedule was prepared taking into account, boiler permit interval extensions from 2 years to 3 years; expansion of the DCS control upgrade program; successful turbine cylinder crack repairs and crack mitigation measures; generator refurbishment; projected application of predictive maintenance technologies; etc.

As HECO entered the 2000's, the maintenance program continued to reflect the intended operations strategy based on fewer operating hours for the HECO owned cycling and peaking units. Beginning in 2003, cycling and peaking unit operating hours noticeably increased to the point where all available generating units were being operated. Also during this period, unanticipated problems were discovered in several cycling units that resulted in extensive repairs and long duration outages. The problems were indicative of the age of the units and the heavy duty cycle primarily due to rapidly increasing demand. The next section will discuss maintenance strategy and actions since 2000.

3.2 Methods of Improving Equipment Condition

In recent years, the potential for a reserve margin "crunch" has been recognized. HECO has undertaken a significant number of actions in response to this potential scenario. These actions have been described in Section 2. However, relative to the maintenance strategy, HECO has also undertaken several key actions. These actions are consistent with the need to maintain high unit availability and to minimize forced outages. It is important to note that the change in maintenance strategy was not designed to and did not increase capacity of the HECO units.

Significant changes to the maintenance strategy employed by HECO in the 2000's are:

- Development of a maintenance basis: HECO developed a maintenance basis for its equipment based on latest industry information provided by EPRI and vendors. This maintenance basis provides for a defined strategy of corrective, time-based (preventive) and condition-based (predictive) maintenance tasks for the various equipment items to ensure proper maintenance.

- Performance of major equipment overhauls to maintain generating unit reliability: HECO has scheduled and performed major equipment repairs to maintain the reliability of the plants in response to the increase in operating service hours and to mitigate potential reserve margin shortfall situations. The objective of performing major equipment overhauls is to maintain plant availability, reliability, and compliance. Key actions include:

    - Since 2002, major equipment overhauls and projects have been scheduled, completed or are in progress on all generating units. Major projects, such as control upgrades and generator rewinds have been performed or are scheduled as part of the maintenance strategy.

- Vendor alliances with specialty shops capable of quick turnaround of reverse engineered turbine and generator parts are examples of mitigating the dependency on high cost, long lead OEM items.

- Application of technology and continuous improvement: HECO has invested in the use of new technology and continuous improvement programs to provide for better data collection and decision making regarding plant performance and maintenance. Key items include:

  - HECO's Predictive Maintenance (PdM) Program is a process improvement focused on balance of plant and turbo-machinery. The PdM Program is a significant multi-year accomplishment that took teamwork and discipline to achieve.

  - HECO's Boiler Reliability and Optimization ("BRO") Program is a process improvement focused on boiler tube failure evaluation and repair that has elevated HECO's industry ranking to "world class" status according to experts from EPRI. BRO is a significant multi-year accomplishment that took teamwork and discipline to achieve.

  - The application of state-of-the-art instrumentation and software to track and monitor the operating performance of HECO's steam generating units on a real time basis. This applied technology has proven invaluable in troubleshooting the root causes of performance degradations and forced outages.

  - Boiler control upgrades continue to expand the capabilities of the process controls and improve the man-machine interface to provide operators with data and information in a user friendly format.

  - Non-destructive diagnostic instruments like articulating video probes combined with ultrasonic shear wave technology allow detailed mapping of turbine cylinder cracks for future crack propagation monitoring and analysis. Application of this technology will allow more frequent monitoring of turbine cylinder crack propagation and minimize the need for disassembly.

  - An automatic paging and cell phone system immediately notifies key management personnel of a system wide frequency depression situation. This technology significantly reduces the time necessary to notify incident responders. This in turn reduces the time required to troubleshoot and fix the problem to minimize reliability impacts.

HECO's maintenance and reliability program continues to adapt to its current operating environment. The actions taken are enabling HECO to maintain reliable operation of the existing generating assets. The following section describes the assessment of the maintenance and outage management programs, and the identification of potential opportunities for improvement such as finding new ways to shorten outages and reduce the need for outages.

4 ASSESSMENT RESULTS

The assessment performed for HECO addressed the scope of work provided in Section 1.2. This section is prepared in several parts. The first part presents the results of a benchmarking study to assess HECO's performance relative to its industry peers and to identify potential areas for focus in its maintenance and outage management programs. The second part provides the observations identified from the interviews around maintenance and outage management practice. The third section describes potential candidate actions for HECO to consider that may provide improvement of its maintenance and outage work.

4.1 Benchmarking

4.1.1 Summary

The Hawaiian Electric Company requested an assessment of its Power Supply operations, maintenance and outage management programs with an interest in evaluating the recent performance of the generating fleet. This assessment included the performance of a benchmark analysis against industry peers. The goal of this benchmarking study is to serve as a guide in evaluating and comparing statistical performance of the HECO fleet to their industry counterparts. Several key observations from this benchmarking study are:

- HECO's fleet performance has been consistently better than industry average relative to Equivalent Availability Factor (EAF) and Equivalent Forced Outage Rate (EFOR). The EAF is defined as a percentage that represents the availability of the full capacity of the generating units whether they operate or remain available on standby. The EFOR is a percentage that represents the sum of the equivalent full load outage durations for each unplanned unit derating and all unit hours lost due to forced (unplanned) outages or forced reductions in capacity.

- Fleet-wide performance degradation has occurred in recent years, indicated by decreasing EAF and increasing EFOR.

- As a result of HECO's increased demand, fleet-wide Net Capacity Factor (NCF), the ratio of actual net generation to maximum net generation, has increased and is significantly above industry levels. This is another way of verifying that HECO generating units are fully utilized and running very hard.

- The number and duration of planned and maintenance outages have increased over the past five (5) years in an effort to increase the availability and reliability of the generating units. However, this has not yet resulted in a decrease in forced outages and deratings.

- The duration of boiler overhauls has been significantly higher than the industry average. The purpose of this has been to allow sufficient time to complete expanded scope of inspections and maintenance. However, the trend of increasing duration of planned and unplanned events also increases the probability of dealing with multiple and simultaneous unit outages (i.e., stacked outages) that reduce available generation capacity. Re-evaluating this strategy may provide additional opportunities to improve EAF and EFOR.

- Forced outages and deratings have increased significantly in the last five (5) years, especially deratings due to reserve capacity shortfall concerns. This contributes to performance degradation as units are required to run longer instead of having the flexibility to schedule an outage when maintenance resources can be optimized to perform repairs.

- HECO still compares favorably to the rest of the industry on a system-by-system basis when it comes to EFOR despite the recent trends in forced outages and deratings. The increase in EFOR is attributed to the relatively high NCF that HECO units operate compared to peers.

- A large amount of HECO's EFOR comes from deratings caused by equipment failure or degradation in several key systems. To evaluate these systems more completely, to determine causes, and to identify candidate preventative measures, additional detailed information must be "captured" when documenting these events. Suggestions for improving event reporting within the NERC GADS database include: providing unique event numbers for each event or incident, including component identification data for each event, and reviewing past unclosed events labeled "being investigated" to document whether the correct root causes have been identified.

4.1.2 Benchmarking Analysis

Benchmarking Overview

ESI conducted a benchmarking analysis in which the HECO generation fleet was evaluated to determine recent trends in generation and to assess overall performance through comparisons with similar generating units within the industry. This analysis was intended to identify areas of excellence, as well as potential performance improvement opportunities within the HECO fleet.

Definitions and Terms

In the electric power industry, there are a number of key metrics that are used to evaluate the performance and output of a generating fleet and also specific generating units. These metrics help to explain a unit's ability to generate its product, the amount of product it actually generates, and adverse conditions that prevent product generation. Some of the metrics which will be discussed in the following analysis are listed below. (For a definition of these metrics, please review to Appendix A, Glossary of Terms.)

- Net Maximum Generation
- Available Generation
- Actual Net Generation
- Unavailable (Lost) Generation
- Planned Events – Planned Outages (PO) and Maintenance Outages (MO)
- Forced Events – Outages (FO) and Deratings (FD)
- Equivalent Forced Derating Hours (EFDH)
- Net Capacity Factor (NCF)
- Equivalent Availability Factor (EAF)
- Equivalent Forced Outage Rate (EFOR)

Peer Group Selection

The HECO power generation fleet comprises three (3) power plants and sixteen (16) individual generating units. Fourteen (14) of the units are steam electric units and two (2) units are combustion turbines. All of the steam electric generating units follow similar design criteria in terms of turbine-generator classification, primary fuel, size, loading profiles, and system operating designs. This uniformity was used to establish a peer group with the following set of criterion:

MW Rating:	0-200 MW
Primary Fuel:	Oil-fired
Primary Turbine-Generator:	Steam
Circulation Type:	Natural
Cooling Water Type:	Salt

This peer group pertains to the following HECO units:

Honolulu 8
Honolulu 9
Waiau 3
Waiau 4
Waiau 5
Waiau 6
Waiau 7
Waiau 8
Kahe 1
Kahe 2
Kahe 3
Kahe 4
Kahe 5
Kahe 6

The HECO fleet relies on the production from its steam turbine generation units and two simple cycle combustion turbines (CT). The steam units consistently combine for over 99% of the total fleet's output. Between 2001 and 2005, the steam units produced over 23.3 million MWh

compared to just over 300,000 MWh produced by the CT units. Due to this situation, this analysis will generally focus on the steam turbine generation fleet.

The benchmarking exercise began by using industry data provided by the North American Electric Reliability Council's (NERC) Generating Availability Data Systems (GADS) services. Seventeen (17) non-HECO units were identified and established as an industry peer group. The performance statistics for this industry peer group were calculated independently of the HECO data and were used to compare the performance of the HECO steam electric units. It should be noted that the industry peer group does not include any generating units from the Maui Electric Company and the Hawaii Electric Light Company.

It should also be noted that both Waiau Units 9 and 10 are considered separately. Waiau 9 and 10 are both simple cycle combustion turbine (CT) units. Waiau 9 and 10 are used primarily to meet peak demand during high load periods and also to providing on-line spinning reserve. When necessary in this analysis, these units are compared to their own peer group comprising comparable CT units.

HECO Fleet Evaluation and Analysis

Determining how well the fleet has performed in recent years and what, if any, improvement opportunities are available is of primary interest in the HECO fleet analysis.

We begin by comparing and contrasting the performance of the fleet and individual generating units with respect to peers within the industry. Two insightful metrics used in the electric power industry are the Equivalent Availability Factor (EAF) and Equivalent Forced Outage Rate (EFOR). The former indicates the power supply potential of the fleet, plant, or unit in question while the latter illustrates the lost supply potential due to equipment and/or operational failures.

ESI observed that, over the past two (2) decades the HECO steam fleet has performed exceptionally well compared to industry averages in both of these categories (see Figures 6 and 7).

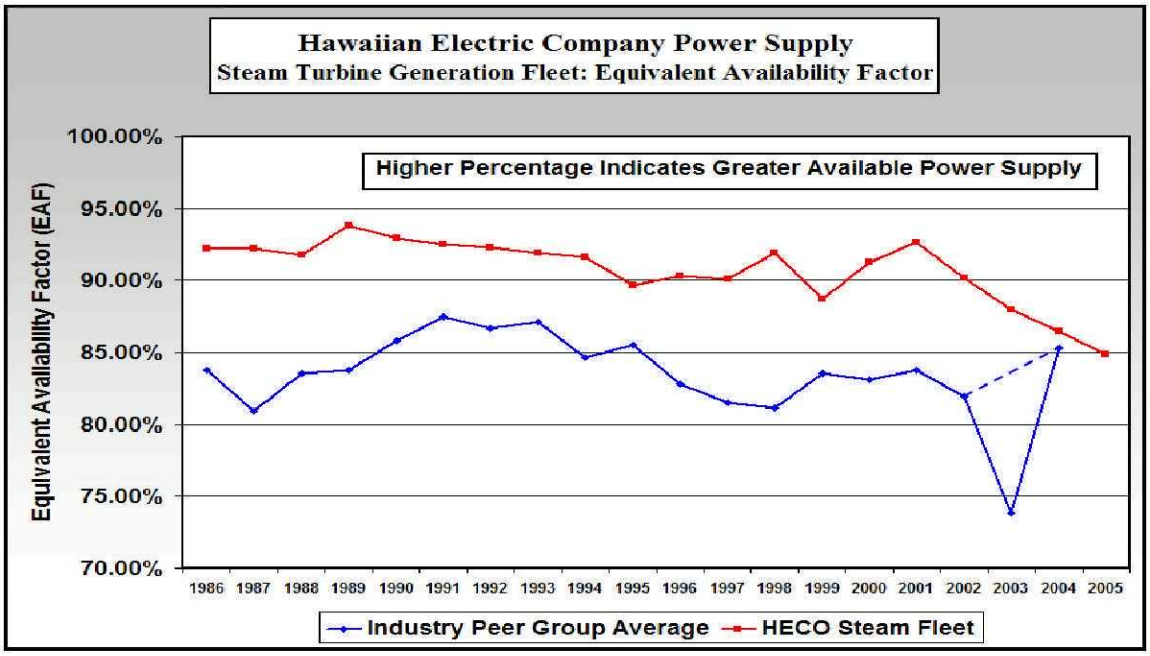

Figure 6: Equivalent Availability Factor (EAF) of HECO's Steam Fleet

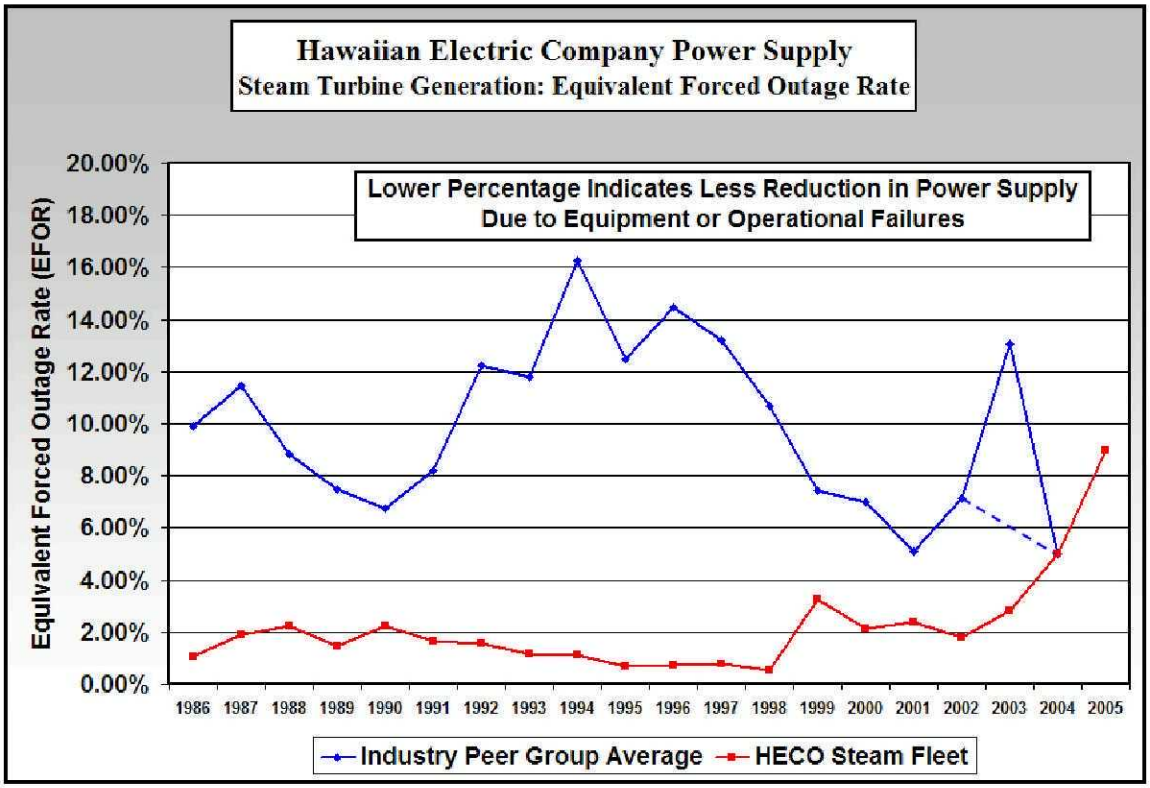

Figure 7: Equivalent Forced Outage Rate (EFOR) of HECO's Steam Fleet

While HECO has achieved better than average performance with respect to each of these two metrics, a trend worthy of note has developed in recent years. As seen in Figures 6 and 7,

availability and reliability have been decreasing within the past five (5) years, which is indicated by a decline in EAF and an increasing EFOR. Note: 2003 data for the industry peer group contains anomalous data for three units not included in 2002 and 2004. Thus the dotted line is a better indicator of the industry trend for these years.

