BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of	)	
	)	
MAUI ELECTRIC COMPANY, LIMITED	)	Docket No. 2006-0387
	)	
For Approval of Rate Increases and Revised Rate Schedule and Rules	)	
	)	

FILED
OCT 30 2007
Public Utilities Commission

MECO
2007 TEST YEAR

MECO Voluminous Responses to
CONSUMER ADVOCATE
Information Requests

Book 11 of 12

October 30, 2007

CA-IR-270

Ref: MECO-WP-1802, (Embedded Cost of Service Model).

Please provide complete copies in electronic and hard copy format of all supporting analyses to functionalize or allocate input data, including but not limited to rate base input elements at worksheet "RBDATA", customer weighting factors at "MEALDATA" C1 through C8 and "typical cost" data at "MECCDATA" in the cost of service models for each Division.

MECO Response:

The tables below provide the location of supporting analyses for the Embedded Cost of Service Model data elements by data input worksheet for each division. Pages 11 to 73 of this response are also provided in Excel spreadsheet format.

Maui Division Cost of Service Model

Data Input Tab: MEALDATA (MAUI)	
Data Element	Support
System Peak	Page 74 of instant IR
System Load Factor	MECO-WP-404, page 1
Class Load Factor	Page 77
Average Customers	Page 80
Primary Line Wgt. Factor (C1)	Page 12
Secondary Line Wgt. Factor (C2)	Page 13
Transformer Wgt. Factor (C3)	Pages 14, 83, 84
Service Drop Factor (C4)	Pages 15, 85
Meter Wgt. Factor (C5)	Pages 16, 87, 88
Customer Account Wgt. Factor (C6)	Page 89
Bad Debt Allocation Factor (C7)	Page 92
Customer Service allocation Factor (C8)	Page 89
Street Lighting Allocation Factor (C9)	Page 89
Sales Revenue	MECO-WP-302, pgs. 1,10, 16, 109, 113, and 146 of 150
3-Phase to 1-Phase Cost Ratio (C1)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C2)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C3)	Page 14
3-Phase to 1-Phase Cost Ratio (C4)	Page 15
3-Phase to 1-Phase Cost Ratio (C5)	Page 16
3-Phase to 1-Phase Cost Ratio (C6)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C7)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C8)	No change from 97-0346 COS

Data Input Tab: ENERGDATA (MAUI)	
Data Element	Support
Generator step-up loss	Page 30
Transmission Line Loss	Page 30
46kV to Primary Voltage Transformation Loss	Page 30
Primary Line Loss	Page 30
Primary to Secondary Transformation Loss	Page 30
Secondary Line Loss	Page 30
Net Generation	Page 30
Station Use	Page 30
Purchased Power	Page 30
Company Use	Page 30
Losses and Unaccounted For	Page 30
Energy Sales by rate class	MECO-WP-302, pgs. 1,10, 16, 109, 113, and 146 of 150
kWh/kWm by Rate Class	Schedule R/E & G Load factor: Class Load Study Average kWh / Average peak kW per customer. Remaining Schedules: Recorded Energy Sales / Recorded Demand Sales

Data Input Tab: MECCDATA (MAUI)	
Data Element	Support
Account 902 Weighting	Page 97
Account 903 Weighting	Page 97
By Schedule, by Phase: Number of Bills	MECO-WP-302, pgs. 1,10, 16, 109, 113, and 146 of 150
By Schedule, by Phase: Customers per Transformer	Pages 20, 21
By Schedule, by Phase: Average Peak kW per Customer	Class Load Study / Rate Runs. Voluminous
By Schedule, by Phase: Transformer kVa size	Pages 83, 84
By Schedule, by Phase: Typical Cost per Transformer	Pages 83, 84
By Schedule, by Phase: Typical Service Cost	Page 85
By Schedule, by Phase: Typical Meter Cost	Pages 87, 88
Customer Accounts Weighting Factor C6	Held same as Last Rate Case (97-0346)

Data Input Tab: RBDATA (MAUI)	
Data Element	Support
Gross Plant	Pages 22, 138
Depreciation Balance	Page 23, 156
Depreciation Expense	Pages 24, 156
Materials and Supplies	Page 25; MECO-WP-2001, Page 10
Property Held for Future Use	Page 25
Customer Advances	Page 25
Unamortized Net Regulatory Asset	Page 26; MECO-WP-2001, Page 10
Office Supplies	Not Used
2000 Final Dist. Inv. Adj. Basis	Not Used
Working Cash: Fuel Oil and Purchased Power	MECO-WP-2001, Page 11
Working Cash: Labour O&M	MECO-WP-2001, Page 11
Working Cash: Depreciation	Not Used
Working Cash: Income Taxes & Revenue Taxes	MECO-WP-2001, Page 11
Working Cash: Rate of Return	Not Used
Working Cash: Deferred Income Taxes	Not Used
Working Cash: Operating Cash	Not Used
Customer Deposits	MECO-WP-2001, Page 10
Deferred Income Taxes	Page 27; MECO-WP-2001, Page 10
Unamortized ITC	Page 27; MECO-WP-2001, Page 10
Amortized ITC Expense	Page 27; MECO-WP-2001, Page 14
Contribution-in-aid-of-Construction (CIAC) Beg. Bal.	Page 28

Data Input Tab: LINEDATA (MAUI)	
Data Element	Support
All Data Elements	Held same as Last Rate Case (97-0346)

Data Input Tab: REVTXDATA (MAUI)	
Data Element	Support
Other Operating Revenue	Page 20
Increase in Other Revenue	Page 20
Revenue Increase	Page 21
Miscellaneous Revenue	MECO-WP-712, page 3
Other Tax Deductions	MECO-WP-2001, Page 12
PSC Tax	MECO-WP-2001, Page 13
PUC Fees	MECO-WP-2001, Page 13
Franchise Royalty Tax	MECO-WP-2001, Page 13
FICA Tax	MECO-WP-2001, Page 13
Income Tax	MECO-WP-2001, Page 12
Interest on Customer Deposits	MECO-WP-2001, Page 12
Change in Working Cash	MECO-WP-2001, Page 11
Uncollectibles Factor	MECO-WP-711, Page 1
Sales Tax Revenue Factor	MECO-WP-2001, Page 13
Other Revenue Tax Factor	MECO-WP-2001, Page 13
Franchise Royalty Tax Rate	MECO-WP-2001, Page 13
Income Tax Factor	MECO-WP-2001, Page 19
Operating Income Divisor	MECO-WP-2001, Page 20
Target Rate of Return	MECO-WP-2001, Page 1
Service Establishment Fee	MECO-WP-712, Page 3
Field Collection Charge	MECO-WP-712, Page 3
Late Payment Charge	MECO-WP-712, Page 3
Reconnection Charge	MECO-WP-712, Page 3
Returned Check Charge	MECO-WP-712, Page 3
Purchased Power Metering Charge	MECO-WP-712, Page 3
Schedule F Fixture Charge	MECO-WP-712, Page 3
Allocation Factors for Other Operating Revenue	Page 18, 19

Molokai Division Cost of Service Model

Data Input Tab: MEALDATA (MOLOKAI)	
Data Element	Support
System Peak	Page 75
System Load Factor	MECO-WP-404, pg96
Class Load Factor	Page 78
Average Customers	Page 81
Primary Line Wgt. Factor (C1)	Page 33
Secondary Line Wgt. Factor (C2)	Page 34
Transformer Wgt. Factor (C3)	Pages 35, 83, 84
Service Drop Factor (C4)	Pages 36, 85
Meter Wgt. Factor (C5)	Pages 37, 87
Customer Account Wgt. Factor (C6)	Pages 38, 89
Bad Debt Allocation Factor (C7)	Pages 38, 92
Customer Service allocation Factor (C8)	Pages 38, 89
Street Lighting Allocation Factor (C9)	Pages 38, 89
Sales Revenue	MECO-WP-304, pgs. 1, 10, 16, 25, 28, 47
3-Phase to 1-Phase Cost Ratio (C1)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C2)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C3)	Page 35
3-Phase to 1-Phase Cost Ratio (C4)	Page 36
3-Phase to 1-Phase Cost Ratio (C5)	Page 37
3-Phase to 1-Phase Cost Ratio (C6)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C7)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C8)	No change from 97-0346 COS

Data Input Tab: ENERGDATA (MOLOKAI)	
Data Element	Support
Generator step-up loss	Page 51
Transmission Line Loss	Page 51
46kV to Primary Voltage Transformation Loss	Page 51
Primary Line Loss	Page 51
Primary to Secondary Transformation Loss	Page 51
Secondary Line Loss	Page 51
Net Generation	Page 51
Station Use	Page 51
Purchased Power	Page 51
Company Use	Page 51
Losses and Unaccounted For	Page 51
Energy Sales by rate class	MECO-WP-303, pgs. 1,10, 16, 25, 28, and 47
kWh/kWm by Rate Class	Schedule R/E & G Load factor: Class Load Study Average kWh / Average peak kW per customer. Remaining Schedules: Recorded Energy Sales / Recorded Demand Sales

Data Input Tab: MECCDATA (MOLOKAI)	
Data Element	Support
Account 902 Weighting	Page 113
Account 903 Weighting	Page 113
By Schedule, by Phase: Number of Bills	MECO-WP-303, pgs. 1,10, 16, 25, 28, and 47
By Schedule, by Phase: Customers per Transformer	Pages 83, 84
By Schedule, by Phase: Average Peak kW per Customer	Class Load Study / Rate Runs. Voluminous
By Schedule, by Phase: Transformer kVa size	Pages 83, 84
By Schedule, by Phase: Typical Cost per Transformer	Pages 83, 84
By Schedule, by Phase: Typical Service Cost	Page 85
By Schedule, by Phase: Typical Meter Cost	Page 87, 88
Customer Accounts Weighting Factor C6	Held same as Last Rate Case (97-0346)

Data Input Tab: RBDATA (MOLOKAI)	
Data Element	Support
Gross Plant	Page 43, 140
Depreciation Balance	Pages 44, 157
Depreciation Expense	Pages 45, 157
Materials and Supplies	Page 46; MECO-WP-2001, Page 34
Property Held for Future Use	Page 46
Customer Advances	Page 46; MECO-WP-2001, Page 34
Unamortized Net Regulatory Asset	Page 47; MECO-WP-2001, Page 34
Office Supplies	Not Used
2000 Final Dist. Inv. Adj. Basis	Not Used
Working Cash: Fuel Oil and Purchased Power	Page 52; MECO-WP-2001, Page 35
Working Cash: Labour O&M	Page 52; MECO-WP-2001, Page 35
Working Cash: Depreciation	Not Used
Working Cash: Income Taxes & Revenue Taxes	Page 52; MECO-WP-2001, Page 35
Working Cash: Rate of Return	Not Used
Working Cash: Deferred Income Taxes	Not Used
Working Cash: Operating Cash	Not Used
Customer Deposits	MECO-WP-2001, Page 34
Deferred Income Taxes	Page 48; MECO-WP-2001, Page 34
Unamortized ITC	Page 48; MECO-WP-2001, Page 34
Amortized ITC Expense	Page 48; MECO-WP-2001, Page 34
Contribution-in-aid-of-Construction (CIAC) Beg. Bal.	Page 49

Data Input Tab: LINEDATA (MOLOKAI)	
Data Element	Support
All Data Elements	Held same as Last Rate Case (97-0346)

Data Input Tab: REVTXDATA (MOLOKAI)	
Data Element	Support
Other Operating Revenue	Page 41
Increase in Other Revenue	Page 41
Revenue Increase	Page 42
Miscellaneous Revenue	MECO-WP-712, page 7
Other Tax Deductions	MECO-WP-2001, Page 42
PSC Tax	MECO-WP-2001, Page 42
PUC Fees	MECO-WP-2001, Page 43
Franchise Royalty Tax	MECO-WP-2001, Page 43
FICA Tax	MECO-WP-2001, Page 42
Income Tax	MECO-WP-2001, Page 38
Interest on Customer Deposits	MECO-WP-2001, Page 36
Change in Working Cash	MECO-WP-2001, Page 35
Uncollectibles Factor	MECO-WP-711, Page 1
Sales Tax Revenue Factor	MECO-WP-2001, Page 37
Other Revenue Tax Factor	MECO-WP-2001, Page 37
Franchise Royalty Tax Rate	MECO-WP-2001, Page 37
Income Tax Factor	MECO-WP-2001, Page 43
Operating Income Divisor	MECO-WP-2001, Page 44
Target Rate of Return	MECO-WP-2001, Page 1 of 44
Service Establishment Fee	MECO-WP-712; Page 7
Field Collection Charge	MECO-WP-712; Page 7
Late Payment Charge	MECO-WP-712; Page 7
Reconnection Charge	MECO-WP-712; Page 7
Returned Check Charge	MECO-WP-712; Page 7
Purchased Power Metering Charge	MECO-WP-712; Page 7
Schedule F Fixture Charge	MECO-WP-712; Page 7
Allocation Factors for Other Operating Revenue	Pages 39, 40

Lanai Division Cost of Service Model

Data Input Tab: MEALDATA (LANAI)	
Data Element	Support
System Peak	Page 76
System Load Factor	MECO-WP-404, page 93
Class Load Factor	Page 79
Average Customers	Page 82
Primary Line Wgt. Factor (C1)	Page 54
Secondary Line Wgt. Factor (C2)	Page 55
Transformer Wgt. Factor (C3)	Page 56, 83, 84
Service Drop Factor (C4)	Page 57, 85
Meter Wgt. Factor (C5)	Page 58, 87, 88
Customer Account Wgt. Factor (C6)	Page 59, 90
Bad Debt Allocation Factor (C7)	Page 59, 92
Customer Service allocation Factor (C8)	Page 59, 90
Street Lighting Allocation Factor (C9)	Page 59, 90
Sales Revenue	MECO-WP-303, pgs. 1, 8, 14, 23, 27, 37
3-Phase to 1-Phase Cost Ratio (C1)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C2)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C3)	Page 56
3-Phase to 1-Phase Cost Ratio (C4)	Page 57
3-Phase to 1-Phase Cost Ratio (C5)	Page 58
3-Phase to 1-Phase Cost Ratio (C6)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C7)	No change from 97-0346 COS
3-Phase to 1-Phase Cost Ratio (C8)	No change from 97-0346 COS

Data Input Tab: ENERGDATA (LANAI)	
Data Element	Support
Generator step-up loss	Page 72
Transmission Line Loss	Page 72
46kV to Primary Voltage Transformation Loss	Page 72
Primary Line Loss	Page 72
Primary to Secondary Transformation Loss	Page 72
Secondary Line Loss	Page 72
Net Generation	Page 72
Station Use	Page 72
Purchased Power	Page 72
Company Use	Page 72
Losses and Unaccounted For	Page 72
Energy Sales by rate class	MECO-WP-303, pgs. 1,8, 14, 23, 27, and 37
kWh/kWm by Rate Class	Schedule R/E & G Load factor: Class Load Study Average kWh / Average peak kW per customer. Remaining Schedules: Recorded Energy Sales / Recorded Demand Sales

Data Input Tab: MECCDATA (LANAI)	
Data Element	Support
Account 902 Weighting	Page 105
Account 903 Weighting	Page 105
By Schedule, by Phase: Number of Bills	MECO-WP-303, pgs. 1,8, 14, 23, 27, and 37
By Schedule, by Phase: Customers per Transformer	Pages 83, 84
By Schedule, by Phase: Average Peak kW per Customer	Class Load Study / Rate Runs. Voluminous
By Schedule, by Phase: Transformer kVa size	Pages 83, 84
By Schedule, by Phase: Typical Cost per Transformer	Pages 83, 84
By Schedule, by Phase: Typical Service Cost	Page 85
By Schedule, by Phase: Typical Meter Cost	Pages 87, 88
Customer Accounts Weighting Factor C6	Held same as Last Rate Case (97-0346)

Data Input Tab: RBDATA (LANAI)	
Data Element	Support
Gross Plant	Pages 64, 139
Depreciation Balance	Pages 65, 156
Depreciation Expense	Pages 66, 156
Materials and Supplies	Page 67; MECO-WP-2001, Page 22
Property Held for Future Use	Page 67
Customer Advances	Page 67; MECO-WP-2001, Page 22
Unamortized Net Regulatory Asset	Page 68; MECO-WP-2001, Page 22
Office Supplies	Not Used
2000 Final Dist. Inv. Adj. Basis	Not Used
Working Cash: Fuel Oil and Purchased Power	Page 73; MECO-WP-2001, Page 23
Working Cash: Labour O&M	Page 73; MECO-WP-2001, Page 23
Working Cash: Depreciation	Not Used
Working Cash: Income Taxes & Revenue Taxes	Page 73; MECO-WP-2001, Page 23
Working Cash: Rate of Return	Not Used
Working Cash: Deferred Income Taxes	Not Used
Working Cash: Operating Cash	Not Used
Customer Deposits	MECO-WP-2001, Page 22
Deferred Income Taxes	Page 69; MECO-WP-2001, Page 22
Unamortized ITC	Page 69; MECO-WP-2001, Page 22
Amortized ITC Expense	Page 69; MECO-WP-2001, Page 22
Contribution-in-aid-of-Construction (CIAC) Beg. Bal.	Page 70

Data Input Tab: LINEDATA (LANAI)	
Data Element	Support
All Data Elements	Held same as Last Rate Case (97-0346)

Data Input Tab: REVTXDATA (LANAI)	
Data Element	Support
Other Operating Revenue	Page 62
Increase in Other Revenue	Page 62
Revenue Increase	Page 63
Miscellaneous Revenue	MECO-WP-712, page 5
Other Tax Deductions	MECO-WP-2001, Page 26
PSC Tax	MECO-WP-2001, Page 25
PUC Fees	MECO-WP-2001, Page 25
Franchise Royalty Tax	MECO-WP-2001, Page 25
FICA Tax	MECO-WP-2001, Page 30
Income Tax	MECO-WP-2001, Page 26
Interest on Customer Deposits	MECO-WP-2001, Page 24
Change in Working Cash	MECO-WP-2001, Page 23
Uncollectibles Factor	MECO-WP-711, Page 1
Sales Tax Revenue Factor	MECO-WP-2001, Page 25
Other Revenue Tax Factor	MECO-WP-2001, Page 25
Franchise Royalty Tax Rate	MECO-WP-2001, Page 25
Income Tax Factor	MECO-WP-2001, Page 31
Operating Income Divisor	MECO-WP-2001, Page 32
Target Rate of Return	MECO-WP-2001, Page 1
Service Establishment Fee	MECO-WP-712, Page 5
Field Collection Charge	MECO-WP-712, Page 5
Late Payment Charge	MECO-WP-712, Page 5
Reconnection Charge	MECO-WP-712, Page 5
Returned Check Charge	MECO-WP-712, Page 5
Purchased Power Metering Charge	MECO-WP-712, Page 5
Schedule F Fixture Charge	MECO-WP-712, Page 5
Allocation Factors for Other Operating Revenue	Pages 60, 61

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007
MAUI DIVISION

				Test Year Number of Bills			
Rate	Service Class	Volt.	Phase	Pri	Sec	Total	% Cust.
R, E	RES1	Sec	1	-	616,776	616,776	100.00%
G		Pri	1	-	-	-	0.00%
G			3	-	-	-	0.00%
G		Subtotal		-	-	-	0.00%
G	GS1	Sec	1	-	55,404	55,404	62.55%
G	GS3		3	-	33,168	33,168	37.45%
G		Subtotal		-	88,572	88,572	100.00%
G		Total G	1	-	55,404	55,404	62.55%
G			3	-	33,168	33,168	37.45%
G		Total		-	88,572	88,572	100.00%
J	JP1	Pri	1	-	-	-	0.00%
J	JP3		3	74	-	74	0.44%
J		Subtotal		74	-	74	0.44%
J	JS1	Sec	1	-	1,590	1,590	9.52%
J	JS3		3	-	15,040	15,040	90.04%
J		Subtotal		-	16,630	16,630	99.56%
J		Total J	1	-	1,590	1,590	9.52%
J			3	74	15,040	15,114	90.48%
J		Total		74	16,630	16,704	100.00%
H	HS1	Sec	1	-	377	377	13.24%
H	HS3		3	-	1,325	1,325	46.54%
H		Subtotal		-	1,702	1,702	59.78%
K	KS1	Sec	1	-	61	61	2.14%
K	KS3		3	-	1,084	1,084	38.08%
K		Subtotal		-	1,145	1,145	40.22%
H/K		Sec	1	-	438	438	15.38%
H/K			3	-	2,409	2,409	84.62%
H/K		Total		-	2,847	2,847	100.00%
P		Trans-Pri	3	-	-	-	0.00%
P	PT3	Trans-Sec	3	-	-	-	0.00%
P		Subtotal		-	-	-	0.00%
P		Dist-Pri	3	-	-	-	0.00%
P	PP3	Dist-Sec	3	329	-	329	22.94%
P		Subtotal		329	-	329	22.94%
P	PS3	Secondary	3	-	1,105	1,105	77.06%
P		Total		329	1,105	1,434	100.00%
F	FS1	Sec	1	-	221	221	10.90%
F	FFL	Flat	1	-	1,807	1,807	89.10%
F		Total		-	2,028	2,028	100.00%
Total							

Source:
MECO Rate Runs - Voluminous

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007
MAUI DIVISION

				Factors for Primary Line Costs			
Rate	Service Class	Volt.	Phase	Weight	Test Year Number of Bills	Weighted No. of Bills	Factor C1
R, E	RES1	Sec	1	1	616,776	616,776	1.00
G		Pri	1	1	-	-	0.00
G			3	2	-	-	0.00
G		Subtotal			-	-	0.00
G	GS1	Sec	1	1	55,404	55,404	1.00
G	GS3		3	2	33,168	66,336	2.00
G		Subtotal			88,572	121,740	1.37
G		Total G	1	1	55,404	55,404	1.00
G			3	2	33,168	66,336	2.00
G		Total			88,572	121,740	1.37
J	JP1	Pri	1	1	-	-	0.00
J	JP3		3	2	74	148	2.00
J		Subtotal			74	148	2.00
J	JS1	Sec	1	1	1,590	1,590	1.00
J	JS3		3	2	15,040	30,080	2.00
J		Subtotal			16,630	31,670	1.90
J		Total J	1	1	1,590	1,590	1.00
J			3	2	15,114	30,228	2.00
J		Total			16,704	31,818	1.90
H	HS1	Sec	1	1	377	377	1.00
H	HS3		3	2	1,325	2,650	2.00
H		Subtotal			1,702	3,027	1.78
K	KS1	Sec	1	1	61	61	1.00
K	KS3		3	2	1,084	2,168	2.00
K		Subtotal			1,145	2,229	1.95
H/K		Sec	1	1	438	438	1.00
H/K			3	2	2,409	4,818	2.00
H/K		Total			2,847	5,256	1.85
P		Trans-Pri	3	2	-	-	0.00
P	PT3	Trans-Sec	3	2	-	-	0.00
P		Subtotal			-	-	0.00
P		Dist-Pri	3	2	-	-	0.00
P	PP3	Dist-Sec	3	2	329	658	2.00
P		Subtotal			329	658	2.00
P	PS3	Secondary	3	2	1,105	2,210	2.00
P		Total			1,434	2,868	2.00
F	FS1	Sec	1	1	221	221	1.00
F	FFL	Flat	1	1	1,807	1,807	1.00
F		Total			2,028	2,028	1.00

Total

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007
MAUI DIVISION

				Factors for Secondary Line Costs			
Rate	Service Class	Volt.	Phase	Weight	Test Year Number of Secondary Bills	Weighted No. of Bills	Factor C2
R, E	RES1	Sec	1	1	616,776	616,776	1.00
G		Pri	1	1	-	-	0.00
G			3	1.33	-	-	0.00
G		Subtotal			-	-	0.00
G	GS1	Sec	1	1	55,404	55,404	1.00
G	GS3		3	1.33	33,168	44,113	1.33
G		Subtotal			88,572	99,517	1.12
G		Total G	1	1	55,404	55,404	1.00
G			3	1.33	33,168	44,113	1.33
G		Total			88,572	99,517	1.12
J	JP1	Pri	1	1	-	-	0.00
J	JP3		3	1.33	-	-	0.00
J		Subtotal			-	-	0.00
J	JS1	Sec	1	1	1,590	1,590	1.00
J	JS3		3	1.33	15,040	20,003	1.33
J		Subtotal			16,630	21,593	1.30
J		Total J	1	1	1,590	1,590	1.00
J			3	1.33	15,040	20,003	1.33
J		Total			16,630	21,593	1.30
H	HS1	Sec	1	1	377	377	1.00
H	HS3		3	1.33	1,325	1,762	1.33
H		Subtotal			1,702	2,139	1.26
K	KS1	Sec	1	1	61	61	1.00
K	KS3		3	1.33	1,084	1,442	1.33
K		Subtotal			1,145	1,503	1.31
H/K		Sec	1	1	438	438	1.00
H/K			3	1.33	2,409	3,204	1.33
H/K		Total			2,847	3,642	1.28
P		Trans-Pri	3	1.33	-	-	0.00
P	PT3	Trans-Sec	3	1.33	-	-	0.00
P		Subtotal			-	-	0.00
P		Dist-Pri	3	1.33	-	-	0.00
P	PP3	Dist-Sec	3	1.33	-	-	0.00
P		Subtotal			-	-	0.00
P	PS3	Secondary	3	1.33	1,105	1,470	1.33
P		Total			1,105	1,470	1.33
F	FS1	Sec	1	1	221	221	1.00
F	FFL	Flat	1	1	1,807	1,807	1.00
F		Total			2,028	2,028	1.00
Total							

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007
MAUI DIVISION

				Factors for Secondary Line Costs					
Rate	Service Class	Volt.	Phase	Typical Cost/Transf ($)[1]	3-Phase to 1-Phase Cost Ratio	Typical Transformer Size (kVa)	Number of Cust per Transf.	Typical Transf Cost Per Cust ($)	Factor C3
R, E	RES1	Sec	1	2,670.79		15	1	2,670.79	1.00
G		Pri	1						
G			3						
G		Subtotal							
G	GS1	Sec	1	2,972.85		25	1	2,972.85	
G	GS3		3	6,690.07		45	1	6,690.07	
G		Subtotal						4,364.86 [2]	1.63
G		Total G	1	2,972.85			1	2,972.85	
G			3	6,690.07			1	6,690.07	
G		Total			2.25			4,364.86 [2]	1.63
J	JP1	Pri	1			0			
J	JP3		3			75			
J		Subtotal							
J	JS1	Sec	1	3,382.69		50	1	3,382.69	
J	JS3		3	7,596.27		75	1	7,596.27	
J		Subtotal			2.25			7,161.54 [2]	2.68
J		Total J	1						
J			3						
J		Total							
H	HS1	Sec	1	2,972.85		25	1	2,972.85	
H	HS3		3	6,690.07		45	1	6,690.07	
H		Subtotal						3,507.24 [2]	1.31
K	KS1	Sec	1	3,382.69		50	1	3,382.69	
K	KS3		3	7,596.27		75	1	7,596.27	
K		Subtotal						2,964.77 [2]	1.11
H/K		Sec	1	3,029.93					
H/K			3	7,097.84					
H/K		Total		[2]	2.34			6,472.01	2.42
P		Trans-Pri	3						
P	PT3	Trans-Sec	3						
P		Subtotal							
P		Dist-Pri	3						
P	PP3	Dist-Sec	3						
P		Subtotal							
P	PS3	Secondary	3	25,014.32		501	1	25,014.32	
P		Total						19,275.33 [2]	7.22
F	FS1	Sec	1	2,670.79		15	1	2,670.79	
F	FFL	Flat	1						
F		Total		2,670.79		15	1	2,670.79	1.00
Total									

[2] Weighted.

MAUI ELECTRIC COMPANY, LIMITED
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				Factors for Service Drop			
Rate	Service Class	Volt.	Phase	Typical Cost Per Service Drop ($)[1]	3-Phase to 1-Phase Cost Ratio	Avg. Peak kW per Customer	Factor C4
R, E	RES1	Sec	1	633.29		5.10	1.00
G		Pri	1				
G			3				
G		Subtotal					
G	GS1	Sec	1	633.29		4.90	
G	GS3		3	842.29		4.90	
G		Subtotal		711.56			1.12
G		Total G	1	633.29			
G			3	842.29			
G		Total		711.56	1.33	4.90	1.12
J	JP1	Pri	1	-			
J	JP3		3	3,676.82		211.00	
J		Subtotal		16.29			0.03
J	JS1	Sec	1	677.91		22.20	
J	JS3		3	842.29		55.80	
J		Subtotal		822.91	1.24		1.30
J		Total J	1				
J			3				
J		Total		839.20			1.33
H	HS1	Sec	1	633.29		7.10	
H	HS3		3	842.29		11.40	
H		Subtotal		475.86			0.75
K	KS1	Sec	1	633.29		27.70	
K	KS3		3	842.29		47.40	
K		Subtotal		334.27			0.53
H/K		Sec	1	633.29			
H/K			3	842.29			
H/K		Total		810.14	1.33		1.28
P		Trans-Pri	3				
P	PT3	Trans-Sec	3				
P		Subtotal					
P		Dist-Pri	3				
P	PP3	Dist-Sec	3				
P		Subtotal		3,676.82		1,185.00	
P	PS3	Secondary	3	3,765.82		381.40	
P		Total		3,745.40			5.91
F	FS1	Sec	1	633.29		4.90	1.00
F	FFL	Flat	1				
F		Total		633.29		8.50	1.00
Total							

[1] Weighted.

MAUI ELECTRIC COMPANY, LIMITED
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				Factors for Meter Cost		
Rate	Service Class	Volt.	Phase	Typical Cost Per Meter ($)[1]	3-Phase to 1-Phase Cost Ratio	Factor C5
R, E	RES1	Sec	1	505.83		1.00
G		Pri	1			
G			3			
G		Subtotal				
G	GS1	Sec	1	554.75		
G	GS3		3	674.52		
G		Subtotal		599.60		1.19
G		Total G	1	554.75		
G			3	674.52		
G		Total		599.60	1.22	1.19
J	JP1	Pri	1	-		
J	JP3		3	2,363.77		
J		Subtotal		10.47		0.02
J	JS1	Sec	1	598.61		
J	JS3		3	674.52		
J		Subtotal		664.31	1.13	1.31
J		Total J	1			
J			3			
J		Total		674.78		1.33
H	HS1	Sec	1	554.75		
H	HS3		3	674.52		
H		Subtotal		387.38		0.77
K	KS1	Sec	1	598.61		
K	KS3		3	674.52		
K		Subtotal		269.65		0.53
H/K		Sec	1	560.86		
H/K			3	674.52		
H/K		Total		657.03	1.20	1.30
P		Trans-Pri	3			
P	PT3	Trans-Sec	3			
P		Subtotal		6,373.68		
P		Dist-Pri	3			
P	PP3	Dist-Sec	3			
P		Subtotal		2,363.77		
P	PS3	Secondary	3	2,363.77		
P		Total		2,363.77		4.67
F	FS1	Sec	1	505.83		1.00
F	FFL	Flat	1	505.83		
F		Total		505.83		1.00
Total						

MAUI ELECTRIC COMPANY, LIMITED
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Rate	Service Class	Volt.	Phase	Factors for Customer Accounts Expense Factor C6	Factors for Bad Debt Expense Factor C7	Factors for Customer Service Cost Allocation Factor C8	Factors for Streetlight Cost Allocation Factor C9
R, E	RES1	Sec	1	1.00	65.66	21.41	0.00
G		Pri	1				
G			3				
G		Subtotal					
G	GS1	Sec	1				
G	GS3		3				
G		Subtotal					
G		Total G	1				
G			3				
G		Total		1.36	11.65	6.20	0.00
J	JP1	Pri	1				
J	JP3		3				
J		Subtotal					
J	JS1	Sec	1				
J	JS3		3				
J		Subtotal					
J		Total J	1				
J			3				
J		Total		2.64	16.36	24.33	0.00
H	HS1	Sec	1				
H	HS3		3				
H		Subtotal					
K	KS1	Sec	1				
K	KS3		3				
K		Subtotal					
H/K		Sec	1				
H/K			3				
H/K		Total		1.49	1.57	16.07	0.00
P		Trans-Pri	3				
P	PT3	Trans-Sec	3				
P		Subtotal					
P		Dist-Pri	3				
P	PP3	Dist-Sec	3				
P		Subtotal					
P	PS3	Secondary	3				
P		Total		3.30	4.70	31.94	0.00
F	FS1	Sec	1				
F	FFL	Flat	1				
F		Total		1.00	0.06	0.05	100.00
Total							

Held same as Docket No. 97-0346, MECO-R-1707

MAUI ELECTRIC COMPANY, LIMITED
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MAUI DIVISION

				Service Establishment Charge Factor		Field Collection Charge Factor		Late Payment Charge Factor		Reconnection Charge Factor	
Rate	Service Class	Volt.	Phase	$	%	$	%	$	%	$	%
R, E	RES1	Sec	1	1,307,490	0.93146	200,744	0.89153	821,099	0.55538	90,625	0.95540
G		Pri	1								
G			3								
G		Subtotal									
G	GS1	Sec	1								
G	GS3		3								
G		Subtotal									
G		Total G	1								
G			3								
G		Total		84,245	0.06002	20,415	0.09066	191,808	0.12974	3,795	0.04001
J	JP1	Pri	1								
J	JP3		3								
J		Subtotal									
J	JS1	Sec	1								
J	JS3		3								
J		Subtotal									
J		Total J	1								
J			3								
J		Total		10,075	0.00718	3,531	0.01568	359,510	0.24317	405	0.00427
H	HS1	Sec	1								
H	HS3		3								
H		Subtotal									
K	KS1	Sec	1								
K	KS3		3								
K		Subtotal									
H/K		Sec	1								
H/K			3								
H/K		Total		1,745	0.00124	480	0.00213	31,490	0.02130	30	0.00032
P		Trans-Pri	3								
P	PT3	Trans-Sec	3								
P		Subtotal									
P		Dist-Pri	3								
P	PP3	Dist-Sec	3								
P		Subtotal									
P	PS3	Secondary	3								
P		Total		0	0.00000	0	0.00000	70709	0.04783	0	0.00000
F	FS1	Sec	1								
F	FFL	Flat	1								
F		Total		135	0.00010	0	0.00000	3824	0.00258	0	0.00000
Total				1,403,690	1.00000	225,170	1.00000	1,478,440	1.00000	94,855	1.00000

MAUI ELECTRIC COMPANY, LIMITED
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				Returned Check Charge Factor		Purchased Power Meter Charge Factor		Schedule F Fixture Charge Factor	
Rate	Service Class	Volt.	Phase	$	%	$	%	$	%
R, E	RES1	Sec	1	68,443	0.91743	0	0.00000	0	0.00000
G		Pri	1						
G			3						
G		Subtotal							
G	GS1	Sec	1						
G	GS3		3						
G		Subtotal							
G		Total G	1						
G			3						
G		Total		4,500	0.06032	0	0.00000	0	0.00000
J	JP1	Pri	1						
J	JP3		3						
J		Subtotal							
J	JS1	Sec	1						
J	JS3		3						
J		Subtotal							
J		Total J	1						
J			3						
J		Total		1,491	0.01997	0	0.00000	0	0.00000
H	HS1	Sec	1						
H	HS3		3						
H		Subtotal							
K	KS1	Sec	1						
K	KS3		3						
K		Subtotal							
H/K		Sec	1						
H/K			3						
H/K		Total		170	0.00228	0	0.00000	0	0.00000
P		Trans-Pri	3						
P	PT3	Trans-Sec	3						
P		Subtotal							
P		Dist-Pri	3						
P	PP3	Dist-Sec	3						
P		Subtotal							
P	PS3	Secondary	3						
P		Total		0	0.00000	0	0.00000	0	0.00000
F	FS1	Sec	1						
F	FFL	Flat	1						
F		Total		0	0.00000	0	0.00000	1	1.00000
Total				74,603	1.00000	0	0.00000	1	1.00000

MAUI ELECTRIC COMPANY, LIMITED
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				Other Operating Revenue	
				At Present Rates	Increase
Rate	Service Class	Volt.	Phase	$	$
R, E	RES1	Sec	1	384.8	186.3
G		Pri	1		
G			3		
G		Subtotal			
G	GS1	Sec	1		
G	GS3		3		
G		Subtotal			
G		Total G	1		
G			3		
G		Total		50.6	12.0
J	JP1	Pri	1		
J	JP3		3		
J		Subtotal			
J	JS1	Sec	1		
J	JS3		3		
J		Subtotal			
J		Total J	1		
J			3		
J		Total		67.1	1.4
H	HS1	Sec	1		
H	HS3		3		
H		Subtotal			
K	KS1	Sec	1		
K	KS3		3		
K		Subtotal			
H/K		Sec	1		
H/K			3		
H/K		Total		6.0	0.2
P		Trans-Pri	3		
P	PT3	Trans-Sec	3		
P		Subtotal			
P		Dist-Pri	3		
P	PP3	Dist-Sec	3		
P		Subtotal			
P	PS3	Secondary	3		
P		Total		12.8	0 0
F	FS1	Sec	1		
F	FFL	Flat	1		
F		Total		780.7	0 0
Total				1,302.0	200.0

Note: At presents rates is sum product of fees amnd charges times the respective charge factor by rates schedule
Source: MECO-WP-712, Pages 3,4

Service Establishment Fee	202.50	342.50
Field Collection Charge	28.50	47.50
Late Payment Charge	267.10	257.51
Reconnection Charge	12.00	20.60
Returned Check Charge	12.00	30 00
Purchased Power Metering Charge	0.00	0.00
Schedule F Fixture Charge	780.00	780 00

MAUI ELECTRIC COMPANY, LIMITED
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MAUI DIVISION

				Sales Revenue (EROR)						
				Present Sales Revenue	% Increase	Revenue Increase	Energy Sales Forecasted	Energy Sales Recorded (1 & 3 Phase)	Demand Sales Recorded (1 & 3 Phase)	Load Factor Forecasted
Rate	Service Class	Volt.	Phase	$	%	$	MWh	kWh	kWm	
R, E	RES1	Sec	1	121,916.2	5.2713%	6,426.6	430,167.0	0.0	0.0	138.63
G		Pri	1							
G			3							
G		Subtotal								
G	GS1	Sec	1							
G	GS3		3							
G		Subtotal								
G		Total G	1							
G			3							
G		Total		29,812.9	5.2713%	1,571.5	96,192.9	0.0	0.0	227.55
J	JP1	Pri	1					86,454.0	23,940.0	
J	JP3		3							
J		Subtotal					2,998.0	2,926,992.0	14,135.4	207.07
J	JS1	Sec	1							
J	JS3		3							
J		Subtotal					265,194.9	258,793,441.0	807,100.5	320.65
J		Total J	1							
J			3					0.0		
J		Total		75,029.6	5.2713%	3,955.0		261,806,887.0	845,175.9	
H	HS1	Sec	1							
H	HS3		3							
H		Subtotal						5,351,577.0	17,768.7	
K	KS1	Sec	1							
K	KS3		3							
K		Subtotal						16,826,144.0	53,049.2	
H/K		Sec	1							
H/K			3							
H/K		Total		5,909.6	5.2713%	311.5	21,075.0	22,177,721.0	70,817.9	313.17
P		Trans-Pri	3				0.0	0.0	0.0	0.0
P	PT3	Trans-Sec	3				2,771.0	2,719,491.0	9,096.0	298.98
P		Subtotal								
P		Dist-Pri	3				138,029.0	135,538,284.0	274,912.4	493.02
P	PP3	Dist-Sec	3				43,927.0	43,133,554.0	79,014.6	545.89
P		Subtotal								
P	PS3	Secondary	3				207,234.0	203,494,051.0	419,190.6	485.45
P		Total		98,985.7	5.2713%	5,217.8		384,885,380.0	782,213.6	
F	FS1	Sec	1				0.0	404,978.0	1,014.5	399.19
F	FFL	Flat	1				0.0	4,807,571.0	14,300.2	
F		Total		1,421.2	5.2713%	74.9	5,340.0	5,212,549.0	15,314.7	340.36
Total				333,075.2	5.2713%	17,557.3	1,212,928.8			

Schedule R/E & G Load factor: Class Load Study Average kWh / Average peak kW per customer
Remaining Schedules: Recorded Energy Sales / Recorded Demand Sales

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Gross Plant in Service Balance Estimate							
	12/31/2006 ($000s)	12/31/2007 ($000s)	Mean ($000s)	Gross Plant (%)	Excl Gen. Plt. (%)	Trans. & Dist & Gen. Plt. (%)	Net Unamort Rgltry Asset %	Dist & Gen. Plt. (%)
Production	316,912.0	320,483.0	318,697.5	44.15%	47.08%	0.00%	50.36%	0.00%
Transmission	94,606.0	98,825.0	96,715.5	13.40%	14.29%	23.99%	13.40%	0.00%
Distribution:								
Substation	51,710.0	54,840.0	53,275.0	7.38%	7.87%	13.22%	7.38%	17.39%
Lines	101,331.0	109,672.0	105,501.5	14.62%	15.58%	26.17%	14.62%	34.43%
Transformers	31,546.0	33,390.0	32,468.0	4.50%	4.80%	8.05%	4.50%	10.60%
Services	47,777.0	55,575.0	51,676.0	7.16%	7.63%	12.82%	7.16%	16.87%
Meters	7,450.0	7,988.0	7,719.0	1.07%	1.14%	1.91%	1.07%	2.52%
Street Lighting	10,625.0	11,241.0	10,933.0	1.51%	1.61%	2.71%	1.51%	3.57%
Subtotal	250,439.0	272,706.0	261,572.5	36.24%	38.63%	64.89%	36.24%	85.37%
General Plt	43,876.0	45,786.0	44,831.0	6.21%		11.12%		14.63%
Total	705,833.0	737,800.0	721,816.5	100.00%	100.00%	100.00%	100.00%	100.00%

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Depreciation Reserve Balance Estimate		
	12/31/2006 ($000s)	12/31/2007 ($000s)	Mean ($000s)
Production	141,026.0	152,768.0	146,897.0
Transmission	34,556.0	37,402.0	35,979.0
Distribution:			
Substation	31,042.0	33,229.0	32,135.5
Lines	46,781.0	50,831.0	48,806.0
Transformers	10,989.0	11,803.0	11,396.0
Services	16,220.0	18,650.0	17,435.0
Meters	2,839.0	3,030.0	2,934.5
Street Lighting	5,627.0	6,061.0	5,844.0
Subtotal	113,498.0	123,604.0	118,551.0
General Plt	21,115.0	23,393.0	22,254.0
Total	310,195.0	337,167.0	323,681.0

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Depreciation Expense (Excl. Vehicle Depr.)				
	Depreciation Expense ($000s)	Net Regulatory Asset/Liab Amort. ($000s)	Federal ITC Amort. ($000s)	CIAC Amort. ($000s)	Total Depreciation Expense ($000s)
Production	11,808.0	191.8	(93.6)	-	11,906.2
Transmission	3,175.0	58.2	(28.4)	(625.0)	2,579.8
Distribution:					
Substation	2,419.0	32.1	(15.6)	(347.0)	2,088.4
Lines	4,509.0	63.5	(31.0)	(635.0)	3,906.5
Transformers	1,332.0	19.5	(9.5)	(208.0)	1,134.0
Services	2,572.0	31.1	(15.2)	(241.0)	2,346.9
Meters	227.0	4.6	(2.3)	(47.0)	182.4
Street Lighting	448.0	6.6	(3.2)	(75.0)	376.4
Subtotal	11,507.0	157.4	(76.8)	(1,553.0)	10,034.6
General Plt	2,063.0	27.0	(13.2)	-	2,076.8
Total	28,553.0	434.4	(212.0)	(2,178.0)	26,597.4

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Materials And Supply			Property Held for Future Use	Customer Advances
	Demand ($000s)	Energy ($000s)	Total ($000s)	($000s)	($000s)
Production	8,325.7	14,629.0	22,954.7	2,633.0	-
Transmission	704.7		704.7	-	-
Distribution:					
Substation	388.2		388.2	-	-
Lines	768.7		768.7	-	3,963.3
Transformers	236.6		236.6	-	-
Services	376.5		376.5	-	294.2
Meters	56.2		56.2	-	-
Street Lighting	79.7		79.7	-	13.0
Subtotal	1,905.9		1,905.9	-	4,270.5
General Plt	326.7		326.7	-	-
Total	11,263.0	14,629.0	25,892.0	2,633.0	4,270.5

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Unamortized Net Regulatory Asset				Office Supplies	2000 Final Dist. Inv. Adj Basis
	Net Regulatory Asset ($000s)	Net Pension Regulatory Asset ($000s)	Unamortised System Development Costs ($000s)	Total Depreciation Expense ($000s)	($000s)	($000s)
Production	3,677.4	1,557.7	109.3	5,344.4	-	-
Transmission	1,205.8	414.4	29.1	1,649.3	-	-
Distribution:						
Substation	652.1	228.3	16.0	896.4	-	-
Lines	1,258.6	452.1	31.7	1,742.4	-	-
Transformers	401.1	139.1	9.8	550.0	-	-
Services	547.9	221.4	15.5	784.9	-	-
Meters	93.5	33.1	2.3	128.9	-	-
Street Lighting	135.0	46.8	3.3	185.1	-	-
Subtotal	3,088.2	1,120.8	78.6	4,287.7	-	-
General Plt	-	-	-	-	-	-
Total	7,971.4	3,093.0	217.0	11,281.4	-	-

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Deferred Income Taxes			Unamortized ITC Expense		Amortised ITC Expense	
	Original Distribution ($000s)	%	Total ($000s)	Gross Plant %	($000s)	Gross Plant %	($000s)
Production	8,115.1	40.63%	7,648.2	44.15%	4,538.2	44.15%	209.7
Transmission	3,021.0	15.13%	2,847.2	13.40%	1,377.4	13.40%	63.7
Distribution:							
Substation	1,633.9	8.18%	1,539.9	7.38%	758.6	7.38%	35.1
Lines	3,153.3	15.79%	2,971.9	14.62%	1,502.8	14.62%	69.4
Transformers	1,005.0	5.03%	947.2	4.50%	462.6	4.50%	21.4
Services	1,372.8	6.87%	1,293.8	7.16%	736.0	7.16%	34.0
Meters	234.1	1.17%	220.6	1.07%	110.0	1.07%	5.1
Street Lighting	338.3	1.69%	318.8	1.51%	155.2	1.51%	7.2
Subtotal	7,737.4	38.74%	7,292.3	36.24%	3,725.1	36.24%	172.1
General Plt	1,098.5	5.50%	1,035.3	6.21%	638.3	6.21%	29.5
Total	19,972.0	100.00%	18,823.0	100.00%	10,279.0	100.00%	475.0

MAUI ELECTRIC COMPANY, LIMITED
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MAUI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	CIAC Beg Balance	
	($000s)	%
Production	-	0.00%
Transmission	14,387.8	28.73%
Distribution:		
Substation	7,991.6	15.96%
Lines	14,589.6	29.13%
Transformers	4,771.0	9.53%
Services	5,533.8	11.05%
Meters	1,083.0	2.16%
Street Lighting	1,725.5	3.45%
Subtotal	35,694.5	71.27%
General Plt	-	0.00%
Total	50,082.3	100.00%

MAUI ELECTRIC COMPANY, LIMITED
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	Dist & Gen. Plt. %	MAUI DIVISION O&M LABOR	O&M NON-LABOR	TOTAL	Source
Prod Demand		8,204.0	10,538.0	18,742.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Prod Energy		12.0	201,006.0	201,018.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Transmission		839.7	1,404.3	2,244.0	OM2007.xls, MECO-WP-2001, Page 17 of 44, Original dist. 882 (Labour), 1475 (Non-Labour)
Substations	17.39%	478.1	503.0	981.2	
Lines Data	34.43%	946.9	996.1	1,943.0	
Transf Data	10.60%	291.4	306.6	598.0	
Services	16.87%	463.8	487.9	951.7	
Meters	2.52%	69.3	72.9	142.2	
Street Lighting	3.57%	98.1	103.2	201.4	
Misc Distribution	14.63%	402.4	423.3	825.6	
Distribution O&M		2,750.0	2,893.0	5,643.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Customer Accounts		1,881.0	897.0	2,778.0	MECO-WP-2001, Page 17 of 44, MECO 703, page 1 of 2. Accounts #901, #902, #903
Uncollectibles		-	199.8	199.8	MECO-WP-2001, Page 17 of 44, MECO 703, page 1 of 2. Accounts #904
Customer Service		537.0	1,001.0	1,538.0	MECO-WP-2001, Page 17 of 44, MECO-803, Accounts #909, #910, #911
Admin and General		2,227.3	10,323.1	12,550.4	OM2007.xls, MECO-WP-2001, Page 17 of 44
Wage Rollback		-	-	-	
Total		16,451.0	228,262.2	244,713.2	

MAUI ELECTRIC COMPANY, LIMITED
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ENERGY LOSS ANALYSIS	MAUI DIVISION	Source
Generator step-up loss as % of net generation	0.0039	MECO-WP-403
Transmission Line Loss as % of net generation	0.0182	MECO-WP-403
46kv to Primary Voltage Transformation Losses as a % of net generation	0.0053	MECO-WP-403
Primary Line Loss as % of net generation	0.0252	MECO-WP-403
Primary to Secondary Transformation Loss as a % of net generation	0.0055	MECO-WP-403
Secondary Line Loss as a % of net generation	0.0050	MECO-WP-403
Net generation	1,291,513.0	WP404, page1
Station Use	21,686.0	WP403, page 3: (Line A - Line B) - Purchased Power
Purchased Power	214,214.0	WP404, page 1
Company Use (no charge use by Company facilities)	1,662.0	WP403, page 1
Losses and unaccounted for	76,840.0	WP403, page 1

MAUI ELECTRIC COMPANY, LIMITED
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Working Cash at Present Rates	MAUI DIVISION	Source
For Fuel Oil and Purchased Power	8,659.0	MECO-WP-2001, Page 11 of 44, Column F
For Labor O & M	1,082.0	MECO-WP-2001, Page 11 of 44, Column F
For Non-Labor O & M	316.0	MECO-WP-2001, Page 11 of 44, Column F
For Depreciation	-	MECO-WP-2001, Page 11 of 44, Column F
For Income Taxes & Revenue Taxes	(2,714.0)	MECO-WP-2001, Page 11 of 44, Column F
For Rate of Return	-	MECO-WP-2001, Page 11 of 44, Column F
For Deferred Income Taxes	-	MECO-WP-2001, Page 11 of 44, Column F
For Operating Cash	-	MECO-WP-2001, Page 11 of 44, Column F
Total, Working Cash at Present	7,343.0	MECO-WP-2001, Page 11 of 44, Column F
Customer Depoisits	3601	MECO-WP-2001, Page 10 of 44

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION

				Test Year Number of Bills			
Rate	Service Class	Volt.	Phase	Pri	Sec	Total	% Cust.
R, E	RES1	Sec	1	-	30,552	30,552	100.00%
G		Pri	1	-	-	-	0.00%
G			3	-	-	-	0.00%
G		Subtotal		-	-	-	0.00%
G	GS1	Sec	1	-	4,181	4,181	75.58%
G	GS3		3	-	1,351	1,351	24.42%
G		Subtotal		-	5,532	5,532	100.00%
G		Total G	1	-	4,181	4,181	75.58%
G			3	-	1,351	1,351	24.42%
G		Total		-	5,532	5,532	100.00%
J	JP1	Pri	1	-	-	-	0.00%
J	JP3		3	-	-	-	0.00%
J		Subtotal		-	-	-	0.00%
J	JS1	Sec	1	-	255	255	26.90%
J	JS3		3	-	693	693	73.10%
J		Subtotal		-	948	948	100.00%
J		Total J	1	-	255	255	26.90%
J			3	-	693	693	73.10%
J		Total		-	948	948	100.00%
H	HS1	Sec	1	-	97	97	25.26%
H	HS3		3	-	287	287	74.74%
H		Subtotal		-	384	384	100.00%
K	KS1	Sec	1	-	-	-	0.00%
K	KS3		3	-	-	-	0.00%
K		Subtotal		-	-	-	0.00%
H/K		Sec	1	-	97	97	25.26%
H/K			3	-	287	287	74.74%
H/K		Total		-	384	384	100.00%
P		Trans-Pri	3	-	-	-	0.00%
P	PT3	Trans-Sec	3	-	-	-	0.00%
P		Subtotal		-	-	-	0.00%
P		Dist-Pri	3	-	-	-	0.00%
P	PP3	Dist-Sec	3	12	-	12	7.14%
P		Subtotal		12	-	12	7.14%
P	PS3	Secondary	3	-	156	156	92.86%
P		Total		12	156	168	100.00%
F	FS1	Sec	1	-	-	-	0.00%
F	FFL	Flat	1	-	108	108	100.00%
F		Total		-	108	108	100.00%
Total							

Source:
MECO Rate Runs - Voluminous

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007
MOLOKAI DIVISION

Factors for Primary Line Costs

Rate	Service Class	Volt.	Phase	Weight	Test Year Number of Bills	Weighted No. of Bills	Factor C1
R, E	RES1	Sec	1	1	30,552	30,552	1.00
G		Pri	1	1	-	-	0.00
G			3	2	-	-	0.00
G		Subtotal			-	-	0.00
G	GS1	Sec	1	1	4,181	4,181	1.00
G	GS3		3	2	1,351	2,702	2.00
G		Subtotal			5,532	6,883	1.24
G		Total G	1	1	4,181	4,181	1.00
G			3	2	1,351	2,702	2.00
G		Total			5,532	6,883	1.24
J	JP1	Pri	1	1	-	-	0.00
J	JP3		3	2	-	-	#DIV/0!
J		Subtotal			-	-	#DIV/0!
J	JS1	Sec	1	1	255	255	1.00
J	JS3		3	2	693	1,386	2.00
J		Subtotal			948	1,641	1.73
J		Total J	1	1	255	255	1.00
J			3	2	693	1,386	2.00
J		Total			948	1,641	1.73
H	HS1	Sec	1	1	97	97	1.00
H	HS3		3	2	287	574	2.00
H		Subtotal			384	671	1.75
K	KS1	Sec	1	1	-	-	#DIV/0!
K	KS3		3	2	-	-	#DIV/0!
K		Subtotal			-	-	#DIV/0!
H/K		Sec	1	1	97	97	1.00
H/K			3	2	287	574	2.00
H/K		Total			384	671	1.75
P		Trans-Pri	3	2	-	-	0.00
P	PT3	Trans-Sec	3	2	-	-	0.00
P		Subtotal			-	-	0.00
P		Dist-Pri	3	2	-	-	0.00
P	PP3	Dist-Sec	3	2	12	24	2.00
P		Subtotal			12	24	2.00
P	PS3	Secondary	3	2	156	312	2.00
P		Total			168	336	2.00
F	FS1	Sec	1	1	-	-	#DIV/0!
F	FFL	Flat	1	1	108	108	1.00
F		Total			108	108	1.00

Total

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION

				Factors for Secondary Line Costs			
Rate	Service Class	Volt	Phase	Weight	Test Year Number of Secondary Bills	Weighted No. of Bills	Factor C2
R, E	RES1	Sec	1	1	30,552	30,552	1.00
G		Pri	1	1	-	-	0.00
G			3	1.33	-	-	0.00
G		Subtotal			-	-	0.00
G	GS1	Sec	1	1	4,181	4,181	1.00
G	GS3		3	1.33	1,351	1,797	1.33
G		Subtotal			5,532	5,978	1.08
G		Total G	1	1	4,181	4,181	1.00
G			3	1.33	1,351	1,797	1.33
G		Total			5,532	5,978	1.08
J	JP1	Pri	1	1	-	-	0.00
J	JP3		3	1.33	-	-	0.00
J		Subtotal			-	-	0.00
J	JS1	Sec	1	1	255	255	1.00
J	JS3		3	1.33	693	922	1.33
J		Subtotal			948	1,177	1.24
J		Total J	1	1	255	255	1.00
J			3	1.33	693	922	1.33
J		Total			948	1,177	1.24
H	HS1	Sec	1	1	97	97	1.00
H	HS3		3	1.33	287	382	1.33
H		Subtotal			384	479	1.25
K	KS1	Sec	1	1	-	-	#DIV/0!
K	KS3		3	1.33	-	-	#DIV/0!
K		Subtotal			-	-	#DIV/0!
H/K		Sec	1	1	97	97	1.00
H/K			3	1.33	287	382	1.33
H/K		Total			384	479	1.25
P		Trans-Pri	3	1.33	-	-	0.00
P	PT3	Trans-Sec	3	1.33	-	-	0.00
P		Subtotal			-	-	0.00
P		Dist-Pri	3	1.33	-	-	0.00
P	PP3	Dist-Sec	3	1.33	-	-	0.00
P		Subtotal			-	-	0.00
P	PS3	Secondary	3	1.33	156	207	1.33
P		Total			156	207	1.33
F	FS1	Sec	1	1	-	-	#DIV/0!
F	FFL	Flat	1	1	108	108	1.00
F		Total			108	108	1.00
Total							

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION

				Factors for Secondary Line Costs					
Rate	Service Class	Volt.	Phase	Typical Cost/Transf ($)	3-Phase to 1-Phase Cost Ratio	Typical Transformer Size (kVa)	Number of Cust per Transf.	Typical Transf Cost Per Cust ($)	Factor C3
R, E	RES1	Sec	1	2,658.75		15	1	2,658.75	1.00
G		Pri	1						
G			3						
G		Subtotal							
G	GS1	Sec	1	2,960.81		25	1	2,960.81	
G	GS3		3	6,668.83		45	1	6,668.83	
G		Subtotal						3,866.37 [2]	1.45
G		Total G	1	2,960.81			1	2,960.81	
G			3	6,668.83			1	6,668.83	
G		Total			2.25			3,866.37 [2]	1.45
J	JP1	Pri	1			0			
J	JP3		3			75			
J		Subtotal							
J	JS1	Sec	1	3,370.65		50	1	3,370.65	
J	JS3		3	7,575.03		75	1	7,575.03	
J		Subtotal			2.25			6,444.11 [2]	2.42
J		Total J	1						
J			3						
J		Total							
H	HS1	Sec	1	2,960.81		25	1	2,960.81	
H	HS3		3	6,668.83		45	1	6,668.83	
H		Subtotal						5,732.17 [2]	2.16
K	KS1	Sec	1	3,370.65		50	1	3,370 65	
K	KS3		3	7,575.03		75	1	7,575.03	
K		Subtotal						- [2]	0 00
H/K		Sec	1	2,960.81					
H/K			3	6,668.83					
H/K		Total		[2]	2.25			5,732.17	2.16
P		Trans-Pri	3						
P	PT3	Trans-Sec	3						
P		Subtotal							
P		Dist-Pri	3						
P	PP3	Dist-Sec	3						
P		Subtotal							
P	PS3	Secondary	3	24,922.68		501	1	24,922 68	
P		Total						23,142.49 [2]	8.70
F	FS1	Sec	1	2,658.75		15	1	2,658.75	
F	FFL	Flat	1						
F		Total		2,658.75		15	1	2,658.75	1.00
Total									

MAUI ELECTRIC COMPANY, LIMITED
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				Factors for Service Drop			
Rate	Service Class	Volt.	Phase	Typical Cost Per Service Drop ($)	3-Phase to 1-Phase Cost Ratio	Avg. Peak kW per Customer	Factor C4
R, E	RES1	Sec	1	629.61		3.10	1.00
G		Pri	1				
G			3				
G		Subtotal					
G	GS1	Sec	1	629.61		4.00	
G	GS3		3	835.77		4.00	
G		Subtotal		679.96			1.08
G		Total G	1	629.61			
G			3	835.77			
G		Total		679.96	1.33	4.00	1.08
J	JP1	Pri	1	-			
J	JP3		3	3,650.90		-	
J		Subtotal		-			0.00
J	JS1	Sec	1	674.23		17.90	
J	JS3		3	835.77		29.80	
J		Subtotal		792.32	1.24		1.26
J		Total J	1				
J			3				
J		Total		792.32			1.26
H	HS1	Sec	1	629.61		12.70	
H	HS3		3	835.77		17.20	
H		Subtotal		783.69			1.24
K	KS1	Sec	1	629.61		-	
K	KS3		3	835.77		-	
K		Subtotal		-			0.00
H/K		Sec	1	629.61			
H/K			3	835.77			
H/K		Total		783.69	1.33		1.24
P		Trans-Pri	3				
P	PT3	Trans-Sec	3				
P		Subtotal					
P		Dist-Pri	3				
P	PP3	Dist-Sec	3				
P		Subtotal		3,650.90		283.50	
P	PS3	Secondary	3	3,739.90		149.00	
P		Total		3,733.54			5.93
F	FS1	Sec	1	629.61		-	1.00
F	FFL	Flat	1				
F		Total		629.61		13.00	1.00
Total							

[3] Weighted.

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION

				Factors for Meter Cost		
Rate	Service Class	Volt.	Phase	Typical Cost Per Meter ($)[1]	3-Phase to 1-Phase Cost Ratio	Factor C5
R, E	RES1	Sec	1	499.28		1.00
G		Pri	1			
G			3			
G		Subtotal				
G	GS1	Sec	1	548.20		
G	GS3		3	667.97		
G		Subtotal		577.45		1.16
G		Total G	1	548.20		
G			3	667.97		
G		Total		577.45	1.22	1.16
J	JP1	Pri	1	-		
J	JP3		3	3,609.69		
J		Subtotal		-		0.00
J	JS1	Sec	1	592.06		
J	JS3		3	667.97		
J		Subtotal		647.55	1.13	1.30
J		Total J	1			
J			3			
J		Total		647.55		1.30
H	HS1	Sec	1	548.20		
H	HS3		3	667.97		
H		Subtotal		637.72		1.28
K	KS1	Sec	1	592.06		
K	KS3		3	667.97		
K		Subtotal		-		0.00
H/K		Sec	1	548.20		
H/K			3	667.97		
H/K		Total		637.72	1.22	1.28
P		Trans-Pri	3			
P	PT3	Trans-Sec	3			
P		Subtotal		8,219.74		
P		Dist-Pri	3			
P	PP3	Dist-Sec	3			
P		Subtotal		3,609.69		
P	PS3	Secondary	3	3,609.69		
P		Total		3,609.69		7.23
F	FS1	Sec	1	499.28		1.00
F	FFL	Flat	1	499.28		
F		Total		499.28		1.00
Total						

MAUI ELECTRIC COMPANY, LIMITED
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Rate	Service Class	Volt.	Phase	Factors for Customer Accounts Expense Factor C6	Factors for Bad Debt Expense Factor C7	Factors for Customer Service Cost Allocation Factor C8	Factors for Streetlight Cost Allocation Factor C9
R, E	RES1	Sec	1	1.00	70.27	5.00	0.00
G		Pri	1				
G			3				
G		Subtotal					
G	GS1	Sec	1				
G	GS3		3				
G		Subtotal					
G		Total G	1				
G			3				
G		Total		1.64	13.35	5.00	0.00
J	JP1	Pri	1				
J	JP3		3				
J		Subtotal					
J	JS1	Sec	1				
J	JS3		3				
J		Subtotal					
J		Total J	1				
J			3				
J		Total		2.72	11.13	30.00	0.00
H	HS1	Sec	1				
H	HS3		3				
H		Subtotal					
K	KS1	Sec	1				
K	KS3		3				
K		Subtotal					
H/K		Sec	1				
H/K			3				
H/K		Total		1.64	2.54	20.00	0.00
P		Trans-Pri	3				
P	PT3	Trans-Sec	3				
P		Subtotal					
P		Dist-Pri	3				
P	PP3	Dist-Sec	3				
P		Subtotal					
P	PS3	Secondary	3				
P		Total		2.81	2.69	40.00	0.00
F	FS1	Sec	1				
F	FFL	Flat	1				
F		Total		1.00	0.02	0.00	100.00
Total							

Held same as Docket No. 97-0346, MECO-R-1707

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION

				Service Establishment Charge Factor		Field Collection Charge Factor		Late Payment Charge Factor		Reconnection Charge Factor	
Rate	Service Class	Volt.	Phase	$	%	$	%	$	%	$	%
R, E	RES1	Sec	1	45,235	0.89522	46,775	0.93066	56,273	0.52105	195	1.00000
G		Pri	1								
G			3								
G		Subtotal									
G	GS1	Sec	1								
G	GS3		3								
G		Subtotal									
G		Total G	1								
G			3								
G		Total		4,510	0.08925	3,065	0.06098	14,120	0.13074	0	0.00000
J	JP1	Pri	1								
J	JP3		3								
J		Subtotal									
J	JS1	Sec	1								
J	JS3		3								
J		Subtotal									
J		Total J	1								
J			3								
J		Total		280	0.00554	210	0.00418	15,192	0.14067	0	0.00000
H	HS1	Sec	1								
H	HS3		3								
H		Subtotal									
K	KS1	Sec	1								
K	KS3		3								
K		Subtotal									
H/K		Sec	1								
H/K			3								
H/K		Total		280	0.00554	210	0.00418	5,059	0.04684	0	0.00000
P		Trans-Pri	3								
P	PT3	Trans-Sec	3								
P		Subtotal									
P		Dist-Pri	3								
P	PP3	Dist-Sec	3								
P		Subtotal									
P	PS3	Secondary	3								
P		Total		225	0.00445	0	0.00000	16953	0.15697	0	0.00000
F	FS1	Sec	1								
F	FFL	Flat	1								
F		Total		0	0.00000	0	0.00000	402	0.00373	0	0.00000
Total				50,530	1.00000	50,260	1.00000	107,999	1.00000	195	1.00000

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION

				Returned Check Charge Factor		Purchased Power Meter Charge Factor		Schedule F Fixture Charge Factor	
Rate	Service Class	Volt.	Phase	$	%	$	%	$	%
R, E	RES1	Sec	1	3,190	0.85067	0	0.00000	0	0.00000
G		Pri	1						
G			3						
G		Subtotal							
G	GS1	Sec	1						
G	GS3		3						
G		Subtotal							
G		Total G	1						
G			3						
G		Total		410	0.10933	0	0.00000	0	0.00000
J	JP1	Pri	1						
J	JP3		3						
J		Subtotal							
J	JS1	Sec	1						
J	JS3		3						
J		Subtotal							
J		Total J	1						
J			3						
J		Total		90	0.02400	0	0.00000	0	0.00000
H	HS1	Sec	1						
H	HS3		3						
H		Subtotal							
K	KS1	Sec	1						
K	KS3		3						
K		Subtotal							
H/K		Sec	1						
H/K			3						
H/K		Total		60	0.01600	0	0.00000	0	0.00000
P		Trans-Pri	3						
P	PT3	Trans-Sec	3						
P		Subtotal							
P		Dist-Pri	3						
P	PP3	Dist-Sec	3						
P		Subtotal							
P	PS3	Secondary	3						
P		Total		0	0.00000	0	0.00000	0	0.00000
F	FS1	Sec	1						
F	FFL	Flat	1						
F		Total		0	0.00000	0	0.00000	1	1.00000
Total				3,750	1.00000	0	0.00000	1	1.00000

MAUI ELECTRIC COMPANY, LIMITED
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				Other Operating Revenue	
				At Present Rates	Increase
Rate	Service Class	Volt.	Phase	$	$
R, E	RES1	Sec	1	25.5	13.4
G		Pri	1		
G			3		
G		Subtotal			
G	GS1	Sec	1		
G	GS3		3		
G		Subtotal			
G		Total G	1		
G			3		
G		Total		3.8	1.3
J	JP1	Pri	1		
J	JP3		3		
J		Subtotal			
J	JS1	Sec	1		
J	JS3		3		
J		Subtotal			
J		Total J	1		
J			3		
J		Total		2.8	0.1
H	HS1	Sec	1		
H	HS3		3		
H		Subtotal			
K	KS1	Sec	1		
K	KS3		3		
K		Subtotal			
H/K		Sec	1		
H/K			3		
H/K		Total		1.0	0.1
P		Trans-Pri	3		
P	PT3	Trans-Sec	3		
P		Subtotal			
P		Dist-Pri	3		
P	PP3	Dist-Sec	3		
P		Subtotal			
P	PS3	Secondary	3		
P		Total		3.0	0.1
F	FS1	Sec	1		
F	FFL	Flat	1		
F		Total		71.0	0.0
Total				107.1	15.0

MECO-WP-712 pages 7, 8		
Service Establishment Fee	8.25	13.95
Field Collection Charge	7.50	12.50
Late Payment Charge	19.00	12.10
Reconnection Charge	0.62	2.66
Returned Check Charge	0.70	1.75
Purchased Power Metering Charge	0.00	0.00
Schedule F Fixture Charge	70.90	70.90

MAUI ELECTRIC COMPANY, LIMITED
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				Sales Revenue (EROR)						
				Present Sales Revenue	% Increase	Revenue Increase	Energy Sales Forecasted	Energy Sales Recorded (1 & 3 Phase)	Demand Sales Recorded (1 & 3 Phase)	Load Factor Forecasted
Rate	Service Class	Volt.	Phase	$	%	$	MWh	kWh	kWm	
R, E	RES1	Sec	1	4,556.7	5.2713%	240.2	13,077.0	0.0	0.0	140.97
G		Pri	1							
G			3							
G		Subtotal								
G	GS1	Sec	1							
G	GS3		3							
G		Subtotal								
G		Total G	1							
G			3							
G		Total		1,703.7	5.2713%	89.8	3,953.9	0.0	0.0	184.00
J	JP1	Pri	1					0.0	0.0	
J	JP3		3							
J		Subtotal					0.0	0.0	0.0	#DIV/0!
J	JS1	Sec	1							
J	JS3		3							
J		Subtotal					8,025.1	7,741,228.0	23,343.4	331.62
J		Total J	1							
J			3					0.0		
J		Total		2,831.8	5.2713%	149.3		7,741,228.0	23,343.4	
H	HS1	Sec	1							
H	HS3		3							
H		Subtotal						1,983,900.0	6,233.0	
K	KS1	Sec	1							
K	KS3		3							
K		Subtotal						0.0	0.0	
H/K		Sec	1							
H/K			3							
H/K		Total		643.4	5.2713%	33.9	1,994.2	1,983,900.0	6,233.0	318.29
P		Trans-Pri	3				0.0	0.0	0.0	0.0
P	PT3	Trans-Sec	3				0.0	0.0	0.0	#DIV/0!
P		Subtotal								
P		Dist-Pri	3				1,102.2	1,072,100.0	3,685.0	290.94
P	PP3	Dist-Sec	3				0.0	0.0	0.0	#DIV/0!
P		Subtotal								
P	PS3	Secondary	3				7,917.2	7,698,600.0	26,072.7	295.27
P		Total		2,734.9	5.2713%	144.2		8,770,700.0	29,757.7	
F	FS1	Sec	1				0.0	0.0	0.0	#DIV/0!
F	FFL	Flat	1				0.0	470,700.0	1,401.6	
F		Total		160.9	5.2713%	8.5	478.5	470,700.0	1,401.6	335.83
Total				12,631.4	5.2713%	665.9	36,548.1			

Schedule R/E & G Load factor: Class Load Study Average kWh / Average peak kW per customer
Remaining Schedules: Recorded Energy Sales / Recorded Demand Sales

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

Gross Plant in Service Balance Estimate

	12/31/2006 ($000s)	12/31/2007 ($000s)	Mean ($000s)	Gross Plant (%)	Excl Gen. Pt. (%)	Trans. & Dist & Gen. Pt. (%)	Net Unamort Rgtry Asset %	Dist & Gen. Pt. (%)
Production	20,269.0	20,298.0	20,283.5	58.97%	63.07%	0.00%	65.47%	0.00%
Transmission	821.0	965.0	893.0	2.60%	2.78%	6.33%	2.60%	0.00%
Distribution:								
Substation	3,328.0	3,443.0	3,385.5	9.84%	10.53%	23.99%	9.84%	25.61%
Lines	4,595.0	4,672.0	4,633.5	13.47%	14.41%	32.83%	13.47%	35.05%
Transformers	1,199.0	1,215.0	1,207.0	3.51%	3.75%	8.55%	3.51%	9.13%
Services	1,124.0	1,203.0	1,163.5	3.38%	3.62%	8.24%	3.38%	8.80%
Meters	283.0	284.0	283.5	0.82%	0.88%	2.01%	0.82%	2.14%
Street Lighting	306.0	313.0	309.5	0.90%	0.96%	2.19%	0.90%	2.34%
Subtotal	10,835.0	11,130.0	10,982.5	31.92%	34.15%	77.82%	31.93%	83.08%
General Plt	2,255.0	2,219.0	2,237.0	6.50%		15.85%		16.92%
Total	34,180.0	34,612.0	34,396.0	99.99%	100.00%	100.00%	100.00%	100.00%

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Depreciation Reserve Balance Estimate		
	12/31/2006 ($000s)	12/31/2007 ($000s)	Mean ($000s)
Production	8,959.0	9,658.0	9,308.5
Transmission	198.0	221.0	209.5
Distribution:			
Substation	1,686.0	1,788.0	1,737.0
Lines	2,065.0	2,205.0	2,135.0
Transformers	550.0	567.0	558.5
Services	505.0	554.0	529.5
Meters	176.0	186.0	181.0
Street Lighting	198.0	211.0	204.5
Subtotal	5,180.0	5,511.0	5,345.5
General Plt	1,455.0	1,531.0	1,493.0
Total	15,792.0	16,921.0	16,356.5

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Depreciation Expense (Excl. Vehicle Depr.)				
	Depreciation Expense ($000s)	Net Regulatory Asset/Liab Amort. ($000s)	Federal ITC Amort. ($000s)	CIAC Amort. ($000s)	Total Depreciation Expense ($000s)
Production	699.0	16.8	-	-	715.8
Transmission	23.0	0.7	-	(9.0)	14.7
Distribution:					
Substation	111.0	2.8	-	(41.0)	72.8
Lines	153.0	3.8	-	(61.0)	95.8
Transformers	40.0	1.0	-	(16.0)	25.0
Services	50.0	1.0	-	(14.0)	37.0
Meters	9.0	0.2	-	(4.0)	5.2
Street Lighting	14.0	0.3	-	(4.0)	10.3
Subtotal	377.0	9.1	-	(140.0)	246.1
General Plt	52.0	1.9	-	-	53.9
Total	1,151.0	28.5	-	(149.0)	1,030.5

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Materials And Supply			Property Held for Future Use	Customer Advances
	Demand ($000s)	Energy ($000s)	Total ($000s)	($000s)	($000s)
Production	42.6	632.0	674.6	-	-
Transmission	9.6		9.6	-	-
Distribution:					
Substation	36.6		36.6	-	-
Lines	50.0		50.0	-	135.9
Transformers	13.0		13.0	-	-
Services	12.6		12.6	-	-
Meters	3.1		3.1	-	8.9
Street Lighting	3.3		3.3	-	8.6
Subtotal	118.6		118.6	-	153.4
General Plt	24.2		24.2	-	-
Total	195.0	632.0	827.0	-	153.4

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Unamortized Net Regulatory Asset				Office Supplies	2000 Final Dist. Inv. Adj Basis
	Net Regulatory Asset ($000s)	Net Pension Regulatory Asset ($000s)	Unamortised System Development Costs ($000s)	Total Depreciation Expense ($000s)	($000s)	($000s)
Production	340.2	90.4	6.5	437.1	-	-
Transmission	10.8	3.6	0.3	14.6	-	-
Distribution:						
Substation	51.1	13.6	1.0	65.7	-	-
Lines	70.7	18.6	1.3	90.6	-	-
Transformers	18.4	4.8	0.4	23.6	-	-
Services	17.2	4.7	0.3	22.2	-	-
Meters	4.3	1.1	0.1	5.5	-	-
Street Lighting	4.7	1.2	0.1	6.0	-	-
Subtotal	166.4	44.1	3.2	213.7	-	-
General Plt	-	-	-	-	-	-
Total	517.4	138.0	10.0	665.4	-	-

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Deferred Income Taxes			Unamortized ITC Expense		Amortised ITC Expense	
	Original Distribution ($000s)	%	Total ($000s)	%	($000s)	%	($000s)
Production	600.1	61.94%	565.4	58.98%	294.3	58.98%	13.6
Transmission	20.2	2.08%	19.0	2.60%	13.0	2.60%	0.6
Distribution:							
Substation	95.7	9.88%	90.2	9.84%	49.1	9.84%	2.3
Lines	132.3	13.65%	124.7	13.47%	67.2	13.47%	3.1
Transformers	34.5	3.56%	32.5	3.51%	17.5	3.51%	0.8
Services	32.3	3.33%	30.4	3.38%	16.9	3.38%	0.8
Meters	8.1	0.84%	7.6	0.82%	4.1	0.82%	0.2
Street Lighting	8.8	0.91%	8.3	0.90%	4.5	0.90%	0.2
Subtotal	311.7	32.17%	293.7	31.92%	159.3	31.92%	7.3
General Plt	36.9	3.81%	34.8	6.50%	32.4	6.50%	1.5
Total	968.9	100.00%	912.9	100.00%	499.0	100.00%	23.0

MAUI ELECTRIC COMPANY, LIMITED
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MOLOKAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	CIAC Beg Balance	
	($000s)	%
Production	-	0.00%
Transmission	230.5	6.98%
Distribution:		
Substation	908.8	27.54%
Lines	1,331.4	40.34%
Transformers	358.3	10.86%
Services	299.8	9.08%
Meters	87.2	2.64%
Street Lighting	84.3	2.55%
Subtotal	3,069.8	93.02%
General Plt	-	0.00%
Total	3,300.2	100.00%

MAUI ELECTRIC COMPANY, LIMITED
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	Dist & Gen. Plt. %	MOLOKAI DIVISION O&M LABOR	O&M NON-LABOR	TOTAL	Source
Prod Demand		552.0	626.0	1,178.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Prod Energy		-	7,253.0	7,253.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Transmission		10.0	23.0	33.0	OM2007.xls, MECO-WP-2001, Page 17 of 44, Original dist. 882 (Labour), 1475 (Non-Labour)
Substations	25.61%	39.0	77.2	116.3	
Lines Data	35.05%	53.4	105.7	159.1	
Transf Data	9.13%	13.9	27.5	41.5	
Services	8.80%	13.4	26.5	40.0	
Meters	2.14%	3.3	6.5	9.7	
Street Lighting	2.34%	3.6	7.1	10.6	
Misc Distribution	16.92%	25.8	51.0	76.8	
Distribution O&M		152.4	301.6	454.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Customer Accounts		118.6	50.4	169.0	MECO-WP-2001, Page 17 of 44, MECO 703, page 1 of 2. Accounts #901, #902, #903
Uncollectibles		-	8.0	8.0	MECO-WP-2001, Page 17 of 44, MECO 703, page 1 of 2. Accounts #904
Customer Service		-	2.0	2.0	MECO-WP-2001, Page 17 of 44, MECO-803, Accounts #909, #910, #911
Admin and General		80.6	585.4	666.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Wage Rollback		-	-	-	
Total		913.7	8,849.3	9,763.0	

MAUI ELECTRIC COMPANY, LIMITED
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ENERGY LOSS ANALYSIS	MOLOKAI DIVISION	Source
Generator step-up loss as % of net generation	0.0039	MECO-WP-403
Transmission Line Loss as % of net generation	0.0182	MECO-WP-403
46kv to Primary Voltage Transformation Losses as a % of net generation	0.0053	MECO-WP-403
Primary Line Loss as % of net generation	0.0252	MECO-WP-403
Primary to Secondary Transformation Loss as a % of net generation	0.0055	MECO-WP-403
Secondary Line Loss as a % of net generation	0.0050	MECO-WP-403
Net generation	40,198.1	WP404, page 96
		WP403, page 3:
Station Use	1,322.4	(Line A - Line B) - Purchased Power
Purchased Power	-	WP404, page 96
Company Use (no charge use by Company facilities)	131.6	WP403, page 96
Losses and unaccounted for	3,518.7	WP403, page 96

MAUI ELECTRIC COMPANY, LIMITED
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Working Cash at Present Rates	MOLOKAI DIVISION	Source
For Fuel Oil and Purchased Power	318.0	MECO-WP-2001, Page 35 of 44, Column F
For Labor O & M	60.0	MECO-WP-2001, Page 35 of 44, Column F
For Non-Labor O & M	18.0	MECO-WP-2001, Page 35 of 44, Column F
For Depreciation	-	MECO-WP-2001, Page 35 of 44, Column F
For Income Taxes & Revenue Taxes	(101.0)	MECO-WP-2001, Page 35 of 44, Column F
For Rate of Return	-	MECO-WP-2001, Page 35 of 44, Column F
For Deferred Income Taxes	-	MECO-WP-2001, Page 35 of 44, Column F
For Operating Cash	-	MECO-WP-2001, Page 35 of 44, Column F
Total, Working Cash at Present	295.0	MECO-WP-2001, Page 35 of 44, Column F
Customer Depoisits	187	MECO-WP-2001, Page 34 of 44

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION

				Test Year Number of Bills			
Rate	Service Class	Volt.	Phase	Pri	Sec	Total	% Cust.
R, E	RES1	Sec	1	-	16,464	16,464	100.00%
G		Pri	1	-	-	-	0.00%
G			3	-	-	-	0.00%
G		Subtotal		-	-	-	0.00%
G	GS1	Sec	1	-	1,906	1,906	84.49%
G	GS3		3	-	350	350	15.51%
G		Subtotal		-	2,256	2,256	100.00%
G		Total G	1	-	1,906	1,906	84.49%
G			3	-	350	350	15.51%
G		Total		-	2,256	2,256	100.00%
J	JP1	Pri	1	-	-	-	0.00%
J	JP3		3	-	-	-	0.00%
J		Subtotal		-	-	-	0.00%
J	JS1	Sec	1	-	65	65	15.05%
J	JS3		3	-	367	367	84.95%
J		Subtotal		-	432	432	100.00%
J		Total J	1	-	65	65	15.05%
J			3	-	367	367	84.95%
J		Total		-	432	432	100.00%
H	HS1	Sec	1	-	25	25	51.02%
H	HS3		3	-	0	-	0.00%
H		Subtotal		-	25	25	51.02%
K	KS1	Sec	1	-	-	-	0.00%
K	KS3		3	-	24	24	48.98%
K		Subtotal		-	24	24	48.98%
H/K		Sec	1	-	25	25	51.02%
H/K			3	-	24	24	48.98%
H/K		Total		-	49	49	100.00%
P		Trans-Pri	3	-	-	-	0.00%
P	PT3	Trans-Sec	3	-	-	-	0.00%
P		Subtotal		-	-	-	0.00%
P		Dist-Pri	3	-	-	-	0.00%
P	PP3	Dist-Sec	3	24	-	24	66.67%
P		Subtotal		24	-	24	66.67%
P	PS3	Secondary	3	-	12	12	33.33%
P		Total		24	12	36	100.00%
F	FS1	Sec	1	-	-	-	0.00%
F	FFL	Flat	1	-	36	36	100.00%
F		Total		-	36	36	100.00%
Total							

Source:
MECO Rate Runs - Voluminous

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION

Factors for Primary Line Costs

Rate	Service Class	Volt.	Phase	Weight	Test Year Number of Bills	Weighted No. of Bills	Factor C1
R, E	RES1	Sec	1	1	16,464	16,464	1.00
G		Pri	1	1	-	-	0.00
G			3	2	-	-	0.00
G		Subtotal			-	-	0.00
G	GS1	Sec	1	1	1,906	1,906	1.00
G	GS3		3	2	350	700	2.00
G		Subtotal			2,256	2,606	1.16
G		Total G	1	1	1,906	1,906	1.00
G			3	2	350	700	2.00
G		Total			2,256	2,606	1.16
J	JP1	Pri	1	1	-	-	0.00
J	JP3		3	2	-	-	#DIV/0!
J		Subtotal			-	-	#DIV/0!
J	JS1	Sec	1	1	65	65	1.00
J	JS3		3	2	367	734	2.00
J		Subtotal			432	799	1.85
J		Total J	1	1	65	65	1.00
J			3	2	367	734	2.00
J		Total			432	799	1.85
H	HS1	Sec	1	1	25	25	1.00
H	HS3		3	2	-	-	#DIV/0!
H		Subtotal			25	25	1.00
K	KS1	Sec	1	1	-	-	#DIV/0!
K	KS3		3	2	24	48	2.00
K		Subtotal			24	48	2.00
H/K		Sec	1	1	25	25	1.00
H/K			3	2	24	48	2.00
H/K		Total			49	73	1.49
P		Trans-Pri	3	2	-	-	0.00
P	PT3	Trans-Sec	3	2	-	-	0.00
P		Subtotal			-	-	0.00
P		Dist-Pri	3	2	-	-	0.00
P	PP3	Dist-Sec	3	2	24	48	2.00
P		Subtotal			24	48	2.00
P	PS3	Secondary	3	2	12	24	2.00
P		Total			36	72	2.00
F	FS1	Sec	1	1	-	-	#DIV/0!
F	FFL	Flat	1	1	36	36	1.00
F		Total			36	36	1.00
Total							

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION

				Factors for Secondary Line Costs			
Rate	Service Class	Volt.	Phase	Weight	Test Year Number of Secondary Bills	Weighted No. of Bills	Factor C2
R, E	RES1	Sec	1	1	16,464	16,464	1.00
G		Pri	1	1	-	-	0.00
G			3	1.33	-	-	0.00
G		Subtotal			-	-	0.00
G	GS1	Sec	1	1	1,906	1,906	1.00
G	GS3		3	1.33	350	466	1.33
G		Subtotal			2,256	2,372	1.05
G		Total G	1	1	1,906	1,906	1.00
G			3	1.33	350	466	1.33
G		Total			2,256	2,372	1.05
J	JP1	Pri	1	1	-	-	0.00
J	JP3		3	1.33	-	-	0.00
J		Subtotal			-	-	0.00
J	JS1	Sec	1	1	65	65	1.00
J	JS3		3	1.33	367	488	1.33
J		Subtotal			432	553	1.28
J		Total J	1	1	65	65	1.00
J			3	1.33	367	488	1.33
J		Total			432	553	1.28
H	HS1	Sec	1	1	25	25	1.00
H	HS3		3	1.33	-	-	#DIV/0!
H		Subtotal			25	25	1.00
K	KS1	Sec	1	1	-	-	#DIV/0!
K	KS3		3	1.33	24	32	1.33
K		Subtotal			24	32	1.33
H/K		Sec	1	1	25	25	1.00
H/K			3	1.33	24	32	1.33
H/K		Total			49	57	1.16
P		Trans-Pri	3	1.33	-	-	0.00
P	PT3	Trans-Sec	3	1.33	-	-	0.00
P		Subtotal			-	-	0.00
P		Dist-Pri	3	1.33	-	-	0.00
P	PP3	Dist-Sec	3	1.33	-	-	0.00
P		Subtotal			-	-	0.00
P	PS3	Secondary	3	1.33	12	16	1.33
P		Total			12	16	1.33
F	FS1	Sec	1	1	-	-	#DIV/0!
F	FFL	Flat	1	1	36	36	1.00
F		Total			36	36	1.00
Total							

MAUI ELECTRIC COMPANY, LIMITED
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				Factors for Secondary Line Costs					
Rate	Service Class	Volt.	Phase	Typical Cost/Transf ($)[1]	3-Phase to 1-Phase Cost Ratio	Typical Transformer Size (kVa)	Number of Cust per Transf.	Typical Transf Cost Per Cust ($)	Factor C3
R, E	RES1	Sec	1	2,695.41		15	1	2,695.41	1.00
G		Pri	1						
G			3						
G		Subtotal							
G	GS1	Sec	1	2,997.47		25	1	2,997.47	
G	GS3		3	6,735.54		45	1	6,735.54	
G		Subtotal						3,577.40 [2]	1.33
G		Total G	1	2,997.47			1	2,997.47	
G			3	6,735.54			1	6,735.54	
G		Total			2.25			3,577.40 [2]	1.33
J	JP1	Pri	1			0			
J	JP3		3			75			
J		Subtotal							
J	JS1	Sec	1	3,407.31		50	1	3,407.31	
J	JS3		3	7,641.74		75	1	7,641.74	
J		Subtotal			2.24			7,004.62 [2]	2.60
J		Total J	1						
J			3						
J		Total							
H	HS1	Sec	1	2,997.47		25	1	2,997.47	
H	HS3		3	6,735.54		45	1	6,735.54	
H		Subtotal						1,529.32 [2]	0.57
K	KS1	Sec	1	3,407.31		50	1	3,407.31	
K	KS3		3	7,641.74		75	1	7,641.74	
K		Subtotal						3,742.89 [2]	1.39
H/K		Sec	1	2,997.47					
H/K			3	7,641.74					
H/K		Total		[2]	2.55			5,272.21	1.96
P		Trans-Pri	3						
P	PT3	Trans-Sec	3						
P		Subtotal							
P		Dist-Pri	3						
P	PP3	Dist-Sec	3						
P		Subtotal							
P	PS3	Secondary	3	25,202.74		501	1	25,202.74	
P		Total						8,400.91 [2]	3.12
F	FS1	Sec	1	2,695.41		15	1	2,695.41	
F	FFL	Flat	1						
F		Total		2,695.41		15	1	2,695.41	1.00
Total									

[2] Weighted.