This trend is further illustrated in Table 2, which shows a comparison of HECO's steam fleet EAF – as well as each individual unit – to the industry average. The table entries in italics indicate units which performed below industry average for that particular year. The far right column in the table indicates the percentage change in 2005 EAF from its 2001 value. The shaded cells in this column indicate a loss in EAF during this period.

Table 2: Annual Equivalent Availability Factor (EAF) of HECO's Steam Units

Equivalent Availability Factor (EAF)	2001	2002	2003	2004	2005		% Change 2001-2005
Industry	83.76%	81.93%	73.88%	85.27%	N/A		N/A
HECO Steam Fleet	92.64%	90.15%	87.97%	86.46%	84.88%		-7.76%
H8	87.78%	98.35%	***37.39%***	90.98%	98.99%		11.21%
H9	95.51%	88.38%	***69.27%***	99.46%	89.25%		-6.26%
K1	98.12%	83.04%	96.14%	94.76%	91.44%		-6.68%
K2	***81.97%***	98.94%	96.88%	96.89%	73.57%		-8.40%
K3	***76.94%***	99.04%	87.93%	89.81%	87.66%		10.72%
K4	97.45%	88.72%	87.95%	90.77%	94.75%		-2.70%
K5	98.66%	95.20%	95.06%	***65.25%***	88.89%		-9.77%
K6	97.64%	***73.30%***	92.83%	92.66%	73.23%		-24.41%
W3	98.44%	97.12%	90.10%	***55.71%***	63.92%		-34.52%
W4	85.55%	97.08%	92.59%	89.86%	97.08%		11.53%
W5	96.96%	***68.62%***	74.60%	91.06%	96.03%		-0.93%
W6	***80.32%***	95.10%	97.48%	94.43%	72.46%		-7.86%
W7	96.06%	93.49%	85.71%	95.16%	93.97%		-2.09%
W8	94.69%	95.35%	98.42%	***72.18%***	73.63%		-21.06%

However, the HECO generation fleet has a major distinction that few, if any other, generation fleets must deal with. The major distinction is its lack of backup capacity from the national electric grid. If a utility in the continental U.S. experiences a capacity shortage, they have the ability to purchase power from neighboring power producers through wholesale transactions and the use of the national electric grid. Because of this, taking a unit offline for repair does not, for the most part, create a serious concern. While this is still costly for the parent utility, power can still be supplied to end-user. In HECO's situation, they are the supply to the electric grid on Oahu. If a capacity shortage occurs, rolling blackouts can ensue. In order to meet strict capacity requirements, HECO must keep as much capacity on emergency reserve (Quickload Pickup and Spinning Reserve) as the largest unit online (usually AES, Kahe 5 or 6). This can place a strain on HECO's generating fleet as well as the grid when a unit is forced off or derated.

In the peer group established for HECO's steam fleet, less than half operate as base-loaded units. A base-loaded unit (designed with a reheater to improve its thermal efficiency) is intended to operate continuously and produce maximum power for the grid whenever it is available. Contrastingly, a cycling or peaking unit does not face the high load requirements experienced by a base-loaded unit. Cycling units are used either as peakers (low efficiency simple-cycle combustion turbines) to satisfy seasonal peak power demands, or as a load-following power supply (lower efficiency steam units without reheaters) for supplemental power to meet output (MW) increments as demand fluctuates.

There are a number of advantages and disadvantages associated with base-load operation of a unit. One obvious disadvantage is the limited downtime for equipment maintenance and repair. If a base-loaded unit's load is reduced, it immediately impacts the company due to higher fuel costs and lost power generation. Add the cost of repair and/or maintenance and the problem becomes amplified. In contrast, a peaking or cycling unit has a much greater time frame for equipment maintenance and/or repair, as they regularly experience extended, predetermined downtime throughout the course of the year.

Because of the load requirements on Oahu, each of HECO's steam units is required to operate as a base-loaded or load-following unit - a distinction HECO's units have compared to their industry counterparts. The statistical results may be observed by HECO's unusually high capacity factor (see Figure 8).

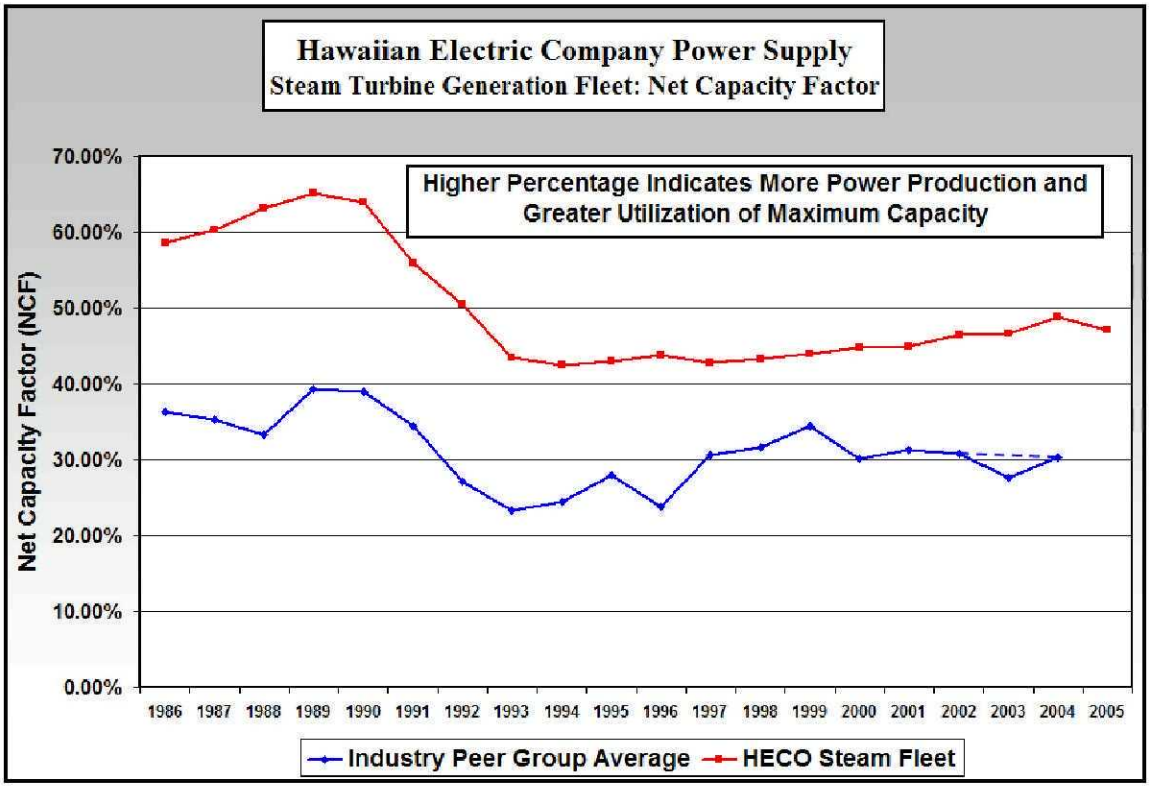

Figure 8: Net Capacity Factor (NCF) of HECO's Steam Fleet

The information provided by Figure 8 is two-fold in nature. First, this figure clearly indicates that HECO's steam units run at consistently higher capacity factors than the industry peer group. Results on a unit-by-unit basis over the past five (5) years reinforce this fact. This can also be seen in Table 3 which shows each unit's Net Capacity Factor compared to the industry peer group average.

Table 3: 5-year Average Net Capacity Factor (NCF) of Steam Units

Unit	5 year NCF
K4	68.50%
K3	61.27%
W7	61.09%
K1	59.50%
K5	58.60%
K2	57.17%
K6	53.91%
W8	51.54%
Industry Average	**30.02%**
W6	26.73%
W5	21.92%
W4	16.69%
H9	16.22%
W3	14.06%
H8	9.19%

Many of HECO's units are running at nearly double the industry peer group average. This reflects the severe capacity strain placed on the entire fleet. Because HECO's supply and demand margin is so tight, every unit is required to contribute that much more to the power supply. This results in more stress and strain on the equipment and fewer opportunities for equipment maintenance and repair. Less than optimally-maintained equipment and increased stress and strain placed on the equipment creates a vicious and continuous cycle.

Despite the high unit NCFs, the HECO generation fleet has exhibited excellent performance over the last twenty (20) years. Since 2001, every unit – with the exception of Waiau 3 – has experienced above-average availability, as can be seen by Table 4.

Table 4: 5-year Average Equivalent Availability Factor (EAF) of Steam Units

Unit	5 year EAF
W7	92.88%
K1	92.70%
W4	92.43%
K4	91.93%
K2	89.65%
K5	88.60%
H9	88.38%
K3	88.28%
W6	87.96%
W8	86.85%
K6	85.94%
W5	85.46%
H8	82.70%
Industry Average	81.21%
W3	81.05%

However, as stated previously, the information provided by Figure 8 is two-fold. The second aspect of this figure is that it shows a trend upwards in capacity factor. This reflects an increasing trend in the power demand. As demand increases, more supply will be necessary and less time will be available to repair and maintain equipment until adequate additional capacity is installed on the system. Optimization of operation and maintenance time will be imperative to ensure acceptable fleet performance.

HECO Fleet – Planned and Un-Planned Event Analysis

The next step of this review is to examine the various aspects of power generation that would account for the recent trends in capacity, availability, and reliability.

Forced Outages are classified by NERC as unplanned component failures or other conditions that require the unit to be removed from service immediately (U1), within six hours (U2), or before the end of the next weekend (U3)). Forced Deratings are unplanned component failures or other conditions that require the load on the unit be reduced immediately (D1), within six hours (D2), or before the end of the next weekend (D3)). Maintenance Deratings are removal of a component for scheduled repairs that can be deferred beyond the end of the next weekend, but requires a capacity reduction before the next planned outage (D4).

The immediate concern with Hawaiian Electric Company's power supply involves increasing EFOR. From 2001 to 2005, the generation lost to Forced Outages increased over 405%, rising from just over 156,000 MWh of lost generation in 2001 to over 791,000 MWh in 2005 (see Figure 9). During this time period, an effort was made to curb this trend through the execution

of Planned Outages (removal of a unit from service to perform work on specific components that is scheduled well in advance and has a predetermined start date and duration (e.g., annual overhaul, inspections, testing (PO)) and Maintenance Outages (removal of a unit from service to perform work on specific components that can be deferred beyond the end of the next weekend, but requires the unit be removed from service before the next planned outage - they may occur any time during the year, have flexible start dates, and may or may not have predetermined durations.(MO)). These events were designed to allow sufficient time to thoroughly troubleshoot and repair problematic equipment in order to reduce the failure potentials in the future. However, power plants are made up of very complex systems and components that wear at different rates. While repairs to major components were successful, other problems surfaced as a result of running the units harder. Even with the best efforts to identify and repair known problems, unanticipated problems resulted in an overall increase in lost generation. Therefore, the increase in planned, preventive activity did not yield a corresponding reduction in forced losses.

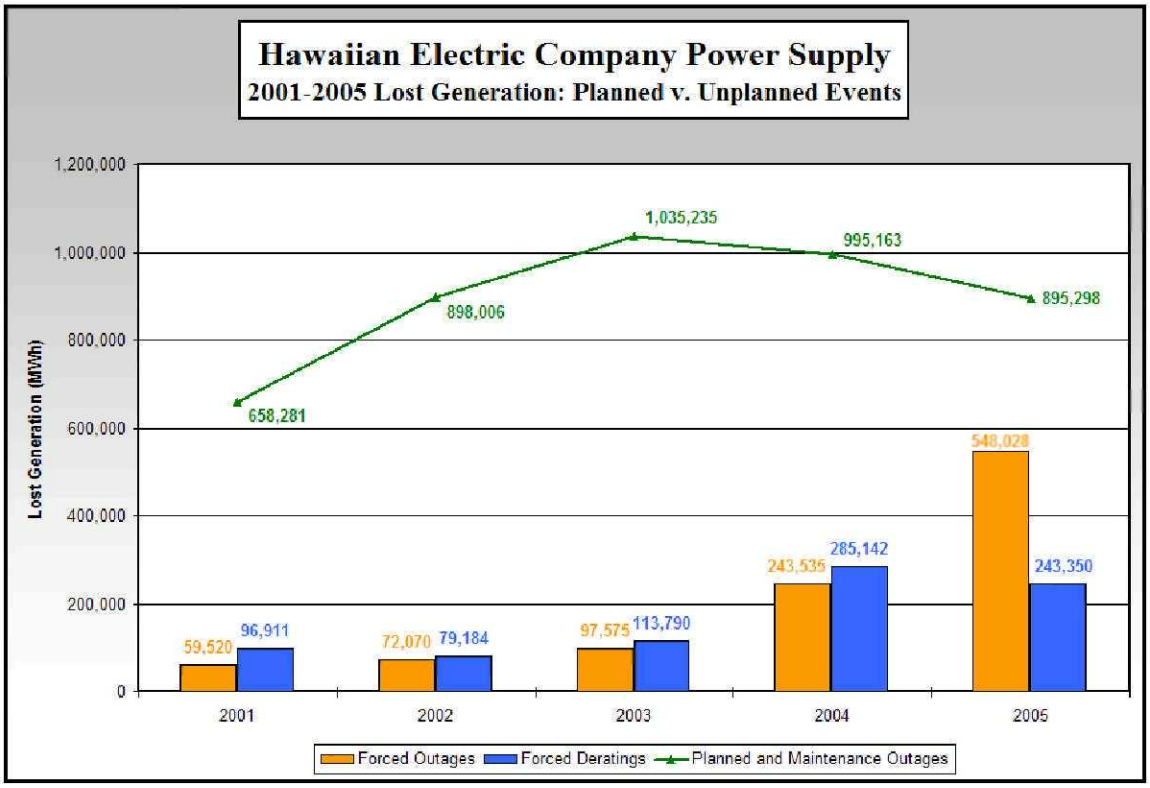

Figure 9: Annual Lost Generation of HECO's Fleet

As Figure 9 illustrates, the trend has shown an increasing EFOR despite a significant investment in outages and overhauls. Both planned and unplanned events have increased since 2001. Of particular interest is the EFOR contribution compared to planned maintenance lagged one year. For example, over 1,000,000 MWh of generation were spent on preventive maintenance activities in 2003 – over 41% more than was dedicated in 2001; yet, in 2004 lost generation due to forced events climbed to a high of over 528,000 MWh and then even further to over 791,000

MWh of lost generation in 2005. With all else being equal, one would expect to see an inverse relationship between planned maintenance activity and EFOR-based maintenance activity.