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				Factors for Service Drop			
Rate	Service Class	Volt.	Phase	Typical Cost Per Service Drop ($)[1]	3-Phase to 1-Phase Cost Ratio	Avg. Peak kW per Customer	Factor C4
R, E	RES1	Sec	1	641.83		3.80	1.00
G		Pri	1				
G			3				
G		Subtotal					
G	GS1	Sec	1	641.83		3.40	
G	GS3		3	854.60		3.40	
G		Subtotal		674.84			1.05
G		Total G	1	641.83			
G			3	854.60			
G		Total		674.84	1.33	3.40	1.05
J	JP1	Pri	1	-			
J	JP3		3	3,729.83		-	
J		Subtotal		-			0.00
J	JS1	Sec	1	686.45		26.20	
J	JS3		3	854.60		57.70	
J		Subtotal		829.30	1.24		1.29
J		Total J	1				
J			3				
J		Total		829.30			1.29
H	HS1	Sec	1	641.83		9.78	
H	HS3		3	854.60		-	
H		Subtotal		327.46			0.51
K	KS1	Sec	1	641.83		-	
K	KS3		3	854.60		33.15	
K		Subtotal		418.58			0.65
H/K		Sec	1	641.83			
H/K			3	854.60			
H/K		Total		746.04	1.33		1.16
P		Trans-Pri	3				
P	PT3	Trans-Sec	3				
P		Subtotal					
P		Dist-Pri	3				
P	PP3	Dist-Sec	3				
P		Subtotal		3,729.83		1,021.40	
P	PS3	Secondary	3	3,818.83		333.50	
P		Total		3,759.50			5.86
F	FS1	Sec	1	641.83		-	1.00
F	FFL	Flat	1				
F		Total		641.83		9.60	1.00
Total							

[1] Weighted.

MAUI ELECTRIC COMPANY, LIMITED
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				Factors for Meter Cost		
Rate	Service Class	Volt.	Phase	Typical Cost Per Meter ($)[1]	3-Phase to 1-Phase Cost Ratio	Factor C5
R, E	RES1	Sec	1	517.56		1.00
G		Pri	1			
G			3			
G		Subtotal				
G	GS1	Sec	1	566.48		
G	GS3		3	686.25		
G		Subtotal		585.06		1.13
G		Total G	1	566.48		
G			3	686.25		
G		Total		585.06	1.21	1.13
J	JP1	Pri	1	-		
J	JP3		3	3,254.49		
J		Subtotal		-		0.00
J	JS1	Sec	1	610.34		
J	JS3		3	686.25		
J		Subtotal		674.83	1.12	1.30
J		Total J	1			
J			3			
J		Total		674.83		1.30
H	HS1	Sec	1	566.48		
H	HS3		3	686.25		
H		Subtotal		289.02		0.56
K	KS1	Sec	1	610.34		
K	KS3		3	686.25		
K		Subtotal		336.12		0.65
H/K		Sec	1	566.48		
H/K			3	686.25		
H/K		Total		625.14	1.21	1.21
P		Trans-Pri	3			
P	PT3	Trans-Sec	3			
P		Subtotal		7,746.14		
P		Dist-Pri	3			
P	PP3	Dist-Sec	3			
P		Subtotal		3,254.49		
P	PS3	Secondary	3	3,254.49		
P		Total		3,254.49		6.29
F	FS1	Sec	1	517.56		1.00
F	FFL	Flat	1	517.56		
F		Total		517.56		1.00
Total						

MAUI ELECTRIC COMPANY, LIMITED
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Rate	Service Class	Volt.	Phase	Factors for Customer Accounts Expense Factor C6	Factors for Bad Debt Expense Factor C7	Factors for Customer Service Cost Allocation Factor C8	Factors for Streetlight Cost Allocation Factor C9
R, E	RES1	Sec	1	1.00	88.35	5.00	0.00
G		Pri	1				
G			3				
G		Subtotal					
G	GS1	Sec	1				
G	GS3		3				
G		Subtotal					
G		Total G	1				
G			3				
G		Total		1.28	11.65	5.00	0.00
J	JP1	Pri	1				
J	JP3		3				
J		Subtotal					
J	JS1	Sec	1				
J	JS3		3				
J		Subtotal					
J		Total J	1				
J			3				
J		Total		2.51	0.00	30.00	0.00
H	HS1	Sec	1				
H	HS3		3				
H		Subtotal					
K	KS1	Sec	1				
K	KS3		3				
K		Subtotal					
H/K		Sec	1				
H/K			3				
H/K		Total		1.39	0.00	20.00	0.00
P		Trans-Pri	3				
P	PT3	Trans-Sec	3				
P		Subtotal					
P		Dist-Pri	3				
P	PP3	Dist-Sec	3				
P		Subtotal					
P	PS3	Secondary	3				
P		Total		3.25	0.00	40.00	0.00
F	FS1	Sec	1				
F	FFL	Flat	1				
F		Total		1.11	0.00	0.00	100.00
Total							

Held same as Docket No. 97-0346, MECO-R-1707

MAUI ELECTRIC COMPANY, LIMITED
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				Service Establishment Charge Factor		Field Collection Charge Factor		Late Payment Charge Factor		Reconnection Charge Factor	
Rate	Service Class	Volt.	Phase	$	%	$	%	$	%	$	%
R, E	RES1	Sec	1	35,605	0.96504	8,295	0.97188	26,716	0.51892	325	1.00000
G		Pri	1								
G			3								
G		Subtotal									
G	GS1	Sec	1								
G	GS3		3								
G		Subtotal									
G		Total G	1								
G			3								
G		Total		1,215	0.03293	225	0.02636	3,657	0.07103	0	0.00000
J	JP1	Pri	1								
J	JP3		3								
J		Subtotal									
J	JS1	Sec	1								
J	JS3		3								
J		Subtotal									
J		Total J	1								
J			3								
J		Total		45	0.00122	0	0.00000	9,304	0.18072	0	0.00000
H	HS1	Sec	1								
H	HS3		3								
H		Subtotal									
K	KS1	Sec	1								
K	KS3		3								
K		Subtotal									
H/K		Sec	1								
H/K			3								
H/K		Total		30	0.00081	15	0.00176	1,627	0.03160	0	0.00000
P		Trans-Pri	3								
P	PT3	Trans-Sec	3								
P		Subtotal									
P		Dist-Pri	3								
P	PP3	Dist-Sec	3								
P		Subtotal									
P	PS3	Secondary	3								
P		Total		0	0.00000	0	0.00000	10158	0.19730	0	0.00000
F	FS1	Sec	1								
F	FFL	Flat	1								
F		Total		0	0.00000	0	0.00000	22	0.00043	0	0.00000
Total				36,895	1.00000	8,535	1.00000	51,484	1.00000	325	1.00000

MAUI ELECTRIC COMPANY, LIMITED
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				Returned Check Charge Factor		Purchased Power Meter Charge Factor		Schedule F Fixture Charge Factor	
Rate	Service Class	Volt.	Phase	$	%	$	%	$	%
R, E	RES1	Sec	1	1,550	0.95092	0	0.00000	0	0.00000
G		Pri	1						
G			3						
G		Subtotal							
G	GS1	Sec	1						
G	GS3		3						
G		Subtotal							
G		Total G	1						
G			3						
G		Total		40	0.02454	0	0.00000	0	0.00000
J	JP1	Pri	1						
J	JP3		3						
J		Subtotal							
J	JS1	Sec	1						
J	JS3		3						
J		Subtotal							
J		Total J	1						
J			3						
J		Total		0	0.00000	0	0.00000	0	0.00000
H	HS1	Sec	1						
H	HS3		3						
H		Subtotal							
K	KS1	Sec	1						
K	KS3		3						
K		Subtotal							
H/K		Sec	1						
H/K			3						
H/K		Total		40	0.02454	0	0.00000	0	0.00000
P		Trans-Pri	3						
P	PT3	Trans-Sec	3						
P		Subtotal							
P		Dist-Pri	3						
P	PP3	Dist-Sec	3						
P		Subtotal							
P	PS3	Secondary	3						
P		Total		0	0.00000	0	0.00000	0	0.00000
F	FS1	Sec	1						
F	FFL	Flat	1						
F		Total		0	0.00000	0	0.00000	1	1.00000
Total				1,630	1.00000	0	0.00000	1	1.00000

MAUI ELECTRIC COMPANY, LIMITED
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				Other Operating Revenue	
				At Present Rates	Increase
Rate	Service Class	Volt.	Phase	$	$
R, E	RES1	Sec	1	13.8	8.7
G		Pri	1		
G			3		
G		Subtotal			
G	GS1	Sec	1		
G	GS3		3		
G		Subtotal			
G		Total G	1		
G			3		
G		Total		1.0	0.3
J	JP1	Pri	1		
J	JP3		3		
J		Subtotal			
J	JS1	Sec	1		
J	JS3		3		
J		Subtotal			
J		Total J	1		
J			3		
J		Total		1.8	0.0
H	HS1	Sec	1		
H	HS3		3		
H		Subtotal			
K	KS1	Sec	1		
K	KS3		3		
K		Subtotal			
H/K		Sec	1		
H/K			3		
H/K		Total		0.3	0.0
P		Trans-Pri	3		
P	PT3	Trans-Sec	3		
P		Subtotal			
P		Dist-Pri	3		
P	PP3	Dist-Sec	3		
P		Subtotal			
P	PS3	Secondary	3		
P		Total		2.0	0.0
F	FS1	Sec	1		
F	FFL	Flat	1		
F		Total		19.0	0.0
Total				37.9	9.0

MECO-WP-712, pages 5, 6		
Service Establishment Fee	7.50	12.70
Field Collection Charge	0.75	1.25
Late Payment Charge	9.90	10.47
Reconnection Charge	0.30	0.50
Returned Check Charge	0.40	1.00
Purchased Power Metering Charge	0.00	0.00
Schedule F Fixture Charge	19.00	19.00

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION

				Sales Revenue (EROR)						
				Present Sales Revenue	% Increase	Revenue Increase	Energy Sales Forecasted	Energy Sales Recorded (1 & 3 Phase)	Demand Sales Recorded (1 & 3 Phase)	Load Factor Forecasted
Rate	Service Class	Volt.	Phase	$	%	$	MWh	kWh	kWm	
R, E	RES1	Sec	1	2,731.6	5.2713%	144.0	8,182.7	0.0	0.0	128.42
G		Pri	1							
G			3							
G		Subtotal								
G	GS1	Sec	1							
G	GS3		3							
G		Subtotal								
G		Total G	1							
G			3							
G		Total		725.2	5.2713%	38.2	1,949.4	0.0	0.0	268.53
J	JP1	Pri	1					0.0	0.0	
J	JP3		3							
J		Subtotal					0.0	0.0	0.0	#DIV/0!
J	JS1	Sec	1							
J	JS3		3							
J		Subtotal					6,214.6	2,999,941.0	21,344.0	140.55
J		Total J	1							
J			3					0.0		
J		Total		2,253.8	5.2713%	118.8		2,999,941.0	21,344.0	
H	HS1	Sec	1							
H	HS3		3							
H		Subtotal						135,026.0	244.6	
K	KS1	Sec	1							
K	KS3		3							
K		Subtotal						403,163.0	795.6	
H/K		Sec	1							
H/K			3							
H/K		Total		180.5	5.2713%	9.5	545.0	538,189.0	1,040.2	517.39
P		Trans-Pri	3				0.0	0.0	0.0	0.0
P	PT3	Trans-Sec	3				0.0	0.0	0.0	#DIV/0!
P		Subtotal								
P		Dist-Pri	3				10,802.6	7,305,713.0	13,278.0	550.21
P	PP3	Dist-Sec	3				0.0	0.0	0.0	#DIV/0!
P		Subtotal								
P	PS3	Secondary	3				1,971.3	2,346,662.0	4,336.0	541.20
P		Total		4,138.7	5.2713%	218.2		9,652,375.0	17,614.0	
F	FS1	Sec	1				0.0	0.0	0.0	#DIV/0!
F	FFL	Flat	1				0.0	112,700.0	344.4	
F		Total		36.9	5.2713%	1.9	113.7	112,700.0	344.4	327.24
Total				10,066.7	5.2713%	530.6	29,779.3			

Schedule R/E & G Load factor: Class Load Study Average kWh / Average peak kW per customer
Remaining Schedules: Recorded Energy Sales / Recorded Demand Sales

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Gross Plant in Service Balance Estimate							
	12/31/2006 ($000s)	12/31/2007 ($000s)	Mean ($000s)	Gross Plant (%)	Excl Gen. Plt. (%)	Trans. & Dist & Gen. Plt. (%)	Net Unamort Rgltry Asset %	Dist & Gen. Plt. (%)
Production	17,569.0	17,753.0	17,661.0	59.39%	62.90%	0.00%	65.00%	0.00%
Transmission	-	-	-	0.00%	0.00%	0.00%	0.00%	0.00%
Distribution:								
Substation	2,910.0	2,910.0	2,910.0	9.78%	10.37%	24.09%	9.78%	24.09%
Lines	5,740.0	5,736.0	5,738.0	19.29%	20.44%	47.49%	19.29%	47.49%
Transformers	572.0	571.0	571.5	1.92%	2.04%	4.73%	1.92%	4.73%
Services	743.0	743.0	743.0	2.50%	2.65%	6.15%	2.50%	6.15%
Meters	192.0	191.0	191.5	0.64%	0.68%	1.59%	0.64%	1.59%
Street Lighting	257.0	257.0	257.0	0.86%	0.92%	2.13%	0.86%	2.13%
Subtotal	10,414.0	10,408.0	10,411.0	34.99%	37.10%	86.17%	35.00%	86.17%
General Plt	1,555.0	1,787.0	1,671.0	5.62%		13.83%		13.83%
Total	29,538.0	29,948.0	29,743.0	100.00%	100.00%	100.00%	100.00%	100.00%

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Depreciation Reserve Balance Estimate		
	12/31/2006 ($000s)	12/31/2007 ($000s)	Mean ($000s)
Production	8,288.0	9,036.0	8,662.0
Transmission	-	-	-
Distribution:			
Substation	1,583.0	1,718.0	1,650.5
Lines	2,657.0	2,895.0	2,776.0
Transformers	264.0	279.0	271.5
Services	257.0	296.0	276.5
Meters	72.0	77.0	74.5
Street Lighting	161.0	172.0	166.5
Subtotal	4,994.0	5,437.0	5,215.5
General Plt	631.0	724.0	677.5
Total	13,913.0	15,197.0	14,555.0

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Depreciation Expense (Excl. Vehicle Depr.)				
	Depreciation Expense ($000s)	Net Regulatory Asset/Liab Amort. ($000s)	Federal ITC Amort. ($000s)	CIAC Amort. ($000s)	Total Depreciation Expense ($000s)
Production	812.0	(6.5)	(1.2)	-	804.3
Transmission	-	-	-	-	-
Distribution:					
Substation	142.0	(1.1)	(0.2)	(24.0)	116.7
Lines	249.0	(2.1)	(0.4)	(50.0)	196.5
Transformers	23.0	(0.2)	(0.0)	(5.0)	17.8
Services	42.0	(0.3)	(0.0)	(5.0)	36.7
Meters	6.0	(0.1)	(0.0)	(2.0)	3.9
Street Lighting	11.0	(0.1)	(0.0)	(2.0)	8.9
Subtotal	473.0	(3.8)	(0.7)	(88.0)	380.5
General Plt	59.0	(0.6)	(0.1)	-	58.3
Total	1,344.0	(11.0)	(2.0)	(88.0)	1,243.0

MAUI ELECTRIC COMPANY, LIMITED
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LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Materials And Supply			Property Held for Future Use	Customer Advances
	Demand ($000s)	Energy ($000s)	Total ($000s)	($000s)	($000s)
Production	126.5	550.0	676.5	-	-
Transmission	-		-	-	-
Distribution:					
Substation	16.0		16.0	-	-
Lines	31.6		31.6	-	229.4
Transformers	3.1		3.1	-	-
Services	4.1		4.1	-	-
Meters	1.1		1.1	-	8.3
Street Lighting	1.4		1.4	-	11.2
Subtotal	57.3		57.3	-	248.9
General Plt	9.2		9.2	-	-
Total	193.0	550.0	743.0	-	248.9

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Unamortized Net Regulatory Asset				Office Supplies	2000 Final Dist. Inv. Adj Basis
	Net Regulatory Asset ($000s)	Net Pension Regulatory Asset ($000s)	Unamortised System Development Costs ($000s)	Total Depreciation Expense ($000s)	($000s)	($000s)
Production	275.2	58.5	4.5	338.2	-	-
Transmission	-	-	-	-	-	-
Distribution:						
Substation	43.1	8.8	0.7	52.6	-	-
Lines	84.9	17.4	1.4	103.6	-	-
Transformers	8.5	1.7	0.1	10.4	-	-
Services	11.0	2.2	0.2	13.4	-	-
Meters	2.8	0.6	0.0	3.4	-	-
Street Lighting	3.8	0.8	0.1	4.6	-	-
Subtotal	154.1	31.5	2.5	188.1	-	-
General Plt	-	-	-	-	-	-
Total	429.3	90.0	7.0	526.3	-	-

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	Deferred Income Taxes			Unamortized ITC Expense		Amortised ITC Expense	
	Original Distribution ($000s)	%	Total ($000s)	%	($000s)	%	($000s)
Production	499.3	60.33%	471.8	59.39%	254.2	59.40%	11.9
Transmission	-	0.00%	-	0.00%	-	0.00%	-
Distribution:							
Substation	83.0	10.03%	78.4	9.78%	41.9	9.78%	2.0
Lines	163.7	19.78%	154.7	19.29%	82.6	19.29%	3.9
Transformers	16.3	1.97%	15.4	1.92%	8.2	1.92%	0.4
Services	21.2	2.56%	20.0	2.50%	10.7	2.50%	0.5
Meters	5.5	0.66%	5.2	0.64%	2.7	0.64%	0.1
Street Lighting	7.3	0.88%	6.9	0.86%	3.7	0.86%	0.2
Subtotal	297.0	35.89%	280.7	34.99%	149.8	34.99%	7.0
General Plt	31.3	3.78%	29.6	5.62%	24.1	5.62%	1.1
Total	827.6	100.00%	782.1	100.00%	428.0	100.01%	20.0

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

LANAI DIVISION
FUNCTIONALIZATION OF GROSS PLANT

	CIAC Beg Balance	
	($000's)	%
Production	-	0.00%
Transmission	-	0.00%
Distribution:		
Substation	563.8	28.44%
Lines	1,118.4	56.41%
Transformers	103.7	5.23%
Services	102.2	5.15%
Meters	40.3	2.03%
Street Lighting	54.4	2.74%
Subtotal	1,982.8	100.00%
General Plt	-	0.00%
Total	1,982.8	100.00%

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

	Dist & Gen. Plt. %	LANAI DIVISION O&M LABOR	O&M NON-LABOR	TOTAL	Source
Prod Demand		571.0	524.0	1,095.0	OM2007.xls, MECO-WP-2001, Page 29 of 44
Prod Energy		-	6,176.0	6,176.0	OM2007.xls, MECO-WP-2001, Page 29 of 44
Transmission		-	-	-	
Substations	24.09%	28.7	28.7	57.3	
Lines Data	47.49%	56.5	56.5	113.0	
Transf Data	4.73%	5.6	5.6	11.3	
Services	6.15%	7.3	7.3	14.6	
Meters	1.59%	1.9	1.9	3.8	
Street Lighting	2.13%	2.5	2.5	5.1	
Misc Distribution	13.83%	16.5	16.5	32.9	
Distribution O&M		119.0	119.0	238.0	OM2007.xls, MECO-WP-2001, Page 29 of 44
Customer Accounts		57.0	82.0	139.0	MECO-WP-2001, Page 17 of 44
Uncollectibles		-	6.0	6.0	MECO-WP-2001, Page 29 of 44, MECO 703
Customer Service		-	1.0	1.0	MECO-WP-2001, Page 29 of 44, MECO-803
Admin and General		-	344.0	344.0	OM2007.xls, MECO-WP-2001, Page 29 of 44
Wage Rollback		-	-	-	
Total		747.0	7,252.0	7,999.0	

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

ENERGY LOSS ANALYSIS	LANAI DIVISION	Source
Generator step-up loss as % of net generation	0.0039	MECO-WP-403
Transmission Line Loss as % of net generation	0.0182	MECO-WP-403
46kv to Primary Voltage Transformation Losses as a % of net generation	0.0053	MECO-WP-403
Primary Line Loss as % of net generation	0.0252	MECO-WP-403
Primary to Secondary Transformation Loss as a % of net generation	0.0055	MECO-WP-403
Secondary Line Loss as a % of net generation	0.0050	MECO-WP-403
Net generation	31,392.2	WP404, page 93
Station Use	1,011.5	
Purchased Power	-	WP404, page 93
Company Use (no charge use by Company facilities)	7.6	WP403, page 93
Losses and unaccounted for	1,601.7	WP403, page 93

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

Working Cash at Present Rates	LANAI DIVISION	Source
For Fuel Oil and Purchased Power	355.0	MECO-WP-2001, Page 23 of 44, Column F
For Labor O & M	48.0	MECO-WP-2001, Page 23 of 44, Column F
For Non-Labor O & M	13.0	MECO-WP-2001, Page 23 of 44, Column F
For Depreciation	-	MECO-WP-2001, Page 23 of 44, Column F
For Income Taxes & Revenue Taxes	(78.0)	MECO-WP-2001, Page 23 of 44, Column F
For Rate of Return	-	MECO-WP-2001, Page 23 of 44, Column F
For Deferred Income Taxes	-	MECO-WP-2001, Page 23 of 44, Column F
For Operating Cash	-	MECO-WP-2001, Page 23 of 44, Column F
Total, Working Cash at Present	338.0	MECO-WP-2001, Page 23 of 44, Column F
Customer Depoisits	95	MECO-WP-2001, Page 12 of 44

Maui Electric Company, Ltd.
(Maui Division)
HELM SYSTEM PEAK FORECAST
(Gross MW)

Base Scenario

SYSTEM PEAK

Year	HELM Derived Peak	Calib Factor [1]	Gross Integrtd Peak	Mo.	2005 Intg to Inst Factor	Gross Instant Peak	Cust Adjustmt[2]	Gross Acquired DSM	Gross Future DSM	Utility CHP [3]	3rd Party CHP [4]	Grs Inst Peak w/ DSM	Annual % Incr
Act 2005				Nov		215.0		-8.5				206.5	
Fct 2006	211.0	1.0257	216.4	Aug	1.0128	219.1	0.0	-8.9	-1.0	0.0	0.0	209.2	1.3
2007	215.6	1.0257	221.1	Aug	1.0128	224.0	0.0	-8.5	-2.4	0.0	-1.0	212.1	1.3
2008	222.8	1.0257	228.5	Aug	1.0128	231.5	0.0	-8.5	-4.0	0.0	-2.6	216.4	2.0
2009	230.2	1.0257	236.1	Aug	1.0128	239.2	0.0	-8.5	-5.7	0.0	-4.2	220.8	2.0
2010	238.7	1.0257	244.9	Aug	1.0128	248.0	0.0	-8.5	-7.5	0.0	-5.0	227.0	2.8
2011	244.8	1.0257	251.1	Aug	1.0128	254.3	0.0	-8.5	-9.3	0.0	-5.8	230.7	1.7

DAY PEAK

Year	HELM Derived Peak	Calib Factor [1]	Gross Integrtd Peak	Month	2005 Intg to Inst Factor	Gross Instant Peak	Cust Adjustmt[2]	Gross Acquired DSM	Gross Future DSM	Utility CHP [3]	3rd Party CHP [4]	Grs Inst Peak w/ DSM	Annual % Incr
Act 2005				Aug		205.7		-5.5				200.2	
Fct 2006	200.7	1.0247	205.6	Aug	1.0096	207.6	0.0	-5.8	-0.6	0.0	0.0	201.2	0.5
2007	205.0	1.0247	210.1	Aug	1.0096	212.1	0.0	-5.7	-1.6	0.0	-1.0	203.8	1.3
2008	212.2	1.0247	217.4	Aug	1.0096	219.5	0.0	-5.8	-2.7	0.0	-2.6	208.4	2.3
2009	219.5	1.0247	224.9	Aug	1.0096	227.0	0.0	-5.9	-3.9	0.0	-4.2	213.0	2.2
2010	228.0	1.0247	233.6	Aug	1.0096	235.9	0.0	-5.9	-5.2	0.0	-5.0	219.8	3.2
2011	233.9	1.0247	239.6	Aug	1.0096	241.9	0.0	-6.0	-6.5	0.0	-5.8	223.6	1.8

EVENING PEAK

Year	HELM Derived Peak	Calib Factor [1]	Gross Integrtd Peak	Month	2005 Intg to Inst Factor	Gross Instant Peak	Cust Adjustmt[2]	Gross Acquired DSM	Gross Future DSM	Utility CHP [3]	3rd Party CHP [4]	Grs Inst Peak w/ DSM	Annual % Incr
Act 2005				Nov		215.0		-8.5				206.5	
Fct 2006	211.0	1.0257	216.4	Aug	1.0128	219.1	0.0	-8.9	-1.0	0.0	0.0	209.2	1.3
2007	215.6	1.0257	221.1	Aug	1.0128	224.0	0.0	-8.5	-2.4	0.0	-1.0	212.1	1.3
2008	222.8	1.0257	228.5	Aug	1.0128	231.5	0.0	-8.5	-4.0	0.0	-2.6	216.4	2.0
2009	230.2	1.0257	236.1	Aug	1.0128	239.2	0.0	-8.5	-5.7	0.0	-4.2	220.8	2.0
2010	238.7	1.0257	244.9	Aug	1.0128	248.0	0.0	-8.5	-7.5	0.0	-5.0	227.0	2.8
2011	244.8	1.0257	251.1	Aug	1.0128	254.3	0.0	-8.5	-9.3	0.0	-5.8	230.7	1.7

[1] AM peak calibration factor = actual / derived AM integrated peaks for 2005.
PM peak calibration factor = actual / derived integrated PM peaks for 2005.

[2] Customer Peak Forecast Adjustments: None

[3] MECO Combined Heat & Power (CHP) Indefinitely Suspended, email from D. Suehiro dtd 2/13/06.

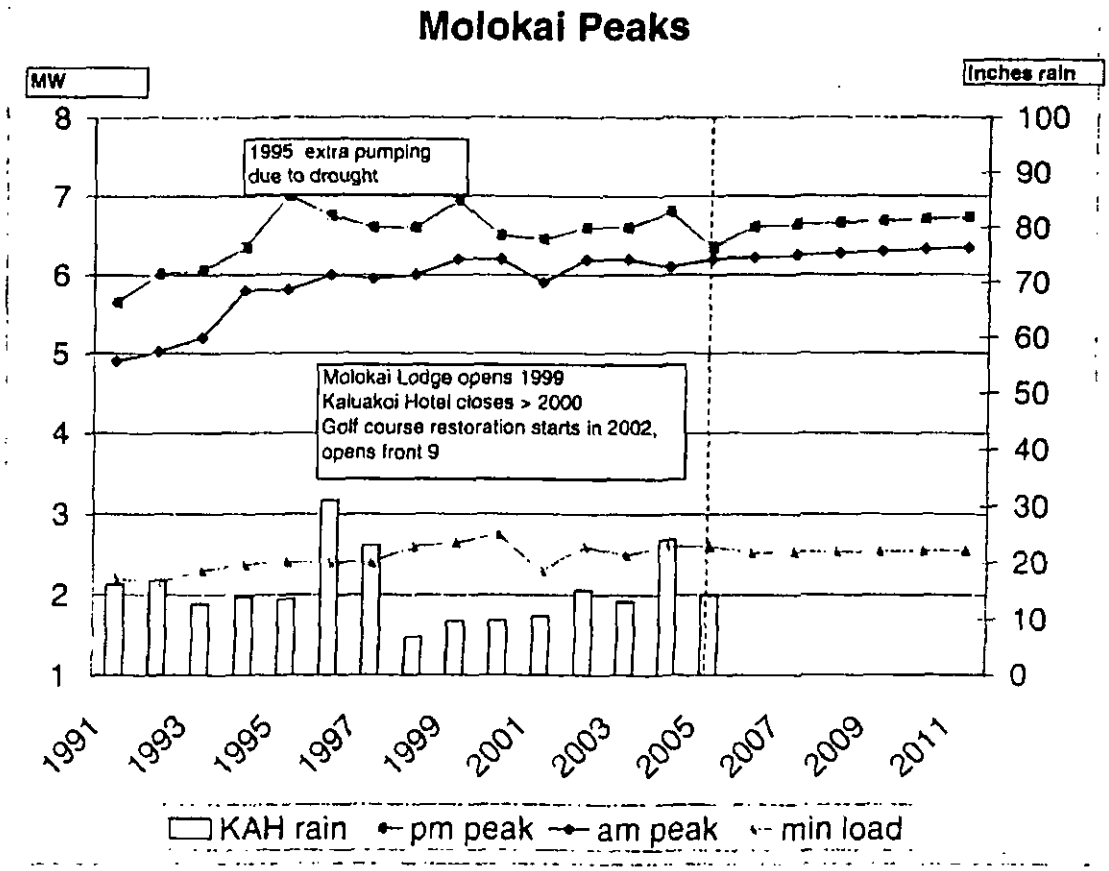
[4] 3rd Party Combined Heat & Power (CHP) Impact Estimate from D. Suehiro dtd 2/13/06.

MECO - Molokai Division
PEAK FORECAST
2006 - 2011

Year		PM Peak			AM Peak			Min Load		
		MW	% Change	Month	MW	% Change	Month		% Change	Month
1991	recorded	5.650			4.900			2.200		
1992	recorded	6.018	6.51%		5.024	2.53%		2.150	-2.27%	
1993	recorded	6.058	0.66%		5.200	3.50%		2.302	7.07%	
1994	recorded	6.350	4.82%		5.800	11.54%		2.380	3.39%	
1995	recorded	7.000	10.24%	Dec	5.800	0.00%	Sep	2.400	0.84%	Mar
1996	recorded	6.750	-3.57%	Oct	6.000	3.45%	Oct	2.400	0.00%	Jan
1997	recorded	6.600	-2.22%	Nov	5.950	-0.83%	Sep	2.400	0.00%	Jan
1998	recorded	6.600	0.00%	Dec	6.000	0.84%	Aug	2.600	8.33%	Jan
1999	recorded	6.950	5.30%	Dec	6.200	3.33%	Dec	2.650	1.92%	Dec
2000	recorded	6.500	-6.47%	Dec	6.200	0.00%	Oct	2.750	3.77%	Apr
2001	recorded	6.450	-0.77%	Dec	5.900	-4.84%	Oct	2.300	-16.36%	Dec
2002	recorded	6.600	2.33%	Nov	6.200	5.08%	Aug	2.600	13.04%	Feb
2003	recorded	6.600	0.00%	Dec	6.200	0.00%	Jul	2.500	-3.85%	Jan
2004	recorded	6.800	3.03%	Jan	6.100	-1.61%	Sep	2.600	4.00%	Jan
2005	recorded	6.350	-6.62%	Jan	6.200	1.64%	Aug	2.600	0.00%	Jan*
2006	forecast	6.610	4.09%	Dec	6.225	0.40%	Sep	2.525	-2.88%	Jan
2007	forecast	6.635	0.38%	Dec	6.250	0.40%	Sep	2.530	0.20%	Jan
2008	forecast	6.660	0.38%	Dec	6.275	0.40%	Sep	2.535	0.20%	Jan
2009	forecast	6.685	0.38%	Dec	6.300	0.40%	Sep	2.540	0.20%	Jan
2010	forecast	6.710	0.37%	Dec	6.325	0.40%	Sep	2.545	0.20%	Jan
2011	forecast	6.735	0.37%	Dec	6.350	0.40%	Sep	2.550	0.20%	Jan

	PM Peak		AM Peak		Min Load	
2 year avg	6.575	-1.79%	6.150	0.01%	2.600	2.00%
3 year avg	6.583	-1.20%	6.167	0.01%	2.567	0.05%
5 year avg	6.560	-0.41%	6.120	0.05%	2.520	-0.63%
10 year avg	6.620	-0.90%	6.095	0.71%	2.540	1.09%

*** 2005 minimum load = 1.80 in February. Unit problem caused outlier.**



LANAI AM AND PM PEAK ESTIMATE SUMMARY

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
AM Peak (KW)	4200	4200	4300	4540	4390	4800	4710	4710	4800	4750	4560	4600	4875	4900	4870	5201	5581	5624	5724	5802	5867	5926	5985	6045	6105	6166	6228	6290	6353	6417	6481	6546	6611	6677	6744	6811	6880
AM Peak (% Change)		0.0	2.4	5.6	-3.3	9.3	-1.9	0.0	1.9	-1.0	-4.0	0.9	6.0	0.5	-0.6	6.8	7.3	0.8	1.8	1.4	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PM Peak (KW)	4200	4200	4300	4540	4390	4800	4710	4710	4800	4750	4560	4600	4875	4900	5150	5634	5926	5975	6078	6121	6183	6245	6307	6370	6434	6498	6563	6629	6695	6762	6830	6898	6967	7037	7107	7178	7250
PM Peak (% Change)	0.0	0.0	2.4	5.6	-3.3	9.3	-1.9	0.0	1.9	-1.0	-4.0	0.9	6.0	0.5	5.1	9.4	5.2	0.8	1.7	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum (KW)			1500	1730	1650	1748	1650	1810	1800	1925	1870	1825	1900	1770	1850	1869	1887	1906	1925	1944	1964	1983	2003	2023	2044	2064	2085	2105	2127	2148	2169	2191	2213	2235	2257	2280	2303
Minimum (% Change)				15.3	-4.6	5.9	-5.6	9.7	-0.6	6.9	-2.9	-2.4	4.1	-6.8	4.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Notes:
1) Bold numbers are recorded.
2) Forecast utilized Engineering Circuiting and Service Requests.

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DOCKET NO. 2006-0387
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Table 1.5

SUMMARY OF THE ANNUAL LOAD FACTORS BY RATE CLASS

Rate Class	Load Factor	Total kWh [1]	Class Peak kW [2]
F: Street Light Service	39%	5,730,312	1,664
G: General Service Non-demand	50%	103,717,725	23,845
H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service	52%	24,574,250	5,354
J: General Service Demand	66%	287,919,625	49,992
P: Large Power Service	75%	421,600,148	64,246
R: Residential Service	49%	461,426,909	107,748
Total System: January - December 2005	72%	1,304,968,969 [3]	206,500 [4]

Load factor (%) = 100 × (Total kWh) / (Peak Demand × 8,760 [the number of hours in the year])

[1] The sample estimates of total kWh are at the gross hourly generation level.

[2] The sample estimates of integrated 60-minute kW demand are also at the gross generation level.

[3] Recorded generation is at the gross generation level for January - December 2005.

[4] The recorded instantaneous peak demand of 206,500 kW is at the gross generation level.

Table 1.5
SUMMARY OF THE ANNUAL LOAD FACTORS BY RATE CLASS

Rate Class	Load Factor	Total kWh [1]	Class Peak kW [2]
F: Street Light Service	40%	525,353	150
G: General Service Non-demand	43%	4,391,744	1,170
H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service	49%	2,277,697	526
J: General Service Demand	62%	8,884,479	1,643
N: Contract Off-Peak and Interruptible Service	17%	940,105	619
P: Large Power Service	56%	8,951,501	1,818
R: Residential Service	49%	14,745,541	3,467
Total System: January - December 2005	73%	40,716,420 [3]	6,350 [4]

Load factor (%) = 100 × (Total kWh) / (Peak Demand × 8,760 [the number of hours in the year])

[1] The sample estimates of total kWh are at the gross hourly generation level.

[2] The sample estimates of integrated 60-minute kW demand are also at the gross generation level.

[3] Recorded generation is at the gross generation level for January - December 2005.

[4] The recorded instantaneous peak demand is at the gross generation level.

Table 1.5
SUMMARY OF THE ANNUAL LOAD FACTORS BY RATE CLASS

Rate Class	*Load Factor*	*Total kWh* [1]	*Class Peak kW* [2]
F: Street Light Service	36%	122,335	39
G: General Service Non-demand	61%	2,037,442	382
H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service	73%	587,715	92
J: General Service Demand	56%	6,501,991	1,329
P: Large Power Service	72%	12,583,551	1,988
R: Residential Service	46%	8,504,357	2,132
Total System: January - December 2005	67%	30,337,390 [3]	5,150 [4]

Load factor (%) = 100 × (Total kWh) / (Peak Demand × 8,760 [the number of hours in the year])

[1] The sample estimates of total kWh are at the gross hourly generation level.

[2] The sample estimates of Integrated 60-minute kW demand are also at the gross generation level.

[3] Recorded generation is at the gross generation level for January - December 2005.

[4] The recorded instantaneous peak demand of 5,150 kW is at the gross generation level.

MAUI ELECTRIC COMPANY, LIMITED
MAUI DIVISION

2007 TEST YEAR
SALES AND CUSTOMERS

Col.		A	B
Line	Rate Schedule	2007 Test Year Annual Sales (MWh)	2007 Test Year Average Monthly Number of Customers
1	R	430,167	51,398
2	G/J	364,386	8,773
3	H	21,075	233
4	P	391,961	121
5	F	5,340	169
6	Total	1,212,929	60,694

Source:

Column A and B: MECO 2006-2011 Sales & Peak Forecast issued July

MAUI ELECTRIC COMPANY, LIMITED
MOLOKAI DIVISION

2007 TEST YEAR
SALES AND CUSTOMERS

Col.		A	B
Line	Rate Schedule	2007 Test Year Annual Sales (MWh)	2007 Test Year Average Monthly Number of Customers
1	R	13,077.0	2,546
2	G/J	11,979.0	540
3	H	1,994.2	32
4	P	9,019.4	14
5	F	478.5	9
6	Total	36,548.2	3,141

Source:

Column A and B: MECO 2006-2011 Sales & Peak Forecast issued July

MAUI ELECTRIC COMPANY, LIMITED
LANAI DIVISION

2007 TEST YEAR
SALES AND CUSTOMERS

Col.		A	B
Line	Rate Schedule	2007 Test Year Annual Sales (MWh)	2007 Test Year Average Monthly Number of Customers
1	R	8,182.7	1,372
2	G/J	8,164.0	224
3	H	545.0	4
4	P	12,773.9	3
5	F	113.7	3
6	Total	29,779.4	1,606

Source:

Column A and B: MECO 2006-2011 Sales & Peak Forecast issued July

[illegible]	Bills			
	Sal G	2256	83.93	188
	Sal J	432	[illegible]	36
		2688		224

Maui Electric Company, Ltd.

DATA REQUIREMENTS FOR COST-OF-SERVICE STUDY FOR MECO DOCKET_____

Distribution Transformer Costs For Typical Customers
Data Period: 2006

RATE CLASS	SERVICE VOLTAGE	PHASE	KVA SIZE	TYPICAL INSTALLED COST/TRANSF.	BY ISLAND	EST. FORM #	TYPICAL NO. OF CUST./TRANSF
R,E	Secondary	1	15	$ 2,670.79	Maui	31	1
				$ 2,695.41	Lanai	32	1
				$ 2,658.75	Molokai	33	1
G	Secondary	1	25	$ 2,972.85	Maui	34	1
				$ 2,997.47	Lanai	35	1
				$ 2,960.81	Molokai	36	1
G	Secondary	3	3-15	$ 6,690.07	Maui	40	1
				$ 6,735.54	Lanai	41	1
				$ 6,668.83	Molokai	42	1
J	Secondary	1	50	$ 3,382.69	Maui	37	1
				$ 3,407.31	Lanai	38	1
				$ 3,370.65	Molokai	39	1
J	Secondary	3	3-25	$ 7,596.27	Maui	43	1
				$ 7,641.74	Lanai	44	1
				$ 7,575.03	Molokai	45	1
H	Secondary	1	25	$ 2,972.85	Maui	34	1
				$ 2,997.47	Lanai	35	1
				$ 2,960.81	Molokai	36	1
H	Secondary	3	3-15	$ 6,690.07	Maui	40	1
				$ 6,735.54	Lanai	41	1
				$ 6,668.83	Molokai	42	1
K	Secondary	1	50	$ 3,382.69	Maui	37	1
				$ 3,407.31	Lanai	38	1
				$ 3,370.65	Molokai	39	1
K	Secondary	3	3-25	$ 7,596.27	Maui	43	1
				$ 7,641.74	Lanai	44	1
				$ 7,575.03	Molokai	45	1
P	Primary	3	3-167	$ 25,014.32	Maui	46	1
				$ 25,202.74	Lanai	47	1
				$ 24,922.68	Molokai	48	1
F	Secondary	1	15	$ 2,670.79	Maui	31	1
				$ 2,695.41	Lanai	32	1
				$ 2,658.75	Molokai	33	1

Cc: Neal Shinyama

Maui Electric Company, Ltd.

DATA REQUIREMENTS FOR COST-OF-SERVICE STUDY FOR MECO DOCKET_____

Public Street Light Costs By Type of Street Light
Data Period: 2006

RATE CLASS	SERVICE VOLTAGE	PHASE	WATT SIZE	TYPICAL INSTALLED COST	BY ISLAND	EST. FORM #
F	Secondary	1	100	$ 2,034.44	Maui	49
				$ 2,046.75	Lanai	50
				$ 2,027.92	Molokai	51
F	Secondary	1	150	$ 1,815.02	Maui	52
				$ 1,827.33	Lanai	53
				$ 1,808.50	Molokai	54
F	Secondary	1	250	$ 1,818.75	Maui	55
				$ 1,831.06	Lanai	56
				$ 1,812.23	Molokai	57

Cc: Neal Shinyama

Maui Electric Company, Ltd.

DATA REQUIREMENTS FOR COST-OF-SERVICE STUDY FOR MECO DOCKET____

Typical 60 Feet Service Drop Costs By Customer Class for Data Period: 2006

RATE CLASS	SERVICE VOLTAGE	PHASE	60 FT. SERVICE DROP BY SIZE	INSTALLED COST/SERVICE	TYPICAL BY ISLAND	ESTIMATE FORM #
R,E	Secondary	1	#4 Alum Tplx	$ 633.29	Maui	1
				$ 641.83	Lanai	2
				$ 629.61	Molokai	3
G	Secondary	1	#4 Alum Tplx	$ 633.29	Maui	1
				$ 641.83	Lanai	2
				$ 629.61	Molokai	3
G	Secondary	3	#1/o Alum Quad	$ 842.29	Maui	7
				$ 854.60	Lanai	8
				$ 835.77	Molokai	9
J	Secondary	1	#1/o Alum Tplx	$ 677.91	Maui	4
				$ 686.45	Lanai	5
				$ 674.23	Molokai	6
J	Secondary	3	#1/o Alum Quad	$ 842.29	Maui	7
				$ 854.60	Lanai	8
				$ 835.77	Molokai	9
J	Primary	3	#1/o AAC	$ 3,676.82	Maui	10
				$ 3,729.83	Lanai	11
				$ 3,650.90	Molokai	12
H	Secondary	1	#4 Alum Tplx	$ 633.29	Maui	1
				$ 641.83	Lanai	2
				$ 629.61	Molokai	3
H	Secondary	3	#1/o Alum Quad	$ 842.29	Maui	7
				$ 854.60	Lanai	8
				$ 835.77	Molokai	9
K	Secondary	1	#1/o Alum Tplx	$ 677.91	Maui	4
				$ 686.45	Lanai	5
				$ 674.23	Molokai	6
K	Secondary	3	#1/o Alum Quad	$ 842.29	Maui	7
				$ 854.60	Lanai	8
				$ 835.77	Molokai	9
P	Primary	3	#1/o AAC	$ 3,676.82	Maui	10
				$ 3,729.83	Lanai	11
				$ 3,650.90	Molokai	12
P	Secondary	3	#336.4 Alum	$ 3,765.82	Maui	13
				$ 3,818.83	Lanai	14
				$ 3,739.90	Molokai	15
F	Secondary	1	#4 Alum Tplx	$ 633.29	Maui	1
				$ 641.83	Lanai	2
				$ 629.61	Molokai	3

Cc: Neal Shinyama

Maui Electric Company, Ltd.

DATA REQUIREMENTS FOR COST-OF-SERVICE STUDY FOR MECO DOCKET_____

Typical 100 Feet Service Drop Costs By Customer Class for Data Period: 2006

RATE CLASS	SERVICE VOLTAGE	PHASE	100 FT. SERVICE DROP BY SIZE	INSTALLED COST/SERVICE	TYPICAL BY ISLAND	ESTIMATE FORM #
R,E	Secondary	1	#4 Alum Tplx	$ 648.58	Maui	16
				$ 657.12	Lanai	17
				$ 644.90	Molokai	18
G	Secondary	1	#4 Alum Tplx	$ 648.58	Maui	16
				$ 657.12	Lanai	17
				$ 644.90	Molokai	18
G	Secondary	3	#1/o Alum Quad	$ 926.41	Maui	22
				$ 938.72	Lanai	23
				$ 919.89	Molokai	24
J	Secondary	1	#1/o Alum Tplx	$ 720.64	Maui	19
				$ 729.18	Lanai	20
				$ 716.96	Molokai	21
J	Secondary	3	#1/o Alum Quad	$ 926.41	Maui	22
				$ 938.72	Lanai	23
				$ 919.89	Molokai	24
J	Primary	3	#1/o AAC	$ 3,701.92	Maui	25
				$ 3,754.93	Lanai	26
				$ 3,676.00	Molokai	27
H	Secondary	1	#4 Alum Tplx	$ 648.58	Maui	16
				$ 657.12	Lanai	17
				$ 644.90	Molokai	18
H	Secondary	3	#1/o Alum Quad	$ 926.41	Maui	22
				$ 938.72	Lanai	23
				$ 919.89	Molokai	24
K	Secondary	1	#1/o Alum Tplx	$ 720.64	Maui	19
				$ 729.18	Lanai	20
				$ 716.96	Molokai	21
K	Secondary	3	#1/o Alum Quad	$ 926.41	Maui	22
				$ 938.72	Lanai	23
				$ 919.89	Molokai	24
P	Primary	3	#1/o AAC	$ 3,701.92	Maui	25
				$ 3,754.93	Lanai	26
				$ 3,676.00	Molokai	27
P	Secondary	3	#336.4 Alum	$ 3,826.08	Maui	28
				$ 3,879.09	Lanai	29
				$ 3,800.16	Molokai	30
F	Secondary	1	#4 Alum Tplx	$ 648.58	Maui	16
				$ 657.12	Lanai	17
				$ 644.90	Molokai	18

Cc: Neal Shinyama

DATA REQUIREMENTS FOR COST-OF-SERVICE STUDY
FOR MECO DOCKET_____

Typical Meter Cost By Customer Class
Data Period: 2006

RATE CLASS	METER TYPE	SERVICE VOLTAGE	PHASE	TYPICAL COST/METER.	BY ISLAND	EST. FORM #
R,E	Non-Demand	Secondary	1	$ 505.83	Maui	58
				$ 517.56	Lanai	59
				$ 499.28	Molokai	60
G	Non-Demand	Secondary	1	$ 554.75	Maui	61
				$ 566.48	Lanai	62
				$ 548.20	Molokai	63
			3	$ 674.52	Maui	67
				$ 686.25	Lanai	68
				$ 667.97	Molokai	69
J	Demand	Secondary	1	$ 598.61	Maui	64
				$ 610.34	Lanai	65
				$ 592.06	Molokai	66
			3	$ 674.52	Maui	67
				$ 686.25	Lanai	68
				$ 667.97	Molokai	69
			3	$ 1,879.69	Maui	70
				$ 1,895.57	Lanai	71
				$ 2,013.97	Molokai	72
J	Demand	Primary	3	$ 2,363.77	Maui	73
				$ 3,254.49	Lanai	74
				$ 3,609.69	Molokai	75
H	Non-Demand	Secondary	1	$ 554.75	Maui	61
				$ 566.48	Lanai	62
				$ 548.20	Molokai	63
			3	$ 674.52	Maui	67
				$ 686.25	Lanai	68
				$ 667.97	Molokai	69
K	Demand	Secondary	1	$ 598.61	Maui	64
				$ 610.34	Lanai	65
				$ 592.06	Molokai	66
			3	$ 674.52	Maui	67
				$ 686.25	Lanai	68
				$ 667.97	Molokai	69

DATA REQUIREMENTS FOR COST-OF-SERVICE STUDY FOR MECO DOCKET_____

Typical Meter Cost By Customer Class
Data Period: 2006

RATE CLASS	METER TYPE	SERVICE VOLTAGE	PHASE	TYPICAL COST/METER,	BY ISLAND	EST. FORM #
K	Demand	Secondary	3	$ 1,879.69	Maui	70
				$ 1,895.57	Lanai	71
				$ 2,013.97	Molokai	72
K	Demand	Primary	3	$ 2,363.77	Maui	73
				$ 3,254.49	Lanai	74
				$ 3,609.69	Molokai	75
P	Demand	Transmission	3	$ 6,373.68	Maui ✓	76
				$ 7,746.14	Lanai ✓	77
				$ 8,219.74	Molokai ✓	78
		Primary	3	$ 2,363.77	Maui ✓	73
				$ 3,254.49	Lanai ✓	74
				$ 3,609.69	Molokai ✓	75
		Secondary	3	$ 2,363.77	Maui ✓	73
				$ 3,254.49	Lanai ✓	74
				$ 3,609.69	Molokai ✓	75
F	Non-Demand	Secondary	1	$ 505.83	Maui ✓	58
				$ 517.56	Lanai ✓	59
				$ 499.28	Molokai ✓	60

Cc: Neal Shinyama

MAUI ELECTRIC COMPANY, LTD. - Maui DIVISION
SUMMARY OF COST ALLOCATION FACTORS
TEST YEAR 1999, DOCKET NO. 97-0346

		RESIDENTIAL SERVICE R	GEN SRV NON-DMD G	GEN SRV DEMAND J	COMMERCIAL SERVICE H	LARGE POWER P	STREET LIGHTING F	TOTAL SYSTEM
CUSTOMER ALLOCATION FACTORS	UNITS							
AVERAGE CUSTOMERS	NUMBER	SERVICE R	NON-DMD G	DEMAND J	SERVICE H	POWER P	LIGHTING F	TOTAL SYSTEM
CUSTOMER ALLOCATION FACTORS	UNITS							
AVERAGE CUSTOMERS	NUMBER	44,355	5,742	1,094	279	107	135	51,712
AVERAGE CUSTOMERS C10	%	85.773	11.104	2.116	.540	.207	.261	100.000
PRIM LINE WGT FACTOR	RATIO	1.00	1.36	1.90	1.80	2.00	1.00	1.07
PRIM LINE WTD CUSTOMERS	NUMBER	44,355	7,924	2,079	502	214	135	55,209
PRIM LINE ALLOC FACTOR C1	%	80.341	14.353	3.765	.910	.388	.245	100.000
SEC LINE WGT FACTOR	RATIO	1.00	1.12	1.30	1.26	1.33	1.00	1.02
SEC LINE WTD CUSTOMERS	NUMBER	44,355	6,431	1,422	352	142	135	52,837
SEC LINE ALLOC FACTOR C2	%	83.947	12.171	2.692	.665	.269	.256	100.000
TRANSF WGT FACTOR	RATIO	1.00	1.83	3.22	2.76	8.09	1.00	1.16
TRANSF WTD CUSTOMERS	NUMBER	44,355	10,508	3,523	770	866	135	60,156
TRANSF ALLOC FACTOR C3	%	73.733	17.468	5.856	1.280	1.439	.224	100.000
SERVICE WGT FACTOR	RATIO	1.00	1.23	1.59	1.44	4.78	1.00	1.05
SERVICE WTD CUSTOMERS	NUMBER	44,355	7,063	1,739	413	511	135	54,217
SERVICE ALLOC FACTOR C4	%	81.811	13.027	3.208	.762	.943	.249	100.000
METER WGT FACTOR	RATIO	1.00	2.07	3.58	2.79	24.52	1.00	1.23
METER WTD CUSTOMERS	NUMBER	44,355	11,886	3,917	778	2,624	135	63,695
METER ALLOC FACTOR C5	%	69.617	18.661	6.149	1.222	4.119	.212	100.000
CUSTOMER ACCT WGT FACTOR	RATIO	1.00	1.36	2.64	1.49	3.30	1.00	1.08
CUST ACCT WTD CUSTOMERS	NUMBER	44,355	7,809	2,888	416	353	135	55,956
CUST ACCT ALLOC FACTOR C6	%	79.268	13.956	5.161	.743	.631	.241	100.000
BAD DEBT ALLOC FACTOR C7	%	62.960	17.320	12.690	7.130	.000	.000	100.000
CUSTOMER SERV ALLOC FCT C8	%	21.610	6.200	24.330	16.970	31.940	.050	100.000
STREET LIGHTING AL FCT C9	%	.000	.000	.000	.000	.000	100.000	100.000

MAUI ELECTRIC COMPANY, LTD. - LANAI DIVISION
SUMMARY OF COST ALLOCATION FACTORS
TEST YEAR 1999, DOCKET NO. 97-0346

		UNITS	RESIDENTIAL SERVICE R	GEN SRV NON-DMD G	GEN SRV DEMAND J	COMMERCIAL SERVICE H	LARGE POWER P	STREET LIGHTING F	TOTAL SYSTEM
CUSTOMER ALLOCATION FACTORS									
AVERAGE CUSTOMERS		NUMBER	1,206	135	26	5	3	6	1,381
AVERAGE CUSTOMERS	C10	%	87.328	9.776	1.883	.362	.217	.434	100.000
PRIM LINE WGT FACTOR		RATIO	1.00	1.17	1.95	1.23	2.00	1.00	1.04
PRIM LINE WTD CUSTOMERS		NUMBER	1,206	158	51	6	6	6	1,433
PRIM LINE ALLOC FACTOR	C1	%	84.171	11.024	3.539	.428	.419	.419	100.000
SEC LINE WGT FACTOR		RATIO	1.00	1.06	1.31	1.08	1.33	1.00	1.01
SEC LINE WTD CUSTOMERS		NUMBER	1,206	143	34	5	4	6	1,399
SEC LINE ALLOC FACTOR	C2	%	86.232	10.232	2.435	.386	.285	.429	100.000
TRANSF WGT FACTOR		RATIO	1.00	1.38	2.89	1.57	6.09	1.00	1.09
TRANSF WTD CUSTOMERS		NUMBER	1,206	186	75	8	18	6	1,500
TRANSF ALLOC FACTOR	C3	%	80.424	12.424	5.011	.523	1.218	.400	100.000
SERVICE WGT FACTOR		RATIO	1.00	1.10	1.58	1.14	5.14	1.00	1.03
SERVICE WTD CUSTOMERS		NUMBER	1,206	149	41	6	15	6	1,423
SERVICE ALLOC FACTOR	C4	%	84.768	10.438	2.887	.401	1.084	.422	100.000
METER WGT FACTOR		RATIO	1.00	2.09	4.70	2.35	25.14	1.00	1.23
METER WTD CUSTOMERS		NUMBER	1,206	282	122	12	76	6	1,704
METER ALLOC FACTOR	C5	%	70.770	16.557	7.171	.690	4.461	.352	100.000
CUSTOMER ACCT WGT FACTOR		RATIO	1.00	1.28	3.51	1.39	3.25	1.11	1.06
CUST ACCT WTD CUSTOMERS		NUMBER	1,206	173	65	7	10	7	1,467
CUST ACCT ALLOC FACTOR	C6	%	82.185	11.776	4.447	.474	.664	.454	100.000
BAD DEBT ALLOC FACTOR	C7	%	88.350	11.650	.000	.000	.000	.000	100.000
CUSTOMER SERV ALLOC FCT	C8	%	5.000	5.000	10.000	20.000	40.000	.000	100.000
STREET LIGHTING AL FCT	C9	%	.000	.000	.000	.000	.000	100.000	100.000

MAUI ELECTRIC COMPANY, LTD. - MOLOKAI DIVISION
SUMMARY OF COST ALLOCATION FACTORS
TEST YEAR 1999, DOCKET NO. 97-0346

		UNITS	RESIDENTIAL SERVICE R	GEN SRV NON-DMD G	GEN SRV DEMAND J	COMMERCIAL SERVICE H	LARGE POWER P	STREET LIGHTING F	TOTAL SYSTEM
CUSTOMER ALLOCATION FACTORS									
AVERAGE CUSTOMERS		NUMBER	2,399	399	61	31	12	10	2,912
AVERAGE CUSTOMERS	C10	%	82.383	13.702	2.095	1.065	.412	.343	100.000
PRIM LINE WGT FACTOR		RATIO	1.00	1.18	1.80	1.77	2.00	1.00	1.05
PRIM LINE WTD CUSTOMERS		NUMBER	2,399	471	110	55	24	10	3,068
PRIM LINE ALLOC FACTOR	C1	%	78.182	15.344	3.578	1.788	.782	.326	100.000
SEC LINE WGT FACTOR		RATIO	1.00	1.06	1.26	1.26	1.33	1.00	1.02
SEC LINE WTD CUSTOMERS		NUMBER	2,399	423	77	39	16	10	2,964
SEC LINE ALLOC FACTOR	C2	%	80.943	14.270	2.593	1.318	.538	.337	100.000
TRANSF WGT FACTOR		RATIO	1.00	1.49	3.05	2.53	10.19	1.00	1.16
TRANSF WTD CUSTOMERS		NUMBER	2,399	595	186	78	122	10	3,390
TRANSF ALLOC FACTOR	C3	%	70.761	17.536	5.488	2.313	3.607	.295	100.000
SERVICE WGT FACTOR		RATIO	1.00	1.11	1.51	1.47	4.37	1.00	1.04
SERVICE WTD CUSTOMERS		NUMBER	2,399	443	92	46	52	10	3,042
SERVICE ALLOC FACTOR	C4	%	78.862	14.559	3.028	1.498	1.724	.329	100.000
METER WGT FACTOR		RATIO	1.00	2.11	4.31	3.32	17.25	1.00	1.31
METER WTD CUSTOMERS		NUMBER	2,399	842	263	103	207	10	3,824
METER ALLOC FACTOR	C5	%	62.740	22.018	6.876	2.692	5.414	.262	100.000
CUSTOMER ACCT WGT FACTOR		RATIO	1.00	1.64	2.72	1.64	2.81	1.00	1.14
CUST ACCT WTD CUSTOMERS		NUMBER	2,399	654	166	51	34	10	3,314
CUST ACCT ALLOC FACTOR	C6	%	72.393	19.746	5.007	1.534	1.018	.302	100.000
BAD DEBT ALLOC FACTOR	C7	%	71.460	12.680	.000	15.860	.000	.000	100.000
CUSTOMER SERV ALLOC FCT	C8	%	5.000	5.000	30.000	20.000	40.000	.000	100.000
STREET LIGHTING AL FCT	C9	%	.000	.000	.000	.000	.000	100.000	100.000

MECO APUA - Uncollectibles Expense by Tariff and Rate Schedule

TARIFF	YEAR	RATE E	E1	F	F2	G	G1	GD	GND	GNM	GNX	H	H1	J	JS	JNM	K	P	PO	P3	P4	R	RM	RNM	SX1	VAR	XXX	Grand Total
3 - Maui	1999	$ 319	$ 42			$ 24,902		$ 5,090						$ 78,748			$ 235	$ 51,343				$ 163,899			$1,440		$ 428	$ 324,443
	2000	$ 720				$ 22,545		$ 5,878				$ 717		$ 33,469			$ 1,084	$ 12,415				$ 177,839			$1,226	$ 2,110		$ 258,003
	2001	$ 347				$ 26,694		$ 17,804				$1,390		$ 72,724			$ 2,031					$ 219,757			$1,271	$14,507		$ 356,526
	2002	$ 84			$ 526	$ 18,811		$ 25,507				$ 708		$ 41,042			$ 6,616	$ 43,705				$ 198,289	$ 996		$1,280	$ 6,623		$ 341,988
	2003					$ 25,629		$ 33,153						$ 48,587			$16,003					$ 178,810			$2,480			$ 304,643
	2004	$ 487	$129		$ 378	$ 32,691		$ 16,782		$ 24		$2,405		$ 26,712	$ 46	$250	$ 4,432	$ 4,134		$3,178		$ 359,666	$ 3	$142	$ 620	$18,462	$3,770	$ 474,310
	2005	$ 307	$159		$ 636	$ 33,036		$ 8,085		$ 72		$ 515		$ 33,085	$ 62		$ 3,649	$ 4,373			$483	$ 371,190	$ 14	$218		$26,455	$2,984	$ 485,522
Maui Total Dollars		$2,264	$329		$1,540	$184,108		$112,299		$ 96		$5,732		$332,345	$108	$250	$34,251	$115,970		$3,178	$483	$1,667,450	$1,014	$389	$8,218	$68,157	$7,182	$2,545,434
4 - Lanai	1999													$ 1,085								$ 6,066						$ 7,151
	2000				$ 754	$ 1,147																$ 4,684						$ 6,585
	2001					$ 218																$ 6,437						$ 6,655
	2002																					$ 8,276			$ 33			$ 8,309
	2003					$ 412																$ 10,094						$ 10,506
	2004	$ 16		$ 0		$ 988						$ 153		$ 244								$ 7,675		$ 18			$ 12	$ 9,105
	2005	$ 11				$ 756		$ 18				$ 377		$ 420			$ 51					$ 9,389		$ 18				$ 11,009
Lanai Total Dollars		$ 27		$ 0	$ 754	$ 3,521		$ 18				$ 630		$ 1,728			$ 51					$ 52,642		$ 36	$ 33		$ 12	$ 59,360
5 - Molokai	1999								$ 6,843			$1,464										$ 6,942						$ 15,249
	2000								$ 1,734					$ 1,308								$ 9,801						$ 12,843
	2001								$ 758													$ 11,459				$ 3,515		$ 15,732
	2002	$ 222							$ 624					$ 2,627								$ 7,959			$ 59			$ 11,491
	2003								$ 59		$ 33			$ 2,738								$ 6,498						$ 9,327
	2004	$ 2	$ 31		$ 10				$ 2,310		$131	$ 312	$217	$ 651					$ 710	$ 17		$ 18,155				$ 289	$ 11	$ 22,846
	2005	$ 22	$ 18		$ 17		$ 15		$ 3,064		$ 79	$ 519	$462	$ 1,379					$2,163	$ 267		$ 21,245				$ 421	$ 50	$ 29,721
Molokai Total Dollars		$ 246	$ 49		$ 27		$ 15		$15,390		$243	$2,295	$679	$ 6,764					$2,874	$ 284		$ 82,058			$ 59	$ 4,225	$ 61	$ 117,209
Consolidated	1999	$ 319	$ 42	$-	$ -	$ 24,902	$ -	$ 5,090	$ 6,843	$ -	$ -	$1,464	$ -	$ 77,811	$ -	$ -	$ 235	$ 51,343	$ -	$ -	$ -	$ 176,927	$ -	$ -	$1,440	$ -	$ 428	$ 346,843
	2000	$ 720	$ -	$-	$ 754	$ 23,692	$ -	$ 5,878	$ 1,734	$ -	$ -	$ 717	$ -	$ 34,777	$ -	$ -	$ 1,084	$ 12,415	$ -	$ -	$ -	$ 192,324	$ -	$ -	$1,226	$ 2,110	$ -	$ 277,430
	2001	$ 347	$ -	$-	$ -	$ 26,912	$ -	$ 17,804	$ 758	$ -	$ -	$1,390	$ -	$ 72,724	$ -	$ -	$ 2,031	$ -	$ -	$ -	$ -	$ 237,854	$ -	$ -	$1,271	$18,022	$ -	$ 378,913
	2002	$ 306	$ -	$-	$ 528	$ 18,611	$ -	$ 25,507	$ 624	$ -	$ -	$ 708	$ -	$ 43,669	$ -	$ -	$ 6,616	$ 43,705	$ -	$ -	$ -	$ 212,525	$ 996	$ -	$1,372	$ 6,623	$ -	$ 361,768
	2003	$ -	$ -	$-	$ -	$ 26,041	$ -	$ 33,153	$ 59	$ -	$ 33	$ -	$ -	$ 51,306	$ -	$ -	$16,003	$ -	$ -	$ -	$ -	$ 195,401	$ -	$ -	$2,480	$ -	$ -	$ 324,476
	2004	$ 505	$159	$ 0	$ 385	$ 33,679	$ -	$ 16,782	$ 2,310	$ 24	$131	$2,868	$217	$ 27,807	$ 46	$250	$ 4,432	$ 4,134	$ 710	$3,195	$ -	$ 385,498	$ 3	$ 159	$ 620	$18,751	$3,793	$ 506,261
	2005	$ 340	$177	$-	$ 654	$ 33,792	$ 15	$ 8,103	$ 3,064	$ 72	$ 79	$1,410	$462	$ 34,884	$ 62	$ -	$ 3,900	$ 4,373	$2,163	$ 267	$483	$ 401,823	$ 14	$235	$ -	$26,676	$3,033	$ 526,281
Consolidated Total Dollars		$2,537	$378	$ 0	$2,321	$187,628	$ 15	$112,317	$15,390	$ 96	$243	$8,556	$679	$342,778	$108	$250	$34,302	$115,970	$2,874	$3,462	$483	$1,802,150	$1,014	$395	$8,409	$72,382	$7,255	$2,721,993

[illegible]

	Maui		Lanai		Molokai	
[illegible]	1671416	65.66	56,704	48.80	82,353	70.26
[illegible]	296,503	11.65	3529	5.46	15,648	13.35
[illegible]	416,360	16.36	1722	2.97	13,049	11.13
[illegible]	39,382	01.57	581	0.98	2924	2.49
[illegible]	115,631	04.54	0	0	3158	2.69
[illegible]	1940	00.06	724	1.24	29	0.02
	[illegible]		$58,551		117,209	

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Table 1.1
Allocation of MECO System Losses
For the Test Year of 2007

		Energy (MWH)	Energy Percent	Max Demand (MW)	Max Demand Percent	Min Demand (MW)	Min Demand Percent
A.	Total Generation	1,316,401		[illegible]		[illegible]	
	IPP Generation	[illegible]		[illegible]		[illegible]	
	MECO Gross Generation	1,[illegible]974		187.55		64.25	
	MECO Auxiliary Loss	20,451		3.91		1.71	
B.	Delivered to MECO Generator Step-Up	1,080,523	83.71%	183.64	87.95%	62.54	74.01%
	IPP Generation	215,427	16.69%	26.25	12.57%	22.25	26.33%
	MECO Generator Step-Up Loss	5,091	0.39%	1.08	0.52%	0.29	0.34%
C.	Delivered to 69/23 kV Transmission	1,290,859	100.00%	208.80	100.00%	84.50	100.00%
	69 kV Transmission Loss	14,954	1.16%	3.19	1.52%	[illegible]	0.51%
	23 kV Transmission Loss	8,600	0.67%	1.83	0.88%	[illegible]	0.45%
D.	Delivered to 69/23 kV Distribution Substations	1,267,304	98.18%	203.79	97.60%	83.68	99.04%
	Transformation Loss	6,859	0.53%	1.46	0.70%	0.73	0.86%
E.	Delivered to Distribution Lines	1,260,445	97.64%	202.33	96.90%	82.96	98.18%
	Distribution Line Loss	32,704	2.53%	6.96	3.33%	2.66	3.15%
F.	Delivered to Distribution/Secondary Transformation	1,227,741	95.11%	195.37	93.57%	80.29	95.03%
	Transformation Loss	7,184	0.56%	1.53	0.73%	1.43	1.69%
G.	Delivered to Secondary	1,220,557	94.55%	193.84	92.84%	78.87	93.34%
	Secondary Loss	6,508	0.50%	1.38	0.66%	0.33	0.39%
H.	**Delivered to Meter**	1,214,049	94.05%	192.46	92.17%	78.53	92.94%
	Company Use	1,709	0.13%	0.30	0.14%	0.10	0.12%
	Sales	1,212,340	93.92%	192.16	92.03%	78.43	92.83%
	Total Losses	76,810	5.95%	16.34	7.83%	5.96	7.06%
	System Net Total	1,290,859		208.80		84.50	

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

M. Ribao
PRODUCTION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
PRODUCTION OPER					
LABOR	4,583	0	4,583	0	4,583
NON-LABOR	4,079	(347)	3,732	0	3,732
TOTAL	8,662	(347)	8,315	0	8,315
PRODUCTION MAINT					
LABOR	3,621	0	3,621	0	3,621
NON-LABOR	9,780	24	9,804	(2,997)	6,807
TOTAL	13,401	24	13,425	(2,997)	10,428
PRODUCTION - TOTAL					
LABOR	8,204	0	8,204	0	8,204
NON-LABOR	13,859	(324)	13,535	(2,997)	10,538
TOTAL	22,063	(324)	21,739	(2,997)	18,742

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

A. Herrera
TRANSMISSION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
TRANSMISSION OPER					
LABOR	321		321		321
NON-LABOR	422		422		422
TOTAL	743	0	743	0	743
TRANSMISSION MAINT					
LABOR	561		561		561
NON-LABOR	1,053		1,053		1,053
TOTAL	1,614	0	1,614	0	1,614
TRANSMISSION - TOTAL					
LABOR	882	0	882	0	882
NON-LABOR	1,475	0	1,475	0	1,475
TOTAL	2,357	0	2,357	0	2,357

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 (S1000S)
MAUI DIVISION

A. Herrera
DISTRIBUTION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
DISTRIBUTION OPER					
LABOR	1,772	0	1,772		1,772
NON-LABOR	1 260	0	1,260		1,260
TOTAL	3,032	0	3,032	0	3,032
DISTRIBUTION MAINT					
LABOR	978		978		978
NON-LABOR	1,633		1,633		1,633
TOTAL	2,611	0	2,611	0	2,611
DISTRIBUTION - TOTAL					
LABOR	2,750	0	2,750	0	2,750
NON-LABOR	2,893	0	2,893	0	2,893
TOTAL	5,643	0	5,643	0	5,643

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
S. Suzuki					
CUSTOMER ACCTS EXPENSE					
90100 SUPERVISION					
LABOR	110	0	110		110
NON-LABOR	14	0	14		14
TOTAL 90100	124	0	124	0	124
90200 METER READING EXPENSES					
LABOR	483		483		483
NON-LABOR	190		190		190
TOTAL 90200	673	0	673	0	673
90300 CUSTOMER RECORDS & COLLECT EXP					
LABOR	1,311		1,311		1,311
NON-LABOR	650		650		650
TOTAL 90300	1,961	0	1,961	0	1,961
SUBTOTAL	2,758	0	2,758	0	2,758
90400 UNCOLLECTIBLE ACCOUNTS					
NON-LABOR	137		137		137
TOTAL 90400	137	0	137	0	137
90500 MISC CUSTOMER ACCOUNTS EXP					
NON-LABOR					
TOTAL 90500		0		0	
CUSTOMER ACCOUNTS EXPENSE - TOTAL					
LABOR	1,904	0	1,904	0	1,904
NON-LABOR	991	0	991	0	991
TOTAL	2,895	0	2,895	0	2,895
S. Suzuki					
CUSTOMER SVC EXPENSE					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
90900 SUPERVISION					
LABOR	58		58		58
NON-LABOR	7		7		7
TOTAL 90900	65	0	65	0	65
91000 CUSTOMER EXPENSES					
LABOR	373	0	373		373
NON-LABOR	2,620	0	2,620		2,620
TOTAL 91000	2,993	0	2,993	0	2,993
91100 INFORMATIONAL ADVERTISING EXP					
LABOR	4	0	4		4
NON-LABOR	30		30		30
TOTAL 91100	34	0	34	0	34
CUSTOMER SERVICE EXPENSE - TOTAL					
LABOR	435	0	435	0	435
NON-LABOR	2,657	0	2,657	0	2,657
TOTAL	3,092	0	3,092	0	3,092

L. Matsunaga
ADMIN & GENL O & M EXPENSE
A&G OPERATIONS
ADMINISTRATIVE
92000 ADMIN & GENL EXP - LABR

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR	2,074		2,074		2,074
NON-LABOR	433		433		433
TOTAL 92000	2,507	0	2,507	0	2,507
92100 ADMIN & GENL EXP - NLABR					
LABOR					
NON-LABOR	1,006		1,006		1,006
TOTAL 92100	1,006	0	1,006	0	1,006
92201 ADMIN EXP TFRD TO CONSTR					
NON-LABOR	(981)		(981)		(981)
TOTAL 92201	(981)	0	(981)	0	(981)
92202 ADMIN EXP TFRD OTH THAN CONSTR					
LABOR		0			
NON-LABOR		0			
TOTAL 92202		0		0	
ADMINISTRATIVE - TOTAL					
LABOR	2,074		2,074		2,074
NON-LABOR	458		458		458
TOTAL	2,532	0	2,532	0	2,532
OUTSIDE SERVICES					
92301 LEGAL SERVICES					
NON-LABOR	20		20		20
TOTAL 92301	20	0	20	0	20
92302 OTHER OUTSIDE SERVICES					
NON-LABOR		0			
TOTAL 92302		0		0	
92303 OTHER SERVICES - ASSOC CO					
NON-LABOR	2,012	0	2,012		2,012
TOTAL 92303	2,012	0	2,012	0	2,012
TOTAL OS SVCS	2,032	0	2,032	0	2,032

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
INSURANCE					
92400 PROPERTY INSURANCE					
LABOR					
NON-LABOR	702		702		702
TOTAL 92400	702	0	702	0	702
92500 INJURIES & DAMAGES					
LABOR	262		262		262
NON-LABOR	1,042		1,042		1,042
TOTAL 92500	1,304	0	1,304	0	1,304
INSURANCE - TOTAL					
LABOR	262		262		262
NON-LABOR	1,744		1,744		1,744
TOTAL	2,006	0	2,006	0	2,006
EMPLOYEE BENEFITS					
92600 EMPL PENSIONS AND BENEFITS					
LABOR	82		82		82
NON-LABOR	8,017		8,017		8,017
TOTAL 92600	8,099	0	8,099	0	8,099
92601 EMPL BENEFITS - FLEX CREDITS					
NON-LABOR					
TOTAL 92601		0		0	
92602 EMPL BENEFITS - TRANSFER					
NON-LABOR	(2,238)		(2,238)		(2,238)
TOTAL 92602	(2,238)	0	(2,238)	0	(2,238)
EMPLOYEE BENEFITS - TOTAL					
LABOR	82		82		82
NON-LABOR	5,779		5,779		5,779
TOTAL	5,861	0	5,861	0	5,861
OTHER ADMIN & GENL					
92800 REGULATORY COMMISSION EXPENSES					
NON-LABOR		0			
TOTAL 92800		0		0	
93010 INSTITUTN/GOODWILL ADVERT EXP					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MAUI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR					
NON-LABOR	3		3		3
TOTAL 93010	3	0	3	0	3
93020 MISCELLANEOUS GENERAL EXPENSES					
LABOR	20		20		20
NON-LABOR	776		776		776
TOTAL 93020	796	0	796	0	796
93100 RENT EXPENSE - A&G					
NON-LABOR	6		6		6
TOTAL 93100	6	0	6	0	6
A&G OPERATIONS - TOTAL					
LABOR	2,438		2,438		2,438
NON-LABOR	10,798		10,798		10,798
TOTAL	13,236	0	13,236	0	13,236
A&G MAINTENANCE					
93200 ADMIN AND GENL MAINTENANCE					
LABOR	4		4		4
NON-LABOR	133		133		133
TOTAL 93200	137	0	137	0	137
A&G MAINTENANCE - TOTAL					
LABOR	4		4		4
NON-LABOR	133		133		133
TOTAL	137	0	137	0	137
ADMIN & GENL - TOTAL					
LABOR	2,442		2,442		2,442
NON-LABOR	10,931		10,931		10,931
TOTAL	13,373	0	13,373	0	13,373
O&M - TOTAL					
LABOR	16,617	0	16,617	0	16,617
NON-LABOR	32,806	(324)	32,482	(2,997)	29,485
TOTAL	49,423	(324)	49,099	(2,997)	46,102

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 (S1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
M. Ribao					
PRODUCTION O & M EXPENSE					
PRODUCTION OPER					
LABOR	416	0	416	0	416
NON-LABOR	249	0	249	0	249
TOTAL	665	0	665	0	665
PRODUCTION MAINT					
LABOR	155	0	155	0	155
NON-LABOR	100	0	100	175	275
TOTAL	255	0	255	175	430
PRODUCTION - TOTAL					
LABOR	571	0	571	0	571
NON-LABOR	349	0	349	175	524
TOTAL	920	0	920	175	1,095

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

A. Herrera
TRANSMISSION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
TRANSMISSION OPER					
LABOR					
NON-LABOR					
TOTAL		0		0	
TRANSMISSION MAINT					
LABOR					
NON-LABOR					
TOTAL		0		0	
TRANSMISSION - TOTAL					
LABOR		0		0	
NON-LABOR		0		0	
TOTAL		0		0	

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

A. Herrera
DISTRIBUTION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
DISTRIBUTION OPER					
LABOR	34		34		34
NON-LABOR	74		74		74
TOTAL	108	0	108	0	108
DISTRIBUTION MAINT					
LABOR	85		85		85
NON-LABOR	82		82		82
TOTAL	167	0	167	0	167
DISTRIBUTION - TOTAL					
LABOR	119	0	119	0	119
NON-LABOR	156	0	156	0	156
TOTAL	275	0	275	0	275

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
S. Suzuki					
CUSTOMER ACCTS EXPENSE					
90100 SUPERVISION					
LABOR					
NON-LABOR					
TOTAL 90100		0		0	
90200 METER READING EXPENSES					
LABOR	55		55		55
NON-LABOR	27		27		27
TOTAL 90200	82	0	82	0	82
90300 CUSTOMER RECORDS & COLLECT EXP					
LABOR	3		3		3
NON-LABOR	69		69		69
TOTAL 90300	72	0	72	0	72
SUBTOTAL	154	0	154	0	154
90400 UNCOLLECTIBLE ACCOUNTS					
NON-LABOR					
TOTAL 90400		0		0	
90500 MISC CUSTOMER ACCOUNTS EXP					
NON-LABOR					
TOTAL 90500		0		0	
CUSTOMER ACCOUNTS EXPENSE - TOTAL					
LABOR	58	0	58	0	58
NON-LABOR	96	0	96	0	96
TOTAL	154	0	154	0	154

S. Suzuki
CUSTOMER SVC EXPENSE

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
90900 SUPERVISION					
LABOR					
NON-LABOR					
TOTAL 90900		0		0	
91000 CUSTOMER ASSISTANCE EXPENSES					
LABOR					
NON-LABOR	1		1		1
TOTAL 91000	1	0	1	0	1
91100 INFORMATIONAL ADVERTISING EXP					
LABOR					
NON-LABOR					
TOTAL 91100		0		0	
CUSTOMER SERVICE EXPENSE - TOTAL					
LABOR		0		0	
NON-LABOR	1	0	1	0	1
TOTAL	1	0	1	0	1

L. Matsunaga
ADMIN & GENL O & M EXPENSE
A&G OPERATIONS
ADMINISTRATIVE
92000 ADMIN & GENL EXP - LABR

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR					
NON-LABOR					
TOTAL 92000		0		0	
92100 ADMIN & GENL EXP - NLABR					
LABOR					
NON-LABOR					
TOTAL 92100		0		0	
92201 ADMIN EXP TFRD TO CONSTR					
NON-LABOR					
TOTAL 92201		0		0	
92202 ADMIN EXP TFRD OTH THAN CONSTR					
LABOR					
NON-LABOR					
TOTAL 92202		0		0	
ADMINISTRATIVE - TOTAL					
LABOR		0		0	
NON-LABOR		0		0	
TOTAL		0		0	
OUTSIDE SERVICES					
92301 LEGAL SERVICES					
NON-LABOR					
TOTAL 92301		0		0	
92302 OTHER OUTSIDE SERVICES					
NON-LABOR					
TOTAL 92302		0		0	
92303 OTHER SERVICES - ASSOC CO					
NON-LABOR					
TOTAL 92303		0		0	
TOTAL OS SVCS		0		0	

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
INSURANCE					
92400 PROPERTY INSURANCE					
LABOR					
NON-LABOR					
TOTAL 92400		0		0	
92500 INJURIES & DAMAGES					
LABOR					
NON-LABOR					
TOTAL 92500		0		0	
INSURANCE - TOTAL					
LABOR		0		0	
NON-LABOR		0		0	
TOTAL		0		0	
EMPLOYEE BENEFITS					
92600 EMPL PENSIONS AND BENEFITS					
LABOR					
NON-LABOR					
TOTAL 92600		0		0	
92601 EMPL BENEFITS - FLEX CREDITS					
NON-LABOR					
TOTAL 92601		0		0	
92602 EMPL BENEFITS - TRANSFER					
NON-LABOR					
TOTAL 92602		0		0	
EMPLOYEE BENEFITS - TOTAL					
LABOR		0		0	
NON-LABOR		0		0	
TOTAL		0		0	
OTHER ADMIN & GENL					
92800 REGULATORY COMMISSION EXPENSES					
NON-LABOR					
TOTAL 92800		0		0	
93010 INSTITUTN/GOODWILL ADVERT EXP					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR					
NON-LABOR					
TOTAL 93010		0		0	
93020 MISCELLANEOUS GENERAL EXPENSE					
LABOR					
NON-LABOR	90		90		90
TOTAL 93020	90	0	90	0	90
93100-RENT EXPENSE - A&G					
NON-LABOR					
TOTAL 93100		0		0	
A&G OPERATIONS - TOTAL					
LABOR					
NON-LABOR	90		90		90
TOTAL	90	0	90	0	90
A&G MAINTENANCE					
93200 ADMIN AND GENL MAINTENANCE					
LABOR					
NON-LABOR	8		8		8

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 (S1000S)
LANAI DIVISION

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
TOTAL 93200	8	0	8	0	8
A&G MAINTENANCE - TOTAL					
LABOR					
NON-LABOR	8		8		8
TOTAL OTHER A&G	8	0	8	0	8
ADMIN & GENL - TOTAL					
LABOR					
NON-LABOR	98		98		98
TOTAL	98	0	98	0	98
O&M - TOTAL					
LABOR	748	0	748	0	748
NON-LABOR	700	0	700	175	875
TOTAL	1,448	0	1,448	175	1,623

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
M. Ribao					
PRODUCTION O & M EXPENSE					
PRODUCTION OPER					
LABOR	426	0	426	0	426
NON-LABOR	256	13	269	0	269
TOTAL	682	13	695	0	695
PRODUCTION MAINT					
LABOR	126	0	126	0	126
NON-LABOR	847	0	847	(490)	357
TOTAL	973	0	973	(490)	483
PRODUCTION - TOTAL					
LABOR	552	0	552	0	552
NON-LABOR	1,103	13	1,116	(490)	626
TOTAL	1,655	13	1,668	(490)	1,178
A. Herrera					
TRANSMISSION O & M EXPENSE					
TRANSMISSION OPER					
LABOR					
NON-LABOR	12		12		12
TOTAL	12	0	12	0	12
TRANSMISSION MAINT					
LABOR	10		10		10
NON-LABOR	11		11		11
TOTAL	21	0	21	0	21
TRANSMISSION - TOTAL					
LABOR	10	0	10	0	10
NON-LABOR	23	0	23	0	23
TOTAL	33	0	33	0	33
A. Herrera					
DISTRIBUTION O & M EXPENSE					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
DISTRIBUTION OPER					
LABOR	29		29		29
NON-LABOR	95		95		95
TOTAL	124	0	124	0	124
DISTRIBUTION MAINT					
LABOR	154		154		154
NON-LABOR	267		267		267
TOTAL	421	0	421	0	421
DISTRIBUTION - TOTAL					
LABOR	183	0	183	0	183
NON-LABOR	362	0	362	^	362
TOTAL	545				545

Rev Req = 454

S. Suzuki
CUSTOMER ACCTS EXPENSE

90100 SUPERVISION					
LABOR					
NON-LABOR					
TOTAL 90100		0		0	
90200 METER READING EXPENSES					
LABOR	44		44		44
NON-LABOR	15		15		15
TOTAL 90200	59	0	59	0	59
90300 CUSTOMER RECORDS & COLLECT EXP					
LABOR	123		123		123
NON-LABOR	56		56		56
TOTAL 90300	179	0	179	0	179
SUBTOTAL	238	0	238	0	238
90400 UNCOLLECTIBLE ACCOUNTS					
NON-LABOR					
TOTAL 90400		0		0	
90500 MISC CUSTOMER ACCOUNTS EXP					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
DISTRIBUTION OPER					
LABOR	29		29		29
NON-LABOR	95		95		95
TOTAL	124	0	124	0	124
DISTRIBUTION MAINT					
LABOR	154		154		154
NON-LABOR	267		267		267
TOTAL	421	0	421	0	421
DISTRIBUTION - TOTAL					
LABOR	183	0	183	0	183
NON-LABOR	362	0	362	0	362
TOTAL	545	0	545	0	545