After careful examination of the maintenance activity during 2004 and 2005, HECO experienced two (2) significant equipment failures – one at Waiau 8 and one at Waiau 9 – that, had they been averted, would have changed the results of Figure 9 by reducing the lost generation due to forced outages in both 2004 and 2005. Also during this same time period, overhauls at Kahe 5 and Kahe 6 were more extensive due to the replacement of the boiler control systems. Because of the atypical nature of these events, a "normalized" version of Figure 9 is presented in Figure 10. The "normalized" view of Figure 10 has the atypical occurrences at Waiau 8 and Waiau 9 in 2004 and 2005 removed, and the boiler overhauls at Kahe 5 and 6 during 2004 and 2005 reduced by a factor of one-half to represent an estimation of lost generation due to these planned activities.

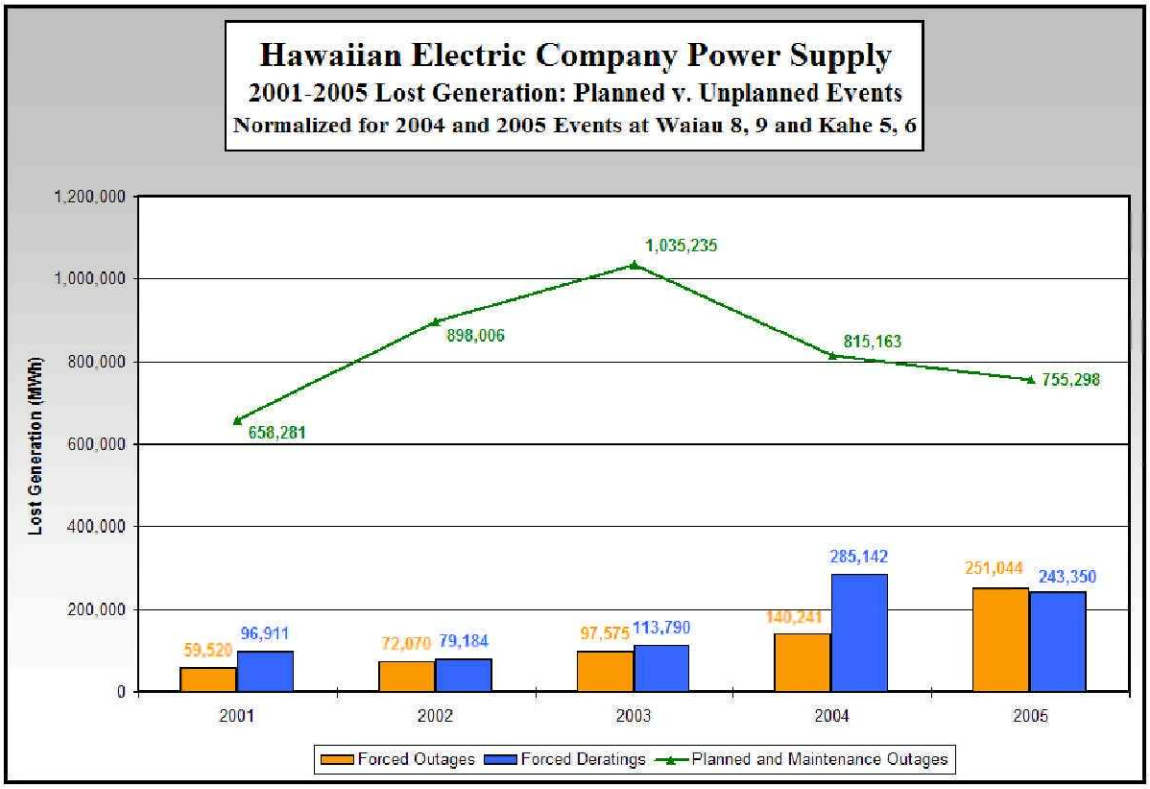

Figure 10: Annual Lost Generation of HECO's Fleet Normalized

Even after adjusting for these anomalous events in 2004 and 2005, the trend of increasing planned maintenance activity *and* increasing EFOR-based maintenance activity is still present – though to a lesser degree. Forced outages have been increasing on an annual basis since 2001, and forced deratings have become a serious issue in the past two (2) years.

Next, the fleet was examined on a unit-by-unit basis to gain perspective on where these types of losses were most prevalent. Figures 11 and 12 provide these results and offer some insight into this situation. Figure 12 represents the data after adjusting for the anomalous events at Waiau and Kahe in 2004 and 2005.

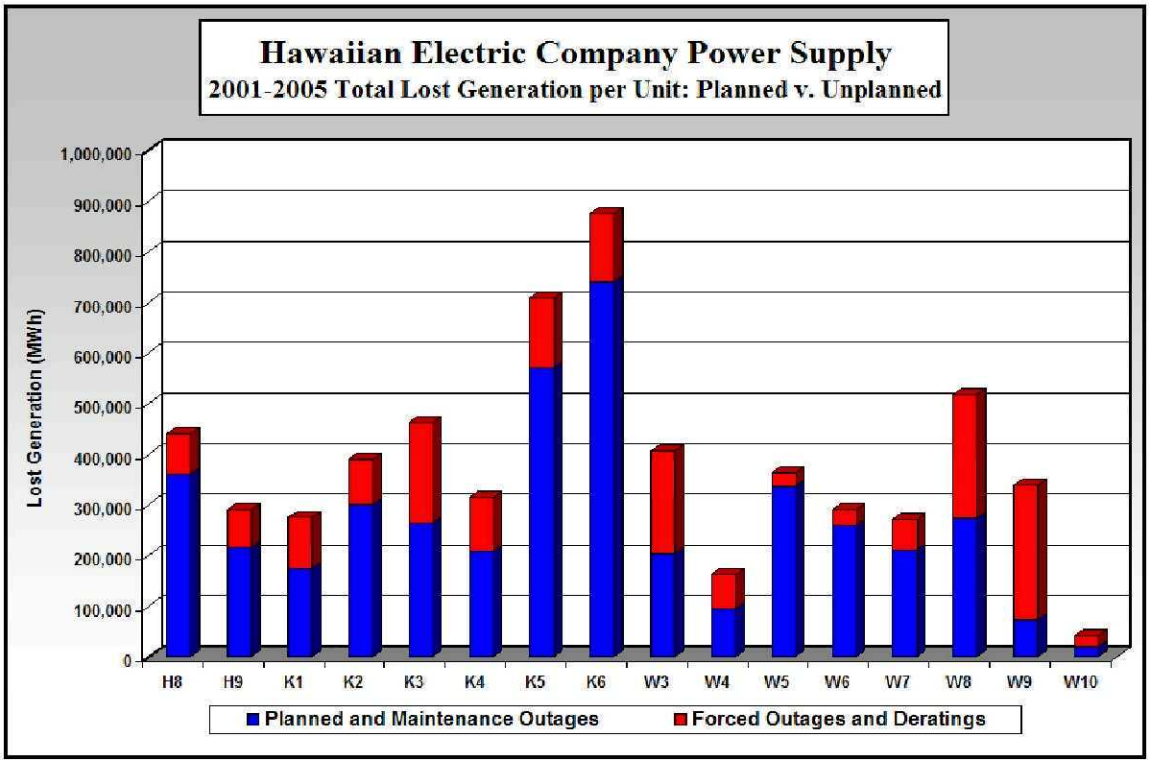

Figure 11: Actual Unit-by-Unit Lost Generation of HECO's Fleet

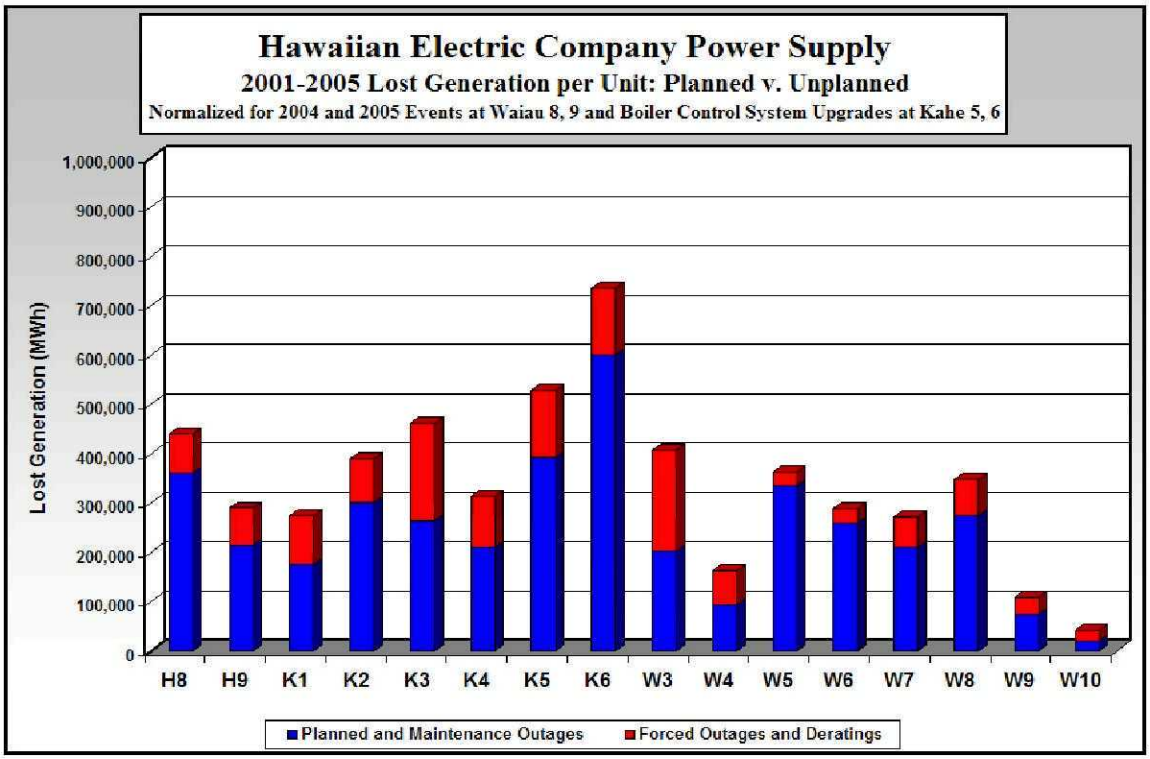

Figure 12: "Normalized" Unit-by-Unit Lost Generation of HECO's Fleet

Figures 11 and 12 show that most of the lost generation comes from the Kahe 5 and 6 units – which is expected to some degree considering the relative size of the units. However, with the exception of Kahe 3 and Waiau 3, the majority of HECO's generating units experience the majority of their lost generation due to planned maintenance activity, despite the fact that forced outages and unit deratings still remain a growing concern as indicated earlier. This prompted an investigation into the planned maintenance activity at HECO, specifically planned outages involving boiler overhauls.

Between 2001 and 2004, industry peers reported a total of 27 boiler overhauls: sixteen (16) were of the planned outage, major overhaul nature (constituted by being scheduled to last more than 720 hours); six (6) were planned outages, minor overhauls (less than 720 hours); and five (5) were maintenance outages (scheduled overhauls that occurred between planned outages). Between 2001 and 2005, the HECO steam fleet also experienced a total of 27 boiler overhauls: fifteen (15) planned outage, major overhauls; six (6) planned outage, minor overhauls; and six (6) maintenance overhauls. The data for these overhauls can be seen in Figure 13.

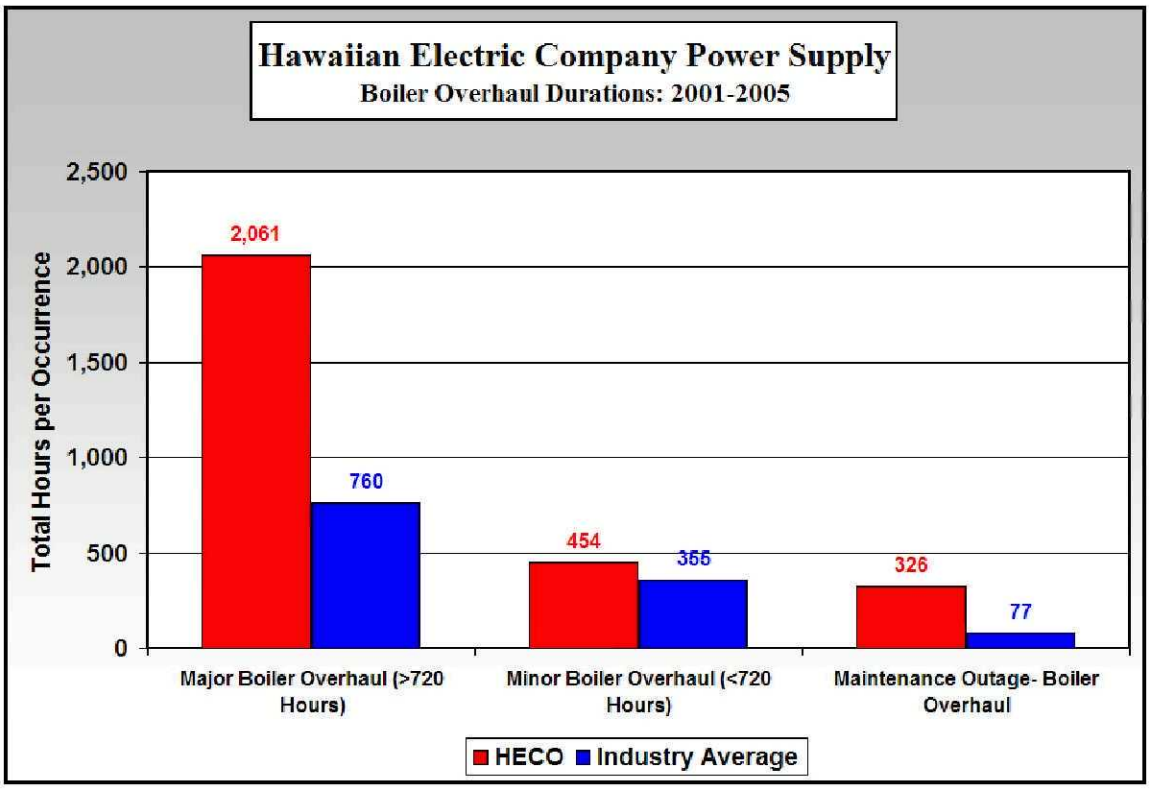

Figure 13: Boiler Overhaul Durations

As shown in Figure 13, from 2001 through 2005 HECO devoted significantly more time to planned boiler maintenance activity than their industry counterparts. The average peer unit spent approximately five (5) weeks off during major boiler overhauls; HECO units averaged approximately twelve (12). To gain a better perspective of this, the data on overhauls for the entire fossil-steam industry was also evaluated. These data covered 1,234 overhauls on 1,396 fossil units. The results were very similar to the results for HECO's peer group - major boiler

overhauls averaged 761 hours per occurrence while minor overhauls and maintenance overhauls averaged 381 hours and 219 hours per occurrence, respectively. Whether the additional outage time will allow HECO units to extend the time interval *between* overhauls or, these longer outages were more thorough and as a result, more effective, was not clear. Additional investigation is warranted, as this information was not available for this study. The current outage strategies should be further evaluated for optimization.