S. Suzuki
CUSTOMER ACCTS EXPENSE

90100 SUPERVISION					
LABOR					
NON-LABOR					
TOTAL 90100		0		0	
90200 METER READING EXPENSES					
LABOR	44		44		44
NON-LABOR	15		15		15
TOTAL 90200	59	0	59	0	59
90300 CUSTOMER RECORDS & COLLECT EXP					
LABOR	123		123		123
NON-LABOR	56		56		56
TOTAL 90300	179	0	179	0	179
SUBTOTAL	238	0	238	0	238
90400 UNCOLLECTIBLE ACCOUNTS					
NON-LABOR					
TOTAL 90400		0		0	
90500 MISC CUSTOMER ACCOUNTS EXP					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
NON-LABOR					
TOTAL 90500		0		0	
CUSTOMER ACCOUNTS - TOTAL					
LABOR	167	0	167	0	167
NON-LABOR	71	0	71	0	71
TOTAL	238	0	238	0	238
S. Suzuki					
CUSTOMER SVC EXPENSE					
90900 SUPERVISION					
LABOR					
NON-LABOR					
TOTAL 90900		0		0	
91000 CUSTOMER ASSISTANCE EXPENSES					
LABOR					
NON-LABOR	2		2		2
TOTAL 91000	2	0	2	0	2
91100 INFORMATIONAL ADVERTISING EXP					
LABOR					
NON-LABOR					
TOTAL 91100		0		0	
CUSTOMER SERVICE EXPENSE - TOTAL					
LABOR		0		0	
NON-LABOR	2	0	2	0	2
TOTAL	2	0	2	0	2
L. Matsunaga					
ADMIN & GENL O & M EXPENSE					
A&G OPERATIONS					
ADMINISTRATIVE					
92000 ADMIN & GENL EXP - LABR					
LABOR	12		12		12
NON-LABOR					
TOTAL 92000	12	0	12	0	12
92100 ADMIN & GENL EXP - NLABR					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR	2		2		2
NON-LABOR	8		8		8
TOTAL 92100	10	0	10	0	10
92201 ADMIN EXP TFRD TO CONSTR					
NON-LABOR					
TOTAL 92201		0		0	
92202 ADMIN EXP TFRD OTH THAN CONSTR					
LABOR					
NON-LABOR					
TOTAL 92202		0		0	
ADMINISTRATIVE - TOTAL					
LABOR	14		14		14
NON-LABOR	8		8		8
TOTAL	22	0	22	0	22
OUTSIDE SERVICES					
92301 LEGAL SERVICES					
NON-LABOR					
TOTAL 92301		0		0	
92302 OTHER OUTSIDE SERVICES					
NON-LABOR					
TOTAL 92302		0		0	
92303 OTHER SERVICES - ASSOC CO					
NON-LABOR					
TOTAL 92303		0		0	
TOTAL OS SVCS		0		0	
INSURANCE					
92400 PROPERTY INSURANCE					
LABOR					
NON-LABOR					
TOTAL 92400		0		0	
92500 INJURIES & DAMAGES					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR					
NON-LABOR					
TOTAL 92500		0		0	
INSURANCE - TOTAL					
LABOR		0		0	
NON-LABOR		0		0	
TOTAL		0		0	
EMPLOYEE BENEFITS					
92600 EMPL PENSIONS AND BENEFITS					
LABOR					
NON-LABOR					
TOTAL 92600		0		0	
92601 EMPL BENEFITS - FLEX CREDITS					
NON-LABOR					
TOTAL 92601		0		0	
92602 EMPL BENEFITS - TRANSFER					
NON-LABOR					
TOTAL 92602		0		0	
EMPLOYEE BENEFITS - TOTAL					
LABOR					
NON-LABOR					
TOTAL		0		0	
OTHER ADMIN & GENL					
92800 REGULATORY COMMISSION EXPENSES					
NON-LABOR					
TOTAL 92800		0		0	
93010 INSTITUTN/GOODWILL ADVERT EXP					
LABOR					
NON-LABOR					
TOTAL 93010		0		0	
93020 MISCELLANEOUS GENERAL EXPENSE					
LABOR					
NON-LABOR	180		180		180

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
MOLOKAI DIV

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
TOTAL 93020	180	0	180	0	180
93100 RENT EXPENSE - A&G					
NON-LABOR					
TOTAL 93100		0		0	
A&G OPERATIONS - TOTAL					
LABOR	14		14		14
NON-LABOR	188		188		188
TOTAL	202	0	202	0	202
A&G MAINTENANCE					
93200 ADMIN AND GENL MAINTENANCE					
LABOR	17		17		17
NON-LABOR	37		37		37
TOTAL 93200	54	0	54	0	54
A&G MAINTENANCE - TOTAL					
LABOR	17		17		17
NON-LABOR	37		37		37
TOTAL OTHER A&G	54	0	54	0	54
ADMIN & GENL - TOTAL					
LABOR	31		31		31
NON-LABOR	225		225		225
TOTAL	256	0	256	0	256
O&M - TOTAL					
LABOR	943	0	943	0	943
NON-LABOR	1,786	13	1,799	(490)	1,309
TOTAL	2,729	13	2,742	(490)	2,252

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

M. Ribao

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
PRODUCTION O & M EXPENSE					
PRODUCTION OPER					
LABOR	5,425	0	5,425	0	5,425
NON-LABOR	4,584	(334)	4,250	0	4,250
TOTAL	10,009	(334)	9,674	0	9,674
PRODUCTION MAINT					
LABOR	3,902	0	3,902	0	3,902
NON-LABOR	10,727	24	10,751	(3,312)	7,439
TOTAL	14,629	24	14,653	(3,312)	11,341
PRODUCTION - TOTAL					
LABOR	9,327	0	9,327	0	9,327
NON-LABOR	15,311	(311)	15,000	(3,312)	11,689
TOTAL	24,638	(311)	24,327	(3,312)	21,015

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

A. Herrera
TRANSMISSION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
TRANSMISSION OPER					
LABOR	321	0	321		321
NON-LABOR	434	0	434		434
TOTAL	755	0	755	0	755
TRANSMISSION MAINT					
LABOR	571	0	571		571
NON-LABOR	1,064	0	1,064		1,064
TOTAL	1,635	0	1,635	0	1,635
TRANSMISSION - TOTAL					
LABOR	892	0	892	0	892
NON-LABOR	1,498	0	1,498	0	1,498
TOTAL	2,390	0	2,390	0	2,390

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

A. Herrera
DISTRIBUTION O & M EXPENSE

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
DISTRIBUTION OPER					
LABOR	1,835	0	1,835		1,835
NON-LABOR	1,429	0	1,429		1,429
TOTAL	3,264	0	3,264	0	3,264
DISTRIBUTION MAINT					
LABOR	1,217	0	1,217		1,217
NON-LABOR	1,982	0	1,982		1,982
TOTAL	3,199	0	3,199	0	3,199
DISTRIBUTION - TOTAL					
LABOR	3,052	0	3,052	0	3,052
NON-LABOR	3,411	0	3,411	0	3,411
TOTAL	6,463	0	6,463	0	6,463

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
S. Suzuki					
CUSTOMER ACCTS EXPENSE					
90100 SUPERVISION					
LABOR	110	0	110	0	110
NON-LABOR	14	0	14	0	14
TOTAL 90100	124	0	124	0	124
90200 METER READING EXPENSES					
LABOR	582	0	582	0	582
NON-LABOR	232	0	232	0	232
TOTAL 90200	814	0	814	0	814
90300 CUSTOMER RECORDS & COLLECT EXP					
LABOR	1,437	0	1,437	0	1,437
NON-LABOR	775	0	775	0	775
TOTAL 90300	2,212	0	2,212	0	2,212
SUBTOTAL	3,150	0	3,150	0	3,150
90400 UNCOLLECTIBLE ACCOUNTS					
NON-LABOR	137	0	137	0	137
TOTAL 90400	137	0	137	0	137
90500 MISC CUSTOMER ACCOUNTS EXP					
NON-LABOR		0		0	
TOTAL 90500		0		0	
CUSTOMER ACCOUNTS - TOTAL					
LABOR	2,129	0	2,129	0	2,129
NON-LABOR	1,158	0	1,158	0	1,158
TOTAL	3,287	0	3,287	0	3,287

S. Suzuki
CUSTOMER SVC EXPENSE

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
90900 SUPERVISION					
LABOR	58	0	58	0	58
NON-LABOR	7	0	7	0	7
TOTAL 90900	65	0	65	0	65
91000 CUSTOMER ASSISTANCE EXPENSES					
LABOR	373	0	373	0	373
NON-LABOR	2,623	0	2,623	0	2,623
TOTAL 91000	2,996	0	2,996	0	2,996
91100 INFORMATIONAL ADVERTISING EXP					
LABOR	4	0	4	0	4
NON-LABOR	30	0	30	0	30
TOTAL 91100	34	0	34	0	34
CUSTOMER SERVICE - TOTAL					
LABOR	435	0	435	0	435
NON-LABOR	2,660	0	2,660	0	2,660
TOTAL	3,095	0	3,095	0	3,095

L. Matsunaga
ADMIN & GENL O & M EXPENSE
A&G OPERATIONS
ADMINISTRATIVE
92000 ADMIN & GENL EXP - LABR

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR	2,086	0	2,086	0	2,086
NON-LABOR	433	0	433	0	433
TOTAL 92000	2,519	0	2,519	0	2,519
92100 ADMIN & GENL EXP - NLABR					
LABOR	2	0	2	0	2
NON-LABOR	1,014	0	1,014	0	1,014
TOTAL 92100	1,016	0	1,016	0	1,016
92201 ADMIN EXP TFRD TO CONSTR					
NON-LABOR	(981)	0	(981)	0	(981)
TOTAL 92201	(981)	0	(981)	0	(981)
92202 ADMIN EXP TFRD OTH THAN CONSTR					
LABOR		0		0	
NON-LABOR		0		0	
TOTAL 92202		0		0	
ADMINISTRATIVE - TOTAL					
LABOR	2,088	0	2,088	0	2,088
NON-LABOR	466	0	466	0	466
TOTAL ADMINISTRATIVE	2,554	0	2,554	0	2,554
OUTSIDE SERVICES					
92301 LEGAL SERVICES					
NON-LABOR	20	0	20	0	20
TOTAL 92301	20	0	20	0	20
92302 OTHER OUTSIDE SERVICES					
NON-LABOR		0		0	
TOTAL 92302		0		0	
92303 OTHER SERVICES - ASSOC CO					
NON-LABOR	2,012	0	2,012	0	2,012
TOTAL 92303	2,012	0	2,012	0	2,012
TOTAL OS SVCS	2,032	0	2,032	0	2,032

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
INSURANCE					
92400 PROPERTY INSURANCE					
LABOR		0		0	
NON-LABOR	702	0	702	0	702
TOTAL 92400	702	0	702	0	702
92500 INJURIES & DAMAGES					
LABOR	262	0	262	0	262
NON-LABOR	1,042	0	1,042	0	1,042
TOTAL 92501	1,304	0	1,304	0	1,304
INSURANCE - TOTAL					
LABOR	262	0	262	0	262
NON-LABOR	1,744	0	1,744	0	1,744
TOTAL	2,006	0	2,006	0	2,006
EMPLOYEE BENEFITS					
92600 EMPL PENSIONS AND BENEFITS					
LABOR	82	0	82	0	82
NON-LABOR	8,017	0	8,017	0	8,017
TOTAL 92600	8,099	0	8,099	0	8,099
92601 EMPL BENEFITS - FLEX CREDITS					
NON-LABOR		0		0	
TOTAL 92601		0		0	
92602 EMPL PENSIONS - TRANSFER					
NON-LABOR	(2,238)	0	(2,238)	0	(2,238)
TOTAL 92602	(2,238)	0	(2,238)	0	(2,238)
EMPLOYEE BENEFITS - TOTAL					
LABOR	82	0	82	0	82
NON-LABOR	5,779	0	5,779	0	5,779
TOTAL	5,861	0	5,861	0	5,861
OTHER ADMIN & GENL					
92800 REGULATORY COMMISSION EXPENSES					
NON-LABOR		0		0	
TOTAL 92800		0		0	
93010 INSTITUTN/GOODWILL ADVERT EXP					

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
LABOR		0		0	
NON-LABOR	3	0	3	0	3
TOTAL 93010	3	0	3	0	3
93020 MISCELLANEOUS GENERAL EXPENSE					
LABOR	20	0	20	0	20
NON-LABOR	1,046	0	1,046	0	1,046
TOTAL 93020	1,066	0	1,066	0	1,066
93100 RENT EXPENSE					
NON-LABOR	6	0	6	0	6
TOTAL 93100	6	0	6	0	6
A&G OPERATIONS - TOTAL					
LABOR	2,452		2,452		2,452
NON-LABOR	11,076		11,076		11,076
TOTAL	13,528	0	13,528	0	13,528
A&G MAINTENANCE					
93200 ADMIN AND GENL MAINTENANCE					
LABOR	21	0	21	0	21
NON-LABOR	178	0	178	0	178
TOTAL 93200	199	0	199	0	199
A&G MAINTENANCE - TOTAL					
LABOR	21		21		21
NON-LABOR	178		178		178
TOTAL	199	0	199	0	199
ADMIN & GENL - TOTAL					
LABOR	2,473		2,473		2,473
NON-LABOR	11,254		11,254		11,254
TOTAL	13,727	0	13,727	0	13,727

MAUI ELECTRIC COMPANY, INC.
TEST YEAR 2007 ($1000S)
TOTAL COMPANY

	BUDGET	ADJ	ADJ BUDGET	NORM	DIRECT
O&M - TOTAL					
LABOR	18,308	0	18,308	0	18,308
NON-LABOR	35,292	(311)	34,981	(3,312)	31,670
TOTAL	53,600	(311)	53,289	(3,312)	49,977

Maui Electric Company, Ltd.
P. O. Box 398, Kahului, HI 96732

Facsimile Cover Sheet

To: E. Seese
Company: HECO - Rate & Regulatory Affairs
Phone: (808) 543-4758
Fax: (808) 543-4718

From: Stephen Kealoha
Company: Maui Electric Company, Ltd.
Phone: (808) 871-2332
Fax: (808) 871-2350

Date: Wednesday, December 21, 1994
Pages Including this cover page: 4

Comments: **RE: COST OF SERVICE – CUST. ACCOUNTS**

Es,

I've reviewed the attached 3 sheets that contain what was used for MECO's Docket 7000 for Customer Accounts Expense weighting factors. I do not see a need to make any changes to this for Docket 94-0345.

Please call me if any questions.

MEL 2/14/91

COST OF SERVICE, CUSTOMER ACCOUNT EXPENSE

1991

Factors by Rate for Work Performed by Sections

Section	R	G	H	J	K	P	F
CD	1.0	1.6	2.4	3.0	3.0	3.0	0.5
~~CA~~ CA	1.0	1.8	1.8	3.0	3.0	3.0	0.5
CR	1.0	1.0	1.4	3.0	1.4	5.0	2.0

CD - Based on time to call delinquent customers, receive calls, make field calls, and process bad debts. H is higher than G because of more time in handling those that become delinquent. While J, K, and P are weighted at 3 times R, it takes more than 3 times to process but very few require any attention. F is low because we deal with few customers in relation to the number of accounts. The weighting of G above R reflects the increased time to deal with each account.

~~CA~~ A - Work which goes to this account is rereads. Rates G and H reflect the same difficulty to reread. J, K, and P are high because of metering; F is low because about one half are flat rates.

CR - Based on relative time to process starts, terminates, credit calls and bill inquiries. While G and H take slightly longer, their number of such calls is smaller than their ratio to total customers. The other rates reflect an even smaller number of calls.

Lanai DL = Maui's Dist Dept - answer bill inquiries similar activities as Maui's CR

Post-it™ Fax Note 7671	Date 1-23-95	# of pages ▶ 1
To Jerry Agrellas	From Es Seese	
Co./Dept.	Co.	
Phone #	Phone # 4758	
Fax # 871-2350	Fax # 4718	

Copy faxed to Jerry Agrellas 8-27-91

Factors relative to Account 902 (Meter Reading) area:

Rate	Reading Time	&	Access Time	Subtotal Time Per Reading	Wtng Factor	
R	20 Seconds		30 Seconds	50 Seconds	1.111	1.000
G	20 "		25 "	45 "	1.000	0.900
H	20 "		25 "	45 "	1.000	0.900
J	60 "		40 "	100 "	2.222	2.000
K	60 "		40 "	100 "	2.222	2.000
F	20 "		30 "	50 "	1.111	1.000
P	80 "		60 "	140 "	3.111	2.800

Reading and access time as a percentage of total time = 55%.

Remaining 45% is for travel and is spread evenly among rates according to number of readings.

5/16/91
MAUI

LANAI/MOLOKAI

Factors relative to Account 902 (Meter Reading) area:

Rate	Reading Time &	Access Time	Subtotal Time Per Reading	Wtng Factor
R	20 Seconds	20 Seconds	40 Seconds	1.000
G	20 "	25 "	45 "	1.125
H	20 "	25 "	45 "	1.125
J	60 "	40 "	100 "	2.500
K	60 "	40 "	100 "	2.500
F	20 "	30 "	50 "	1.250
P	80 "	60 "	140 "	3.500

Reading and access time as a percentage of total time = 55%.

Remaining 45% is for travel and is spread evenly among rates according to number of readings.

Jessie, Estrella
The sheet I gave you earlier on Account 904 - "unroll" is for Maui & Lanai
Steve

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 94-0345 TEST YEAR 1999

MAUI DIVISION
WEIGHTING FACTORS FOR CUSTOMER ACCOUNTS EXPENSE
(ACCT 901, 902, 903)

		% of Total Acct	(Relative Customer Cost R=1) R	G	J	H/K	P	F
Meter Reading Access		55%						
Travel		45%						
Meter Read wtd avg		100%						
Composit wtg (902)		25.01%						
Field Serv	CF	11.18%						
Credit	CD	4.39%						
Cust Oper	CA	47.00%						
Rev Acct	CR	37.03%						
Oper	DR	0.40%						
Acct 903 Total		100.00%						
Composit wtg (903)		74.99%						
Cust Acct wtd avg		100.00%						

Source
Figures taken from Report FSR/9E1R.

Weight~1.xls
11/20/97

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 94-0345 TEST YEAR 1999

LANAI DIVISION
WEIGHTING FACTORS FOR CUSTOMER ACCOUNTS EXPENSE
(ACCT 901, 902, 903)

		% of Total Acct	(Relative Customer Cost R=1) R	G	J	H/K	P	F
Meter Reading Access		55%						
Travel		45%						
Meter Read wtd avg		100%						
Composit wtg (902)		33.87%						
Cust Oper	CA	55.56%						
Lanai	DL	44.44%						
Acct 903 Total		100.00%						
Composit wtg (903)		66.13%						
Cust Acct wtd avg		100.00%						

Source
Figures taken from Report FSR/9E1R.

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 94-0345 TEST YEAR 1999

MOLOKAI DIVISION
WEIGHTING FACTORS FOR CUSTOMER ACCOUNTS EXPENSE
(ACCT 901, 902, 903)

(Relative Customer Cost R=1)

	% of Total Acct	R	G	J	H/K	P	F
Meter Reading Access	55%						
Travel	45%						
Meter Read wtd avg	100%						
Composit wtg (902)	18.99%						
Cust Oper CA	30.84%						
Cust Serv CT	69.16%						
Acct 903 Total	100.00%						
Composit wtg (903)	81.01%						
Cust Acct wtd avg	100.00%						

Source
Figures taken from Report FSR/9E1R.

Weight~1.xls
11/20/97

MAUI ELECTRIC COMPANY, LIMITED
DOCKET NO. 2006-0387 TEST YEAR 2007

	Dist & Gen. Plt. %	MAUI DIVISION O&M LABOR	O&M NON-LABOR	TOTAL	Source
Prod Demand		8,204.0	10,538.0	18,742.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Prod Energy		12.0	201,006.0	201,018.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Transmission		839.7	1,404.3	2,244.0	OM2007.xls, MECO-WP-2001, Page 17 of 44, Original dist. 882 (Labour), 1475 (Non-Labour)
Substations	17.39%	478.1	503.0	981.2	
Lines Data	34.43%	946.9	996.1	1,943.0	
Transf Data	10.60%	291.4	306.6	598.0	
Services	16.87%	463.8	487.9	951.7	
Meters	2.52%	69.3	72.9	142.2	
Street Lighting	3.57%	98.1	103.2	201.4	
Misc Distribution	14.63%	402.4	423.3	825.6	
Distribution O&M		2,750.0	2,893.0	5,643.0	OM2007.xls, MECO-WP-2001, Page 17 of 44
Customer Accounts		1,881.0	897.0	2,778.0	MECO-WP-2001, Page 17 of 44, MECO 703, page 1 of 2. Accounts #901, #902, #903
Uncollectibles		-	199.8	199.8	MECO-WP-2001, Page 17 of 44, MECO 703, page 1 of 2. Accounts #90
Customer Service		537.0	1,001.0	1,538.0	MECO-WP-2001, Page 17 of 44, MECO-803, Accounts #909, #910, #91
Admin and General		2,227.3	10,323.1	12,550.4	OM2007.xls, MECO-WP-2001, Page 17 of 44
Wage Rollback		-	-	-	
Total		16,451.0	228,262.2	244,713.2	

MAUI ELECTRIC COMPANY, LTD. - Maui DIVISION
DOCKET NO. 97-0346
DEMAND VS CUSTOMER COMPONENTS OF
PRIMARY AND SECONDARY DISTRIBUTION LINES *

	DISTRIB POLES (AC 364)	OVERHEAD CONDUCTORS (AC 365)	UNDERGROUND CONDUIT (AC 366)	UNDERGROUND CONDUCTORS (AC 367)	TOTAL DISTRIB LINES	% OF TOTAL
A. PRIMARY VOLTAGE						
1. COMPONENT BREAKDOWN (%)						
A. DEMAND	59.0	43.0	65.0	19.0	40.7	
B. CUSTOMER	41.0	57.0	35.0	81.0	59.3	
TOTAL	100.0	100.0	100.0	100.0	100.0	
2. PRIMARY PLANT BALANCE AS OF 12/31/95 ($000S)						
A. DEMAND	6,009.6	4,888.2	5,543.6	3,680.3	20,121.7	29.4
B. CUSTOMER	4,176.1	6,479.7	2,985.0	15,689.7	29,330.6	42.8
TOTAL PRIMARY	10,185.7	11,367.9	8,528.6	19,370.1	49,452.3	72.2
B. SECONDARY VOLTAGE:						
1. COMPONENT BREAKDOWN (%)						
A. DEMAND	59.0	69.0	65.0	60.0	63.3	
B. CUSTOMER	41.0	31.0	35.0	40.0	36.7	
TOTAL	100.0	100.0	100.0	100.0	100.0	
2. SECONDARY PLANT BALANCE AS OF 12/31/95 ($000S)						
A. DEMAND	3,430.3	4,477.4	1,336.8	2,802.6	12,047.2	17.6
B. CUSTOMER	2,383.8	2,011.6	719.8	1,868.4	6,983.6	10.2
TOTAL SECONDARY	5,814.1	6,489.0	2,056.7	4,671.0	19,030.8	27.8
TOTAL PLANT BALANCE	15,999.8	17,856.9	10,585.3	24,041.1	68,483.1	100.0

* NOTE: 1. PRIMARY VS SECONDARY BREAKDOWN BASED ON STUDY OF INSTALLED COSTS FROM 1980-1994

2. DEMAND VS CUSTOMER BREAKDOWN FROM MINIMUM SYSTEM STUDY BASED ON REPLACEMENT COSTS AS OF 12/31/95 OF INSTALLED FACILITIES FROM 1980-1994

MAUI ELECTRIC COMPANY, LTD. - MOLOKAI DIVISION
DOCKET NO. 97-0346
DEMAND VS CUSTOMER COMPONENTS OF
PRIMARY AND SECONDARY DISTRIBUTION LINES *

	DISTRIB POLES (AC 364)	OVERHEAD CONDUCTORS (AC 365)	UNDERGROUND CONDUIT (AC 366)	UNDERGROUND CONDUCTORS (AC 367)	TOTAL DISTRIB LINES	% OF TOTAL
A. PRIMARY VOLTAGE						
1. COMPONENT BREAKDOWN (%)						
A. DEMAND	59.0	43.0	44.0	19.0	19.7	
B. CUSTOMER	41.0	57.0	56.0	81.0	80.3	
TOTAL	100.0	100.0	100.0	100.0	100.0	
2. PRIMARY PLANT BALANCE AS OF 12/31/95 ($000S)						
A. DEMAND			18.6	287.7	306.3	17.2
B. CUSTOMER			23.7	1,226.4	1,250.1	70.1
TOTAL PRIMARY			42.3	1,514.1	1,556.4	87.3
B. SECONDARY VOLTAGE:						
1. COMPONENT BREAKDOWN (%)						
A. DEMAND	59.0	74.0	44.0	47.0	46.9	
B. CUSTOMER	41.0	26.0	56.0	53.0	53.1	
TOTAL	100.0	100.0	100.0	100.0	100.0	
2. SECONDARY PLANT BALANCE AS OF 12/31/95 ($000S)						
A. DEMAND			2.7	103.4	106.1	5.9
B. CUSTOMER			3.4	116.5	120.0	6.7
TOTAL SECONDARY			6.1	219.9	226.0	12.7
TOTAL PLANT BALANCE			48.4	1,734.0	1,782.4	100.0

* NOTE: 1. PRIMARY VS SECONDARY BREAKDOWN BASED ON STUDY OF INSTALLED COSTS FROM 1980-1994
2. DEMAND VS CUSTOMER BREAKDOWN FROM MINIMUM SYSTEM STUDY BASED ON REPLACEMENT COSTS AS OF 12/31/95 OF INSTALLED FACILITIES FROM 1980-1994

MAUI ELECTRIC COMPANY, LTD. - LANAI DIVISION
DOCKET NO. 97-0346
DEMAND VS CUSTOMER COMPONENTS OF
PRIMARY AND SECONDARY DISTRIBUTION LINES *

	DISTRIB POLES (AC 364)	OVERHEAD CONDUCTORS (AC 365)	UNDERGROUND CONDUIT (AC 366)	UNDERGROUND CONDUCTORS (AC 367)	TOTAL DISTRIB LINES	% OF TOTAL
A. PRIMARY VOLTAGE						
1. COMPONENT BREAKDOWN (%)						
A. DEMAND	59.0	50.0	44.0	17.0	36.9	
B. CUSTOMER	41.0	50.0	56.0	83.0	63.1	
TOTAL	100.0	100.0	100.0	100.0	100.0	
2. PRIMARY PLANT BALANCE AS OF 12/31/95 ($000S)						
A. DEMAND	567.4	451.1	61.2	291.5	1,371.3	35.7
B. CUSTOMER	394.3	451.1	77.9	1,423.4	2,346.7	61.1
TOTAL PRIMARY	961.7	902.2	139.2	1,715.0	3,718.0	96.8
B. SECONDARY VOLTAGE:						
1. COMPONENT BREAKDOWN (%)						
A. DEMAND	59.0	30.0	44.0	30.0	44.2	
B. CUSTOMER	41.0	70.0	56.0	70.0	55.8	
TOTAL	100.0	100.0	100.0	100.0	100.0	
2. SECONDARY PLANT BALANCE AS OF 12/31/95 ($000S)						
A. DEMAND	35.5	17.0	.2	1.9	54.6	1.4
B. CUSTOMER	24.7	39.6	.3	4.4	69.0	1.8
TOTAL SECONDARY	60.2	56.5	.5	6.3	123.6	3.2
TOTAL PLANT BALANCE	1,021.9	958.7	139.7	1,721.3	3,841.6	100.0

* NOTE: 1. PRIMARY VS SECONDARY BREAKDOWN BASED ON STUDY OF INSTALLED COSTS FROM 1980-1994
2. DEMAND VS CUSTOMER BREAKDOWN FROM MINIMUM SYSTEM STUDY BASED ON REPLACEMENT COSTS AS OF 12/31/95 OF INSTALLED FACILITIES FROM 1980-1994

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY - MAUI
Docket No. 2006-0386, Test-Year 2007

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GROSS PLANT-IN-SERVICE BALANCE ESTIMATE

Line No	Plant Acct. No	FUNCTION	Beginning Plant Balance ($000s)	Plant Additions ($000s)	2006 Transfers & Adjustments ($000s)	Plant Retirement ($000s)	Ending Plant Balance ($000s)	Plant Additions ($000s)	2007 Plant Retirement ($000s)	Ending Plant Balance ($000s)	Avg Gross Plt	% Gross Plt	Avg T&D Plt	% T&D Plt
		Production												
	302	Franchises & Consents	1	-	-	-	1	0	0	1	0.8			
L1	310, 340	Land	524	-	-	-	524	0	0	524	524.2			
L2	311-316, 341-346	Production Plant	253,421	62,988	-	22	316,387	3593	22	319,958	286689.7			
L3 = Σ(L1:L2)		Total Production	253,946	62,988	0	22	316,912	3,593	22	320,483	287214.7	0.42413		
		Transmission												
L4	350	Land	2,885	-	-	0	2,885			2,885	2884.6	0.00426		
L5	352-359	Transmission Plant	87,580	4,213	-	72	91,722	4,290	71	95,940	91760.1	0.1355		
L6 = Σ(L4:L5)		Total Transmission	90,464	4,213	0	72	94,606	4,290	71	98,825	94644.6	0.13976		
		Distribution												
L7	360	Land	1,155	18		-	1,174			1,174	1164.5	0.00172		
L8	361-362	Substation	23,989	2,146		51	26,084	2,445	51	28,478	26233.6	0.03874	0.04046	
L9	364	Poles	23,809	668		25	24,452	761	25	25,188	24498.7	0.03618		
L10	365-367	Lines	94,019	7,381		69	101,331	8,410	69	109,672	101845.6	0.15039	0.18657	
L11	368	Transformers	29,964	1,884		302	31,546	2,146	302	33,390	31677.4	0.04678		
L12	369	Services	40,933	6,849		5	47,777	7,803	5	55,575	48253.8	0.07126		
L13	370	Meters	6,982	503		34	7,450	573	34	7,988	7485	0.01105		
L14	373	Street light	10,086	546		7	10,625	623	7	11,241	10663.6	0.01575		
L15 = Σ(L7:L14)		Total Distribution	230,937	19,995	0	493	250,440	22,760	493	272,707	251822.1	0.37186		
		General Plant												
L16	389	Land	59	-		-	59			59	58.6	0.00009		
L17	390-398	General Plant	41,168	2,236	849	436	43,818	2,341	431	45,728	43447.9	0.06416		
L18 = Σ(L16:L17)		Total General Plant	41,227	2,236	849	436	43,876	2,341	431	45,786	43506.4	0.06425		
L20 = L3+L6+L15+L18+L19		Total Plant	616,574	89,434	849	1,022	705,835	32,984	1,017	737,801	677187.9	1		

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY - LANAI
Docket No. 2006-0386, Test-Year 2007

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GROSS PLANT-IN-SERVICE BALANCE ESTIMATE

Line No	Plant Acct. No	FUNCTION	Beginning Plant Balance ($000s)	Plant Additions ($000s)	2006 Transfers & Adjustments ($000s)	Plant Retirement ($000s)	Ending Plant Balance ($000s)	Plant Additions ($000s)	2007 Plant Retirement ($000s)	Ending Plant Balance ($000s)	Avg Gross Plt	% Gross Plt	Avg T&D Plt	% T&D Plt
		Production												
	302	Franchises & Consents	-	-	-	-	0	0	0	0	0			
L1	310, 340	Land	220	-	-	-	220	0	0	220	220.4			
L2	311-316, 341-346	Production Plant	17,308	42	-	-	17,348	184	0	17,533	17419.4			
L3 = Σ(L1:L2)		Total Production	17,527	42	0	0	17,569	184	0	17,753	17639.8	0.59346		
		Transmission												
L4	350	Land	-	-	-	0	0			0	0	0		
L5	352-359	Transmission Plant	-	-	-	0	0	-	-	0	0	0		
L6 = Σ(L4:L5)		Total Transmission	0	0	0	0	0	0	0	0	0	0		
		Distribution												
L7	360	Land	144			-	144			144	144	0.00484		
L8	361-362	Substation	950	0		-	950	0	0	950	949.9	0.03196	0.0368	
L9	364	Poles	1,816	0		0	1,816	0	0	1,816	1816	0.0611		
L10	365-367	Lines	5,744	0		4	5,740	0	4	5,736	5739.6	0.1931	0.2542	
L11	368	Transformers	574	0		1	572	0	1	571	572.3	0.01925		
L12	369	Services	742	0		-	743	0	0	743	742.6	0.02498		
L13	370	Meters	192	0		0	192	0	0	191	191.9	0.00646		
L14	373	Street light	257	0		0	257	0	0	257	257.1	0.00865		
L15 = Σ(L7:L14)		Total Distribution	10,419	1	0	6	10,413	1	6	10,408	10413.4	0.35034		
		General Plant												
L16	389	Land	23	-		-	23			23	23.1	0.00078		
L17	390-398	General Plant	1,532	-	-	-	1,532	232	-	1,763	1647.6	0.05543		
L18 = Σ(L16:L17)		Total General Plant	1,555	0	0	0	1,555	232	0	1,787	1670.7	0.05621		
L20 = L3+L6+L15+L18+L19		Total Plant	29,501	43	0	6	29,537	417	6	29,947	29723.9	1.00001		

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY - MOLOKAI
Docket No. 2006-0386, Test-Year 2007

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GROSS PLANT-IN-SERVICE BALANCE ESTIMATE

Line No	Plant Acct No	FUNCTION	Beginning Plant Balance ($000s)	Plant Additions ($000s)	2006 Transfers & Adjustments ($000s)	Plant Retirement ($000s)	Ending Plant Balance ($000s)	Plant Additions ($000s)	2007 Plant Retirement ($000s)	Ending Plant Balance ($000s)	Avg Gross Pl	% Gross Pl	Avg T&D Pl	% T&D Pl
		Production												
	302	Franchises & Consents	1	-	-	-	1	0	0	1	1			
L1	310, 340	Land	235	-	-	-	235	0	0	235	235			
L2	311-316, 341-346	Production Plant	19,982	52	-	-	20,033	28	0	20,062	20021.6			
L3 - Σ(L1:L2)		Total Production	20,218	52	0	0	20,269	28	0	20,298	20257.6	0.58932		
		Transmission												
L4	350	Land	-	-	-	0	0			0	0	0		
L5	352-359	Transmission Plant	821	-	-	0	821	144	-	965	893	0.02598		
L6 - Σ(L4:L5)		Total Transmission	821	0	0	0	821	144	0	965	893	0.02598		
		Distribution												
L7	360	Land	7	-		-	7	-	-	7	7.1	0.00021		
L8	361-362	Substation	987	2		-	988	111	-	1,099	1042.7	0.03033	0.03054	
L9	364	Poles	2,333	0		0	2,333	5	0	2,337	2335.1	0.06793		
L10	365-367	Lines	4,601	1		7	4,595	83	7	4,672	4636.1	0.13487	0.2028	
L11	368	Transformers	1,198	0		-	1,199	16	-	1,215	1206.6	0.0351		
L12	369	Services	1,123	1		0	1,124	80	0	1,203	1162.8	0.03383		
L13	370	Meters	283	0		0	283	1	0	284	283.4	0.00824		
L14	373	Street light	305	0		-	306	7	-	313	309.3	0.009		
L15 - Σ(L7:L14)		Total Distribution	10,837	4	0	7	10,834	302	7	11,129	10983	0.31951		
		General Plant												
L16	389	Land	56	-		-	56			56	56.4	0.00164		
L17	390-398	General Plant	2,206	(4)	-	4	2,199		37	2,162	2184.3	0.06354		
L18 - Σ(L16:L17)		Total General Plant	2,263	(4)	0	4	2,255	0	37	2,219	2240.7	0.06519		
L20 - L3+L6+L15+L18+L19		Total Plant	34,138	53	0	11	34,180	474	44	34,610	34374.3	1		

Maui Electric Company, Limited
Depreciation Expense
For Years 2001-2007

(In Thousands)

		(A)	(B)	(C)	(D)	(E)	(F)	(G)
		Actual 2001	Actual 2002	Actual 2003	Actual 2004	Actual 2005	Estimate 2006	Test Yr Est 2007
	MAUI							
1	Depreciation Accrual (*)	20,793	21,715	22,702	24,158	24,836	25,606	29,167
2	Vehicle Depreciation (*)	(412)	(450)	(550)	(619)	(585)	(637)	(613)
3	Amort of CIAC (**)	(1,143)	(1,214)	(1,230)	(1,527)	(1,614)	(1,863)	(2,178)
4	Amort of Federal ITC (***)	(260)	(260)	(256)	(248)	(244)	(222)	(212)
5	Net Reg Asset/Liab Amort (****)	22	52	47	75	83	280	434
6	Net Depreciation Expense	18,999	19,843	20,712	21,840	22,476	23,164	26,597
	LANAI							
7	Depreciation Accrual (*)	1,174	1,188	1,206	1,243	1,283	1,343	1,344
8	Vehicle Depreciation (*)	(16)	(10)	(27)	(34)	(30)	(34)	(34)
9	Amort of CIAC (**)	(37)	(42)	(42)	(65)	(70)	(85)	(88)
10	Amort of Federal ITC (***)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
11	Net Reg Asset/Liab Amort (****)	1	3	3	4	4	15	23
12	Net Depreciation Expense	1,121	1,137	1,138	1,146	1,184	1,237	1,244
	MOLOKAI							
13	Depreciation Accrual (*)	1,404	1,450	1,450	1,434	1,454	1,436	1,208
14	Vehicle Depreciation (*)	(75)	(112)	(99)	(74)	(52)	(87)	(56)
15	Amort of CIAC (**)	(63)	(64)	(65)	(66)	(67)	(129)	(149)
16	Amort of Federal ITC (***)	-	-	-	-	-	-	-
17	Net Reg Asset/Liab Amort (****)	1	3	3	5	5	18	28
18	Net Depreciation Expense	1,267	1,277	1,289	1,299	1,340	1,238	1,031
	TOTAL MECO							
19	Depreciation Accrual (*)	23,371	24,353	25,357	26,835	27,572	28,385	31,719
20	Vehicle Depreciation (*)	(503)	(571)	(675)	(727)	(687)	(758)	(703)
21	Amort of CIAC (**)	(1,243)	(1,321)	(1,337)	(1,658)	(1,752)	(2,077)	(2,415)
22	Amort of Federal ITC (***)	(262)	(262)	(258)	(250)	(246)	(224)	(214)
23	Net Reg Asset/Liab Amort (****)	24	58	53	84	92	313	485
24	Net Depreciation Expense	21,387	22,257	23,140	24,284	25,000	25,639	28,872

(*) Source: MECO-WP-1201
(**) Source: MECO-WP-1204
(***) Source: MECO-13XX
(****) Source: MECO-1306

MAUI ELECTRIC COMPANY, LIMITED
MATERIAL INVENTORY
KAHULUI POWER PLANT

	2003	2004	2005	2006	2007
DEC	687,813	697,961	706,278	680,424	682,495
JAN	672,049	705,272	699,973	690,352	690,800
FEB	672,621	710,490	692,130	691,337	690,600
MAR	681,096	705,804	686,232	692,701	690,400
APR	674,229	706,769	689,837	701,464	692,000
MAY	674,905	710,513	696,377	703,423	695,200
JUN	687,761	714,901	706,700	704,370	702,400
JULY	675,177	717,988	703,061	705,497	699,400
AUG	694,757	721,322	701,929	705,678	704,400
SEPT	695,593	707,477	704,002	706,144	702,200
OCT	700,793	715,453	697,263	699,385	702,100
NOV	695,718	717,761	664,890	666,913	685,300
DEC	**697,961**	**706,278**	**680,424**	**682,495**	**690,700**
13-MO. TOTAL	8,910,473	9,237,990	9,029,096	9,030,183	9,027,995
13-MO. AVERAGE	685,421	710,615	694,546	694,629	694,461

Note: Recorded values to August 2006

MAUI ELECTRIC COMPANY, LIMITED
MATERIAL INVENTORY
MAALAEA POWER PLANT

	2003	2004	2005	2006	2007
DEC	5,533,098	6,060,912	6,288,249	6,481,266	6,785,029
JAN	5,717,607	6,133,186	6,428,391	6,639,987	7,524,600
FEB	5,935,518	6,418,660	6,401,971	6,832,452	7,706,000
MAR	6,124,986	6,249,345	6,500,631	6,838,832	7,740,000
APR	6,102,129	6,160,036	6,225,363	6,795,936	7,625,000
MAY	6,084,428	6,315,904	6,307,037	6,660,106	7,651,000
JUN	6,292,844	6,451,462	6,500,177	6,478,913	7,756,000
JULY	6,266,165	6,315,603	6,433,627	6,583,393	7,719,000
AUG	6,239,688	6,366,371	6,397,665	6,670,985	7,711,000
SEPT	6,331,141	6,445,206	6,351,207	6,742,527	7,763,000
OCT	6,279,898	6,467,988	6,311,006	6,606,789	7,689,000
NOV	6,296,478	6,447,152	6,495,732	6,800,173	7,823,000
DEC	**6,060,912**	**6,288,249**	**6,481,266**	**6,785,029**	**7,714,000**
13-MO. TOTAL	79,264,892	82,120,075	83,122,323	86,916,388	99,206,629
13-MO. AVERAGE	6,097,299	6,316,929	6,394,025	6,685,876	**7,631,279**

Note: Recorded values to August 2006

MAUI ELECTRIC COMPANY, LIMITED
MATERIAL INVENTORY
LANAI DIVISION

	2003	2004	2005	2006	2007
DEC	62,548	63,458	78,297	102,329	120,611
JAN	63,503	73,839	72,478	93,333	113,000
FEB	63,503	73,845	72,478	107,339	118,000
MAR	56,505	65,190	77,638	71,269	101,000
APR	56,505	67,260	79,984	72,162	103,000
MAY	64,504	92,938	80,008	112,189	130,000
JUN	55,208	93,477	82,236	114,981	129,000
JULY	71,172	121,085	106,415	101,773	149,000
AUG	71,233	81,048	106,415	110,586	138,000
SEPT	71,086	80,747	67,367	112,882	124,000
OCT	71,452	80,752	106,948	126,009	144,000
NOV	71,452	79,307	102,329	120,567	139,000
DEC	**63,458**	**78,297**	**102,367**	**120,611**	**136,000**
13-MO. TOTAL	842,129	1,051,243	1,134,960	1,366,030	1,644,611
13-MO. AVERAGE	64,779	80,865	87,305	105,079	**126,509**

Note: Recorded values to August 2006

MAUI ELECTRIC COMPANY, LIMITED
MATERIAL INVENTORY
MOLOKAI DIVISION

	2003	2004	2005	2006	2007
DEC	48,137	46,572	86,964	49,475	43,186
JAN	50,117	48,608	86,108	49,143	48,000
FEB	50,096	47,833	85,511	48,997	48,000
MAR	48,989	46,921	45,749	47,737	39,000
APR	48,526	50,675	47,475	48,809	40,000
MAY	48,734	49,225	47,002	48,809	40,000
JUN	48,825	48,486	46,355	55,264	41,000
JUL	49,119	47,651	45,939	54,007	41,000
AUG	53,516	47,944	45,606	54,206	42,000
SEP	52,900	47,026	47,081	54,381	42,000
OCT	47,775	46,906	46,047	40,194	37,000
NOV	47,303	86,570	45,691	39,883	45,000
DEC	**46,572**	**86,964**	**49,475**	**43,186**	**48,000**
13-MO. TOTAL	640,609	701,381	725,003	634,091	554,186
13-MO. AVERAGE	49,278	53,952	55,769	48,776	42,630

Note: Recorded values to August 2006

MAUI ELECTRIC COMPANY, LTD.
REQUIRED DATA FOR COST-OF-SERVICE STUDY
Docket No. 2006-0387, Test-Year 2007

RATE BASE ITEMS, 12/31/06 & 12/31/07 AVERAGE BALANCES

MAUI

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	2,633.0	396.2	3,130.9	7,844.4
2	352-359	Transmission	-	152.6	1,205.8	3,021.0
		Distribution				
3	361-362	Substation	-	42.2	333.4	835.4
4	364	Poles	-	40.3	318.7	798.5
5	365-367	Lines	-	159.3	1,258.6	3,153.3
6	368	Transformers	-	50.8	401.1	1,005.0
7	369	Services	-	69.3	547.9	1,372.8
8	370	Meters	-	11.8	93.5	234.1
9	373	Street lights	-	17.1	135.0	338.3
10 = Σ(3:9)		Subtotal	-	390.8	3,088.2	7,737.4
11	392	Vehicles	-	13.7	108.1	270.7
12	390-391, 393-398	General Plant	-	55.5	438.4	1,098.5
13 = Σ(1:2, 10:12)		Total	2,633.0	1,008.7	7,971.4	19,972.0

LANAI

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	-	4.1	252.6	486.9
2	352-359	Transmission	-	-	-	-
		Distribution				
3	361-362	Substation	-	0.3	16.2	31.2
4	364	Poles	-	0.4	26.9	51.8
5	365-367	Lines	-	1.4	84.9	163.7
6	368	Transformers	-	0.1	8.5	16.3
7	369	Services	-	0.2	11.0	21.2
8	370	Meters	-	0.0	2.8	5.5
9	373	Street lights	-	0.1	3.8	7.3
10 = Σ(3:9)		Subtotal	-	2.5	154.1	297.0
11	392	Vehicles	-	0.1	6.4	12.4
12	390-391, 393-398	General Plant	-	0.3	16.2	31.3
13 = Σ(1:2, 10:12)		Total	-	6.9	429.3	827.5

MAUI ELECTRIC COMPANY, LTD.
REQUIRED DATA FOR COST-OF-SERVICE STUDY
Docket No. 2006-0387, Test-Year 2007

RATE BASE ITEMS, 12/31.06 & 12/31/07 AVERAGE BALANCES

MOLOKAI

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	-	-	307.0	574.8
2	352-359	Transmission	-	-	10.8	20.2
		Distribution				
3	361-362	Substation	-	-	15.3	28.6
4	364	Poles	-	-	35.8	67.1
5	365-367	Lines	-	-	70.7	132.3
6	368	Transformers	-	-	18.4	34.5
7	369	Services	-	-	17.2	32.3
8	370	Meters	-	-	4.3	8.1
9	373	Street lights	-	-	4.7	8.8
10 = Σ(3:9)		Subtotal	-	-	166.5	311.7
11	392	Vehicles	-	-	13.5	25.3
12	390-391, 393-398	General Plant	-	-	19.7	36.9
13 = Σ(1:2, 10:12)		Total	-	-	517.6	969.0

TOTAL MECO

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	2,633.0	400.2	3,690.5	8,906.0
2	352-359	Transmission	-	152.6	1,216.6	3,041.3
		Distribution				
3	361-362	Substation	-	42.5	364.9	895.2
4	364	Poles	-	40.8	381.4	917.4
5	365-367	Lines	-	160.6	1,414.2	3,449.3
6	368	Transformers	-	50.9	428.0	1,055.8
7	369	Services	-	69.5	576.2	1,426.3
8	370	Meters	-	11.9	100.6	247.8
9	373	Street lights	-	17.1	143.5	354.4
10 = Σ(3:9)		Subtotal	-	393.3	3,408.8	8,346.1
11	392	Vehicles	-	13.8	128.0	308.4
12	390-391, 393-398	General Plant	-	55.7	474.4	1,166.7
13 = Σ(1:2, 10:12)		Total	2,633.0	1,015.6	8,918.3	21,768.5

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY (MAUI)
Docket No. 2006-0386, Test-Year 2007

Customer Advances

			2006					2007			
Line No	Plant Acct No.	FUNCTION	Beginning Balance ($000s)	Receipts ($000s)	Transfer To Acct 271 ($000s)	Refund ($000s)	Ending Balance ($000s)	Receipts ($000s)	Transfer To Acct 271 ($000s)	Refund ($000s)	Ending Balance ($000s)
L1	311-316,341-346	Production									
L2	352-359	Transmission									
		Distribution									
L3	361-362	Substation									
L4	364	Poles									
L5	365-367	Lines	4,240	1,039	110	1,391	3778.11192	1,112	197	545	4148.41074
L6	368	Transformers									
L7	369	Services									
L8	370	Meters	315	77	8	103	280.443284	83	15	40	307.929981
L9	373	Street lights	14	3	0	5	12.3912192	4	1	2	13.6057026
L10 = Σ(L3:L9)		Subtotal									
L11	390-398	General Plant									
L12		CHP									
L13 = Σ(L1:L2, L10:L12)		Total	4,568.9464	1,120.0000	119.0000	1,499.0000	4,070.9464	1,198.0000	212.0000	587.0000	4,469.9464

Allocation to the various functions based upon 5 year average plant balance for those functions that would be applicable.