HECO Fleet – System Analysis

One of the most detrimental situations is the occurrence of a forced outage or derating. As indicated earlier, HECO's generation fleet is no exception to this. To gain a better comprehension of these incidents within the fleet, individual systems were evaluated to determine the most problematic systems. Each forced event (U1, U2, U3, D1, D2, D3, D4, and SF) between 2001 and 2005 was classified according to its respective system. The total lost generation due to each of these events was then summed for each system. The results of this can be seen in Figure 14.

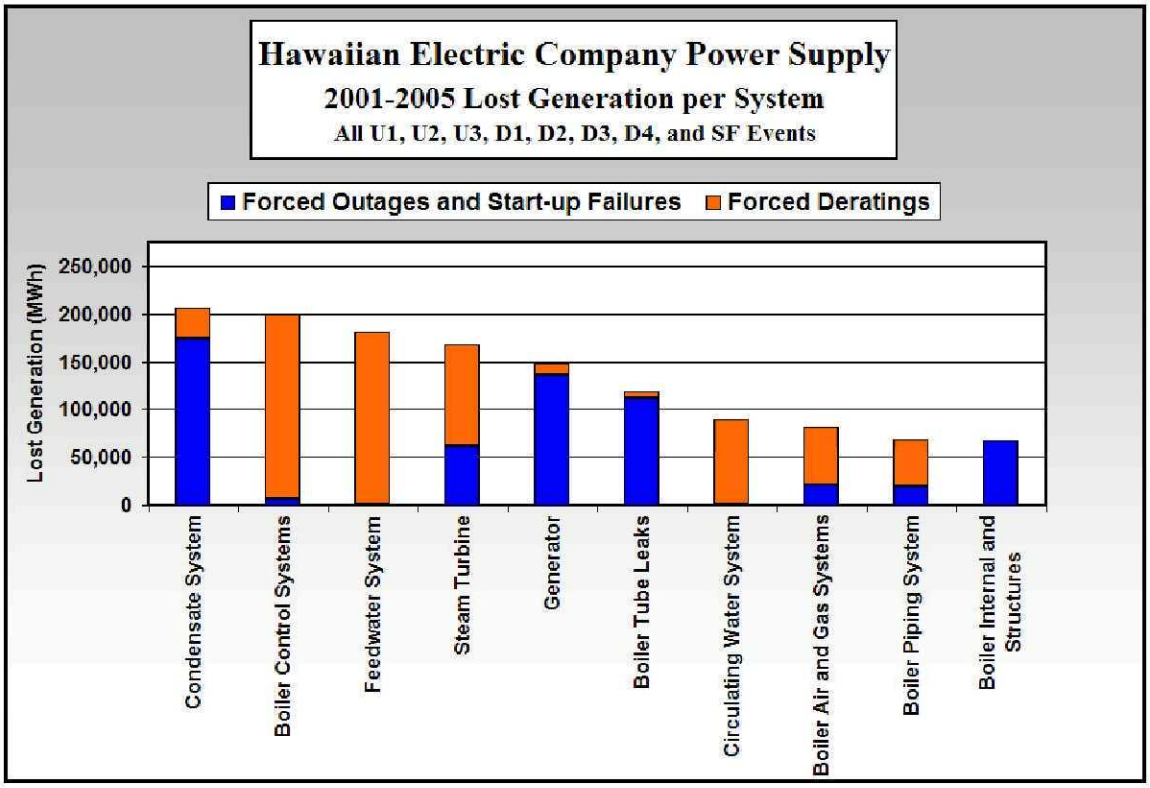

Figure 14: Reported System-by-System EFOR Contribution of HECO's Fleet

As with previous data, this is heavily influenced by the anomalous water induction forced outage at Waiau 8 during 2004. Also influencing this figure are some issues which involved other systems and equipment but were erroneously blamed on the boiler control systems at Kahe 3 and Kahe 5. Kahe 3 experienced capacity reductions due to plugged air heaters causing high furnace draft trips at high loads and Kahe 5 experienced an uncommon number of capacity deratings due to problems with boiler control valves, not the control system. "Normalizing" Figure 14 to

compensate for these occurrences resulted in Figure 15. Table 5 also illustrates the frequency of both forced outages and deratings attributed to each of these systems.

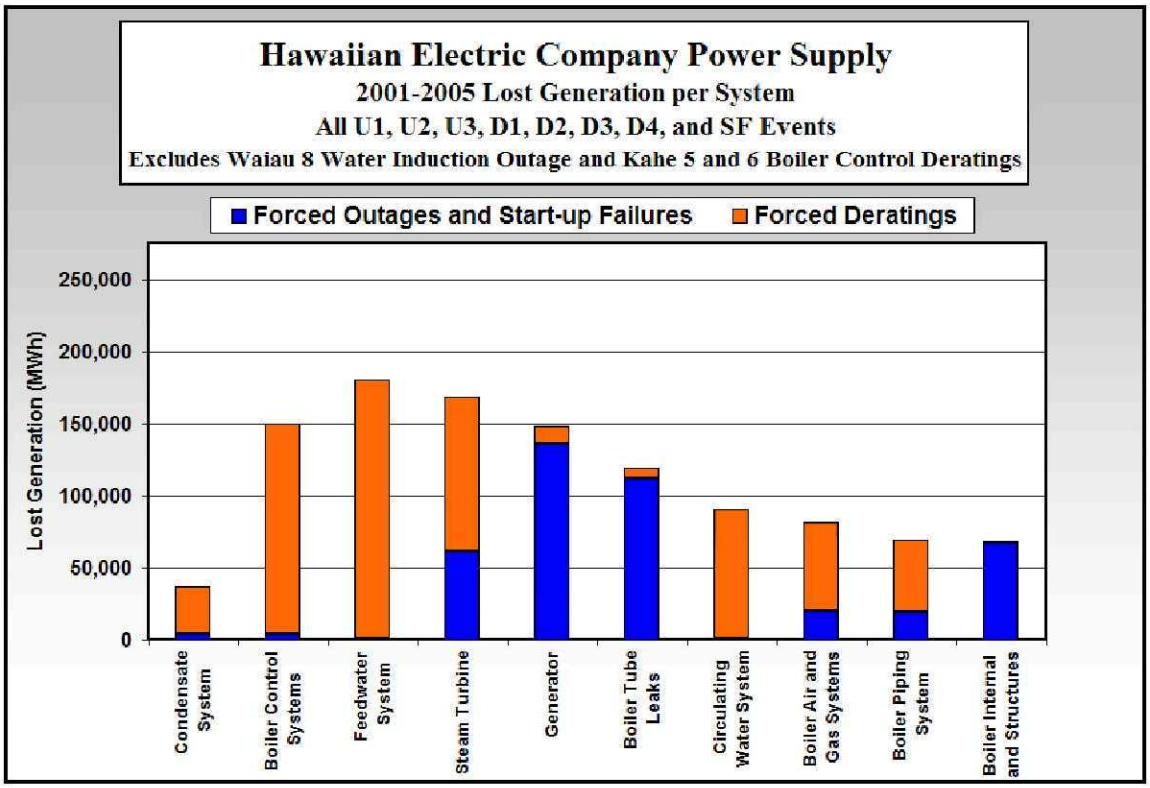

Figure 15: "Normalized" System-by-System EFOR Contribution of HECO's Fleet

Table 5: HECO – Number of Forced Outages and Deratings 2001-2005

System	Number of Deratings	Number of Outages
Condensate System	29	5
Boiler Control Systems	83	12
Feedwater System	235	3
Steam Turbine	55	3
Generator	12	51
Boiler Tube Leaks	3	23
Circulating Water System	136	1
Boiler Air and Gas Systems	47	22
Boiler Piping System	60	13
Boiler Internal and Structures	3	8

As indicated by Figure 15 and confirmed by Table 5, a large portion of HECO's most significant EFOR contributions come from unit deratings. With the exception of the generators, boiler tube leaks and boiler internals and structures, HECO's units have experienced a disproportionate number of deratings. To get a better perspective of this, HECO's units were again compared to the industry peers. Figure 16 compares the average HECO steam unit during an average year (referred to as a unit-year) to the average industry unit-year.

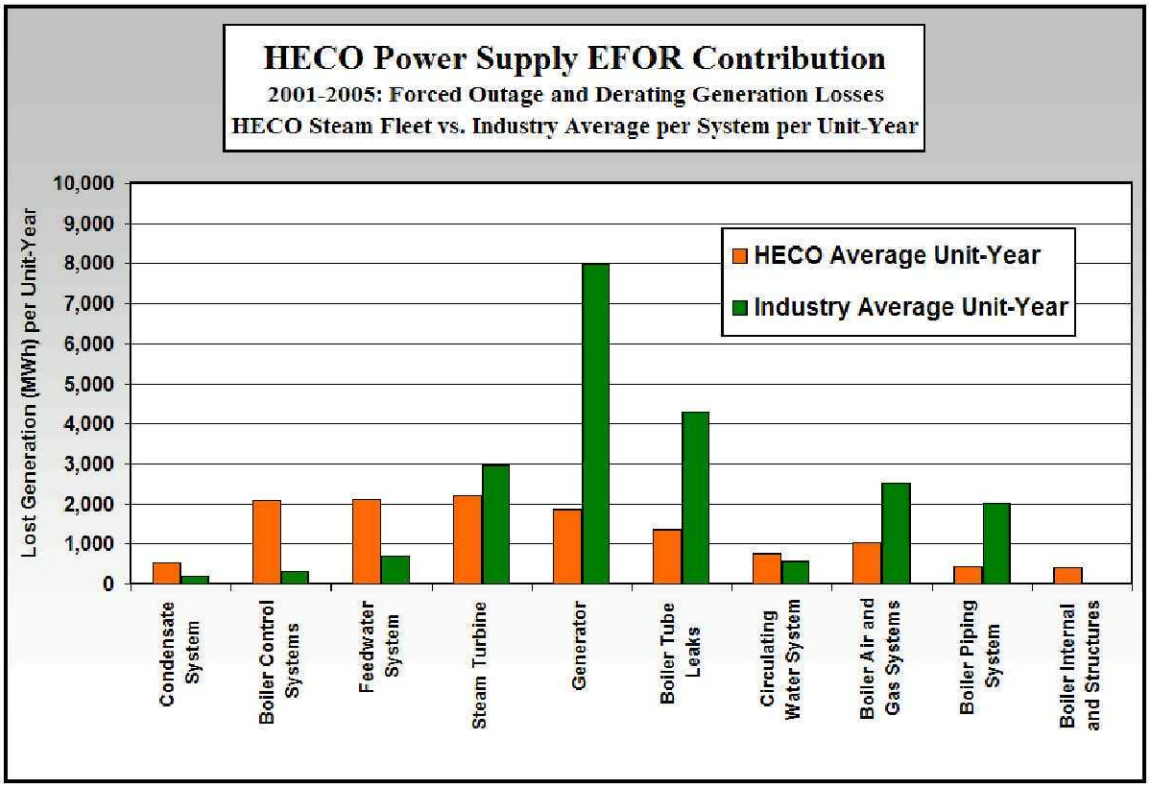

Figure 16: HECO vs. Industry Average – System-by-System EFOR Contribution

This figure has been normalized to exclude the anomalous events at Waiau 8, Kahe 3, and Kahe 5. From this figure, it can be seen that HECO compares quite favorably to the industry average, which is indicative of HECO's high EAF statistics. Important to note, however, are the systems in which HECO has experienced greater lost generation than its industry counterparts. In these key systems – boiler control, feedwater, condensate, and circulating water systems – HECO has experienced a disproportionate amount of derating (see Figure 15) and number of derating events (see Table 5). From the event history, it was determined that many of these events were triggered by problems originating from pumps within the condensate, feedwater, and circulating water systems. An attempt was made to evaluate this situation further; however, the event histories contained insufficient detail concerning each of these individual events. To enable this type of evaluation in the future, modifications will need to be made to the event reporting process that would provide more in-depth information concerning each event.

4.2 Observations

EPRI Solutions conducted an assessment of the HECO Power Supply operations, maintenance and outage management programs to determine whether there were potential improvements that could be made in those processes that would lead to improved EAF and EFOR performance. The assessment consisted of a review of pertinent documents and interviews of members of the maintenance, operations, planning, and engineering staffs. The results of the assessment are a set of comments and observations that provide the "raw data" for determining potential candidate actions for HECO review. This section of the report provides a description of the work performed as well as the comments and observations from the assessment.

Assessment Overview

The EPRI Solutions assessment was preceded by a benchmarking study that has been discussed in Section 4.1. The assessment was conducted in the following steps:

1. A review of documentation related to maintenance and outages provided by HECO.

   There were several documents reviewed by the EPRI Solutions team during the course of the assessment. The document reviews were performed to identify current performance and to provide background into the HECO strategy.

   The documents reviewed included:

   - Adequacy of Supply Letter, dated March 6, 2006.
   - Rate Case Testimony, HECO T-6, Docket No. 04-0113.
   - Actual and Projected Outage Plans
   - Capital Budget Plans
   - Capital Project Prioritization List
   - Corporate Strategy and Goals
   - Overhaul and Maintenance Summaries
   - Incident Action Plan Process
   - Performance Metrics
   - On-Going Initiative Information

   These items provided background information that assisted in further understanding the current HECO situation, plans, and results.

2. A series of interviews with personnel involved in all aspects of maintenance and outage planning and execution.

   The interviews were conducted to identify current practices and to get the in-depth knowledge of how the maintenance and outage management processes are currently being conducted. EPRI Solutions relied on the EPRI Assessment Guideline as a basis for conducting the interviews. The Assessment Guideline identifies 19 key elements in the maintenance and outage management process, grouped into four areas. Each interview

did not necessarily address all of the elements; however, the elements relevant to a given individual's role in the organization were covered. The 19 key elements are:

- Management and Work Culture
  - Benchmarking
  - Goals / Business Plan
  - Organization
  - Leadership
  - Communications
  - Metrics
  - Accountability / Ownership
  - Continuous Improvement

- Processes
  - Work Identification
  - Work Control
  - Work Execution
  - Work Closeout

- People Skills / Human Resources
  - Training
  - Utilization
  - Human Performance
  - Qualifications

- Technologies
  - Maintenance Management System
  - Maintenance and Diagnostics Technology
  - Information Integration System

The EPRI Solutions team conducted over 30 interviews during a two-week period to identify comments and observations to be used as input in developing candidate actions. The interviews encompassed a full range of HECO stakeholders in the maintenance and outage processes. The interviews included personnel:

- From the maintenance, operations, planning, and engineering groups.
- From all of the HECO generating plants (Honolulu, Waiau, Kahe)
- At various levels within the organization.

The interviews generally ranged from 30 to 60 minutes depending on the role of the interviewee and on the breadth of items on which they could provide input. These interviews provided some of the "raw data" used to develop candidate actions.