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MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY (LANAI)
Docket No. 2006-0386, Test-Year 2007

Customer Advances

			2006					2007			
Line No.	Plant Acct No.	FUNCTION	Beginning Balance ($000s)	Receipts ($000s)	Transfer To Acct 271 ($000s)	Refund ($000s)	Ending Balance ($000s)	Receipts ($000s)	Transfer To Acct 271 ($000s)	Refund ($000s)	Ending Balance ($000s)
L1	311-316,341-346	Production									
L2	352-359	Transmission									
		Distribution									
L3	361-362	Substation									
L4	364	Poles									
L5	365-367	Lines	377	50	47	172	207.757032	54	0	11	251 089485
L6	368	Transformers									
L7	369	Services									
L8	370	Meters	14	2	2	6	7.47842243	2	0	0	9.03821748
L9	373	Street lights	18	2	2	8	10.1055957	3	0	1	12 2133475
L10 = Σ(L3,L9)		Subtotal									
L11	390-398	General Plant									
L12		CHP									
L13 = Σ(L1,L2,L10,L12)		Total	409.3411	54.0000	51.0000	187.0000	225.3411	59.0000	0.0000	12.0000	272 3411

Allocation to the various functions based upon 5 year average plant balance for those functions that would be applicable.

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Pricing Ex 3 29 04
CIAC and Customer Advances by Function.xls
Customer Advances Form Lanai

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY (MOLOKAI)
Docket No. 2006-0386, Test-Year 2007

Customer Advances

			2006					2007			
Line No.	Plant Acct No.	FUNCTION	Beginning Balance ($000s)	Receipts ($000s)	Transfer To Acct 271 ($000s)	Refund ($000s)	Ending Balance ($000s)	Receipts ($000s)	Transfer To Acct 271 ($000s)	Refund ($000s)	Ending Balance ($000s)
L1	311-316,341-346	Production									
L2	352-359	Transmission									
		Distribution									
L3	361-362	Substation									
L4	364	Poles									
L5	365-367	Lines	700	42	524	54	162.931878	44	96	3	108.890734
L6	368	Transformers									
L7	369	Services									
L8	370	Meters	46	3	34	4	10.6694449	3	6	0	7.13061009
L9	373	Street lights	44	3	33	3	10.3112267	3	6	0	6.89120546
L10 = Σ(L3:L9)		Subtotal									
L11	390-398	General Plant									
L12		CHP									
L13 = Σ(L1:L2, L10:L12)		Total	789.9126	47.0000	592.0000	61.0000	183.9126	50.0000	108.0000	3.0000	122.9126

Allocation to the various functions based upon 5 year average plant balance for those functions that would be applicable.

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MAUI ELECTRIC COMPANY, LTD.
REQUIRED DATA FOR COST-OF-SERVICE STUDY
Docket No. 2006-0387, Test-Year 2007

RATE BASE ITEMS, 12.31.06 & 12.31.07 AVERAGE BALANCES

MAUI

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	2,633.0	396.2	3,130.9	7,844.4
2	352-359	Transmission	-	152.6	1,205.8	3,021.0
		Distribution				
3	361-362	Substation	-	42.2	333.4	835.4
4	364	Poles	-	40.3	318.7	798.5
5	365-367	Lines	-	159.3	1,258.6	3,153.3
6	368	Transformers	-	50.8	401.1	1,005.0
7	369	Services	-	69.3	547.9	1,372.8
8	370	Meters	-	11.8	93.5	234.1
9	373	Street lights	-	17.1	135.0	338.3
10 = Σ(3:9)		Subtotal	-	390.8	3,086.2	7,737.4
11	392	Vehicles	-	13.7	108.1	270.7
12	390-391, 393-398	General Plant	-	55.5	438.4	1,098.5
13 = Σ(1:2, 10:12)		Total	2,633.0	1,008.7	7,971.4	19,972.0

LANAI

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	-	4.1	252.6	486.9
2	352-359	Transmission	-	-	-	-
		Distribution				
3	361-362	Substation	-	0.3	16.2	31.2
4	364	Poles	-	0.4	26.9	51.8
5	365-367	Lines	-	1.4	84.9	163.7
6	368	Transformers	-	0.1	8.5	16.3
7	369	Services	-	0.2	11.0	21.2
8	370	Meters	-	0.0	2.8	5.5
9	373	Street lights	-	0.1	3.8	7.3
10 = Σ(3:9)		Subtotal	-	2.5	154.1	297.0
11	392	Vehicles	-	0.1	6.4	12.4
12	390-391, 393-398	General Plant	-	0.3	16.2	31.3
13 = Σ(1:2, 10:12)		Total	-	6.9	429.3	827.5

MAUI ELECTRIC COMPANY, LTD.
REQUIRED DATA FOR COST-OF-SERVICE STUDY
Docket No. 2006-0387, Test-Year 2007

RATE BASE ITEMS, 12.31.06 & 12.31.07 AVERAGE BALANCES

MOLOKAI

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	-	-	307.0	574.8
2	352-359	Transmission	-	-	10.8	20.2
		Distribution				
3	361-362	Substation	-	-	15.3	28.6
4	364	Poles	-	-	35.8	67.1
5	365-367	Lines	-	-	70.7	132.3
6	368	Transformers	-	-	18.4	34.5
7	369	Services	-	-	17.2	32.3
8	370	Meters	-	-	4.3	8.1
9	373	Street lights	-	-	4.7	8.8
10 = Σ(3:9)		Subtotal	-	-	166.5	311.7
11	392	Vehicles	-	-	13.5	25.3
12	390-391, 393-398	General Plant	-	-	19.7	36.9
13 = Σ(1:2, 10:12)		Total	-	-	517.6	969.0

TOTAL MECO

Line No.	Plant Acct. No.	FUNCTION	Property Held For Future Use ($000s)	Unamortized ITC ($000s)	Regulatory Assets ($000s)	Deferred Income Tax ($000s)
1	311-316, 341-346	Production	2,633.0	400.2	3,690.5	8,906.0
2	352-359	Transmission	-	152.6	1,216.6	3,041.3
		Distribution				
3	361-362	Substation	-	42.5	364.9	895.2
4	364	Poles	-	40.8	381.4	917.4
5	365-367	Lines	-	160.6	1,414.2	3,449.3
6	368	Transformers	-	50.9	428.0	1,055.8
7	369	Services	-	69.5	576.2	1,426.3
8	370	Meters	-	11.9	100.6	247.8
9	373	Street lights	-	17.1	143.5	354.4
10 = Σ(3:9)		Subtotal	-	393.3	3,408.8	8,346.1
11	392	Vehicles	-	13.8	128.0	308.4
12	390-391, 393-398	General Plant	-	55.7	474.4	1,166.7
13 = Σ(1:2, 10:12)		Total	2,633.0	1,015.6	8,918.3	21,768.5

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY - MAUI
Docket No. 2006-0386, Test-Year 2007

Contribution-in-Aid-of-Construction (CIAC)

			2006					2007					
Line No	Plant Acct No	FUNCTION	Beginning Balance ($000s)	Receipts ($000s)	Transfer Fr Acct 272 ($000s)	Amortized Amount ($000s)	Ending Balance ($000s)	Receipts ($000s)	Transfer Fr Acct 272 ($000s)	Amortized Amount ($000s)	Ending Balance ($000s)	CIAC avg	CIAC %
L1	311-316,341-346	Production											
L2	352-359	Transmission	11,135	2,765	34	535	13399 53686	2,541	61	626	15376 9812	14387 76	0 26728
		Distribution											
L3	361-362	Substation	2,956	734	9	142	3557.128749	675	16	166	4081 868599	3619 47	0 07626
L4	364	Poles	3,229	802	10	155	3885 604262	737	18	181	4458 734366	4172 17	0 08641
L5	365 367	Lines	11,292	2,804	35	543	13587 51995	2,577	62	635	15591 69197	14589 61	0 29131
L6	368	Transformers	3,693	917	11	177	4443 294386	843	20	208	5098 684603	4770 99	0 09526
L7	369	Services	4,283	1,064	13	206	5153 708695	977	23	241	5913 885594	5533 18	0 11049
L8	370	Meters	838	208	3	40	1008.580159	191	5	47	1157 346685	1082 96	0 02162
L9	373	Street lights	1,335	332	4	64	1606.987578	305	7	75	1844 019763	1725 5	0 03445
L10 - Σ(L3-L9)		Subtotal	27,626	6,860	85	1,328	33242.82377	6,305	151	1,552	38,146 1717	35,685	1
L11	390 398	General Plant											
L12		CHP											
L13	[illegible]	Total	38,761,2146	9,625.0000	119.0000	1,862.8540	46,642 3606	8,846 0000	212 0000	2,178 2078	53,522 1529	50 082 2600	1 0000

Allocation to the various functions based upon 5 year average plant balance for those functions that would be applicable

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY - LANAI
Docket No. 2006-0386, Test-Year 2007

Contribution-in-Aid-of-Construction (CIAC)

			2006					2007					
Line No	Plant Acct No	FUNCTION	Beginning Balance ($000s)	Receipts ($000s)	Transfer Fr Acct 272 ($000s)	Amortized Amount ($000s)	Ending Balance ($000s)	Receipts ($000s)	Transfer Fr Acct 272 ($000s)	Amortized Amount ($000s)	Ending Balance ($000s)	CIAC avg	CIAC %
L1	311-316,341-346	Production											
L2	352-359	Transmission	0	0	0	0	0	0	0	0	0	0	0
		Distribution											
L3	361-362	Substation	186	4	5	8	186.273375	7	0	8	187.0480053	187.66	0.09465
L4	364	Poles	377	7	10	16	377.3817294	14	0	17	374.9267583	376.15	0.18971
L5	365-367	Lines	1,120	21	29	48	1122.058194	42	0	50	1114.758899	1118.41	0.56406
L6	368	Transformers	104	2	3	4	104.0402941	4	0	5	103.3634836	103.7	0.0523
L7	369	Services	102	2	3	4	102.5246027	4	0	5	101.8576522	102.19	0.05154
L8	370	Meters	40	1	1	2	40.38960844	2	0	2	40.12686302	40.26	0.0203
L9	373	Street lights	54	1	1	2	54.57849651	2	0	2	54.22344849	54.4	0.02744
L10 - Σ(L3:L9)		Subtotal	1,986	37	51	85	1,989.24630	75	0	88	1,976.30571	1,983	1
L11	390-398	General Plant											
L12		CHP											
L13 = Σ(L10:L12)		Total	1,986.2676	37.0000	51.0000	85.0213	1,989.2463	75.0000	-	87.9406	1,976.3057	1,982.7700	1.0000

Allocation to the various functions based upon 5 year average plant balance for those functions that would be applicable.

MAUI ELECTRIC COMPANY, LIMITED
REQUIRED DATA FOR COST-OF-SERVICE STUDY - LANAI
Docket No. 2006-0386, Test-Year 2007

Contribution-in-Aid-of-Construction (CIAC)

			2006					2007						
Line No	Plant Acct No	FUNCTION	Beginning Balance ($000s)	Receipts ($000s)	Transfer Fr Acct 272 ($000s)	Amortized Amount ($000s)	Ending Balance ($000s)	Receipts ($000s)	Transfer Fr Acct 272 ($000s)	Amortized Amount ($000s)	Ending Balance ($000s)	CIAC avg	CIAC %	
L1	311-316 341-346	Production												
L2	352-359	Transmission	188	1	42	9	222.2363951	19	6	9	238.7130014	230.47	0.06963	
		Distribution												
L3	361-362	Substation	146	1	32	7	172.7573514	18	6	8	188.6636136	180.71	0.05476	
L4	364	Poles	590	4	131	28	696.0501537	73	24	33	760.1334448	728.09	0.22062	
L5	365-367	Lines	1,078	8	239	52	1272.832153	134	44	61	1390.018073	1331.43	0.40344	0.6246b
L6	368	Transformers	290	2	64	14	342.5109799	36	12	16	374.0449603	358.28	0.10856	
L7	369	Services	243	2	54	12	286.6018786	30	10	14	312.9884722	299.8	0.09084	
L8	370	Meters	71	1	16	3	83.35024866	9	3	4	91.02406137	87.19	0.02642	
L9	373	Street lights	68	1	15	3	80.55182957	8	3	4	87.96800006	84.26	0.02553	
L10 = Σ(L3:L9)		Subtotal	2,485	19	550	120	2,934.65459	309	102	141	3,204.83963	3,070	1	
L11	390-396	General Plant												
L12		CHP												
L13 = Σ(L2:L12)		Total	2,673.8446	20.0000	592.0000	128.9536	3,156.8910	328.0000	108.0000	149.3384	3,443.9526	3,300.2300	1.0000	

Allocation to the various functions based upon 5 year average plant balance for those functions that would be applicable.

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MAUI ELECTRIC COMPANY, LTD.
REQUIRED DATA FOR COST-OF-SERVICE STUDY
Docket No. 2006-0387, Test-Year 2007

Depreciation Reserve Balance Estimate

MAUI

Line No.	Plant Acct. No.	FUNCTION	2006 Ending Depreciation Balance ($000s)	2007 Depreciation Accrual ($000s)	Gross Retirement ($000s)	Removal Cost ($000s)	Gross Salvage ($000s)	Ending Depreciation Balance ($000s)	average	%	
1	311-316, 341-346	Production	141,026	11,807	22	43	0	152,768	142251.4	0.45649	
2	352-359	Transmission	34,556	3,175	72	257	-	37,402	34620.65	0.1111	
		Distribution									
3	361-362	Substation	12,643	896	46	5		13,487	12677.5	0.04068	
4	364	Poles	18,399	1,523	23	159		19,742	18457.04	0.05923	
5	365-367	Lines	46,781	4,509	44	415		50,831	46952.38	0.15067	0.20
6	368	Transformers	10,989	1,332	338	193	13	11,803	11015.66	0.03535	
7	369	Services	16,220	2,572	4	138		18,650	16318.18	0.05237	
8	370	Meters	2,839	227	31	5		3,030	2847.68	0.00914	
9	373	Street lights	5,627	448	6	8		6,061	5644.185	0.01811	
10 = Σ(3:9)		Subtotal	113,498	11,508	493	923	13	123,603			
11	390-398	General Plant	21,115	2,677	431	8	40	23,393	20835.62	0.06688	
12 = Σ(1:2, 10:11)		Total	310,194	29,167	1,018	1,232	54	337,166	311620.3	100.00%	

LANAI

Line No.	Plant Acct. No.	FUNCTION	2006 Ending Depreciation Balance ($000s)	2007 Depreciation Accrual ($000s)	Gross Retirement ($000s)	Removal Cost ($000s)	Gross Salvage ($000s)	Ending Depreciation Balance ($000s)	average	%	
1	311-316, 341-346	Production	8,288	777	-	29	-	9,036	8288.344	0.59573	
2	352-359	Transmission	-	-	-	-	-	-	0	0	
		Distribution									
3	361-362	Substation	338	35	-	-		373	338.0678	0.0243	
4	364	Poles	1,245	107	0	7		1,345	1244.791	0.08947	
5	365-367	Lines	2,657	249	4	7		2,895	2657.123	0.19098	0.28045
6	368	Transformers	264	23	1	7		279	263.9542	0.01897	
7	369	Services	257	42	-	3		296	256.6813	0.01845	
8	370	Meters	72	6	1	0		77	72.40135	0.0052	
9	373	Street lights	161	11	0	-		172	160.9189	0.01157	
10 = Σ(3:9)		Subtotal	4,994	474	6	25	0	5,437			
11	390-398	General Plant	631	93	-	-	-	724	630.632	0.04533	
12 = Σ(1:2, 10:11)		Total	13,913	1,344	6	54	0	15,197	13912.91	100.00%	

MAUI ELECTRIC COMPANY, LTD.
REQUIRED DATA FOR COST-OF-SERVICE STUDY
Docket No. 2006-0387, Test-Year 2007

Depreciation Reserve Balance Estimate

MOLOKAI

Line No.	Plant Acct. No.	FUNCTION	2006 Ending Depreciaton Balance ($000s)	2007 Depreciation Accrual ($000s)	Gross Retirement ($000s)	Removal Cost ($000s)	Gross Salvage ($000s)	Ending Depreciaton Balance ($000s)	average	%	
1	311-316, 341-346	Production	8,959	699	-	-	-	9,658	8861.059	0.5657	
2	352-359	Transmission	198	23	-	-	-	221	197.893	0.01263	
		Distribution									
3	361-362	Substation	290	33	-	-		323	290.2273	0.01853	
4	364	Poles	1,396	78	0	8		1,465	1395.811	0.08911	
5	365-367	Lines	2,065	153	7	7		2,205	2065.109	0.13184	0.2209
6	368	Transformers	550	40	-	24		567	550.1539	0.03512	
7	369	Services	505	50	0	1		554	504.7109	0.03222	
8	370	Meters	176	9	0	0		186	176.3099	0.01126	
9	373	Street lights	198	14	-	0		211	197.5422	0.01261	
10 = Σ(3:9)		Subtotal	5,180	377	7	40	0	5,511			
11	390-398	General Plant	1,455	108	37	-	4	1,531	1424.939	0.09097	
12 = Σ(1:2, 10:11)		Total	15,793	1,207	44	40	4	16,921	15663.76	100.00%	

TOTAL MECO

Line No.	Plant Acct. No.	FUNCTION	2006 Ending Depreciaton Balance ($000s)	2007 Depreciation Accrual ($000s)	Gross Retirement ($000s)	Removal Cost ($000s)	Gross Salvage ($000s)	Ending Depreciaton Balance ($000s)	average	%	
1	311-316, 341-346	Production	158,273	13,283	22	72	0	171,462	159400.8	0.46718	
2	352-359	Transmission	34,754	3,198	72	257	-	37,623	34816.55	0.10205	
		Distribution									
3	361-362	Substation	13,271	964	46	5	-	14,183	13305.79	0.039	
4	364	Poles	21,040	1,708	23	174	-	22,551	21097.64	0.06183	
5	365-367	Lines	51,504	4,911	55	430	-	55,930	51674.61	0.15145	0.21328
6	368	Transformers	11,802	1,395	339	224	13	12,648	11829.27	0.03467	
7	369	Services	16,982	2,665	4	142	-	19,501	17080.57	0.05006	
8	370	Meters	3,089	242	33	5	-	3,293	3096.891	0.00908	
9	373	Street lights	5,985	473	6	8	-	6,445	6002.646	0.01759	
10 = Σ(3:9)		Subtotal	123,673	12,359	506	988	13	134,552			
11	390-398	General Plant	23,202	2,878	468	8	44	25,648	22891.19	0.06709	
12 = Σ(1:2, 10:11)		Total	339,902	31,718	1,068	1,326	58	369,285	341197.9	100.00%	

Note: Balances not adjusted for Lanai City PP Rate Case Adjustment of $240K

CA-IR-297

Ref: MECO-WP-1401B & MECO T-14 June 2007 Update (2007 Plant Additions).

MECO T-14's June 2007 Update, specifically Attachment 1, pages 2-4, appears to be an update of MECO-WP-1401B. These updates to the Company original workpapers identify fifteen (15) construction projects expected to be completed during 2007 that exceed $500,000. Please provide the following information:

a. Please provide the most current and complete Project Initiation Authorization ("PIA") or Project Identification Form ("PIF") packet for each project.

b. If the 15 projects include blanket projects, which require different authorization or documentation formats, please provide such information in lieu of the PIF/PIA documentation requested in part (a) above.

c. If the responses to parts (a) and (b) above do not contain project feasibility studies, cost savings estimates, estimated construction and project completion dates, identification of retirements or related costs of removal, please provide the following:

   1. Does MECO routinely prepare such information associated with each of the 15 projects in addition to the information requested in parts (a) and (b) above?

   2. If so, please provide such information for each of these projects in addition to the information requested in parts (a) and (b) above.

   3. If not, please explain why such information is not routinely prepared and considered in conjunction with the construction planning and project management process.

MECO Response:

The information described in the response below (pages 5 to 235) 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. An electronic version of the document is being provided.

a. Attached are the Project Identification Forms (PIF) for 14 of the 15 construction projects forecasted to be completed in the 2007 test year that exceed $500,000, per MECO-WP-1401B (MECO T-14 June 2007 update). In the course of reviewing the list of projects that exceed $500,000, it was noted that a PIF was not submitted for project

BJohns29_, Hokulani Golf Villas and M3141001, MPP M18-18 MW Steam Turbine NI. Subsequently, the project manager was required to submit a PIF which is attached as noted below. For project M8020000, In-Kind CIAC, the Company does not require the preparation of a PIF because the amounts budgeted under this project are non-cash and the in-kind contribution amounts for specific projects are identified in the PIF prepared for the specific project. For example, the attached PIF for project BJohns29_, Hokulani Golf Villas identifies forecasted in-kind contribution amount for this project of $700,000. For specific projects, there are differences between the current plant additions update forecast in MECO-WP-1401B (MECO T-14 June 2007 Update) and the PIF amounts indicated on the attached PIF's because cost estimates for individual projects may change between the time the PIF was prepared and the preparation of the current plant additions forecast in the updated MECO-WP-1401B.

Project	Project Description	Type	PIF
BJohns29_	Hokulani Golf Villas	Specific	Pages 5-13
M7750000	Other Overhead additions	Blanket (Program)	Pages 14-22
M0000111	Peahi Sub 94	Specific	Pages 23-30
M0000629	M14 CT Controls	Specific	Pages 31-59
M0000807	Mahinahina Sub 50 Repl Tsf 2	Specific	Pages 60-68
M0000810	Napili Sub 29 Tsf. 2 Replace	Specific	Pages 69-77
M7900000	Meters & Metering Equip. (RB)	Blanket (Program)	Pages 78-84
M7000000	Overhead Services & Extensions	Blanket (Program)	Pages 85-93
M0000687	Kanaha Tsf #B Replacement	Specific	Pages 94-104
M0000809	Kihei Substation 35 - Transformer/Switchgear #4 Addition	Specific	Pages 105-112
M0000697	69kV Reloc Waikapu	Specific	Pages 113-138
M8000000	Underground Extensions & Services	Blanket (Program)	Pages 139-150
M7910000	Transformer & Related Equip (RB)	Blanket (Program)	Pages 151-156
M3141001	MPP M18-18 MW Steam Turbine NI	Specific	Pages 157-177

b. As noted in the response to part a. above, 5 of the 15 projects are program projects (blankets). Copies of PIF forms for these 5 program projects are included in the response to part a. above.

c. 1. For program projects, the copies of the PIF forms included in response to part a. above do not contain project feasibility studies, cost savings estimates, estimated construction and project completion dates, and identification of retirements or related costs of removal. As stated in Ms. Arase's direct testimony (MECO T-14, page 4), program projects can be comprised of hundreds of service/work orders which are generally low in cost and of short duration. Project feasibility studies, cost savings estimates, estimated construction and project completion dates and identification of retirements or related costs of removal, if applicable, would be prepared at the individual service/work order level and are not included with the PIF for the associated blanket project. For specific projects, the copies of the PIF forms included in the response to part a. above contain the listed information with the exception of project feasibility studies and cost savings estimates. The need for project feasibility studies and identification of cost savings estimates is evaluated on a project by project basis.

2. The following is a listing of documentation related to project feasibility studies or cost savings estimates.

Project	Project Description	Documentation
M0000111	Peahi Sub 94	Peahi Substation Report (Pages 178-195)
M0000807	Mahinahina Sub 50 Repl Tsf 2	Project Justification Report based on 2006 Substation Load Forecasting spreadsheet (Pages 196,199-200)
M0000810	Napili Sub 29 Tsf. 2 Replace	Project Justification Report based on 2006 Substation Load Forecasting spreadsheet (Pages 196-198)
M0000687	Kanaha Tsf #B Replacement	Project Justification Report based on 2006 Substation Load Forecasting spreadsheet (Pages 201-202)
M0000809	Kihei Substation 35 - Transformer/Switchgear #4 Addition	South Maui Distribution Update, Fall 2006 Report (Pages 203-227)
M0000697	69kV Reloc Waikapu	Because this project was customer driven, no project feasibility study was conducted. For related cost savings estimates, refer to PUC Application, Docket No. 2006-0157, Exhibits (VII - XI) (Pages 228-235)
M3141001	MPP M18-18 MW Steam Turbine NI	For project feasibility studies, please refer to PUC Application, Docket No. 7744 Annual Review Reports as required by Decision & Order No. 13730 (dated January 11, 1995)

3. See response to part c.1. above.

J7-154
BJOHNSON29_

PROJECT IDENTIFICATION FORM - Initialize/ AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Hokulani Golf Villas

Plant Addition Date: 2007-12

Project Number: BJOHNSON29_ (Temporary) M8000000 / M8020000

Commitment Date: 2007- 8

Primary Corporate Goal: Sig Family

Stategic Plan Linkage: 2A - Retain Customers (Primary)

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$26	$1,100	$0	$0	$0	$0	$0	$1,126

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	0	0	0	0	45

Purpose/Objectives:

Offsite and onsite work required to provide a new underground electrical distribution system to serve 152 homes, (2) sewer lift stations, (1) clubhouse and (6) irrigation meter pedestals of the Hokulani Golf Villas development.

Temporary Project number is BJohnson29.

Scope Description:

Install 12,864 circuit feet of 3-1/C and 14,315 circuit feet of 1/C primary underground aluminum conductors, 9,512 circuit feet of secondary underground cables, (3) PME-9 padmounted switchgears and (20) single phase padmounted transformers.

This project is currently estimated at $1,125,982. The amount of $700,000.00 will be funded by blanket program M8020000 In-Kind CIAC, which has a 2007 approved budget of $6,931,456.00 and the remaining balance will be funded by blanket program M8000000 Underground Services and Extensions, which has a 2007 approved budget of $3,480,094.00.

This project is to be completed by December 2007.

No Retirement or removals - NEW Installation

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

DK Crew = 1,454 hours
DK Insp = 180 hours
DK Supv = 146 hours
Land Agent = 40 hours
WP ENR = 35 hours
WP Supv = 4 hours
Materials = $184,150.57

See pillar estimate and Ellipse Actual reports.

Justification:

Signature Homes of Hawaii, LLC has requested electrical service for the Hokulani Golf Villas project.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Project is required to meet our obligation to provide service. Failure to comply to the customer's request for power would result in loss revenue to the Company and possible action from the PUC. Further, providing service to the customer will improve our public image to the community.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

• **In Kind**	$700,000.00	
GET Included	$700,000.00	
• **In Cash**	$154,793.99	Total non-refundble contribution is $161,242.71.
GET Included	$161,242.71	
Cash Advance	$275,149.92	Total advance is $286,612.67.
GET Included	$286,612.67	

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Bernadette Johnson **Phone/Ext #:** 2369

Originator's Name: B. Johnson

Responsible Estimator: B. Johnson
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: B. Johnson BR 8207

Date: 08/02/2007

Required Approvals to Initialize a Project:

Neal Shy 8/2/07
Responsible Manager **Date**

Edward J. Ritchie 8/10/07
MECO President **Date**

Required Approvals to Authorize a Project:

Neal Shy 8/2/07
Responsible Manager **Date**

N/A
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

8/9/07
MECO Accounting Manager **Date**

Edward J. Ritchie 8/10/07
MECO President **Date**

vm 8/7/07
8/7/07
8/7/07

*Project #	Pro...	*In...	*R...	*Ac...	*Lo...	*E...	*Labor ...	Line Item	Jul 07	Aug 07	Sep 07	Oct 07	Nov 07	Dec 07	FY07
BJohns29_	Hok...	*	*	*	*	401		Stores OHBJohns29_	0.00	0.00	0.00	92,075.00	92,075.57	0.00	184,150.57
									$0.00000	$0.00000	$0.00000	$0.12200	$0.12200	$0.00000	$0.12200
									$0.00	$0.00	$0.00	$11,233.15	$11,233.22	$0.00	$22,466.37
BJohns29_	Hok...	*	*	*	*	404		En Del OHBJohns29_	60.00	60.00	60.00	700.00	700.00	54.00	1,674.00
									$22.00	$23.00	$23.00	$23.00	$23.00	$23.00	$22.96
									$1,320.00	$1,840.00	$1,840.00	$16,100.00	$16,100.00	$1,242.00	$38,442.00
BJohns29_	Hok...	*	*	*	*	406		Corp Adm OH BJohns29_	60.00	97.00	102.00	770.00	770.00	60.00	1,859.00
									$3.88	$3.88	$3.88	$3.88	$3.88	$3.88	$3.88
									$232.80	$376.36	$395.76	$2,987.60	$2,987.60	$232.80	$7,212.92
BJohns29_	Hok...	*	*	*	*	407		Cust Install OHBJohns29_	0.00	15.00	20.00	0.00	0.00	0.00	35.00
									$0.00	$41.00	$41.00	$0.00	$0.00	$0.00	$41.00
									$0.00	$615.00	$820.00	$0.00	$0.00	$0.00	$1,435.00
BJohns29_	Hok...	*	*	*	*	421		NPW OH BJohns29_	60.00	97.00	102.00	770.00	770.00	60.00	1,859.00
									$4.46	$4.46	$4.46	$4.46	$4.46	$4.46	$4.46
									$267.60	$432.62	$454.92	$3,434.20	$3,434.20	$267.60	$8,291.14
BJohns29_	Hok...	*	*	*	*	422		Empl Benefits OHBJohns29_	60.00	97.00	102.00	770.00	770.00	60.00	1,859.00
									$12.22	$12.22	$12.22	$12.22	$12.22	$12.22	$12.22
									$733.20	$1,185.34	$1,246.44	$9,409.40	$9,409.40	$733.20	$22,716.98
BJohns29_	Hok...	*	*	*	*	423		PR Tax OH BJohns29_	2,209.80	3,416.99	3,562.84	30,292.50	30,292.50	2,369.52	72,204.15
									$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790
									$199.52	$300.35	$313.17	$2,662.71	$2,662.71	$208.28	$6,346.74
BJohns29_	Hok...	*	*	*	*	430		AFUDC nonblkt by Component ProjectBJoh...	1.00	1.00	1.00	1.00	1.00	1.00	6.00
									$35.86	$94.43	$156.74	$1,358.77	$2,569.39	$2,823.81	$1,139.84
									$35.86	$94.43	$156.74	$1,358.77	$2,569.39	$2,823.81	$8,839.01
BJohns29_	Hok...	NI	MDK	441	MAU	150	DKCREW	Crew Labor UG - Hokulani	0.00	0.00	0.00	700.00	700.00	54.00	1,454.00
									$0.00	$0.00	$0.00	$37.83	$37.83	$37.83	$37.83
									$0.00	$0.00	$0.00	$26,481.00	$26,481.00	$2,042.82	$55,004.82
BJohns29_	Hok...	NI	MDK	441	MAU	150	DKCREW	Inspection UG - Hokulani	60.00	60.00	60.00	0.00	0.00	0.00	180.00
									$37.83	$37.83	$37.83	$0.00	$0.00	$0.00	$37.83
									$2,269.80	$2,269.80	$2,269.80	$0.00	$0.00	$0.00	$6,809.40
BJohns29_	Hok...	NI	MDK	441	MAU	150	DKSUPV	Supv Labor UG-Hokulani	0.00	0.00	0.00	70.00	70.00	6.00	146.00
									$0.00	$0.00	$0.00	$54.45	$54.45	$54.45	$54.45
									$0.00	$0.00	$0.00	$3,811.50	$3,811.50	$326.70	$7,949.70
BJohns29_	Hok...	NI	MDK	441	MAU	201		Materials - Hokulani	0.00	0.00	0.00	92,075.00	92,075.57	0.00	184,150.57
									$0	$0	$0	$1	$1	$0	$1
									$0.00	$0.00	$0.00	$92,075.00	$92,075.57	$0.00	$184,150.57
BJohns29_	Hok...	NI	MDK	441	MAU	910		In Kind - Hokulani	0.00	0.00	0.00	0.00	0.00	700,000.00	700,000.00
									$0	$0	$0	$0	$0	$1	$1
									$0.00	$0.00	$0.00	$0.00	$0.00	$700,000.00	$700,000.00
BJohns29_	Hok...	NI	MWL	426	MAU	150	WLTC	Land - Hokulani	0.00	20.00	20.00	0.00	0.00	0.00	40.00
									$0.00	$31.42	$31.42	$0.00	$0.00	$0.00	$31.42
									$0.00	$628.40	$628.40	$0.00	$0.00	$0.00	$1,256.80
BJohns29_	Hok...	NI	MWP	426	MAU	150	WPDENR	Engineering - Hokulani	0.00	15.00	20.00	0.00	0.00	0.00	35.00
									$0.00	$29.17	$29.17	$0.00	$0.00	$0.00	$29.17
									$0.00	$437.55	$583.40	$0.00	$0.00	$0.00	$1,020.95
BJohns29_	Hok...	NI	MWP	426	MAU	150	WPSUPV	Engineering Supv Hokulani	0.00	2.00	2.00	0.00	0.00	0.00	4.00
									$0.00	$40.62	$40.62	$0.00	$0.00	$0.00	$40.62
									$0.00	$81.24	$81.24	$0.00	$0.00	$0.00	$162.48
									$5,058.78	$8,261.09	$8,789.88	$169,553.33	$170,764.59	$707,677.22	$1,070,104.89 (A)

(A) P/4 Cost 2007 actuals

Total Proj Est

In-kind CIAC

2007 authorization

1579 Work Order Search Report - By Work Order Number

Report Parameters

WO Number:		*Work Group:*		*Date Raised From:*	*1/1/1900*	*Equipment:*	
WO Type:		*Project No:*		*Date Raised To:*	*8/2/2007*	*Hrs/Cost From:*	*190001*
Maint Type:		*Parent WO Type:*	*Standard*	*Cost Center:*		*Hrs/Cost To:*	*200612*
WO Status:		*Parent WO:*	*CE010144*	*Event Type:*		*District:*	*MECO*
Assign To:		*Originator:*		*Standard Job#:*		*Sort By:*	*Work Order #*

Company: **MECO**

													Selected Period		Total to Date		
Item #	*Project#*	*Parent WO*	*WO #*	*WO Description*	*St*	*Cost Center / Acct*	*Raised Dt*	*WT*	*MT*	*Originated By*	*Assign To*	*Wk Grp*	*Act Hrs*	*Act Cost*	*Est Hrs*	*Act Hrs*	*Act Cost*
1	E0002160	CE010144	CE031653	Hokulani Golf Villas (Eng'g)	A	MWP426MAUNIM8010000	04/08/2005	EE	01	JOHNSON, BER MADETTE	JOHNSON, BE DNADETTE	MCEBPJ	223.5	25,575.71	0.0	352.5	38,707.05
2	F0002161	CE010144	CE033485	Hokulani Golf Villas (Constr)	A	MDK441MAUNIM8010000	08/15/2006	CC	21	JOHNSON, BER MADETTE	JOHNSON, BE DNADETTE	MCEBPJ	4.0	365.24	0.0	196.5	17,169.89
Total Count	2											Grand Total	227.5	25,940.95	0.0	549.0	55,876.94

PRIOR COST: (2006)
$25,940.95

1579 Work Order Search Report - By Work Order Number

Report Parameters

WO Number:		*Work Group:*		*Date Raised From:*	*1/1/1900*	*Equipment:*	
WO Type:		*Project No:*		*Date Raised To:*	*8/2/2007*	*Hrs/Cost From:*	*200701*
Maint Type:		*Parent WO Type:*	*Standard*	*Cost Center:*		*Hrs/Cost To:*	*999912*
WO Status:		*Parent WO:*	*CE010144*	*Event Type:*		*District:*	*MECO*
Assign To:		*Originator:*		*Standard Job#:*		*Sort By:*	*Work Order #*

Company: **MECO**

													Selected Period		*Total to Date*		
Item #	*Project#*	*Parent WO*	*WO #*	*WO Description*	*St*	*Cost Center / Acct*	*Raised Dt*	*WT*	*MT*	*Originated By*	*Assign To*	*Wk Grp*	*Act Hrs*	*Act Cost*	*Est Hrs*	*Act Hrs*	*Act Cost*
1	E0002180	CE010144	CE031653	Honuiani Golf Villas (Eng'g)	A	MWP428MAUNIM8010000	04/06/2005	EE	01	JOHNSON, BER MADETTE	JOHNSON, BE RNADETTE	MCEBPJ	129.0	13,131.34	0.0	352.5	38,707.05
2	E0002181	CE010144	CE033485	Honuiani Golf Villas (Constr)	A	MDP441MAUNIME010000	08/15/2006	CC	21	JOHNSON, BER MADETTE	JOHNSON, BE RNADETTE	MCEBPJ	192.5	16,804.65	0.0	195.5	17,169.89
Total Count: 2												Grand Total	321.5	29,935.99	0.0	549.0	55,876.94

PRIOR COST 2007:
$ 29,935.99

PRODUCTION CHANGE REQUEST (PCR) FORM

District:	M-MECO
Temporary Project Number:	BJOHNSON29_
Project Number:	
Project Title: (28 characters)	Hokulani Golf Villas
Short Project Title: (10 characters)	Hokulani
Originator Employee's Number:	32375
Person Assigned To:	B. Johnson
Person Assigned to Employee Number:	32375
Responsibility Area:	MWP
Activity:	426
Location:	MAU
Indicator:	NI
Apply AFUDC (yes or no):	Yes
Existing Grandparent Project Number: or **New Grandparent Project Description:**	
Pillar Temporary Projects or 5th Segment Projects to link to Grandparent Project above:	
Plant Addition Date:	2007-12
Plant Functional Category:	Distribution
Project or Program:	M8000000

For Admin use only:

Date updated MIMS Prod files: _____

Copy given to Pillar Admin: _____

Date: 08/02/2007

07-047 (GK)
M7750000

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: MINOR OTHER OVHD ADDNS

Project Number: M7750000
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: -

Commitment Date: -

Primary Corporate Goal: SAID

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$334	$1,230	$1,249	$1,275	$1,299	$0	$5,387

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	0	0	33	0	78

Purpose/Objectives:

Install various minor overhead distribution facilities as required, and repair overhead distribution facilities damaged by storms and other causes.