3. Development of Candidate Actions

The interviews, document review and benchmarking analysis resulted in a set of "raw data" that was evaluated to develop candidate actions. This evaluation identified five common themes or focus areas used to group the candidate actions:

- Scheduled Overhauls & Outages
- Corrective & Preventative Maintenance
- Organization
- Technology Application & Analyses
- Training

The candidate actions are presented in Section 4.3 and Appendix B.

4.3 Candidate Actions

The candidate actions were developed based on the results of the benchmark study, documentation review, and interviews. The candidate actions were grouped into five focus areas:

- Scheduled Overhauls & Outages
- Corrective & Preventative Maintenance
- Organization
- Technology Application & Data Analyses
- Training

These focus areas provide for grouping of the candidate actions for evaluation by HECO. The list of candidate actions is provided in the table in Appendix B. Appendix B presents the candidate action along with its focus area; potential impact; affected HECO organization; supporting observations; and potential benefits of the candidate action. A summary of the key candidate actions by focus area is discussed in the remainder of this section.

4.3.1 Scheduled Overhauls & Outages

An efficient and effective outage management program is vital to the continuous improvement and long-term success of HECO's generating fleet. The current business and operating environments are challenging HECO to manage the cost and duration of planned outages and overhauls while sustaining overall system reliability. As such, it is necessary to optimize work task identification, prioritization, planning and scheduling. This requires defined processes for outage preparation, outage execution, and outage close-out.

Outage preparation should address:

- The determination of goals

- The identification and preparation of the work-scope
- The planning and scheduling of the unit shutdown
- The incorporation of lessons learned from prior outages
- The preparation of work packages
- Contingency planning
- Material procurement
- The identification of critical and/or significant milestones
- Workforce organization and mobilization.

Outage execution addresses:

- Shutdown plan implementation
- Configuration control
- Performance monitoring
- Schedule updates
- Scope control and status reporting
- Work execution
- Budget adherence.

Outage closeout addresses:

- Document closure
- Capture of lessons learned
- Post-outage review
- Disposition of lessons learned
- Other continuous improvement suggestions.

Based on the overall assessment, HECO generally expends a significant effort in preparing for maintenance outages and major overhauls. However, the success of the outage execution is heavily dependent on the accuracy of the identified scope of work, quality of the issued work packages, availability of a skilled and competent workforce, accuracy of supplied materials and parts, and sufficient time to perform an effective operational shakedown and turnover. Outage closeout, however, is not suitably evaluated to identify successes, shortcomings and failures due to the stacking of outages and the lack of time between outages.

Specific observations regarding scheduled overhauls and outages include the following:

- There is no one fully accountable for the success of an outage. There is no one individual with authority to manage the outage and its outcomes.
- Outage plans are limited in defining performance goals and accountabilities.
- There has been a recommendation to perform routine maintenance tasks on baseload and cycling units during the night (when units are at reduced load or shutdown). A question that merits evaluation is how much of the Preventive Maintenance work can be performed during this time frame.

- There is an issue with "scope creep" - unplanned tasks that are identified after an outage starts. Potential causes include lack of identification of certain problems by operators, maintenance personnel and system owners prior to the outage.
- The system owners have just completed the preparation of their first annual "state of the system" report. This report covered the equipment status on their systems at all of the power production facilities. However, no unit-specific "state of the system" reports are submitted for outage planning purposes at this time.
- At the end of major overhauls or outages, the maintenance crew is expected to complete job cards with sufficient information to detail the work performed and the condition of the equipment after the completion of the work. The schedule demands on the travel crew due to stacking of outages and increased forced outages have resulted in a lack of thoroughness in the completion of job cards with sufficient information to provide appropriate status or to capture lessons learned.
- There is insufficient communication between station maintenance and travel crews around condition of equipment before and after overhaul or routine maintenance tasks are performed.
- There appears to be conflict between station and travel maintenance crews over the transition of work during and after a major outage.
- Existing drawings and reference materials are not being effectively utilized to assist in outage planning and work execution.
- There is limited measurement and evaluation of outage effectiveness (duration, productivity, cost, and resultant reliability)

The specific candidate actions to address the observations above are summarized below. A detailed description of these actions is provided in Appendix B.

Candidate Action 1a: Select and empower Outage Managers. Define a role that would provide a single point of focus and accountability for the conduct and performance (cost, schedule, completion of tasks) of an outage. The role would also involve responsibility for outage preparation and closure.

Candidate Action 1b: Improve outage plans. The outage plan (scope, schedule, and budget) should be prepared and serve as the Outage Managers handbook, record performance, and provide lessons learned. This plan can be used to track completion or status of planned tasks and modifications to the outage based on unforeseen work.

Candidate Action 2: Perform an evaluation to distinguish equipment PMs requiring unit shutdown, unit deratings, and/or risks from those PMs having no operational impact. This will help to determine work and manpower requirements for the nightshift.

Candidate Action 3: Improve preparation for outages to minimize or eliminate "scope creep" after outages begin. This involves effective identification and harvesting of issues from the operators, system owners creating unit-specific "state of the system reports" and resource planning to incorporate this feedback into the outage plan. When appropriate, a short pre-overhaul shutdown can be scheduled to verify certain types of work and material needs such as inspections of air preheaters and ordering of replacement baskets.

Candidate Action 4: Ensure system owner unit-specific "state of the system" input to station and overhaul planners prior to outages. This candidate action is to provide for more effective preparation prior to an outage. This involves more effective use of the system owner to identify issues prior to the outage ("state of the system on a unit specific basis"), and ability of planning to incorporate this feedback into the outage plan.

Candidate Action 5: At the end of major overhauls or outages, the maintenance crews should complete job cards with sufficient “as found” and “as left” information to define the work performed and the condition of the equipment after the completion of the work. Require Travel and Station Maintenance Craft to complete and sign-off on job cards. Both maintenance crews should complete job cards that provide information to station maintenance and planning with sufficient detail on the work completed.

Candidate Action 6: Communications and turnover should be improved between the travel crews and station crews before and after outages and overhauls. The travel crew should provide detailed “as found” & “as left” data of equipment worked on to station maintenance after the major outages and overhauls. Additionally, the station maintenance staff should provide detailed "as found" and "as left" data of equipment worked prior to the initiation of the major outages and overhauls.

Candidate Action 7: Develop a guideline that clarifies roles and responsibilities of operators, station maintenance and travel crew maintenance for “end of outage” operational check-offs and equipment hand-offs and for appropriately timing the transfer of travel crew to a new site in order to optimize "outage" to "non-outage" transitions that enable smoother unit start-up and ensures reliable operation following an outage. Specific actions are pre- and post-outage debriefs; improved post-maintenance record -keeping; stations crew involvement in major maintenance or overhaul activities to improve turnover; improved planning and record keeping on completed vs. incomplete tasks coming out of an outage; and operational checkouts and turnover.

Candidate Action 8: The more effective use of drawings and references may improve planning for outages. While there has been significant effort to update documents, the effectiveness in the access and use of the documents could yield improvements in the ability to plan tasks and procure materials for outages. Specific actions include training on how to access drawings and references; and following an overhaul, reviewing as-built drawings, operating procedures, and other critical documentation for accuracy as well as updating as part of the outage closure process.

Candidate Action 9: Develop an approach to measure outage effectiveness and define actions to improve. This is focused on improving the effectiveness of outages (schedule, scope, execution, cost, and operating performance/efficiency). There are recognized means to evaluate the return on investment of outages and to improve their performance.

The potential benefit opportunities from implementing these candidate actions are:

- Improved preparations for outages to minimize or eliminate "scope creep" after outages begin.
- Improved planning, quality and productivity of outage and routine work execution through better use of reference and drawing materials.
- Improved outage planning and management (task completions, schedule and budget)
- Shortened outage durations.
- Improved tracking of completed and uncompleted maintenance tasks.
- Improved interface between the station and traveling maintenance crews to reduce rework or duplicated effort.
- Defining the boundaries of the duties of each work group and the "hand off" process will reduce potential rework, prevent unit deratings and / or forced outages after completion of an outage, and result in more effective utilization of staff.
- Accurate reporting of "as left" project, corrective maintenance, and preventive maintenance work and to capture items not completed. It will also allow for appropriate lessons learned and benchmarks associated with various tasks. This action should also result in a potential reduction in rework.
- Completion of identified maintenance tasks.
- Effective work management.
- Measurement of process effectiveness and continuous improvement.

4.3.2 Corrective & Preventive Maintenance

As the electric power industry continues to evolve, pressures are being placed on plant organizations to reduce costs while maintaining or enhancing plant performance. This has prompted a drive to control operation and maintenance programs. The controlling of O&M programs includes the transition from reactive maintenance as the main strategy to a preventive / predictive maintenance strategy. World class facilities know that having the proper mix of maintenance strategies is the key to a cost-effective, enhanced maintenance program. HECO has been actively working with EPRI to make the transition to become more reliable. Specific observations regarding the corrective and preventive maintenance programs include the following:

- HECO's Power Supply Reliability Optimization (PSRO) initiative is designed to optimize unit reliability and production costs, but is still in the process of being implemented. HECO's PSRO Team meets weekly to keep implementation moving but several important but time-consuming challenges requiring additional management leadership must be overcome.

- A key deliverable of PSRO was the development of the maintenance basis for critical plant components. The maintenance basis provides an industry-proven set of maintenance, inspection, and surveillance tasks that ensure the equipments' reliability. One challenge the PSRO Team faces is that the maintenance basis has not been completely implemented. Potential causes for limited implementation include:

  - A lack of manpower
  - Access to the equipment. To alleviate the situation, there has been action to initiate maintenance on the night shift when units are at reduced load and equipment can be made available. However, a question that should be addressed is how much of the PM work being deferred can be performed during the off-peak periods and how should the nightshift be staffed.
  - Inadequate deployment of resources or inadequate skill mix.
  - Unforeseen requirements that compete for manpower- the competition for resources between improvement projects, routine maintenance, forced outages, etc.

- There are a large number of work activities identified as "high priority" to the station planners. This is resulting in too many "high priority" tasks and the inability to appropriately prioritize within the list of higher risk tasks. Potential causes of this issue are ineffective definition of task priorities, and lack of confidence that lower priority tasks will be performed.

- The operators may not be as involved in performing all typical routine tests and surveillances as they could be.

The specific candidate actions to address the observations above are summarized below. A detailed description of these actions is provided in Appendix B.

Candidate Action 10: Assign a full-time PSRO Project Manager to ensure more effective on-going implementation and to champion and drive the PSRO initiative. This assignment is not a corollary duty, but a full-time position to ensure that HECO gains the full benefits of the PSRO program. This slot should be filled for a minimum of one year and re-evaluated annually.

Candidate Action 11a: Perform a maintenance task and resource assessment to more accurately determine the staffing level required to complete the identified work. This action will include a determination of maintenance tasks (and hours) required, the skill mix necessary to complete these activities, and an assessment against current staff levels to identify gaps. This result can serve as a baseline for the following general actions related to maintenance barriers and backlog review.

Candidate Action 11b: Perform an assessment to better understand the barriers that are standing in the way of implementation of the maintenance basis, and define and expedite corrective action. Specific items for review include: staffing (levels, mix, deployment, and skills), the work management process, the effectiveness of work management tools, and the ranking and prioritization of tasks.

Candidate Action 12: Evaluate, select and apply a ranking and prioritization methodology for use in prioritizing preventive maintenance tasks, outage tasks, and capital projects. Method should evaluate reliability risk mitigation versus cost. This candidate action consists of utilizing some recent advances in risk assessment and prioritization to drive PM work based on its

effectiveness; thus, allowing discretion in performing the maintenance basis for tasks recommended for outages and unit deratings.

Candidate Action 13: Review existing work backlog to reschedule, re-prioritize and/or purge the work to ensure that the backlog will not contribute to future EFOR.

Candidate Action 14: Reassess work prioritization to provide for better delineation to assist the planners in identifying tasks for outages, operation, etc. This assessment should also include a root cause analysis to determine the cause of the large number of "high priority" items.

Candidate Action 15: Define the requirements and ensure that operators are more involved in routine tasks on the units. This recognizes the opportunity to have the operators more actively participate in some of the routine surveillance, inspection, and monitoring efforts.

The potential benefit opportunities resulting from implementing these candidate actions are:

- Improved work productivity
- Gain the performance improvements (reliability and cost) from the investments in the maintenance basis and the PSRO program.
- Improved reliability by performing the highest value maintenance tasks
- Reduced requirements on the station maintenance staff through performance of routine tasks by operations staff.
- Improved staffing levels and allocation of resources.

4.3.3 Organization

Excellence in human performance promotes behavior that supports safe, compliant, and reliable operation of the plant throughout the organization. Progress toward high human performance requires a work environment in which leaders routinely exhibit desirable behaviors and individuals respond in kind. Behaviors must be clearly defined, communicated, and reinforced. Peer pressure, open communication and positive reinforcement establish a culture in which individuals and leaders working with appropriate organizational processes eliminate obstacles to human performance. This approach will reduce or even eliminate plant events caused by human error. Events are undesirable consequences that challenge the safety of employees, environmental compliance as well as generating capabilities.

Processes and procedures need to be sufficiently detailed for a qualified person to perform the required task safely and efficiently with limited direct supervision. Requirements for verification or quality control inspection are considered and included as appropriate. Procedures and processes are applied where unit events are likely without them. Procedures are also applied to tasks that are complex, repetitive or have a large scope. Procedures that apply to like pieces of equipment should be standardized and used where applicable. The use of parts and materials conforms to procedures concerning procurement and material control. A process should be developed to ensure that operations and maintenance personnel understand the importance of procedural compliance where applicable. They must also know the right steps to take if the task cannot be performed by the procedure as written or if they believe that the procedure is incorrect.

There appears to be the potential to redefine roles and responsibilities to improve the overall effectiveness of the HECO Power Supply organization relative to plant, operations and maintenance and outage management. There are several areas identified that affect the responsibilities and accountabilities within the organization. These areas include:

- The superintendents, instead of the senior supervisors, appear to be taking the lead on resolving day-to-day plant issues.
- The senior supervisors do not appear empowered and in control of the overall plant performance.
- The superintendents are not spending sufficient time on higher level management and supervisory activities due to the reactive nature of their current operations.
- There does not appear to be a formal process for continual evaluation and prioritization of measures to minimize or eliminate negative impacts on EFOR and EAF. HECO subscribes to NERC-GADS but underutilizes the resulting data as a tool to guide and direct planning and decision-making.

The specific candidate actions to address the observations above are summarized below. A detailed description of these actions is provided in Appendix B.

Candidate Action 16: Provide more focused management leadership and accountability at power production facilities. Specifically, evaluate the need for Plant Managers or revisit means to empower the Senior Supervisors through more clearly defined roles and responsibilities. The definition of the authorities and responsibilities for management at the stations may provide a more defined set of roles, responsibilities, and accountabilities for decision making, inter-departmental communication, direction, etc.

Candidate Action 17: Enable the Production Management Team to increase the day-to-day management and supervisory interface activities performed by the management team. The candidate action is focused on increasing their supervision and management time, and to reduce their time on other initiatives (which reduce their time with their personnel). This candidate action is aimed at providing improved priority-setting, coordination, cooperation, and training.

Candidate Action 18: Establish a person (or work group) responsible for evaluating unit deratings and forced outages on a regular (perhaps quarterly) basis to identify causes through formalized root-cause analysis, trends, and to recommend appropriate actions. Perform these periodic unit EFOR / EAF assessments and root cause evaluations similar to those performed as part of the Heat Rate Monitoring Program. In addition, the System Owners should continue to prepare annual "state of the system" reports for the senior management team to provide for better decision making using this and other associated data.

The potential benefit opportunities resulting from implementing these candidate actions are:

- Improved plant performance through more effective management of the plant
- Improved staff performance, accountability and utilization through more thorough interaction with the management team.

- A higher level of awareness of causes of EFOR and EAF degradation to drive more proactive decision-making with a goal to reduce unit deratings and forced outage events.

4.3.4 Technology Application & Data Analysis

Predictive maintenance (PdM) is a process designed to monitor the running condition of plant equipment; therefore providing early detection of emerging problems, enabling recommendations for modified continued operation or repairs to help mitigate the further degradation of the equipment. PdM integrates all of the available equipment condition data to enable timely decisions that fits into the maintenance planning and scheduling process. The PdM process requires input and participation from technical support, maintenance, operations and management personnel. Advanced technology such as automation, web-based computer applications, continuous and portable periodic condition monitoring, and computerized maintenance management systems, all directly support and streamline the workforce's effective utilization of the PdM process. Some opportunities exist to improve the utilization of existing technology applications and available information that HECO's Power Supply Division employs at its plants. Of particular note is:

- There is limited use of HECO's computerized maintenance management system. Ellipse is the key to effective work control and is underutilized in the areas of work planning, equipment history and financial tracking.
- HECO subscribes to NERC-GADS but underutilizes the resulting data as a tool to guide and direct planning and decision-making.
- In addition, HECO performs limited benchmarking against industry performance due to concerns over the validity of comparison - It is felt that HECO plants are operated at much higher capacity factors than similar plants. As a result, benchmarking is seen as having limited value.
- There have been issues described with identification and troubleshooting of equipment problems. This may be due, in part to limited use of upgraded equipment and tools (OSI PI and Process Books, the DCS data acquisition system, PlantView, Ellipse, and PaSTA), and interface with other staff.

The specific candidate actions to address the observations above are summarized below. A detailed description of these actions is provided in Appendix B.

Candidate Action 19: Assess and resolve software interface issues between the Ellipse software and other maintenance management systems to optimize the work planning and execution processes.

Candidate Action 20: Make better use of available industry benchmarking data. Utilize benchmarking to evaluate HECO performance relative to the industry and to make this information more visible to executive management. Specifically, HECO should annually review NERC GADS data to benchmark against industry peers and to better understand their current operating situation

Candidate Action 21: Train the system owners to model their components using all available condition inputs. Provide training so that they, and other key individuals, can use the outputs for diagnostic, planning / corrective purposes. This candidate action is to provide better training, directions, and requirements for the use of these tools to more effectively evaluate data for O&M decision-making.

The potential benefit opportunities resulting from implementing these candidate actions are:

- More effective work management, maintenance basis implementation, and resource utilization.
- Keeping the Executive Team periodically informed of unit & system performance to provide strategic insight to enhance planning and decision making.
- Improved reliability through better use of data to drive decisions and actions.

4.3.5 Training

Operations and maintenance personnel should meet or exceed all educational, job-specific, and experience requirements. Training consists of self study, classroom and on-the-job knowledge capture. Training and qualification status is tracked and readily available to supervision that is responsible for assigning work. The qualifications of contract personnel are provided in accordance with contractual agreements.

Several areas involving training and familiarization with technologies were identified as opportunities for improvement. They affect the individual's ability to perform their job functions efficiently. These areas include:

- There have been a significant number of newly hired Shift Supervisors and Operators, and newly assigned System Owners. This appears to have caused an "experience gap". There have been issues described with performing routine rounds, equipment monitoring and testing, identification and troubleshooting of problems, use of upgraded equipment and tools (OSI PI and Process Books, the DCS data acquisition system, PlantView, Ellipse, and PaSTA), and interface with other staff.
- There are opportunities to improve maintenance, operations and the engineers' ability to identify and troubleshoot problems prior to initiating the maintenance action or outage. The inability to correctly identify the cause of problems negatively impacts effectiveness in planning for maintenance actions and outages and that the trouble-shooting and root cause investigation responsibility burden is transferred to others.
- The Operators and System Owners are responsible for monitoring and managing new equipment after major and complex plant upgrades. There is evidence that HECO is not aware of some of the advanced functions provided with upgraded equipment due to a lack of understanding by the Operators and System Owners.
- HECO has an effective PdM program (staff and technologies). However, this program is still being underutilized by all but a few maintenance personnel due to unfamiliarity.
- HECO's trades and crafts are highly specialized. Opportunities exist to promote cross-training and multi-skill development by combining similar skill sets and capabilities such as combining technicians with electricians.

There appear to be several actions that can effectively improve overall staff capabilities. There are several candidate actions offered for consideration to address these general training and qualification concerns. These are:

Candidate Action 22: Develop a mentoring and training program for front-line shift supervisors and operators. This candidate action is focused on increasing the experience level of the supervisors and operators relative to plant operations, decision making, new equipment and data systems, etc. This is intended to address on-going operations training.

Candidate Action 23a: Develop knowledge of the equipment and its function through procurement and implementation of computer-based and OEM-augmented training programs. The training modules must be somewhat equipment-specific so that effective trouble-shooting can be performed. The focus of the training would be on improving supervision, craft, technician, operator and system owner capability to troubleshoot problems reactively and to identify failure modes proactively.

Candidate Action 23b: Implement a formal and structured root cause analysis methodology. The process built by HECO as a part of PSRO is designed to accept the root-cause analysis methodology that HECO selects. This candidate action would require varying levels of training and familiarization in the methodology for those participating in analyses and those facilitating them.

Candidate Action 24: Ensure that Operations and System Owners more involved during the initial project development, installation and commissioning of new systems and equipment. This addresses the need to ensure acceptance, ownership, and a smooth transition following installation and commissioning of new equipment. Training and initial go-live support should be provided on more complex installations such as controls upgrades.

Candidate Action 25: Ensure that maintenance, operations, and system owners to more effectively interact with the PdM team to utilize the condition data for their own purposes. Specifically, provide training to staff on utilizing condition data for equipment troubleshooting and maintenance work planning.

Candidate Action 26: Evaluate the potential for development of a cross-training program for bargaining unit personnel to better utilize existing resources.

The potential benefit opportunities resulting from implementing these candidate actions include:

- Improved maintenance and outage planning
- Reduced equipment repair turn-around resulting in improved equipment availability
- Better utilization of technical capabilities.
- Improved plant operations with resulting reliability.
- Improved performance and efficiency from the upgraded equipment through better use and understanding.
- Improved productivity and effectiveness of the staff.

- Better utilization of staff during "crunch" periods.
- Movement to a planned from a reactive environment.

5 REFERENCES

1. 2005 Rate Case T-6, Direct Exhibit HECO-601, Docket No. 04-113.

2. 2005 Rate Case T-6, Docket No. 04-113, Testimony of Mr. Aaron Fujinaka.

3. 2005 Rate Case T-6, Direct Exhibit HECO-604, Docket No. 04-113.

4. Adequacy of Supply – 2003 HECO; Letter dated March 31, 2004 to Hawaii Public Utilities Commission.

5. Adequacy of Supply – 2005 HECO; Letter dated March 6, 2006 to Hawaii Public Utilities Commission.

6. Annual Adequacy of Supply Submittals (for actual reserve margin data).

7. 2005 Rate Case T-6, Direct Exhibit HECO-602, Docket No. 04-113.

8. 2005 Rate Case T-6, Direct Exhibit HECO-603, Docket No. 04-113.

A GLOSSARY OF TERMS

Accountability & Ownership addresses how all maintenance personnel recognize what is expected of them and how they perform accordingly at every level within the maintenance organization.

Actual Net Generation: The total amount of actual energy produced to be distributed to the electricity grid during a given time interval. This is the equivalent to the actual product generated by a production plant. It is the product of the actual power output – in MW – generated by the unit for distribution and the given time duration of output, usually given in hours.

Actual Generation in a given year for a sample 90 MW unit producing half capacity for six (6) months and full capacity for six (6) months:
(45 MW / 90 MW) x 90 MW x 4,380 hours + 90 MW x 4,380 hours = 591,300 MWh

Available Generation: The total potential energy a generating unit can produce in a given time period. In the electric power industry – as is the case in any production industry, there almost always exists a discrepancy between the maximum amount of production and the potential amount of production, which can be attributed to capacity losses due to various facets of resource management, maintenance, and operation. This includes time necessary to repair equipment, restrictions in operating equipment, and management decisions on when to operate this equipment. Available generation is the product of the available power output – in MW – and the time interval of availability, usually in hours.

Available Generation in a given year for a sample 90 MW unit operating for six (6) months under reduced available load:
(60 MW / 90 MW) x 90 MW x 4,380 hours + 90 MW x 4,380 hours = 657,000MWh

Benchmarking addresses the maintenance organization's process and proficiency, with benchmarking of the assets performance to allow for a direct comparison of the organizational practices with those considered "best-in-class" within the utility industry and among all other industries.

Communication addresses the quality (formal and informal) of communications and information exchange between Maintenance, Management, Operations, Engineering, and others within the organization.

Continuous Improvement addresses the organization's ability to be a "learning" organization that is able to avoid repetitive mistakes.

Contract Management addresses the organization's methods and practices associated with managing contractors used to complete specific maintenance work.

Corrective Maintenance tasks (CM) result from, loss-of-performance, component breakdown or catastrophic equipment failure that must be dealt with immediately.

Data Capture and Utilization addresses the effective capture of equipment maintenance history, performance, and reference information.

Equivalent Availability Factor (EAF): This metric measures a unit's *potential* power output for a given time interval. This metric is usually referred to as the availability of the unit. The unit's EAF is the ratio of available net generation to maximum net generation. A simpler description of this metric is that it answers the question of how much energy *could* have been generated in a given time period.

Maximum Net Generation for a sample 90MW unit in a given year:
788,400 megawatt-hours (MWh)
Available Generation in a given year for a sample 90 MW unit operating for six (6) months under reduced available load:
657,000 MWh
EAF = 657,000MWh / 788,400MWh = 83.33%

Equivalent Forced Derating Hours (EFDH): Equivalent Forced Derating Hours are used to equate Forced Deratings to Forced Outages. EFDH are calculated by evaluating the percent reduction in load (in MW) a Forced Derating incurs on a generating unit and multiplying this percentage by the event duration, usually in hours. This represents the same time interval effect a Forced Outage would have on a unit.

Equivalent Forced Derating Hours for a sample 90 MW plant that experiences a 30 MW Forced Derating for three (3) weeks:
30 MW / 90 MW) x 504 hours = 168 hours

Equivalent Forced Outage Rate (EFOR): This metric measures a unit's lost production due to unexpected equipment problems or operating conditions. EFOR is a metric that measures the amount of Forced Outages and Deratings that occur. The metric is essentially a ratio between the sum of the Forced Outage Hours and Equivalent Forced Derating Hours to the sum of the Forced Outage Hours, Total Service Hours (number of hours the unit was generating power), and any pumping hours if it is a hydroelectric unit – which does not apply to any HECO units. A simpler description of this metric is that it answers the question of how much generation was lost due to unexpected events and equipment failures.

Total Service Hours for a sample 90MW unit in a given year:
4,500 hours
Forced Outage Hours for a sample 90MW unit in a given year:
700 hours

Equivalent Forced Derating Hours for a sample 90 MW plant that experiences a 30 MW Forced Derating for three (3) weeks during a given year:
168 hours
EFOR = (168 + 700) / (700 + 4500) = 16.69%

Forced Events – Outages (FO) and Deratings (FD): During the operating cycle of a generating unit, it will experience unexpected events that prevent the unit from producing its intended power output mostly due to equipment failures. If a particular event causes the unit to reduce its load (MW output) completely, it is classified as a Forced Outage. If a particular event causes its load to be reduced partially, it is then classified as a Forced Derating. Forced Outages and Deratings are usually classified according to severity. FO events are labeled U1, U2, and U3 in decreasing order of severity. FD events are labeled D1, D2, D3, and D4 in decreasing order of severity. Forced Deratings can be equated to Forced Outages through Equivalent Forced Derating Hours.

Goals and Business Plan addresses the maintenance organization's process for creating a business plan that clearly addresses the maintenance organization's vision and mission, internal and external customers, strategy, goals and objectives, key performance indicators and initiatives as well as their associated benefit.

House Keeping addresses the material conditions, cleanliness, and housekeeping of facilities, systems, and equipment upon completion of work activities.

Human Performance addresses the evaluation of maintenance leadership desired behaviors for maintenance personnel that will ensure the appropriate level of professionalism by all workers.

Information Integration Systems addresses the use of integration systems that relay on the local area networks, and web-based Intranet and Internet networks. Develop comprehensive Maintenance Optimization Plan including specific Goals and Performance Metrics to drive the Organization (issue #16).

Leadership provides direction for the organization by clearly defining expectations and providing the necessary support and budgets for initiatives to be successful.

Maintenance & Diagnostic Technologies addresses the use and availability of monitoring and diagnostic technologies, including both periodic and continuous on-line systems.

Maintenance Basis (MB) addresses the process used in determining the basis (i.e., what and how maintenance work is performed for specific equipment as well as the timing of such work)) for identifying the optimum maintenance work task balance as well as the overall strategy for maintaining reliability.

Maintenance Management System addresses the technologies required to support the workforce in the maintenance optimization process, which includes all technical advances such as: automation, condition monitoring technologies, maintenance management systems, process data historians and distributed control systems.

Metrics addresses the quality and effectiveness of a maintenance organization's key performance indicators including global goal measurements, such as: availability; cost and reliability; and specific maintenance department goal measurements.

Net Capacity Factor (NCF): This metric measures a unit's *actual* power output for a given time interval. The NCF is the ratio of actual net generation to maximum net generation. A simpler description of this metric is that it answers the question of how much energy was *actually* generated in a given time period.

Maximum Net Generation for a sample 90 MW unit in a given year:
788,400 MWh
Actual Net Generation for a sample 90 MW unit during given year:
591,300 MWh
NCF = 591,300 MWh / 788,400 MWh = 75.00%

Net Maximum Generation: The maximum generation is defined as the total amount of energy a generating unit can produce in a given time period. However, a given generating facility also requires power to operate its own equipment; therefore, net maximum generation is the maximum generation less any energy required to operate equipment. It is the product of the maximum megawatt (MW) capacity rating – less power necessary to run unit equipment – and the given time interval, usually given in hours; the resulting unit of which is a megawatt-hour (MWh). The maximum generation in a given year for a sample 90 MW (net) unit:
90 MW x 8,760 hours = 788,400 MWh.

Organization addresses the organizational structure in place to provide for coordinated maintenance decision-making, and successfully accomplishing system and equipment maintenance (e.g., process teams, component and process ownership, fix-it-now, etc.).

Outage Management Processes/Procedures addresses the organization's formal policies and procedures that are in place to manage "how" maintenance is accomplished in a planned maintenance or rehabilitation outage including work initiation, planning and scheduling, risk assessment, and contract management.

Perform Maintenance Tasks addresses the actual as measured performance of the maintenance task.