Scope Description:

Install various minor overhead distribution facilities as required, and repair overhead distribution facilities damaged by storms and other causes.

The 2007 approved BUDGET is $333,795.65.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Justification:

Funds required for minor system enhancements not covered by a specific budget item and for storm and other damages to the overhead distribution system.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Improve customer satisfaction and improve power reliability by restoring power quickly.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Gregory Kauhi **Phone/Ext #:** 23666

Originator's Name: GREG KAUHI

Responsible Estimator: GREG KAUHI
(Pillar UserID)

Resp. Estimator Dept: Customer Installations
(Pillar Department Folder)

Project Manager: GREG KAUHI

Date: 01/31/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

Neal Shy 2/2/07
Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

Edward L. Herbert 2/13/07
MECO President **Date**

rw 2/6/07
2/12/07
aa 2/10/07

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
	401	M7750000	Other Overhead additions	*	*	*		Stores OHM7750000	64,102.90 $0 11640 $7,461.58
*	404	M7750000	Other Overhead additions	*	*	*		En Del OHM7750000	1 788 00 $25 37 $45,361 56
*	406	M7750000	Other Overhead additions	*	*	*		Corp Adm OH M7750000	2,964 00 $3.88 $11 500.32
*	407	M7750000	Other Overhead additions	*	*	*		Cust Install OHM7750000	996 00 $31 43 $31,304 28
*	421	M7750000	Other Overhead additions	*	*	*		NPW OH M7750000	2,964 00 $4 46 $13,219 44
*	422	M7750000	Other Overhead additions	*	*	*		Empl Benefits OHM7750000	2,964.00 $12.22 $36,220 08
*	423	M7750000	Other Overhead additions	*	*	*		PR Tax OH M7750000	108,955 88 $0.08790 $9,401 42
*	430	M7750000	Other Overhead additions	*	*	*		AFUDC-Bkt-MM7750000	327,877 45941 $0 01805 $5,913.19
*									$160,386.87
MDE	150	M7750000	Other Overhead additions	415	MAU	NI	DECREW	Line Crew-Construct Distr Maui Install	120 00 $39 98 $4,797 60
JE	150	M7750000	Other Overhead additions	440	MAU	NI	DECREW	Maint Crew-New Res Maui Install	12 00 $39.98 $479 76
MDE	150	M7750000	Other Overhead additions	442	MAU	NI	DECREW	Maint Crew-New Comm Maui Install	12.00 $39.98 $479 76
MDE									$5 757 12
MDK	150	M7750000	Other Overhead additions	415	MAU	NI	DKSUPV	Line Crew Supv-Construct Distr Maui Install	24 00 $54 45 $1,306 80
MDK	150	M7750000	Other Overhead additions	473	MAL	NI	DKCREW	Line Crew-Prev Distr Lanai Install	240.00 $37 83 $9,079 20
MDK	150	M7750000	Other Overhead additions	473	MAU	NI	DKSUPV	Line Crew Supv-Prev Distr Maui Install	24 00 $54 45 $1,306 80
MDK	150	M7750000	Other Overhead additions	475	MAU	NI	DKSUPV	Line Crew Supv-Corr Distr Maui Install	24 00 $54 45 $1,306.80
MDK	150	M7750000	Other Overhead additions	479	MAU	NI	DKSUPV	Line Crew Supv-Prev Transf Maui Install	24 00 $54 45 $1 306 80
MDK	150	M7750000	Other Overhead additions	479	MAU	NI	DKCREW	Line Crew-Prev Transf Maui Install	120 00 $37 83 $4,539.60
MDK	150	M7750000	Other Overhead additions	481	MAU	NI	DKSUPV	Line Crew Supv-Corr Transf Maui Install	24 00 $54 45 $1,306 80

?...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
..DK	150	M7750000	Other Overhead additions	481	MAU	NI	DKCREW	Line Crew-Corr Transf Maui Install	120.00 $37.83 $4,539.60
MDK	201	M7750000	Other Overhead additions	415	MAU	NI		Maui Stock Matl-Construct Distr	20,000.00 $1.090 $21,800.00
MDK	201	M7750000	Other Overhead additions	473	MAL	NI		Lanai Stock Matl-Prev Distr	1,000.00 $1.090 $1,090.00
MDK	201	M7750000	Other Overhead additions	473	MAU	NI		Maui Stock Matl-Preventative Distr	20,000.00 $1.090 $21,800.00
MDK	201	M7750000	Other Overhead additions	475	MAU	NI		Maui Stock Matl-Corrective Distr	15,810.00 $1.090 $17,232.90
MDK	501	M7750000	Other Overhead additions	415	MAU	NI		O/S General Services- Construct Distr	100.00 $1 $100.00
MDK	505	M7750000	Other Overhead additions	473	MAU	NI		O/S Construction-Preventative Distr	100.00 $1 $100.00
MDK	505	M7750000	Other Overhead additions	475	MAU	NI		O/S Construction-Corrective Distr	100.00 $1 $100.00
MDK	505	M7750000	Other Overhead additions	507	MAU	NI		O/S Construction-Emerg Distr Maui Install	100.00 $1 $100.00
MDK	522	M7750000	Other Overhead additions	473	MAL	NI		Interisland Room/Airfare for Line Crew	50.00 $1 $50.00
MDK									$87,065.30
MDL	150	M7750000	Other Overhead additions	473	MAL	NI	DLCREW	Line Crew-Prev Distr Lanai Install	120.00 $40.35 $4,842.00
MDL									$4,842.00
MDR	150	M7750000	Other Overhead additions	415	MAU	NI	DRDSUP	Dispatch Supv-Construct Distr Maui Install	24.00 $45.88 $1,101.12
MDR	150	M7750000	Other Overhead additions	415	MAU	NI	DRDISP	Dispatch-Construct Distr Maui Install	12.00 $39.07 $468.84
MDR	150	M7750000	Other Overhead additions	415	MAU	NI	DRCREW	Trouble Crew-Construct Distr Maui Install	96.00 $41.26 $3,960.96
MDR	150	M7750000	Other Overhead additions	473	MAU	NI	DRDSUP	Dispatch Supv-Prev Distr Maui Install	24.00 $45.88 $1,101.12
MDR	150	M7750000	Other Overhead additions	473	MAU	NI	DRDISP	Dispatch-Prev Distr Maui Install	24.00 $39.07 $937.68
MDR	150	M7750000	Other Overhead additions	473	MAU	NI	DRCREW	Service Crew-Prev Distr Maui Install	60.00 $41.26 $2,475.60
MDR	150	M7750000	Other Overhead additions	475	MAU	NI	DRDSUP	Dispatch Supv-Corr Distr Maui Install	24.00 $45.88 $1,101.12

*B...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
..OR	150	M7750000	Other Overhead additions	475	MAU	NI	DRDISP	Dispatch-Corr Distr Maui Install	12.00 $39.07 $468.84
MDR	150	M7750000	Other Overhead additions	475	MAU	NI	DRCREW	Service Crew-Corr Distr Maui Install	96.00 $41.26 $3,960.96
MDR	150	M7750000	Other Overhead additions	479	MAU	NI	DRDSUP	Dispatch Supv-Prev Distr Maui Install	24.00 $45.88 $1,101.12
MDR	150	M7750000	Other Overhead additions	479	MAU	NI	DRDISP	Dispatch-Prev Distr Maui Install	24.00 $39.07 $937.68
MDR	150	M7750000	Other Overhead additions	479	MAU	NI	DRCREW	Service Crew-Prev Distr Maui Install	96.00 $41.26 $3,960.96
MDR	201	M7750000	Other Overhead additions	415	MAU	NI		Maui O/S Matl-Construct Distr	1,000.00 $1.090 $1,090.00
MDR									$22,666.00
MDT	150	M7750000	Other Overhead additions	415	MAM	NI	DTCREW	Line Crew-Constr Distr Molokai Install	96.00 $35.08 $3,367.68
MDT	150	M7750000	Other Overhead additions	473	MAM	NI	DTCREW	Line Crew-Prev Distr Molokai Install	240.00 $35.08 $8,419.20
MDT	150	M7750000	Other Overhead additions	475	MAM	NI	DTCREW	Line Crew-Corr Distr Molokai Install	96.00 $35.08 $3,367.68
..OT	150	M7750000	Other Overhead additions	479	MAM	NI	DTCREW	Line Crew-Prev Distr Molokai Install	48.00 $35.08 $1,683.84
MDT									$16,838.40
MWL	150	M7750000	Other Overhead additions	928	MAM	NI	WLTC	Land Agent-Process Easmt	48.00 $31.42 $1,508.16
MWL	501	M7750000	Other Overhead additions	928	MAU	NI		O/S General Services-Process Easmt	100.00 $1 $100.00
MWL									$1,608.16
MWP	150	M7750000	Other Overhead additions	403	MAM	NI	WPSUPV	Cust Engr Supv-Design Distr Molokai Install	12.00 $40.62 $487.44
MWP	150	M7750000	Other Overhead additions	403	MAM	NI	WPPLNR	Gr 12-Design Distr Molokai Install	120.00 $29.90 $3,588.00
MWP	150	M7750000	Other Overhead additions	403	MAU	NI	WPSUPV	Cust Engr Supv-Design Distr Maui Install	48.00 $40.62 $1,949.76
MWP	150	M7750000	Other Overhead additions	403	MAU	NI	WPDENR	Designer-Design Distr Maui Install	180.00 $29.17 $5,250.60
MWP	150	M7750000	Other Overhead additions	403	MAU	NI	WPJPNR	Gr 10-Design Distr Maui Install	288.00 $26.20 $7,545.60
MWP	150	M7750000	Other Overhead additions	403	MAU	NI	WPPLNR	Gr 12-Design Distr Maui Install	288.00 $29.90 $8,611.20

*...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
...WP	150	M7750000	Other Overhead additions	403	MAU	NI	WPDPNR	Gr. 15-Design Distr Maui Install	120.00 $35.91 $4,309.20
MWP	201	M7750000	Other Overhead additions	403	MAU	NI		O/S MATL	1,000.00 $1.090 $1,090.00
MWP	506	M7750000	Other Overhead additions	403	MAU	NI		O/S Engr-Design Distr Maui Install	200.00 $1 $200.00
MWP	522	M7750000	Other Overhead additions	403	MAU	NI		Interisland Airfare-Design Distr Maui	1,600.00 $1 $1,600.00
MWP									$34,631.80
									$333,795.65

06-197 (R

REAUTHORIZATION

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

M0000111

The Project identified below has already been established in MIMS

Project Title: Peahi Sub 94

Plant Addition Date: 2006-12

Project Number: M0000111
(Permanent)

Commitment Date: 2006-03

Primary Corporate Goal: CAID

Stategic Plan Linkage: 2B - Increase Electric Sales
(Primary)

Impact on Goal: Low

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$0	$629	$0	$0	$0	$0	$0	$629

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	0	0	33	0	78

Purpose/Objectives:

Provide 3 phase power to Peahi Subdivision. Also provide load relief to Circuit 1358 out of Haiku Sub 16. Also improve voltage levels in along Ulumalu Rd, Kaupakalua Rd, Holokai Rd, and East Haiku areas makai of Hana Hwy.

Scope Description:

In Peahi Subdivision, install modular padmount substation (2500kVA transformer, 3 voltage regulator, 2 padmount reclosers, SCADA equipment, metering equipment).

This 2007 budgeted project is being pulled up into 2006 and is currently estimated at $463,347.06 to be completed by November 2006. This 2006 unbudgeted 2006 project will be funded by partially deferred project M0000697 69kV Reloc Waikapu.

RE-AUTHORIZATION of PIF#06-072 for $463,347.06 in 2006. This project is now expected to be completed by December 2006. The current total project cost is now estimated to be $628,742.50. The additional amount of $165,395.44 will be funded by deferred project M0000102 New Piilani Sub.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

DASENG=80 hours; DCCREW=80 hours; DCSUPV=16 hours; DECREW=80 hours; DESUPV=9 hours; DKCREW=380 hours; DKSUPV=20 hours; DMCREW=48 hours; DRCREW=20 hours; DRDISP=16 hours; DRDSUP=16 hours; DRFSUP=16 hours; WINFOR=64 hours; WLTC=24 hours; WPDENR=40 hours; WPSUPV=16 hours; WSSENG=160 hours; WSSUPV=80 hours
Outside Materials=$213,111.60; Stock Materials=$5,000; Outside Service/Constr=$40,000; Outside Engr=$20,000; Land Cost=$50,000; HECO services=$5,000

RE-AUTHORIZATION COSTS
DRSENG=+16 hours; DCCREW=+80 hours; DCSUPV=+14 hours; WSSENG=+32 hours;
Outside Materials = +$4,500; Outside Materials (SCADA)= +$16,000; Ouside Svc/Constr= +$10,000;
Stock Materials = +$15,000; Outside Engr = +$29,000; HECO Engr = +$5,000

See attached Pillar file estimate and DARS acutal report.

Justification:

Provide 3 phase power to Peahi Subdivision. Also provide load relief to Circuit 1358 out of Haiku Sub 16. Prevent low voltages along Ulumalu Rd., Kaupakalua Rd, Holokai Rd., and East Haiku ares makai of Hana Hwy.

RE-AUTHORIZATION for PIF#06-072 for $628,742.50 in 2006. This increase of $165,395.44 is due to the addition of the SCADA (labor and material costs) and also unexpected cost of stock items ($15,000). This was not fully included in the original estimate.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Provide 3 phase power to Peahi Subdivision. Also provide load relief to Circuit 1358 out of Haiku Sub 16. Prevent low voltages along Ulumalu Rd., Kaupakalua Rd, Holokai Rd., and East Haiku ares makai of Hana Hwy.

RE-AUTHORIZATION of PIF#06-072 for $628,742.50 in 2006. Project cost estimate increase of $165,395.44 is due to the addition of SCADA materials, SCADA installation labor costs, and unexpected cost of stock items that was not fully included the previous cost estimate.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are unbudgeted

Submitted by: Fred Oshiro **Phone/Ext #:** 3202

Originator's Name: Fred Oshiro

Responsible Estimator: Fred Oshiro
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: Fred Oshiro

Date: 10/17/2006

Required Approvals to Initialize a Project:

N/A
Responsible Manager **Date**

N/A
MECO President **Date**

Required Approvals to Authorize a Project:

10/17/06
Responsible Manager **Date**

N/A
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

10/19/06
MECO Accounting Manager **Date**

Edward L. Reinhardt 10/20/06
MECO President **Date**

2201 Project Hierarchy Summary Report

Report Parameters

Project: M0000111 *From Date:* 01/01/2006 *To Date:* 10/16/2006

Status	Lvl	Proj/WO Number	Project or WO Description	Total Actuals	Commitment	Material	O/S Svcs	Labor	Overheads	Transport	Other	AFUDC
MECO												
O	1	M0000111	Peahi Sub 94	0	0	0	0	0	0	0	0	0
O	2	E0013300	Peahi Sub 94 - Design	0	0	0	0	0	0	0	0	0
A	3	EE002748	Peahi Sub 94 - WS Labor	8,351	0	0	0	3,794	4,436	0	0	121
A	3	EE002749	Peahi Sub 94 - Outside Engineering	7,290	14,780	0	7,202	0	0	0	0	88
A	3	EE002750	Peahi Sub 94 - HECO Engineering	0	10,000	0	0	0	0	0	0	0
A	3	EE002773	Peahi Sub 94 - Soil Engineering	4,856	2,862	0	4,770	0	0	0	0	86
A	3	EE002833	Peahi Sub - WL Labor	0	0	0	0	0	0	0	0	0
O	2	E0013301	Peahi Sub 94 - Construct	0	0	0	0	0	0	0	0	0
A	3	EE002753	PEAHI SUB 94 - DE LABOR	0	0	0	0	0	0	0	0	0
C	3	EE002754	PEAHI SUB 94 - DK LABOR	0	0	0	0	0	0	0	0	0
O	3	EE002755	PEAHI SUB 94 - DC LABOR	0	0	0	0	0	0	0	0	0
O	2	E0013302	Peahi Sub 94 - Materials	0	0	0	0	0	0	0	0	0
A	3	EE002751	PEAHI SUB 94 - OUTSIDE MATERIALS	56,126	200,486	55,925	0	0	0	0	0	201
A	3	EE002752	PEAHI SUB 94 - STOCK MATL	0	19,388	0	0	0	0	0	0	0
			Grand Total Project Structure	76,624	247,516	55,925	11,972	3,794	4,436	0	0	496

*Project #	Project	*RA #	*Ac...	*Lo...	*In...	*E...	*Labor Class #	Line Item	FY06
M0000111	Peahi Sub 94	*	*	*	*	401		Stores OHM0000111	240,474.00 $0.12460 $29,963.06
M0000111	Peahi Sub 94	*	*	*	*	404		En Def OHM0000111	945.00 $35.80 $33,831.00
M0000111	Peahi Sub 94	*	*	*	*	406		Corp Adm OH M0000111	1,273.00 $3.66 $4,659.18
M0000111	Peahi Sub 94	*	*	*	*	407		Cust Install OHM0000111	30.00 $52.84 $1,585.20
M0000111	Peahi Sub 94	*	*	*	*	421		NPW OH M0000111	1,273.00 $4.55 $5,792.15
M0000111	Peahi Sub 94	*	*	*	*	422		Empl Benefits OHM0000111	1,273.00 $11.12 $14,155.76
M0000111	Peahi Sub 94	*	*	*	*	423		PR Tax OH M0000111	45,373.86 $0.08620 $3,911.23
M0000111	Peahi Sub 94	*	*	*	*	430		AFUDC nonblkt by Component Pr...	3.00 $3,757.69 $11,273.06
M0000111	Peahi Sub 94	MDA	405	MAU	NI	150	DASENG	T&D Staff Engineer	80.00 $37.70 $3,016.00
M0000111	Peahi Sub 94	MDC	419	MAU	NI	150	DCCREW	DC CREW	160.00 $32.66 $5,225.60
M0000111	Peahi Sub 94	MDC	419	MAU	NI	150	DCSUPV	DC SUPV	30.00 $41.42 $1,242.60
M0000111	Peahi Sub 94	MDE	417	MAU	NI	150	DECREW	Maint	80.00 $36.15 $2,892.00
M0000111	Peahi Sub 94	MDE	417	MAU	NI	150	DESUPV	Maint. Supv.	9.00 $40.46 $364.14
M0000111	Peahi Sub 94	MDK	417	MAU	NI	150	DKCREW	Construction Crew	380.00 $33.46 $12,714.80
M0000111	Peahi Sub 94	MDK	417	MAU	NI	150	DKSUPV	Const. Supv.	24.00 $41.75 $1,002.00
M0000111	Peahi Sub 94	MDK	417	MAU	NI	201		Outside Materials + SCADA	220,474.00 $1 $220,474.00
M0000111	Peahi Sub 94	MDK	417	MAU	NI	201		Stock Material	20,000.00 $1 $20,000.00
M0000111	Peahi Sub 94	MDK	417	MAU	NI	501		Outside Services - Constr	50,000.00 $1.042 $52,100.00

*Project #	Project	*RA #	*Ac...	*Lo...	*In...	*E...	*Labor Class #	Line Item	FY06
M0000111	Peahi Sub 94	MDM	602	MAU	NI	150	DMCREW	Meter Elec	48.00 $31.90 $1,531.20
M0000111	Peahi Sub 94	MDR	407	MAU	NI	150	DRSENG	SCADA Engineer	80.00 $33.42 $2,673.60
M0000111	Peahi Sub 94	MDR	417	MAU	NI	150	DRCREW	Troubleman Labor	20.00 $36.68 $733.60
M0000111	Peahi Sub 94	MDR	417	MAU	NI	150	DRDISP	Dispatcher	16.00 $36.72 $587.52
M0000111	Peahi Sub 94	MDR	417	MAU	NI	150	DRDSUP	Dispatcher Supv.	16.00 $42.41 $678.56
M0000111	Peahi Sub 94	MDR	417	MAU	NI	150	DRFSUP	Troubleman Supv.	16.00 $39.33 $629.28
M0000111	Peahi Sub 94	MWL	928	MAU	NI	150	WLTC	Land Labor	8.00 $32.33 $258.64
M0000111	Peahi Sub 94	MWL	928	MAU	NI	501		Land Cost	50,000.00 $1 $50,000.00
M0000111	Peahi Sub 94	MWP	405	MAU	NI	150	WPDENR	Design Engineer	30.00 $39.50 $1,185.00
M0000111	Peahi Sub 94	MWP	405	MAU	NI	150	WPSUPV	Dist. Engineer Supv.	12.00 $42.19 $506.28
M0000111	Peahi Sub 94	MWS	405	MAU	NI	150	WSSENG	Staff Engineer	192.00 $36.76 $7,057.92
M0000111	Peahi Sub 94	MWS	405	MAU	NI	150	WSSUPV	Supv Staff Engineer	72.00 $42.71 $3,075.12
M0000111	Peahi Sub 94	MWS	405	MAU	NI	506		Outside Engineering ($22K + $10K...	49,000.00 $1 $49,000.00
M0000111	Peahi Sub 94	MWS	405	MAU	NI	550		HECO Engineering ($10K)	10,000.00 $1 $10,000.00
									$552,118.50

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07-036
M0000629

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

RUSH

The Project identified below has already been established in MIMS

Project Title: M14 CT Controls

Project Number: M0000629
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-06

Commitment Date: 2007-01

Primary Corporate Goal: Cap Exp

Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$638	$0	$0	$0	$0	$0	$638

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
15	0	25	66	0	106

Purpose/Objectives:

Replace M14 Combustion Turbine Controls.

Preliminary engineering and fabrication to be started in January 2007. Fabrication of replacement components to be done in May 2007.

Scope Description:

Replace M14 governor and turbine auxiliaries controls.

This project is budgeted in the 2007 Proposed Capital Budget for $587,128. This PIF is authorizing $637,611.76 (capital costs) + $2,098.28 (removal costs) = $639,710.04; an increase of $52,582.04 because the 2007 proposed capital budget was based on the GE's original budgetary pricing of $775,000 which includes M14 and M16 units being serviced at the same time and splitting the engineering costs/design packages between the project. But because both units are not being retrofitted during the same outage (M16 CT Control Upgrade has been moved to 2008), the cost of the first unit (M14) is more than the second unit due to the initial engineering costs.

The funding for the additional amount needed for this project will be provided by excess funds from M0000558 K1 Generator Stator Rewind which is in the proposed budget for 2007 in the amount of $597,428.00.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Outside Contractor materials and services (Please see attached quote from GE International Inc.
MECO Labor

Justification:

The Woodward 503 governor controls are the original equipment installed with unit 14 at Maalaea Power Plant. These controls are vitial for the operation of unit M14. This triplex system controls the unit's governor and auxiliaries. A failure of one of the kernels will put the unit at risk of tripping off the line. These contols are obsolete and no longer supported by Woodward Company. Upgrading these controls will increase unit reliability.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

If this system is not updated, M14 reliability will be compromised.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: [signature] **Phone/Ext #:** 4905

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 01/16/2007

Required Approvals to Initialize a Project:

[signature] [illegible]

Responsible Manager **Date**

MECO President **Date**

REVIEWED
JAN 16 2007
BY: [signature]

Required Approvals to Authorize a Project:

[signature] [illegible]

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

[signature] 1/24/07

MECO Accounting Manager **Date**

Edward L. Reinhardt 1/24/07

MECO President **Date**

1/16/2007 **M0000629 M14 CT Controls** (HII Cont) 8:26AM

*Project #	Proj	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cl...	Lin	Apr 07	May 07	Jun 07	FY07	
M0000629	M14 CT Controls	*	*	*	*	401		Stores OHM0000629	0.00	0.00	302,600.00	302,600.00	
									$0.11610	$0.11610	$0.11610	~~$0.11610~~	
									$0.00	$0.00	$35,131.86	~~$35,131.86~~	$35,222.66
M0000629	M14 CT Controls	*	*	*	*	405		Pwr Sup OH M0000629	10.00	10.00	90.00	110.00	
									$4.28	$4.28	$4.28	~~$4.28~~ 4.30	
									$42.80	$42.80	$385.20	~~$470.80~~	$473.00
M0000629	M14 CT Controls	*	*	*	*	406		Corp Adm OH M0000629	10.00	10.00	90.00	110.00	
									$3.67	$3.67	$3.67	~~$3.67~~ 3.58	
									$36.70	$36.70	$330.30	~~$403.70~~	$426.50
M0000629	M14 CT Controls	*	*	*	*	421		NPW OH M0000629	10.00	10.00	90.00	110.00	
									$4.55	$4.55	$4.55	~~$4.55~~ 4.44	
									$45.50	$45.50	$409.50	~~$500.50~~	$49.62
M0000629	M14 CT Controls	*	*	*	*	422		Empl Benefits OHM0000629	10.00	10.00	90.00	110.00	
									$12.24	$12.24	$12.24	~~$12.24~~ 12.22	
									$122.40	$122.40	$1,101.60	~~$1,346.40~~	$1,344.20
M0000629	M14 CT Controls	*	*	*	*	423		PR Tax OH M0000629	411.70	411.70	3,297.30	4,120.70	
									$0.08790	$0.08790	$0.08790	$0.08790	
									$36.19	$36.19	$289.83	$362.21	
M0000629	M14 CT Controls	*	*	*	*	430		AFUDC nonblkt by Component ProjectM...	1.00	1.00	1.00	3.00	
									$4.99	$10.01	$4,553.33	$1,522.77	
									$4.99	$10.01	$4,553.33	$4,568.32	
M0000629	M14 CT Controls	*AFUDC_Duration	*AFUD	*AFUDC.	*AFU	*AFUDC_...		M14 CTControls	1.00	1.00	1.00	3.00	
									$0.00	$0.00	$0.00	$0.00	
									$0.00	$0.00	$0.00	$0.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GEMANT	M14 CT Controls-GEMANT	0.00	0.00	80.00	80.00	
									$36.07	$36.07	$36.07	$36.07	
									$0.00	$0.00	$2,885.60	$2,885.60	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GESUPV	M14 CT Controls-GESUPV	10.00	10.00	10.00	30.00	
									$41.17	$41.17	$41.17	$41.17	
									$411.70	$411.70	$411.70	$1,235.10	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-Control System	0.00	0.00	200,000.00	200,000.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$200,000.00	$200,000.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-water inject valve,liquid...	0.00	0.00	102,600.00	102,600.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$102,600.00	$102,600.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	201M		M14 CT Controls-Control System (201M)	0.00	0.00	232,293.05	232,293.05	
									$1	$1	$1	$1	
									$0.00	$0.00	$232,293.05	$232,293.05	
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Installation & factory ac	0.00	0.00	55,725.18	55,725.18	
									$1	$1	$1	$1	
									$0.00	$0.00	$55,725.18	$55,725.18	
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Removal (GE Energy)	0.00	0.00	2,083.34	2,083.34	Removal costs $2,098.28
									$1	$1	$1	$1	
									$0.00	$0.00	$2,083.34	$2,083.34	
M0000629									$700.27	$705.29	$638,200.49	~~$639,606.06~~	
									$700.27	$705.29	$638,200.49	~~$639,606.06~~	$639,710.04

1/16/2007 M14 CT Controls (Capital Costs ONLY) 8:31AM

Per Cost Rates (off 1/1/07)

*Project #	Proj	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cl...	Lin	Apr 07	May 07	Jun 07	FY07	
M0000629	M14 CT Controls	*	*	*	*	401		Stores OHM0000629	0.00	0.00	302,600.00	302,600.00	
									$0.11610	$0.11610	$0.11610	~~$0.11610~~	$1.64
									$0.00	$0.00	$35,131.86	~~$35,131.86~~	$35,222.64
M0000629	M14 CT Controls	*	*	*	*	405		Pwr Sup OH M0000629	10.00	10.00	90.00	110.00	
									$4.28	$4.28	$4.28	~~$4.28~~	$4.30
									$42.80	$42.80	$385.20	~~$470.80~~	$473.00
M0000629	M14 CT Controls	*	*	*	*	406		Corp Adm OH M0000629	10.00	10.00	90.00	110.00	
									$3.67	$3.67	$3.67	~~$3.67~~	$3.88
									$36.70	$36.70	$330.30	~~$403.70~~	$426.50
M0000629	M14 CT Controls	*	*	*	*	421		NPW OH M0000629	10.00	10.00	90.00	110.00	
									$4.55	$4.55	$4.55	~~$4.55~~	$4.46
									$45.50	$45.50	$409.50	~~$500.50~~	$490.60
M0000629	M14 CT Controls	*	*	*	*	422		Empl Benefits OHM0000629	10.00	10.00	90.00	110.00	
									$12.24	$12.24	$12.24	~~$12.24~~	$12.22
									$122.40	$122.40	$1,101.60	~~$1,346.40~~	$1344.20
M0000629	M14 CT Controls	*	*	*	*	423		PR Tax OH M0000629	411.70	411.70	3,297.30	4,120.70	
									$0.08790	$0.08790	$0.08790	$0.08790	
									$36.19	$36.19	$289.83	$362.21	
M0000629	M14 CT Controls	*	*	*	*	430		AFUDC nonblkd by Component ProjectM...	1.00	1.00	1.00	3.00	
									$4.99	$10.01	$4,538.39	$1,517.79	
									$4.99	$10.01	$4,538.39	$4,553.38	
M0000629	M14 CT Controls	*AFUDC_Duration	*AFUD..	*AFUDC .	*AFU.	*AFUDC_..		M14 CTControls	1.00	1.00	1.00	3.00	
									$0.00	$0.00	$0.00	$0.00	
									$0.00	$0.00	$0.00	$0.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GEMANT	M14 CT Controls-GEMANT	0.00	0.00	80.00	80.00	
									$36.07	$36.07	$36.07	$36.07	
									$0.00	$0.00	$2,885.60	$2,885.60	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GESUPV	M14 CT Controls-GESUPV	10.00	10.00	10.00	30.00	
									$41.17	$41.17	$41.17	$41.17	
									$411.70	$411.70	$411.70	$1,235.10	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-Control System	0.00	0.00	200,000.00	200,000.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$200,000.00	$200,000.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-water inject valve,liquid .	0.00	0.00	102,600.00	102,600.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$102,600.00	$102,600.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	201M		M14 CT Controls-Control System (201M)	0.00	0.00	232,293.05	232,293.05	
									$1	$1	$1	$1	
									$0.00	$0.00	$232,293.05	$232,293.05	
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Installation & factory ac..	0.00	0.00	55,725.18	55,725.18	
									$1	$1	$1	$1	
									$0.00	$0.00	$55,725.18	$55,725.18	
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Removal (GE Energy)	0.00	0.00	0.00	0.00	
									$1	$1	$1	$0	
									$0.00	$0.00	$0.00	$0.00	
M0000629									$700.27	$705.29	$636,102.21	~~$637,507.78~~	
									$700.27	$705.29	$636,102.21	~~$637,507.78~~	$637,41.74

Alibin, May-Anne

From: Flores, Gerardo
Sent: Tuesday, January 16, 2007 8:06 AM
To: Alibin, May-Anne
Cc: Jung, Rodney
Subject: FW: Updated proposal with Demolition broken out

May,
Attached is the revised proposal for M14 controls upgrade.

From: Smejkal, Tim (GE Infra, Energy) [mailto:tim.smejkal@ge.com]
Sent: Monday, January 15, 2007 8:23 PM
To: Flores, Gerardo
Subject: Updated proposal with Demolition broken out

Hey Gerry,
Sorry for the delay. Enclosed is the proposal with the removal and demolition pricing broken out. We estimate the removal of the equipment to be $2000. Please let me know if you have any questions or concerns. Thank you.
Best regards,
Tim

Tim Smejkal
Sales Manager - Controls Solutions
3800 North Wilson Ave
Loveland, Co 80538
Ph: 970-461-5254
Cell: 970-443-2440
Fax: 970-461-5205

GE Energy

December 27, 2006

Maui Electric
Maalaea, HI

Attention: Gerardo Flores

RE: Maalaea Plant, Unit M14
GE Firm Priced Proposal SC4559500rev1

Mr. Flores

Thank you for your request to validate our budgetary offering and move forward with a firm quotation for the Maalaea Plant M14 project. This proposal provides Maui Electric with a comprehensive solution based upon experience, service and effective project execution. This winning combination will ensure this turbine control system upgrade proposed will improve the accuracy, reliability and testability of the system.

This firm proposal is based on GE-ES completing the project work in 2007. Normal delivery for this equipment is twenty-six weeks. We are working to determine if we can meet your June 4th 2007outage date. At this point, we feel confident we can procure and build the equipment in time for the June outage. We are validating that we have capacity in our engineering staffing to execute the project in this timeframe. Due to the holidays and limited resources this week, it may take until next week to get a definitive answer. In addition, to meet the outage date, GE would require a PO or Letter of Commitment in the next few days and require a Kick-off Meeting in early January 2007.

For the base scope of work outlined herein we suggest that the customer establish the following firm priced budget.

One (qty. 1) Control System	$415,000* USD
Installation -	$45,000 USD per system

* GE's original budgetary pricing of $775,000 was based on providing two units at the same time and splitting the engineering costs/design packages between the projects. Because both units are not being retrofitted during the same outage, the cost of the first unit is more than second unit due to the initial engineering costs. Synergies between the two units will be recognized as cost savings on the second unit when it is retrofitted.

Thank you for your consideration on this project and we look forward to working with you. Should you have any questions or require any additional information please do not hesitate to contact me.

Best regards,

Tim Smejkal
Sales Manager
Optimization and Control

PACKAGE UPGRADE REQUEST

Based on the attached scope of supply and assumptions, GE Energy (hereinafter referred to as Seller) is pleased to submit a firm proposal to **Maui Electric, Maalaea Plant** (hereinafter referred to as Buyer) for the following package upgrade. This proposal applies to qty. 1 LM unit; model **LM2500**, engine S/N 808769, located in Maui, Hawaii.

EXECUTIVE SUMMARY

Maui Electric is interested in replacing the existing Woodward 503/503 control system on their GE LM2500 gas turbine generator and have requested that GE GCS provide a firm quotation for a replacement control system. It is GE's intent to provide a state of the art digital control system, the Woodward Micronet™ TMR, which will provide the functionality currently required for aero derivative applications such as the LM2500's installed at the Maui Electric, Maalaea Plant. The system being offered will provide increased unit reliability; power factor control and interface with the existing fuel and water delivery systems.

GE Global Controls Services shall provide the Micronet™ TMR control system mounted on custom panel inserts, plug and play interface to existing canon plugs, front panel door w/2-line display, commercial desktop local user interface (HMI), application software meeting OEM IDM specifications for LM applications, interface with plant ABB Bailey Infi90 DCS, project kick-off meeting, over speed protection, ground fault detection and GE OC shall complete Demolition, Installation and Commissioning.

As options to the proposed Micronet™ TMR control system, GE is pleased to offer the following items:

- 3-day Factory Witness Test
- Remanufacture or New - 1907/TM55P to 1907/EM35MR
- Remanufacture or New - 3151A/TM40LP to 3151A/EML100
- LQ25 w/PIV and Integral Shut-off Valve (replaces 1907/EM35MR)
- New Hardware for Automatic Synchronization, Synch Check and Power Factor Control
- Installation and Field Services (I & TS) commissioning support Estimated price

SPECIFIC REQUEST

Provide a firm quote to replace the existing WOODWARD 503/503 gas turbine control systems on qty. 1, LM2500 gas turbine driven generators.

It is understood that MAUI ELECTRIC would like to retain the existing levels of IO redundancy along with hardware/software topologies.

The unit at the Maui Electric, Maalaea Plant is currently liquid fuel only with water injection and the existing control valves will be kept as part of the base scope of supply.

It is further understood that the control system interface to each of these valves shall be via 0-200 mA proportional analog signals. MAUI ELECTRIC would also like to replace the Unix-based HMI with the recommended GE standard for this type of application.

TECHNICAL DESCRIPTION

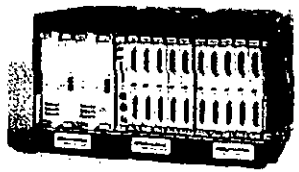
The proposed control system for the Maui Electric, Maalaea Plants, GE LM2500 WOODWARD 503/503 upgrade is the Woodward Micronet™ TMR. GCS is pleased to offer custom panel inserts along with a plug and play interface, which will decrease downtime during installation and commissioning.

The control system shall interface with existing field devices and on-engine hardware providing fuel control, package sequencing and protection meeting the latest GE IDM standards for this type of application. The proposed operator interface will consist of a 2-line display to be mounted on the panel door, plus an Intelution based full function, preconfigured commercial desktop. Additionally, it is understood that the control system shall interface with an existing plant ABB Bailey Infi90 DCS via the proposed OPC90 server. All system hardware and software will be fully integrated and tested prior to delivery. GCS shall also provide qty. 2, overspeed switches per shaft for independent overspeed protection, plus ground fault detection.

To ensure that this project stays on schedule and meets MAUI Electric's project goals we have included a site visit for project kick-off and project management. Included within this proposal, following the base scope of supply, are several options that may be of interest to the MAUI Electric project team.

Hardware

The MicroNet™ Control is a custom system and can be programmed to perform a host of applications including speed control, system sequencing, auxiliary system control, STIG control, generator load control, efficiency calculations and shutdown functions, all in one integrated package. This powerful CPU coupled with Woodward's Graphical Application Program or GAP software rate group structure allows critical program code to be processed within 5 milliseconds. Less critical code is typically assigned to slower rate groups. The unique programmable rate group structure assures deterministic update times for precise, predictable control. GAP is programmed using an industry standard IBM compatible PC. The program is "built" by connecting functional blocks to control signal flow. A picture of the MicroNet™ is shown below.



MicroNet™ shown with dual power supplies

MicroNet™ input modules have tunable first order filters to compensate for fast transient noise spikes that could cause inadvertent shutdowns. The filtering values are individually adjustable for each channel so "problem" signals can be handled without affecting the responsiveness of the remaining clean signals on the card.

The readings from the precision voltage reference are also used for on-line temperature compensation and automatic calibration for thermocouple, current, and voltage modules. The signals read through the A/D converter are used by the micro-controller to determine software scaling and offset constants for each channel. This constant fine-tuning ensures that our MicroNet™ cards always read the exact correct signal input and never need calibration.

The main chassis is powered by redundant power supplies that are housed in a separate chassis that allows each power supply to power the control system from a separate power source.

The MicroNet™ may also function as a First-Out indicator for system shutdowns, thus reducing troubleshooting time. Multiple system shutdowns can be brought into the MicroNet™ to allow it to shut down the system safely, latch-in the cause of the shutdown, and time-stamp the event to a 1-millisecond resolution.

The MicroNet™ control will communicate directly with the Human-Machine Interface/Engineering Workstation through ModBus™ communication ports. These ports support RS-232, -422, or -485 communications using ASCII or RTU ModBus transmission protocols including Ethernet communications.

In our base offering we have also included communications between the MicroNet™ and the plant DCS via serial modbus connections. Since all MicroNet™ PID set points can be controlled through analog input signals, interface resolution and control is not sacrificed.

The MicroNet™ is custom engineered, allowing application engineers to configure the control to meet MAUI ELECTRIC's specific LM2500 application. Future control configuration changes can be made by site personnel using the Windows based PCI interface or by GE GCS engineers. On-line adjustments are available to allow program

refinements while a unit is running. Inputs and Outputs are programmed as required by the application or interface.

Environmental Specifications

Temperature: 0°C to +55°C ambient air temperature range

Shock: MIL-STD-810C, Method 516.2-1, Procedure 1B

- Vibration: Lloyd's ENV2 Test #1
- Emissions: EN55011, Class A, Group 1
- Immunity: EN50082-2 (1995)

MicroNet™ Family of Modules

MicroNet™ Controller CPU Module - The following describes details of the MicroNet™ digital control CPU:

Motorola 68040 CPU
Fiber optic port for local display support
RS232 serial communications port (fully addressable)

Kernel Power Supply - This module receives 24Vdc from the main power supply and regulates it to 5Vdc for use by all cards in that kernel. The Kernel Power Supply module also creates a 5V pre-charge voltage that is used only for hot replacement of the modules.

Main Transceiver Module - This module resides in the CPU chassis, and communicates to the respective I/O chassis via the Remote Transceiver module. This module sends and receives control, data and address information to its respective I/O rack.

Remote Transceiver Module - This module resides in the I/O chassis, and communicates to the main CPU chassis via the Main Transceiver module. This module sends and receives control, data and address information for the I/O rack in which it resides.

Input/Output Modules - I/O modules are VME standard-type modules that slide into guide channels in the MicroNet™ chassis and plug into the motherboard. There are two types of I/O modules: "Smart" I/O modules (with on-board micro-controllers) and "externally controlled" I/O modules. The smart I/O modules utilize Dual-Port RAM (DPR) that allows the main CPU to access information from the I/O module without interrupting or colliding with the data on the bus with the on-board micro-controller. The externally controlled modules do not require a micro-controller and use the main

CPU for control. Every I/O module has an LED on it that illuminates to indicate a fault.

Serial Input/Output Module - The Serial Input/Output (SIO) module supports four communication ports. The data ports are available for such devices as CRT's, printers, and plant DCS. Communication technologies of RS-232, 422, ModBus® ASCII and ModBus® RTU are available directly from the SIO module ports. All data utilized or generated by the control system will be available externally through all four (4) communication ports.

Interface with a DCS can be accomplished through a simplex ModBus® Plus link, or dual links (one port from the SIO module and the serial port off the CPU module).

MPU and Analog I/O Module - This module contains circuitry for four (4) speed sensor inputs, eight (8) analog inputs, four (4) analog outputs, and two (2) proportional actuator outputs. Each speed sensor input may be from a magnetic pick-up or proximity probe. A Digital Signal Processor (DSP) generates digital speed and derivative (rate of change of speed) signals for each channel. Each analog input may be 4-20mA or 0-5V, and each actuator output may be configured for 4-20mA or 20-160mA outputs.

Discrete Input/Output Module - The discrete input/output module contains circuitry for forty eight (48) discrete inputs and twenty four (24) discrete outputs. The discrete inputs are optically isolated and each input is passed through the opto-isolators to the buffers and accessed by the CPU. For discrete outputs, the CPU sends the state of each channel to a latch that stores it and passes it to a driver. The driver then energizes or de-energizes the relay for that channel.

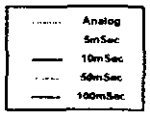
Thermocouple Input Module - The eight channels of this module are fully isolated. Each channel receives a signal from a thermocouple. This signal can be from an E, J, K, R, S, or T type thermocouple. The same module reads all types of thermocouples while the software configuration of the MicroNet™ determines the type each channel is to read.

Analog Input Module - This module contains circuitry for 24 analog inputs and 8 analog outputs. Analog signals are processed at 5 ms scan time. The module uses an on-board processor for automatic calibration of the I/O channels.