Planned Events – Planned Outages (PO) and Maintenance Outages (MO): In order to keep a generating unit operating as it was initially intended, maintenance and repair of the equipment is necessary. In order to prevent the occurrences of equipment failing unexpectedly, periodic maintenance and repair of equipment is planned for and scheduled. Some situations require that the unit's load output be reduced partially or completely to accomplish the necessary maintenance activities. Planned Outages and Maintenance Outages are instances in which the unit's load output is reduced completely and the unit is taken offline. Planned Outages are major situations in which the required maintenance activities take several weeks to complete. These events are planned and scheduled well in advance. Maintenance Outages are situations in which

it is necessary to take the unit offline before the next Planned Outage to conduct maintenance; however, the situation does not require imminent attention and the event can be properly planned and scheduled in advance.

Planning addresses the organization's proficiency and effectiveness of work activity planning including determining what activities will involve detailed planning (infrequently performed work, complex tasks, work requiring specialty resources, work requiring post maintenance testing, etc.).

Post Job Critique addresses the supervisory review and comparison of the work accomplished as well as the post-maintenance testing or inspection performed to determine that work is acceptable before the system is returned to normal service.

Post Maintenance Testing addresses post-maintenance or post-modification testing, inspection, or surveillance performed following maintenance or modification installation to verify that performance is based on design criteria, that the original deficiency was corrected, and that no new deficiencies were introduced due to maintenance.

Power Supply Reliability Optimization (PSRO) Program is HECO Power Supply's strategic framework for optimizing operations, maintenance and engineering processes, technology applications and inter-departmental cooperation so that maximum production efficiencies are achieved.

Predictive Maintenance tasks (PdM) are tasks that must be performed as a result of detecting an equipment problem based on a diagnostic technology.

Pre-job Briefings addresses the guidance for the performance of routine pre-job briefings for maintenance activities.

Preventive Maintenance tasks (PM) are scheduled tasks that are time based recurring work that has been demonstrated to be necessary to keep equipment in optimum running condition.

Proactive Maintenance tasks (PAM) are improvement projects that have been initiated to resolve recurring maintenance problems.

Qualifications addresses the maintenance organization's methods associated with the qualifications and skills of functions within the organization, with a focus on whether qualifications and skills are capable of supporting program goals.

Return Equipment to Service addresses the processes required to return equipment to service to ensure that the proper testing has been accomplished and that the equipment is ready for service.

Risk Assessment addresses the process of establishing the risk associated with planning and execution of work as well as safety and reliability concerns.

Safety addresses the awareness of the personnel of the importance of safety. It is the processes/procedures that are in place and being followed to address safety concerns.

Scheduling addresses an organization's proficiency and effectiveness with scheduling of maintenance tasks, resource loading and monitoring schedule adherence throughout the work control, execution, and closeout processes.

Stores/Inventory Management addresses an organization's proficiency with ordering, handling, storing, and issuing all parts and materials for the maintenance tasks.

System and Equipment Clearance and Tagging addresses the process of clearing and tagging out equipment in a timely manor in preparation for maintenance work.

System Ownership is the advocacy granted to the owner for controlling the health of a system of power plant equipment. Examples of systems are: boiler air and gas, condensate and feedwater, boiler steam and water, etc. HECO utilizes engineers in Power Supply Engineering Technical Support Department to serve in this function.

Tools & Materials Staging and Control addresses the accessibility of tools including specialty and diagnostic tools needed to execute maintenance tasks effectively.

Training addresses the policies, processes and procedures in place to govern the maintenance Training and Qualification program.

Unavailable (Lost) Generation: This is the resulting lost generation due to either planned and scheduled events, or unexpected events. The addition of Available Generation and Unavailable Generation yields Net Maximum Generation.

Maximum Generation in a given year for a sample 90 MW (net) unit:
788,400 MWh
Available Generation in a given year for a sample 90 MW unit operating for six (6) months under reduced available load:
657,000 MWh
Lost Generation in a given year for a sample 90 MW unit operating for six (6) months under reduced available load:
788,400 MWh – 657,000 MWh = 131,400 MWh

Utilization addresses the organization's effectiveness in actively and positively managing the relationship between Management and Craft (Union or Non-Union) to provide a win-win situation in most or all cases.

Work Close-Out includes the maintenance organization's proficiency with prescribing and performing post maintenance testing, post job critique, housekeeping practices upon completion of work, transfer of equipment ownership to operations for return to service (Return Equipment to Service), the capture and documentation of "as-found" and "as-left" information and the

effective utilization of the information to proactively improve future maintenance and equipment reliability.

Work Close-Out Procedures addresses the administrative procedures and policies in place to govern and guide the maintenance work closeout processes.

Work Control signifies those processes and procedures that address the "how" an organization accomplishes all of maintenance tasks. Therefore Work Control includes work and task prioritization, risk assessment (where the risk associated with the completion is considered equally important as the risk associated with not completing a maintenance task), and the planning and scheduling of maintenance work.

Work Execution addresses the performance of work and execution procedures, clearance of equipment, staging of materials, pre- job briefing, quality assurance and verification programs, safety practices and processes, and post-job critiques.

Work Execution Procedures addresses the existence and quality of work execution procedures that an organization uses to ensure the safe and effective operation and maintenance of the assets.

Work Identification provides the overall strategy and approach applied to determine what specific task(s) are required to ensure that the appropriate work is performed to achieve high levels of equipment reliability at the lowest or reasonable cost.

Work Management Processes/Procedures addresses the organization's formal policies and procedures that are in place to manage "how" maintenance is accomplished including work initiation, planning and scheduling, risk assessment, and contract management.

Work Order Generation (WOG) addresses the processes associated with how a request to perform work is initiated in the organization and administered at the facility.

Work Prioritization addresses the process of "how" an organization screens, and determines and tracks the priority of all work requests identified.

Work Quality addresses the process of assuring that the work performed maintains a high standard and that all aspects of ensuring quality are employed

B CANDIDATE ACTION LIST

Candidate Action Number[1]	Focus Area[2]	Potential Impact[4]	Schedule[5] S=Short term I=Intermediate term L=Long term	Responsible HECO Power Supply Division[6]	Observation[7]	Candidate Action[8]	Potential Benefits[9]	Applicable EPRI PMO Key Element(s)[10]	EPRI Reference Documents[11]
1	Scheduled Outages & Overhauls	High	S	Maintenance / Planning	There is no one fully accountable for the success of an outage. Planning is responsible for scheduling the outage, and maintenance and operations have varying degrees of authority during the outage. However, there is no one individual with authority to manage the outage and its outcomes.	There are two specific actions related to this observation: 1. Select and Empower Outage Managers: This candidate action is to define a job function or role for an outage manager. This role would provide a single point of focus and accountability for the performance and conduct of an outage. This role will have the responsibility for the successful performance of the outage (cost, schedule, completion of tasks). EPRI outage guidelines can be utilized as a starting point. 2. Develop an outage plan: This outage plan (scope, schedule, and budget) should be prepared and used to guide the outage, record performance, and provide lessons learned. This plan can be used to track completion or status of planned tasks and modifications to the outage based on unforeseen work.	Intended benefits are improved outage planning and management (tasks completions, schedule, and budget); potential shorter durations; improved tracking of completed and uncompleted maintenance tasks.	Accountability, Organization	1, 2, 3
2	Scheduled Outages & Overhauls	High	S	Maintenance / Planning	There has been a recommendation to perform routine maintenance tasks during the night (when units are at reduced load). A question that merits evaluation is how much of the PM work can be performed during this time frame.	Perform an evaluation to distinguish equipment PM's requiring unit shutdown, unit deratings, and/or risks from those PM's having no operational impact. The candidate action is to determine whether sufficient work is available for the backshift. For example, can the equipment be isolated during operation so that maintenance tasks can be performed or is there adequate time to perform the task? The goal would be to ensure that there is approximately 60%-70% of resource loading on the backshift work schedule to perform these tasks.	Intended benefit is improved implementation and execution of the maintenance basis.	Work Execution	
3	Scheduled Outages & Overhauls	Medium	S	Planning / Engineering	There is an issue identified dealing with "scope creep" after outages begin. This issue deals with unplanned tasks that are identified after an outage starts. This issue involves effective identification and harvesting of issues from operators, system owner reports, and maintenance; and their incorporation into the outage plan.	Improve preparation for outages to minimize or eliminate "scope creep" after outages begin. This candidate action is to provide for more effective preparation prior to an outage. This involves: effective operator identification of issues; and the ability of planning to incorporate feedback into the outage.	Intended benefit is to improve preparation of outages to minimize or eliminate "scope creep" after outages begin.	Work Identification	1,2,3

Candidate Action Number[1]	Focus Area[2]	Potential Impact[4]	Schedule[5] S=Short term I=Intermediate term L=Long term	Responsible HECO Power Supply Division[6]	Observation[7]	Candidate Action[8]	Potential Benefits[9]	Applicable EPRI PMO Key Element(s)[10]	EPRI Reference Documents[11]
4	Scheduled Outages & Overhauls	Medium	S	Planning / Engineering	The system owners have just completed the preparation of their first annual "state of the system" reports. These reports covered system status at all of the power production facilities. An opportunity exists to more effectively utilize the system owners to help define and prepare the outage scope based on the needs of their defined systems on that particular unit.	Ensure system owner unit-specific "state of the system" input to station and overhaul planners prior to outages. This candidate action is to provide for more effective preparation prior to an outage. This involves more effective use of the system owner to identify issues prior to the outage ("state of the system on a unit specific basis"), and ability of planning to incorporate this feedback into the outage plan.	Intended benefit is to improve preparation of outages to minimize or eliminate "scope creep" after outages begin.	Work Identification	11, HECO System Owner Handbook.
5	Scheduled Outages & Overhauls	Low	I	Maintenance	At the end of major overhauls or outages, the maintenance crew is expected to complete job cards with sufficient "as found" and "as left" information to define the work performed and the condition of the equipment after the completion of the work. The schedule demands on the travel crew have resulted in a lack of thoroughness in the completion of job cards with sufficient information to provide appropriate status or to capture lessons learned.	Require Craft to complete and sign-off on job cards (PSRO). This candidate action is to ensure that the travel crew craft complete the job cards to provide information to station maintenance and planning with sufficient detail on the work completed.	This information will allow for accurate reporting of "as left" project, corrective, and preventive maintenance work and to capture items not completed. It will also allow for appropriate lessons learned and task benchmark associated with various tasks. This action should also result in a potential reduction in rework.	Accountability, Continuous Improvement	7, 9, 12
6	Scheduled Outages & Overhauls	Medium	S	Maintenance	Communication between station maintenance and travel crews around condition of equipment before and after maintenance tasks (or between overhaul outages and routine maintenance) should be improved. Due to the high schedule demands on these crews, there is insufficient communication between the groups prior to entering and leaving an outage. This lack of communication has been identified as a potential cause of rework (or derates) shortly after completion of major outages and overhauls.	The candidate actions associated with this observation. 1. Get Travel Crew to provide detailed "as found" & "as left" data of equipment worked on to Station Maintenance after the major outages and overhauls. 2. Get station maintenance to provide detailed "as found" and "as left" data of equipment worked prior to the initiation of the major outages and overhauls. These candidate actions are to provide for a more detailed data set of information after completion of work that identifies the condition of the equipment after maintenance, repair, or replacement.	Intended benefit from these candidate actions is aimed at improving the interface between the station and traveling maintenance crews to reduce rework or duplication of effort.	Continuous Improvement, Intra-Departmental Communications	11, 16

Candidate Action Number[1]	Focus Area[2]	Potential Impact[4]	Schedule[5] S=Short term I=Intermediate term L=Long term	Responsible HECO Power Supply Division[6]	Observation[7]	Candidate Action[8]	Potential Benefits[9]	Applicable EPRI PMO Key Element(s)[10]	EPRI Reference Documents[11]
7	Scheduled Outages & Overhauls	Medium	I	Maintenance	Communication and turnover should be improved between station crews and travel crews before, during and after outages and overhauls. The maintenance groups should also inform operations of their activities during turnover to operations after outages and overhauls. This situation has the potential to result in rework or derates after an outage.	In order to optimize "outage" to "non-outage" transitions that enable smoother unit start-up, develop a guideline or approach to clarify roles and responsibilities of station and travel crew maintenance for "end of outage" hand-offs and for appropriately timing the transfer of travel crew to a new site. A "hand-off" should also be formalized between maintenance groups and operations at the end of work on site to improve the flow of information. This candidate action is focused on improving the "hand off" and interface between the station and travel maintenance crews, as well as maintenance and operations. Possible considerations are pre- and post-outage debriefs; improved post-maintenance records; stations crew involvement in major maintenance or overhaul activities to improve turnover; and improved planning and record keeping on completed vs. incomplete tasks coming out of an outage.	With the staff and work level of maintenance and operations groups, the effectiveness of defining the boundaries of duties between the groups and the "hand off" process will reduce potential rework, prevent derates / unforced outages after completion of a major outage, and more effectively utilize the staff.	Work Execution	11
8	Scheduled Outages & Overhauls	Low	I	Engineering	Existing drawings and reference materials are not being effectively utilized to assist in outage planning and work execution.	The more effective use of drawings and references may improve planning for outages. While there has been significant effort to update documents, the effectiveness of control and use of the documents may yield improvements in the ability to plan tasks and procure materials for outages. Specific actions include training staff on how to access drawings and references; and following an overhaul, reviewing as-built drawings, operating procedures, and other documentation for accuracy and updating.	Intended benefits are improved quality and productivity of outage and routine work execution through better planning (use of reference and drawing materials).	Work Control	

Candidate Action Number[1]	Focus Area[2]	Potential Impact[4]	Schedule[5] S=Short term I=Intermediate term L=Long term	Responsible HECO Power Supply Division[6]	Observation[7]	Candidate Action[8]	Potential Benefits[9]	Applicable EPRI PMO Key Element(s)[10]	EPRI Reference Documents[11]
9	Scheduled Outages & Overhauls	Low	I	Planning / Maintenance	There is limited measurement and evaluation of outage effectiveness (duration, productivity, cost, and resultant reliability).	Develop an approach to measure outage effectiveness and define actions to improve. This candidate action is focused on improvement of outages (schedule, scope, execution and cost). There are recognized means to evaluate the return on investment of outages and to provide a means to improve their performance.	Intended benefits include: Improved availability and reliability through shorter duration outages and improved plant performance after the outage. This potential to improve outage performance (duration and frequency) also offers an opportunity to improve execution of maintenance basis tasks.	Accountability	2
10	Corrective & Preventive Maintenance	High	S	Planning / Maintenance / Engineering / Operations	HECO embarked on a major Power Supply Reliability Optimization (PSRO) initiative, but has not completed implementation to enable measurement and achievement of goals. PSRO was initiated to provide for optimization of unit reliability and production cost. The maintenance basis defined in the PSRO initiative provides for a set of maintenance, inspection, and surveillance activities to ensure the reliability of the equipment and system. Many tasks within the maintenance basis are being deferred or not completed due to limitations of staff availability. Additionally, the work management program is not reflecting effective performance of the maintenance tasks.	Assign a full-time PSRO Project Manager to ensure more effective on-going implementation. This candidate action refers to the assignment of an individual to champion and drive this initiative. This assignment is not a corollary duty, but a full-time position to ensure that HECO gains the full benefits of the PSRO program.	Intended benefits are improved reliability at optimized production cost through completion of identified maintenance tasks, effective work management, measurement of process effectiveness and continuous improvement. The implementation of the PSRO initiative is intended to drive a higher level of reliability performance.	Leadership, Accountability	9, 11, 16

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11	Corrective & Preventive Maintenance	High	I	Management	As part of the PSRO Initiative, a comprehensive maintenance basis for all critical equipment in the plants was developed. The maintenance basis has not been completely implemented. Potential identified causes include too many tasks identified, lack of prioritization of tasks to be performed, insufficient manpower to complete the defined tasks, high reactive (or unplanned) work, interface issues between work groups, and staff mix and skills.	There are two actions related to this observation: 1. Perform a maintenance task and resource assessment to more accurately determine the staffing level required to complete the identified work. This action will include a determination of maintenance tasks (hours) required, skill mix necessary to complete these tasks, and assessment against current status to identify gaps. 2. Perform an assessment to better understand the barriers that are standing in the way of implementation of the maintenance basis, and define and expedite corrective action. This action is focused on identifying the barriers to implementation of the maintenance basis and developing the actions to obtain desired results, once implemented. Specific items for review include work management process, staffing (levels, mix, deployment, and skills), work management tools, and ranking / prioritization of tasks.	Intended benefits are to gain the performance improvements (reliability and cost) of the maintenance basis investment and the PSRO program.	Maintenance Basis	9, 11
12	Corrective & Preventive Maintenance	High	I	Maintenance / Planning / Operations / Engineering	The potential exists to utilize risk based approaches to prioritize the maintenance basis list and to ensure focus on performing high priority tasks. Some PM Tasks prescribed by the maintenance basis are not being completed due to an apparent lack of resources.	Evaluate, select and apply a ranking and prioritization methodology for use in prioritizing preventive maintenance tasks, outage tasks, and capital projects. Method should evaluate reliability risk mitigation versus cost. This candidate action consists of utilizing some recent advances in risk assessment and prioritization to drive PM work based on its effectiveness; thus, allowing discretion in performing the maintenance basis for tasks recommended for outages and derates.	Intended benefits are improved reliability by performing highest value maintenance tasks within the current resource restraints.	Work Control	5, 6
13	Corrective & Preventive Maintenance	Medium	I	Planning	There appears to be a growing backlog of maintenance tasks that are not getting completed routinely and during the major outages. Potential causes identified include insufficient staff, too many tasks, and unforeseen requirements.	This candidate action addresses the opportunity to review existing work backlog to reduce, reschedule, re-prioritize and/or purge the work to ensure that the backlog will not contribute to future EFOR.	Intended benefits include improved reliability by performing highest value maintenance tasks and improved allocation of limited resources.	Work Control	11

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14	Corrective & Preventive Maintenance	Low	S	Operations / Planning	There are a large number of work activities identified as "high priority" to the station planners.	This candidate action is to reassess the prioritization to provide for better delineation of priorities to assist the planners in identifying tasks for outages, operation, etc. This candidate action also includes the performance of a root cause analysis to determine the cause of "high priority" items. This action requires better communication between operations and maintenance with regard to the prioritization, planning and scheduling of work activities.	Intended benefit is improved work productivity and assurance that the right work gets done at the right time to improve reliability.	Work Identification	11
15	Corrective & Preventive Maintenance	Medium	L	Operations / Planning	Operators are not performing typical routine tests and surveillances.	Define requirements and ensure that operators are more involved in routine tasks (rounds, surveillances, etc.) at the units. This candidate action addresses the opportunity to have the operators more actively participate in some of the routine surveillance, inspection, and monitoring efforts.	Intended benefits are reduced requirements on the station maintenance staff through performance of routine tasks (PSRO).	Utilization, Leadership, Qualifications	10
16	Organization	High	S	Management	The superintendents, instead of the senior supervisors, appear to be taking the lead on resolving plant issues. The senior supervisors do not appear empowered and in control of the overall plant performance.	Provide more focused management leadership at power production facilities. Specifically, evaluate the need for Plant Managers or revisit means to empower the Senior Supervisors through clearly defined roles and responsibilities. This candidate action is based on providing for clear leadership accountability at each station. The definition of the authorities and responsibilities for management at the stations may provide a more defined set of roles, responsibilities, and accountabilities for decision making, inter-departmental communication, direction, etc.	Intended benefit is improved plant performance through more effective management of the plant.	Leadership, Organization	8, 9, 10, 11

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17	Organization	Medium	S	Management	The O&M Manager and his direct-reports that form the Production Management Team are a key resource in the organization. It appears the team is not spending sufficient time with its day-to-day management and supervision activities due to the reactive nature of their current operations.	Enable the Production Management Team to increase the day-to-day management and supervisory interface activities performed by the management team. This candidate action is focused on increasing their supervision and management time, and to reduce their time on other initiatives (which reduce their time with their personnel). This candidate action is aimed at providing improved priority-setting, coordination, operations, and training.	Intended benefit is improved staff performance and accountability through more thorough interaction and utilization of resources.	Leadership	11
18	Organization	Medium	S	Management	There does not appear to be a formal process for continual evaluation and prioritization of measures to minimize or eliminate negative impacts on EFOR and EAF.	This candidate action is to establish a person (or work group) to review derates and unforced outages on a regular (quarterly) basis to identify causes through a formalized root cause analysis, trends, and recommend appropriate actions. Perform these periodic EFOR / EAF assessments and root cause evaluations similar to those performed as part of the Heat Rate Monitoring Program. Additionally, the System Owners should continue to prepare annual "state of the system" reports for the senior management team to provide for better decision making using this and other associated data.	Intended benefit is a higher level of awareness of causes of EFOR and EAF degradation for proactive decision-making with a goal to reduce derate and unforced outage events.	Leadership, Continuous Improvement	7, 11
19	Technology Applications & Data Analysis	Low	I	Planning	There is limited use of Ellipse as a work management tool. Ellipse is the key to effective work control and is underutilized such that it has stifled progress around work planning, equipment history and financial tracking.	Assess and resolve software interface issues between the Ellipse software and other maintenance management systems to optimize the work planning and execution processes. An effective approach may be the development of an interface for this tool with a more efficient and usable work management software tool.	Intended benefits include more effective work management, maintenance basis implementation, and resource utilization.	Maintenance Management System, Training, Qualifications	11

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20	Technology Applications & Data Analysis	Low	S	Management	HECO subscribes to NERC-GADS but underutilizes the resulting data as a tool to guide and direct planning and decision-making. In addition, HECO performs limited benchmarking against industry performance due to concerns over the validity of comparison - It is felt that HECO plants are operated at much higher capacity factors than similar plants. As a result, benchmarking is seen as having limited value.	Better utilize industry benchmarking data: This candidate action is to more effectively utilize benchmarking to evaluate HECO performance relative to the industry and to make this information more visible to executive management. Specifically, HECO should annually review NERC GADS data to benchmark against industry peers and to better understand their current operating situation. The system owners should also prepare annual state of the system reports (this is a work in progress) for the senior management team (PSRO) to provide for better decision making around planning and priorities.	Intended benefits are to keep the Executive Team informed periodically to provide strategic insight to enhance planning and decision making.	Benchmarking	13, 14
21	Technology Applications & Data Analysis	Medium	S	Engineering	HECO has invested in better tools for collecting data to use for analysis and action planning. However, the tools are being underutilized. These tools include OSI PI / DCS-DAS (Process Book), PlantView, Ellipse, and PaSTA.	Train the system owners to model their components using all available condition inputs. Provide training so that they and other key individuals can use the outputs for diagnostic, planning / corrective purposes. This candidate action is to provide better training, directions, and requirements for the use of these tools to more effectively evaluate data for O&M decision-making.	Intended benefit is to improve reliability through better use of data to drive decisions and actions.	Technologies, Training	11, 16, 18
22	Training & Qualifications	High	I	Operations	There has been a significant number of new hires into the front-line shift supervisor and other operations positions. This appears to have caused an "experience gap". There have been issues described with operator rounds, identification and diagnosis of problems, use of upgraded equipment and tools, and interface with maintenance staff.	Develop a mentoring and training program for front-line shift supervisors and operators. This candidate action is focused on increasing the training of the supervisors and operators relative to plant operations, decision making, new equipment and data systems, etc. This is intended to address on-going operations training.	Intended benefits are improved plant operations and resulting reliability.	Training	8, 10, 11, 18

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23	Training & Qualifications	Medium	I	Maintenance / Engineering / Operations	There is apparent ineffectiveness in the ability to trouble-shoot problems. This affects the ability to identify the root cause of a problem prior to initiating the maintenance action or outage. The impact is that planning for maintenance actions and outages may be less effective, and that the trouble-shooting and root cause investigation responsibility burden is transferred to others.	The actions associated with this consideration are: 1. Develop knowledge of the equipment and its function through procurement and implementation of computer-based and OEM-augmented training programs. The training modules should be equipment specific so that effective trouble-shooting can be performed. The training should be focused on improving supervision, craft, technician, operator, and system owner capability to trouble-shoot problems reactively and to identify failure modes proactively. 2. Implement a formal and structured root cause analysis methodology.	Intended benefits are improved maintenance and outage planning, and expedited turn-around resulting in improved equipment availability.	Qualifications, Training	18
24	Training & Qualifications	Medium	S	Engineering / Operations	The Operators and System Owners are responsible for monitoring and managing new equipment after major plant upgrades. There is evidence that HECO is not gaining the full advantage of the upgraded equipment due to a lack of understanding by the Operators and System Owners.	Get Operations and System Owners more involved during the initial project development, installation and commissioning of new systems and equipment. This candidate action addresses the need to include operations and system owners during the design, installation and commissioning of new equipment so that they are familiar with the equipment when they take over ownership after installation. After new equipment installation, training should be provided to the operators and system owners on the use of the new equipment. This candidate action is primarily focused on the interface and work at the end of major new capital installations and upgrade.	Intended benefits are the gain in improved performance and efficiency from the upgraded equipment through better use and understanding of the equipment and its capabilities.	Accountability, Training	11, HECO System Owner Handbook.

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25	Training & Qualifications	Medium	I	Planning / Operations	Predictive Maintenance (PdM) is the conversion of condition-based data to useful information to drive maintenance actions. It is an effective method for managing condition data for use in maintenance planning and decision making. HECO has an effective PdM program (staff and technologies). However, this program is still being underutilized relative to maintenance planning and decision-making. CBM periodic data to information to action (D - I - A) is weak at the I-A link, CBM continuous data D-I-A is weak throughout, CMMS periodic data is weak throughout, and PaSTA periodic data is weak throughout.	Maintenance, operations, and system owners need to more effectively interact with PdM team to utilize the condition data for their own purposes. Specifically, provide training to staff on utilization of condition data for equipment trouble-shooting and maintenance work planning (included in PSRO maintenance basis definitions).	Intended benefits are improved implementation of the maintenance basis, improved productivity of staff, and positive move to a planned vs. reactive environment.	Training	11, 16
26	Training & Qualifications	Medium	L	Maintenance	HECO may not be taking full advantage of the capabilities of its workforce. There is no cross-training of staff so that they may be utilized in multiple functional areas. There are potential barriers to developing the cross-training program, but it presents a key opportunity to better utilize its current manpower resources.	Evaluate the potential for development of a cross-training program for bargaining unit personnel to better utilize existing resources.	Intended benefits are better utilization of staff during "crunch" periods.	Training, Utilization	8, 9, 18

NOTES

1. Candidate Action Number is the unique number associated with each of the candidate actions. This number will be used throughout the assessment report and any subsequent sorts of the data to track the item.
2. "Focus Area" represents one of four categories of candidate actions that were identified in the assessment. The focus areas provide for a grouping of the candidate actions.
3. Not used.
4. "Potential Impact" refers to the relative ranking of candidate actions for achieving improvements in the outage, maintenance, or reliability areas. The impacts are defined as high, medium, and low.
5. Schedule refers to the recommended timeframe for performing the candidate action. The schedule definitions are based on short-term as within 6 months; intermediate term as between 6 months and 1 year; and long term as greater than 1 year.
6. The Responsible HECO Division represents the recommended organizational owner of the candidate action.
7. "Observation" refers to a condition or state identified in the assessment (either by data review or interviews). It provides a brief summary as background for the candidate action.
8. Candidate action refers to a consideration for review by HECO based on the assessment. It is intended to provide a possible opportunity for improvement in the outage and maintenance / reliability areas.
9. "Potential Benefits" refer to the potential benefit that can be derived from an improvement associated with the candidate action.
10. "Applicable EPRI PMO Key Element(s)" is based on the EPRI definitions provided in References 4 and 11.
11. EPRI Reference Documents are identified as possible documents that may be of assistance to HECO in developing specific actions and plans around the candidate actions.

REFERENCES

1. EPRI Outage Management Benchmarking Guideline, Rpt. No. 1004383, dated March 2003.
2. EPRI Outage Effectiveness Measurement Guideline, Rpt. No. 1004830, dated November 2004.
3. EPRI Case History Study: High Pressure Feedwater Heater Replacement: A Success Story in Outage Management and Project Execution, Rpt. No. 1010279, dated March 2006.
4. EPRI Maintenance Excellence Matrix, Rpt. No. 1004705, dated November 2002.
5. EPRI Risk Based Maintenance Guideline, Rpt. No. 1004382, dated November 2002.
6. EPRI Risk Based Maintenance Application Case Study, Rpt. No. 1004898, dated December 2003.
7. EPRI Guideline on Proactive Maintenance, Rpt. No. 1004015, dated November 2001.
8. EPRI Shift Supervisor Oversight of Multiple DCS-Controlled Units, Rpt. No. 1008255, dated March 2005
9. EPRI Work Culture Change via Proactive Leadership - Managing Change at the Power Plant, Rpt. No. 1008339, dated December 2004
10. EPRI Operations Assessment Guideline, Rpt. No. 1008250, dated March 2005
11. EPRI Consolidated PMO Guideline for Fossil Fueled Power Plants, Rpt. No. 1004377, dated December 2003
12. EPRI Maintenance Job Cards - Human Factors Study, Rpt. No. TR 104602, dated December 1994
13. Targeting Critical Components through Benchmarking, NERC, dated October 2005
14. Unit Performance and Cost Data Together - EUCG Version of PC-GAR, NERC, October, 2002
15. EPRI Streamlined Reliability-Centered Maintenance (SRCM) Implementation Guidelines, Rpt. No. TR-109795-V3, dated December 1999
16. EPRI Predictive Maintenance Guidelines, Rpt. Nos. TR-103374-V1, 2, 3, 4, dated August 1994, October 1997, November 1998, December 1999
17. HECO Power Supply Reliability Optimization (PSRO) System Owner Handbook; dated August 2005 (approx.).
18. EPRI FMAC Equipment Guidelines

Confidential Information
Deleted Pursuant To
Protective Order No. 23378.

Attachment 2 contains confidential information and will be provided pursuant to Protective Order No. 23378, issued April 23, 2007.

Confidential Information Deleted Pursuant To Protective Order No. 23378.

Attachment 3 is voluminous and available for inspection at HECO's Regulatory Affairs Division office, Suite 1301, Central Pacific Plaza, 220 South King Street, Honolulu, Hawaii. Please contact Dean Matsuura at 543-4622 to make arrangements to inspect the requested information. The Attachment contains confidential information and will be provided pursuant to Protective Order No. 23378, issued April 23, 2007.

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