Power Supply - The MicroNet™ can use optional redundant power supplies, with a variety of power configuration options available. Each is intended to power the control from a different power source. For your application we've included this option *within the base scope of supply.*

Operating System Software

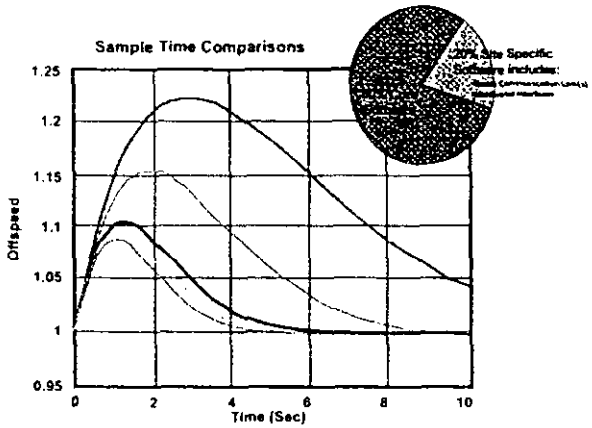
Woodward's Graphical Application Programmer (GAP™) utilizes a third generation machine language, developed by Woodward, known as Menu Oriented Editor (MOE™). Woodward has used the MOE™ code since the mid 1980's. The self-documenting GAP™ software allows GE GCS engineers to custom design control systems for any application. This high level machine language is in a block format, putting many lines of code in each block to achieve a desired function.



The advantage of using a block format is that individual lines of code do not need to be debugged, since each of the blocks has already been debugged in prior development, testing, and applications. This allows the GEGCS (or AGSM) engineers to re-use this library of known control blocks, string them together with other known control blocks, and develop a software program particular to the customers needs. This has proven to be an extremely successful software package that can be modified, even after installation or upon customers changing needs.

An additional advantage incorporated into MOE™ is the unique rate group structure on which it operates. Variable execution time blocks have been avoided, which means under an unanticipated set of conditions (e.g. system upset), the processor will not become overburdened, and will have time to complete it's assigned tasks. Only with predictable execution times can a multitasking operating system have a guaranteed update rate. Software tasks may be programmed to run every 5 milliseconds (mS), 10mS, 20mS, etc., and all the tasks seem to run simultaneously. GAP software guarantees that a task programmed to run every 5 mS (or whatever the assigned rate group), will run exactly every 5 mS, no matter what other functions the control system is presently exercising.

As an example of what this special processing yields, the figure below shows the amount of offspeed during full load rejection for different recursion rates on a tandem compound, 250MW utility steam turbine. The 100 msec rate could result in an overspeed of over 120%, which could result in serious damage to the machine. Keeping the offspeed below 110% (typical, dependent on setting of mechanical bolt) allows the machine to keep rolling and to possibly resynchronize the machine.



Application Software

GE GCS has performed C.T turbine control retrofits numerous times, and therefore has developed a 'core' software package based on GAP™ software applications. All parameters that will require adjustment while on line, or "adjustable as an engineering function", would be placed in a tunable category. All 'tunables' can be adjusted through the Engineering Workstation.

Example control system core functionality is as follows:

SPEED CONTROL

- Speed Set-point (manual)
- Speed measurement/processing
- Line/speed matching

(for Automatic synchronization)

LOAD CONTROL

- Load Limiting

- Load Rate Limiting
- Tunable Initial load pickup
- Megawatt trim
- Frequency control
- Tunable MW Droop

PROTECTIVE FUNCTIONS

- Overspeed trip
- Overspeed trip test
- Mechanical overspeed trip
- Runbacks

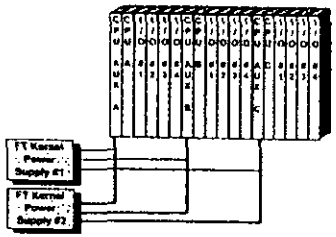
ADDITIONAL CONTROL FEATURES

- Manual Start Up
- Automatic Turbine Start Up
- Electrical Alarms
- Electrical Trips
- DCS Control (Remote Control from a Plant DCS)

Woodward MicroNet™ TMR

The MicroNet™ TMR utilizes a triple modular redundancy hardware configuration to provide a measured 99.998% availability to users. The triple modular redundancy involves utilizing three (3) separate sections of the controller to assess incoming values, perform control algorithms, and drive outputs, utilizing a 2 out of 3 voting arrangement. The MicroNet™ system is based on a 32-bit Motorola 68040 microprocessor and provides extremely fast and reliable data throughput. The MicroNet™ Control is a custom system and can be programmed to perform a host of applications including turbine, compressor, and shutdown control, all in one integrated package. This powerful CPU coupled with Woodward's Graphical Application Program or GAP software rate group structure allows critical program code to be processed within 5 milliseconds. Less critical code is typically assigned to slower rate groups. Woodward's unique programmable rate group structure assures deterministic update times for precise, predictable control

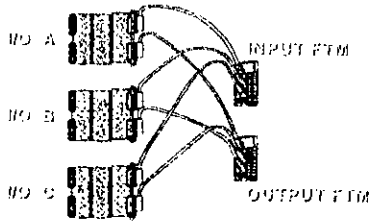
The MicroNet™ Triple Modular redundancy design uses state of the art technology. Shown below is a diagram of the MicroNet™.



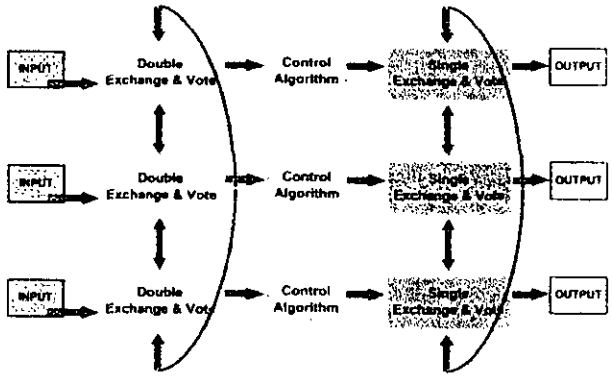
All voting is handled in a 2 out of 3 arrangement. The MicroNet™ is designed to withstand several faults and continue to operate the machinery. Notice that each of the redundant power supplies has three separate power circuits. These circuits are wired together and provide power to the kernels separately. This provides the maximum reliability in the area of power distribution.

Input and output signals are delivered to and taken from the MicroNet™ TMR system in a seamless manner to the customer.

The field wiring is connected directly to the Field Termination Module or FTM. The signal is then distributed to each of the three kernels, voted, processed, and outputted directly back to the one set of terminal blocks on the FTM.



The diagram shown below gives a representation of how the signals are processed in the TMR design.



Notice that each input read from each of the three kernels is double exchanged and voted to ensure accuracy. Once the input signal has been agreed upon by at least two (2) of the kernels the correct data is passed to the control algorithms where it is processed.

Outputs are voted upon and again sent to the output modules. Each module has a read back line to ensure that the output which is being sent to the field is correct. Should a discrepancy be noticed, that particular channel will be shut down. For analog and actuator outputs, each channel drives 33.33% of the required current. Should there be a channel failure, the remaining channels will simply each pick up the load to 50%.

MicroNet™ Reliability Data

	Failure Rate (failures per year)	System MTBF(F)	MTTR	Availability	Avg. Yearly Downtime
Simplex I/O and Non-redundant Power	[illegible]	4,267 hrs	2.00 hrs	[illegible]	[illegible] hrs
Simplex I/O and Redundant Power	[illegible]	4,995 hrs	2.00 hrs	[illegible]	[illegible] hrs
Fault Tolerant Processing Kernel with Simplex I/O and Non-redundant Power	[illegible]	4,249 hrs	2.00 hrs	[illegible]	[illegible] hrs
Fault Tolerant Processing Kernel with Simplex I/O and Redundant Power	[illegible]	[illegible] hrs	2.00 hrs	[illegible]	3.79 hrs
Fault Tolerant Processing Kernel with Duplex I/O and Redundant Power	[illegible]	[illegible] hrs	2.00 hrs	[illegible]	[illegible] hrs
Fault Tolerant Processing Kernel with Triplex (TMR) I/O and Redundant Power	[illegible]	[illegible] hrs	2.00 hrs	[illegible]	[illegible] hrs

Notes: MTBF = Mean Time Between Failures
MTTR = Mean Time To Repair

The advantages of triplex architecture vs simplex:

- 2-out-of-3 voting provides superior fault detection of all I/O, hardware and control algorithms.
- Eliminates single point failures
- Reliability is vastly improved by extending fault coverage to nearly 100%
- Greater flexibility for implementing a variety of fault tolerant configurations.
- Superior latent fault detection
- On-line serviceability

iFix Intellution HMI

The proposed commercial desktop iFix Intellution HMI System provides the following features:

- Sophisticated animation display of the operating status and performance of the Compressor. This allows the operator to be able to monitor clearly at one glance the status and operation of any equipment in the system and the location of the equipment.
- Develop a multi-layered security system that allows your personnel access to the areas of the plant within their control. For example, operators may be only able to monitor but not start and engine from the workstation whereas the manager have access to all levels of controls.
- Monitor performance and efficiency as it happens by using trend and data logging facilities. Trending and data logging of generator parameters means you have accurate readings of important parameters like power consumption. Readings no longer have to be taken manually at a regular interval.

- Provide your operators with central or local control using clear concise graphic screens. The operators can determine clearly the equipment to be controlled.
- Provide historical and real-time trending in graphical format. This is very useful in maintenance and trouble shooting to determine causes of shutdowns or alarms.
- Monitor, control and log all alarms.
- Produce periodic and event-driven reports. Any change in status or event is reported for documentation and maintenance.
  - Display text messages or graphics to show the status of a process. This provides simple to use and understand hands-on system.
  - Add graphical buttons to your pages to perform single or multiple tasks. This provides operations at a simple push of the button.

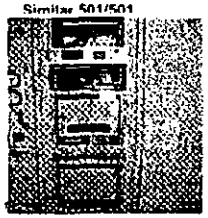
Custom Panel Inserts and Panel Doors - MicroNet™ TMR

GCS shall provide the MicroNet™ TMR control system and associated components mounted on custom designed panel insert(s) for mounting within the existing control panel(s), including modifications to the existing panel doors. Also, included within the cabinet will be all accessory modules required to complete the system. The control system will be pre-wired and completely functionally tested at our factory. Additional discussion between MAUI Electric and OC-CS is recommended to help better define actual control system packaging to ensure that the cabinetry meets your project goals.

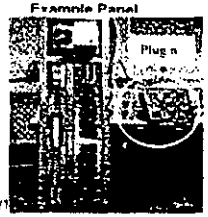
Connector Interface Panel (Plug n Play) - MicroNet™ TMR

In addition to the custom panel inserts, the majority of the existing field wiring will enter into the new control system via the "Plug n Play" interface. This interface allows for fast trouble free installation of the new control system. The existing connectors are removed from the 503-503 control systems and is plugged into the new control system. This eliminates many of the wiring errors that can occur when all the wires have to be disconnected and reconnected to the new control system. Plus has the added advantage of reduced installation and commissioning time.

Similar 501/501



Example Panel



Site Specific Engineering

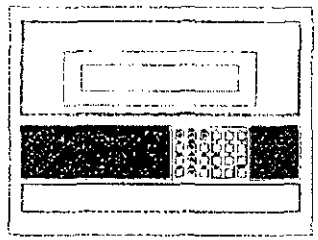
A one off charge to cover the necessary site specific engineering including:

- Review existing drawings and information.
- Site visit by Applications engineer and Project Manager to make a detailed survey in order to prepare necessary drawings, schematics, etc.
- Preparation of cubicle drawings and layouts, wiring diagrams, component lists and cubicle documentation. GE standard documentation will be supplied. *This will comprise typically:*
  - General Arrangement of control cubicle showing the location of the items of equipment.
  - Wiring diagram of the cubicle and other GE supplied equipment.
  - Wiring diagrams for the additional cabling, junction boxes and new sensors and actuators supplied by GE-GCS.
- Preparation of operating and instruction manuals. Manuals will be supplied for all the items of our supply. In addition an operating manual will be provided describing the overall operation of the system. Diagnostic procedures will be fully described in the documentation package.
- Preparation of control software to perform the fuel control, sequencing, monitoring and alarm annunciation functions based upon the latest IDM standards for GE LM2500 applications.
- Functionally tested to an agreed system specification.

Door Mounted Service panel (2-Line Display) - MicroNet™ TMR

GE has included an additional service panel interface to be located out at the control panel. The system operator uses the Service Panel to communicate with the control system. The Service Panel can be used only occasionally to communicate with the system, or it can continuously monitor a value for the operator to view. The Service Panel, shown below, includes the 24-key keypad and the split-screen display. The software and information-arrangement scheme for the Service Panel is called Programmable Service.

Service Panel



Modes

The Service Panel operates in several access modes, each of which has a different purpose. These modes are: SERVICE, MONITOR, CONFIGURE, DEBUG, and OPSYS_FAULTS.

The SERVICE mode can be used while the turbine is running. The SERVICE mode permits displaying the value of any SERVICE mode block, and changing the value of any of those blocks that are tunable. Entry into the SERVICE mode requires a password.

In the SERVICE mode, the value displayed for a block can be changed smoothly and gradually by using either the ADJ or the ADJ keys. If either a faster or slower rate of change is required, the FAST or SLOW key may be used (simultaneously) with either ADJ key. This mode can also be used to make direct numeric entries. However, because this mode is intended to be used while the turbine is running, the Service Panel will accept the entry of numeric values for a block only if the proposed change is very small. The block value proposed for entry must be within 1% of the current displayed value of that block, unless that current displayed value is between -0.1 and +0.1. If the current displayed value is between -0.1 and +0.1, the system will accept any entry between -0.1 and +0.1.

The MONITOR mode permits displaying the value of any SERVICE mode block. Since this mode does not permit changing the value of a block, no password is needed, and tunable blocks appear without the * which, in the SERVICE mode, marks them as tunable blocks.

CONFIGURE Mode is used to set a system up for a specific application, before actual operation of that system starts. The engine/turbine must be shut down when using the CONFIGURE mode, and numeric entries of any value (within the allowed range for that block) may be made. Entry into the CONFIGURE mode requires a password.

The DEBUG mode is used to troubleshoot a system during development and is not intended for general use. Only properly trained personnel should use it or when expressly authorized by OC-CS. Entry into the DEBUG mode requires a password.

Pressing the: key while in the DEBUG mode will switch the display to the SERVICE mode; pressing the : key again will switch the display back to the DEBUG mode.

The OPSYS_FAULTS mode displays any system faults or alarms that have occurred, and permits resetting (clearing) the list of detected alarms. Entry into the OPSYS_FAULTS mode requires a password.

HMI - Local Commercial Desktop Human-Machine Interface

We have offered a standard GE supplied Intellution based commercial desktop, Human Machine Interface for your unit. This HMI will act as your primary user interface and can serve as an Engineering workstation as well. The HMI will provide detailed graphic illustrations of the application and provides full annunciation, data acquisition, logging, trending, X-Y plotting, intelligent maintenance instructions, advanced troubleshooting and networking capabilities. Up to Twelve (12) graphic screens (based on our standards) are included.

As is the case with most PC hardware the computer specifications will change over time to keep pace with the latest improvements as they are released. Please contact factory for latest GE standards.

Additionally, we have provided three very useful software tools: Watch Window, Control Assistant and Monitor GAP. Each operates on the HMI and provides the following functionality:

- Datalog Capture and Graph View: powerful graphical tool for viewing dynamic control variable performance off-line, millisecond time resolution
- Tunable maintenance: including capture, sorting, comparing vs. baseline, saving, and uploading new tunables to the control.
- HEX file download

Watch Window software is another utility that provides:

- On-line monitoring of program execution in tabular format
- Upload and download of all tunable variables

Monitor GAP software is another utility that provides:

- Monitor-GAP allows viewing and changing live values in GAP diagrams.

The iFix Intellution HMI System provides the following features:

- Sophisticated animation display of the operating status and performance of the Compressor. This allows the operator to be able to monitor clearly at one glance the status and operation of any equipment in the system and the location of the equipment.

- Develop a multi-layered security system that allows your personnel access to the areas of the plant within their control. For example, operators may be only able to monitor but not start and engine from the workstation whereas the manager have access to all levels of controls.
- Monitor performance and efficiency as it happens by using trend and data logging facilities. Trending and data logging of generator parameters means you have accurate readings of important parameters like power consumption. Readings no longer have to be taken manually at a regular interval.
- Provide your operators with central or local control using clear concise graphic screens. The operators can determine clearly the equipment to be controlled.
- Provide historical and real-time trending in graphical format. This is very useful in maintenance and trouble shooting to determine causes of shutdowns or alarms.
- Monitor, control and log all alarms.
- Produce periodic and event-driven reports. Any change in status or event is reported for documentation and maintenance.
- Display text messages or graphics to show the status of a process. This provides simple to use and understand hands-on system.
- Add graphical buttons to your pages to perform single or multiple tasks. This provides operations at a simple push of the button.

Control System Interface to ABB Bailey Infi90 Plant DCS

It is understood that Maui Electric would like to have the new control systems interface to the existing ABB Bailey Infi90 plant DCS. GE has included provisions for an OPC90 server that will connect to the Infi90 network through CIU and serve up OPC data to the other network clients on the network. Please note that GE's proposed client will be Intellution.

Independent Over Speed Protection

It has been assumed that the existing over speed switches must be replaced to meet GE's requirements for responsiveness and accuracy. GE has included Dynalco over speed switches, qty. 2 per shaft, to meet the GE IDM requirements for independent over speed protection

Detailed Design Package

The purpose of this package is to provide the installer of the equipment a marked-up set of existing customer drawings along with instructions for interfacing the Turbine Control equipment into the existing plant electrical systems. Inclusion of this service provides the customer with an engineered package and an integrated GE solution for

the retrofit project. The content of this engineering package will be released following the system design and is described below.

- Engineering to include one-line, three-line and/or interconnection diagrams for interfacing the Turbine Control to the existing input and output devices located on the turbine generator and associated auxiliaries, AC/DC Control Power, grounding, and annunciation. Engineering is based on accurate customer-supplied drawings and Turbine Control design that are required to start the installation package.
- Engineering required to mark-up (red-line) the following customer supplied electrical drawings:
  - Turbine Control System One-line and Three-line Drawings
  - Turbine Control System Interconnection Drawings
  - Turbine Control System Termination Wire Table
- Engineering required to mark-up (red-line) the following customer supplied general arrangement drawings:
  - Removal of Old Turbine Control Equipment panel or marshalling panel as required to facilitate installation of the new TC equipment
  - Physical Layout of New Turbine Control Equipment

Project Management

GE shall provide a Project Manager as a single point of responsibility for communications with Maui Electric, Maalaea Plant personnel for the development of project schedules, coordination of all engineering, test and startup activities associated with the control system upgrade. Project management consists of planning, scheduling, monitoring and evaluating project activities and making appropriate recommendations for project schedule, determination and coordination of project work efforts, supervision and direction of labor.

Project Kick-off Meeting

Included within the base scope of supply GE project personnel shall visit the project site upon issuance of the purchase order for a project kick-off meeting. Typically critical project members such as the Applications engineer and Project Manager are included to ensure that MAUI Electric and GE personnel have agreement upon project deliverables, project milestones and to make a detailed survey in order to prepare necessary drawings, schematics, etc.

Options to Base system

Factory Acceptance Test

The 3-day performance acceptance test for the control system is intended to be a thorough, detailed, and complete review of all aspects of the control system's operation and design. Testing will include hardware, software, and a documentation review of the system. The intent of the test is to demonstrate that the control system performs as required. The test covers all major aspects of the control system, including:

- Operator Interface, Operating Modes, Start Sequence
- Stop Sequence, Auxiliary Devices and Controls
- Communications
- Alarms
- Trips

Remanufacture or New Liquid Fuel Metering Valve - 1907/TM55P to 1907/EM35MR

This all-electric liquid fuel valve provides very precise, fuel flow control that will provide the highest reliability for the gas turbine during start-up, steady state and deceleration operation. This valve is designed with highly demanding applications in mind, and will give highly accurate metering and extensive life for industrial, aero-derivative and other demanding applications.

This valve requires essentially no set-up and is designed for very low maintenance requirements. Other benefits to this liquid fuel metering valve and driver combination include:

- All Electric Actuation
- Highly Accurate, Precise Control
- Easy Set-up-No Valve Calibration Required
- Designed For Long Life-Low Maintenance
- Handles most liquid Fuels and Accommodates Different Fuel Schedules
- Explosion Proof Design: CSA Class 1, Division 1 Groups C & D / CENELEC Zone 1 Listed

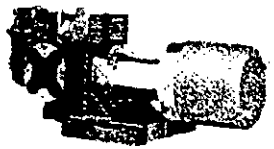
1907LL/EM35 All-electric Liquid Fuel Metering Valve

GE has not included pricing for this option since Woodward has not created either a designation for the remanufactured or "new" control valve. Should Maui Electric find either option to be of interest we'd suggest that you contact your OC-CS Sales representative for latest pricing. Please also note that this option would be simplex, were as the TM55P actuators currently installed on your units are dual coil.

Remanufacture or New Water Injection Valve - 3151A/TM40LP to 3151A/EML100

The 3151A Water Valve/EML100 Actuator assembly is used as part of a gas-turbine nitrous oxide emission-reduction system. This assembly was designed to be a replacement for the 3151A/TM40LP electro-hydraulic assemblies currently installed on units such as Maui Electric's LM2500's. The unit meters water into an industrial gas turbines combustion chamber, lowering combustion temperature. This assembly is designed to be used with the Woodward EM Digital Driver.

The EML100 actuator operates proportionally with the proposed MicroNet™ TMR control system. The water valve/actuator assembly is designed to meter water to a gas turbine as established by a predetermined flow versus valve position schedule.



- All-Electric Water Injection Solution
- Used in Gas-Turbine Nitrous Oxide Emission-Reduction Systems
- Fast Response and Accurate Control
- Resists Cavitation, Erosion, and Corrosion
- EML100 Actuator is Listed for CSA, NRTL/c Class I, Div 1, Groups C & D and CIE Class I, Zone 1
- EML100 Actuator is CE marked

Please also note that this option would be simplex, were as the TM40LP actuators currently installed on your units are dual coil.

Note on Remanufactured Assemblies:

If Maui Electric selects this option, the existing Woodward 1907 Large Liquid fuel metering and 3151A water metering valve(s) will be upgraded through the use of GE's valve remanufacture and actuator conversion program. This program leverages as much of the existing hardware as possible while upgrading only the components needed. The existing fuel metering valves will be returned to GE where they will be remanufactured. Remanufactured assemblies are completely disassembled, cleaned and inspected. All critical components are checked to new unit tolerances.

Any component not meeting new unit tolerances will be replaced. Additionally, a standard list of components is always replaced (i.e. all bearings, seals, gaskets and o-rings). The existing TM55P electro-hydraulic actuator on the liquid fuel metering valve and TM40LP on the water metering valve will be discarded and replaced with a new all-electric EM35 and EM100L actuators. The remaining functionality, mechanical stops, minimum position limit switch, as well as the units area classification will be retained. The complete assembly will then undergo testing same as a new unit. Once tested, the assembly will be returned with a new warranty.

This program works in the following manner:

1) The buyer returns their existing valve to the seller
2) The seller remanufactures the entire valve assembly as described above. The remanufactured assembly has a new unit warranty.
3) The new valve is returned to the buyer.

Notes:

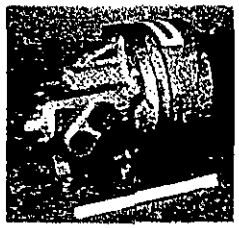
- The Buyer shall arrange own shipment.
- The typical turnaround time for remanufacture is six to eight weeks

* *Comment: The conversion of both the 1907/TM55P and the 3151A/TM40LP is extremely time and material intensive. The list of parts required to complete the remanufacture/conversion is considerably longer than the list of parts that would still be useful. These facts drive the pricing structure that is nearly equal to the price of new valve/actuator assemblies.*

New Liquid Fuel Metering Valve - LQ25 w/PIV and Integral Shutoff

As an option to the above 1907/EM35MR, GE can provide the Woodward manufactured "all-electric" LQ25 w/PIV and integral shut-off. The LQ25 is now the standard liquid fuel metering valve being shipped with new units and was designed specifically as a

replacement for the 1907 large liquid fuel metering valves currently on Maui Electric's LM2500's.



Pictured at left is the electrically actuated LQ25 integrated valve/actuator with integral shutoff valve. GE has also included an AC/DC power supply that will convert the 120 VDC input voltage to the required 24VDC operating voltage for the LQ25.

Valve features include:

- Self Cleaning Rotary Valve
- All Electric Operation
- Single Moving Part
- Vibration Tolerant Wide Temperature Range
- Fast Response Highly Accurate
- Standard 4-20 mA Interface

Please also note that this option would be simplex, were as the TM55P actuators currently installed on your 1907 liquid fuel metering valves are dual coil.

Automatic Digital Synchronizing, Synch Check and Power Factor Control - Hardware

Automatic Synchronization (SPM-D)

The proposed Woodward manufactured SPM-D is a microprocessor-based synchronizer designed for use on AC generators. The SPM-D provides automatic frequency, phase slip using either analog or discrete output bias signals. The Mains failure recognition and generator protection includes:

- Three phase mains over/under voltage monitoring
- Single phase generator over/under voltage monitoring
- Phase shift monitoring
- Reverse and overload power monitoring

A second SPMD would be added, which would be utilized as a synch check relay.

Generator Load Sensing (UMT 1)

Load sensing will be accomplished with the UMT 1 measuring transducer which measures the generator voltage, frequency and current and then calculates real, reactive and apparent power, power factor, KWh and KVarh signals. The primary signals are calculated and displayed. These signals can then be transmitted as analog outputs to the MicroNet™ control system.

Installation and Field Services (I & FS) commissioning Support

Typical Installation and Field Service (I&FS) support would include the following steps. This is a plug and play approach to installation, taking advantage of the commonality of the SO3 and Micronet platforms along with GE expertise in implementing this solution.

Installation Scope

Replacement of the existing turbine control panel.

- De-energize existing panel.
- Re-use existing field devices and wiring.
- Remove existing controls.
- Rig in and install new turbine control in the same space as the existing controls.
- Mechanically connect to existing panel
- Install interface cabling to existing cannon plugs and plug into the new control system.
- Install HMI and accessories.
- Install over-speed switches (if required) and terminate all wiring.

- Check all terminations against drawings.
- Energize panel, perform loop checks.
- Verify control and programming.
- Verify screen development.
- Start turbine-generator.
- Verify operation.
- Complete commissioning of new turbine control.

GE will provide the following:

- Labor, tools, and materials to perform the scope of work as defined herein.
- Field Engineering Services to check-out, start-up, and commission the new turbine controls.

Customer's Responsibilities:

- Receipt of new Panel and storage
- Lock-out, Tag-out of unit prior to the commencement of on-site work
- Existing unit drawings including:
  - Turbine elementary
  - Interconnecting wiring diagram
  - Customers connection diagram
- Clear access to the site for the duration of the planned work
- Adequate parking at the unit for labor and field engineer(s)
- Access to an analog phone line for use by the field engineer
- On-site sanitary facilities for use by the labor and field engineer(s)
- Labor and equipment to disassemble, reassemble, and calibrate instrumentation.
- Normal plant service required for maintenance such as light, heat, water, compressed air and electric power.

Assumptions and Clarifications:

- All wiring and existing terminal boards are in satisfactory condition and will be reused as part of the scope of work.
- All instrumentation and field devices are in working order and calibrated to the existing control specification.
- If the new control system requires that an instrument or field device have a new setting, GE will provide the setting prior to the scheduled

outage and the customer will have the device calibrated to the new setting.

- All existing controls; generator protection, metering, generator control, and customer interface, are in satisfactory condition and will operate with the turbine controls
- All turbine mechanical components are in satisfactory condition and will operate with the new turbine controls. This includes, but is not limited to, the existing turbine fuel systems, lubrication and hydraulics, Fire protection, and cooling water.

Schedule:

The on-site work will be performed on the following schedule:

- Field Engineering, 5 days, 8 hours per day to prep/verify wiring. 3 days (outage), 12 hours per day for installation. 2 days, 10 hours per day for commissioning.
- Craft Labor, 2 days, 10 hours per day for installation.

Duration of on-site work during scheduled work 10 working days

12 calendar days

BENEFITS DESCRIPTION

BASIC FEATURES OF THE PROPOSED MICRONET™ CONTROL SYSTEM:

- Provides Total System Control
- Uses the same Graphical Application Programmer (GAP™) software as other members of the NetCon® Family. It allows critical program code to be processed within 5 milliseconds.
- Expandable to Meet System Needs.
- Multiple communication via Serial Ports and EtherNet LAN's
- Available in Either Simplex or Triple Modular Redundant Configurations
- Simplex or Dual Redundant Power Supplies (Redundant power supplies are included)
- Real time Multitasking Operating System with Deterministic Update Rates
- Based upon proven NetCon® Control Hardware and Software
- High-Density I/O Modules With Time Stamping of discrete signals with 1 ms resolution and analog signals with 5 ms resolution.
- Redundant power supplies of different input voltages can be used together. 18-36 VDC, 100-150 VDC, 88-132 VAC (47-63 Hz), 180-264 VAC (47-63 Hz)
- 32-Bit microprocessor.

- Industry standard protocols, such as Modbus, as well as custom serial drivers, up to 57,600 baud rate.
- RS-232, RS-422, RS-485, and EtherNet (ANSI/IEEE 802.3) are supported.
- Expandable by adding an additional MicroNet™ chassis, LinkNet® distributed I/O modules, or both.
- "Smart modules" that feature self-calibration and continuously recheck their own calibration and health.

BENEFITS:

- Improved reliability and longevity with state-of-the-art microprocessor based control hardware.
- Improved support and maintainability as the complete control system is manufactured by a single vendor.
- Improved control, due to multiple PID control loops, running simultaneously.
- Ability to modify or expand the control system as conditions and needs arise.
- Serial communications capabilities with other devices using the industry standard Modbus protocol.
- Reduced downtime, due to system alarm and failure annunciation through a fully integrated HMI.
- Low cost, configurable digital control.
- 5 milli-second rate groups provide instantaneous and precise control.
- On and off line self diagnostics reduces trouble shooting time
- Multiple communication capabilities through RS-232 and EtherNet

SUPPLY SCOPE

The scope of work outlined in the following sections is required for the control system upgrade at the Maui Electric, Maalaea Plant. Please note that the proposed scope of supply, including IO, has been quoted to match what we believe to be Maui Electric's requirements for this project, our knowledge of the existing Woodward 503/503 control systems and GE's experience on similar LM2500 retrofit projects.

Turbine Control System Hardware and Documentation

ITEM	DESCRIPTION	QUANTITY
	MicroNet™ TMR CONTROL SYSTEM - SCOPE OF SUPPLY	
1.0	*GE LM2500 - MicroNet™ TMR Control Upgrade*	1
	Includes	
	Chassis - MicroNet Main 12 - Slot	1
	Module - CPU, 68040	3
	PS for Main Chassis	2
	Module - Kernel Power Supply	3
	Chassis for Power Supply	1
	Module - Tranceiver to Exp. Chassis	1
	Chassis - MicroNet Expansion #1: 12 - Slot	1
	Power Supply for Exp. Chassis #1	2
	Module - Tranceiver to Main Chassis	1
	Chassis - MicroNet Expansion #2: 12 - Slot	1
	Power Supply for Exp. Chassis #2	2
	Module - Tranceiver to Main Chassis	1
	Chassis - MicroNet Expansion #3: 12 - Slot	1
	Power Supply for Exp. Chassis #3	2
	Module - Tranceiver to Main Chassis	1
	Module - Ethernet	1
	Module - SIO (4 ports)	1
	PS for LinkNet/Relay Box (20A)	2
	Module - HD Discrete (48 DI, 24 DO)	6
	2-Line Display	1
	Module - 2 Ch. Actuator Driver	2
	Module - HD Analog: 24 AI, 8 AO	1
	HD Analog Config - 24 TC/AI; 10 RTD/AII	6
	Module - Contact Out: 64 channels	3
	odule - Analog Combo: 8 AI, 4 AO, 4 MPU, , 2 Act. (P) channels	3
	Misc. Cables, FTMs and Relays	3

	Signal Converter for CIT Sensor	1
2.0	*Custom Panel Inserts, Plug and Play Interface & Modified Door*	1 Set
	Includes	
	Custom Panel Inserts for mounting control and devices	lot
	Plug and Play Interface (64 and 16 pin cannon plugs)	lot
	DIN Rail Phoenix Compression Terminal Blocks	As Required
	Circuit Breakers, Fuses and Interposing Relays	As Required
	DIN Rail, Panduit, Cables/Wire, Fasteners, etc.	As Required
	Note: Discrete Outputs must be hardwired	
3.0	*Additional Hardware*	1 Set
	Includes	
	MPU Isolator and Ground Fault Detector	As Required
	Over Speed Switch - Independent Over Speed Protection	4
4.0	Control Services	Lot
	Includes	
	Application Software - Core fuel control, Liquid fuel and H2O	lot
	Application Software - Core sequencing and protection	lot
	Application Software - LM2500 Core per GE IDM	1
	Control System - Assembly and Test	lot
	HMI Application Software	lot
	DOSO - Description of System Operation	lot
	Documentation, Design & Drafting	lot
	Project Management	lot
	Installation Design Package	lot
	Custom System Manual (1 hardcopy, 1 CD)	lot
	On-site Project Kickoff Meeting (2 people, 2 days)	1
	Shipment/Packaging (FOB Factory)	lot

5.0	*Human Machine Interface*	1
	Includes	
	HMI - Commercial Desktop, IBM NetVista	1
	Commercial 19" Color Monitor	1
	Network Switch	2
	Cat5 - Ethernet Cable	lot
	Software - iFix Unlimited Point License	1
	Software - Watch Windows, Control Assistant and Monitor GAP	1
	Engineering - Human Machine Interface LM2500 Application	lot
	Interface to ABB Bailey Infi90 via OPC90 Server	lot

Options:

ITEM	*DESCRIPTION*	*QUANTITY*
1.0	*Factory Acceptance Test*	1
	Includes:	lot
	3-day performance acceptance test for the control system. Testing will include hardware, software, and a documentation review of the system.	
	The test covers all major aspects of the control system, including: Operator Interface, Operating Modes, Start Sequence, Stop Sequence, Auxiliary Devices and Controls Communications, Alarms and Trips	
2.0	*Liquid Fuel Metering Valve Upgrade*	1
	Includes:	
	Return of customer supplied TM55P/1907 liquid metering valve for remanufacture/conversion	lot
	Remanufacture of Existing Large 1907 Fuel Metering Valve	
	Conversion to EM35 All-electric Brushless DC Actuation	
	EM Universal Valve Driver (24VDC Power)	
	Or	
	New 1907/EM35MR liquid metering valve	1

	EM Universal Valve Driver (24VDC Power) AC/DC power supply for EM driver	
3.0	*Water Injection Valve Upgrade* *Includes:* Return of customer supplied TM40LP/3151 water valve for remanufacture/conversion Remanufacture of Existing 3151 Water Valve Conversion to EM100L All-electric Brushless DC Actuation EM Universal Valve Driver (24VDC Power) Or New 3151A/EML100 Water Metering Valve EM Universal Valve Driver (24VDC Power) AC/DC power supply for EM driver	1 lot or 1
4.0	Liquid Fuel Metering Valve - LQ25 w/PIV and Integral Shutoff *Includes:* LQ25 Liquid Fuel Metering Valve w/PIV & Shutoff Valve LQ Analog Driver LQ25/Driver Power Supply Installation Hardware (fittings, gaskets, hose, tube, etc.) Labor - Engineering and Drafting	1 1 1 1 lot lot
5.0	*Digital Synchronizing, Synch Check and Power Factor Control* *Includes:* Automatic Synchronization (SPM-D) Generator Load Sensing (UMT 1) Labor - Engineering and Drafting	1 2 1 lot

6.0	*Installation and Field Services (I & FS)* *Includes:* Field Engineering - Installation Supervision Craft Labor and Materials - Installation Field Engineering - Checkout and Startup	1 lot lot lot

SITE INFORMATION REQUIRED

The proposed scope of supply and Engineering effort is based on GE's knowledge of the existing Woodward 503/503 control system and the GE LM2500 gas turbine generator. A complete list of customer requirements/specifications or agreement to the above proposed scope of supply would be required to ensure that the MicroNet™ TMR, including hardware and software, meets Maui Electric's requirements for this controls retrofit project.

WORKSCOPE - (per LM2500)

Work scope involves removal of the existing WOODWARD 503/503 main controller, installation of the MicroNet™ TMR control system mounted on custom panel inserts, installation of plug and play interface panel, modification and installation of panel door w/2-line display, installation of independent over speed switches, installation of the commercial desktop HMI in the control room and HMI setup.

APPLICABLE UNITS

This proposal applies to one (qty. 1) GE LM2500 gas turbine generator (S/N 808769) located at Maui Electric, Maalaea Plant, Maui, Hawaii.

AFFECTED DRAWINGS

The proposed control upgrade will affect the following system documentation:

- Operating & instruction manuals, including diagnostic procedures.
- System Block diagrams showing how the system is configured.
- Wiring diagrams and installation instructions.
- Site visit by Packaging engineer and Applications engineer to make a detailed survey in order to prepare necessary drawings, schematics, etc.
- Application software (GAP), monitoring and alarm annunciation functions based upon the existing method of operation and the GE IDM for LM2500 applications.
- HMI software and screens for base LM2500 application.

APPLICABLE SPECIFICATIONS

Maui Electric, Maalaea Plant has not provided a specification. GE has assumed that no such specification exists and that standard MicroNet™ TMR hardware, packaging and Engineering as described within this proposal is acceptable.

ESTIMATED DOWNTIME

As described under the installation option total estimated down time is 10 working days.

EXCLUSIONS/ASSUMPTIONS

1. Graphic Displays will be created as required from the standards in the GE library and customized for your units. It is expected that approximately 8 to 12 displays will be required that will support factory test and engineering / maintenance functions. Fixing functionality is part of control system checkout. Typical screens include the following:
   - Main or Unit Control Display
   - Fuel System Display
   - Exhaust Gas Temperature (EGT) Display
   - Start Check Display
   - Alarm Display and Vibration Display

2. It is assumed that GE will be furnished with full drawings and information concerning the state of the existing WOODWARD 503/503 installation, especially wiring information to the existing terminations within the control panels and remote IO rack. If such information is not available GE may charge for the work involved in obtaining this information.
3. The price quoted is based upon preliminary discussions with Maui Electric, Maalaea Plant personnel, our knowledge of the existing WOODWARD 503/503 control system and our experience on similar LM2500 controls upgrade projects. The proposed scope of supply is intended to provide for a state of the art MicroNet™ TMR control system, with the agreed upon functionality. Should MAUI ELECTRIC wish to increase functionality, scope of supply or Engineering content beyond that proposed GE would be pleased to provide pricing.

4. The IO provided within the proposed scope of supply is based on GE's knowledge of the existing WOODWARD 503/503 control system, control-wiring diagrams from OC-CS achieves and similar LM2500 upgrade projects. Additional discussion between MAUI ELECTRIC and GE Engineering is recommended to ensure that proposed vs required IO is accurate. Pricing may vary slightly as project IO and functionality are defined.

5. GE assumes that all existing field devices / Instrumentation are calibrated and fully functional.

6. Instrumentation other than that explicitly quoted within this proposal is not included. GE would be pleased to provide pricing for any on or off engine instrumentation should MAUI ELECTRIC find this to be of interest.

7. Assumption is made that these units are single fuel (liquid) with water injection and that valve interfaces will be via proportional control signal (0-200 mA or 4-20 mA).

PRICING , COSTS AND COMMERCIAL TERMS

Items as Detailed	Price & Currency are net US Dollars
• Micronet™ TMR Control Hardware • Custom Control Panel Inserts and Quick Connect Panel Interface (plug and play option) • Approved GE Core Fuel Control, Sequencing, Protection per latest GE IDM Standards • Human Machine Interface - Local Commercial Desktop • HMI Software - Control Assistant, Watch Windows, Monitor GAP, iFix Intellution License • Labor - Engineering, Drafting, Design, Assembly, Test • System Documentation and Custom Manual • ABB Bailey Infi90 DCS Interface via OPC90 Server • Over Speed Switches, Ground Fault Detection • Site Visit - Kickoff Meeting & Project Management • Packaging and Shipment (FOB Factory)	*1 System* *$415,000* ✓

OPTIONS TO THE BASE SYSTEM

Factory Acceptance Test - 3 days (Loveland, CO) - Qty. 1	*$10,496* ✓
Liquid Fuel Metering Valve Upgrade (per Valve) *Option 1 New 1907/EM35 - Includes Driver, power supply and mechanical engineering* **Woodward Commented that a Reman of the existing 1907/TM55P to 1907/EM35 is not economically feasible.*	*$48,985*

Water Injection Valve Upgrade (per Valve) *Option 1) Reman of 3151A/TM40LP to 3151A/EML100* *Option 2) New 3151A/EML100*	*$55,840* *$59,817*
Liquid Fuel Metering Valve - LQ25 w/PIV and Integral Shutoff (per valve)	*$38,679*
Digital Synchronizing, Synch Check and Power Factor Control (priced per LM2500)	*$7,418*
Installation and commissioning: per unit* Based on craft labor and GE specialty field service representatives working to the schedule(s) as noted above. *Installation of base offering only. Installation of Options will be on a time and material basis.	*$43,000*
Removal and Demolition: per unit* Based on craft labor and GE specialty field service representatives working to the schedule(s) as noted above. *Demolition of base offering only. Removal and Demolition of Options will be on a time and material basis.	*$2,000*

VALIDITY DATE

This is a firm proposal and is valid for 60 days from date of issue.

ENGINEERING

Please note that "all" Engineering labor for this project is included above.

Mechanical Engineering Hours	Included in Above Price /Cost
Electrical Engineering Hours - HMI	Included in Above Price /Cost

Controls Engineering Hours - Software/Hardware, DOSO	Included in Above Price /Cost
Field Service Engineering Hours	Included in Above Price /Cost

DRAFTING

Please note that "all" Drafting labor for this project is included above.

Drafting Hours - Design	Included in Above Price /Cost
Drafting Hours - Package	Included in Above Price /Cost
Customer Documentation (1 Hardcopy and 1 CD)	Included in Above Price /Cost

Project Schedule

A project schedule is provided herein to illustrate the various activities from purchase order/contract receipt, through design, manufacture, testing, shipment and site services (if in workscope). The estimated timescale from acknowledgement of PO/contract to the completion of the workscope or delivery of the goods is 26 weeks and is based on current factory loading and lead times offered by Seller and other vendors, if any.

Seller will be willing to discuss an alternative schedule to meet Buyer's requirement.

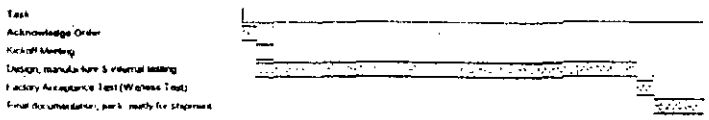
Milestones requiring Buyer input are critical to maintaining the schedule. Buyer input needs to be complete and fully correct. Likewise, unless otherwise agreed upon, in advance, work shall occur in an uninterrupted and sequential fashion.

If Buyer fails to meet milestones or if work is interrupted by or for the convenience of the Buyer, or cannot be performed according to the agreed Project Schedule, Seller reserves the right to charge for additional costs and amend the schedule as a result of Buyer changes. Buyer shall also remain liable for meeting milestone payments as agreed in the project schedule.

Work Assumptions

The works described herein will be scheduled on dates and at times which are mutually agreeable between the Buyer and Seller. Unless otherwise agreed upon in advance, work shall occur in an uninterrupted and sequential fashion. If the work is interrupted by or for the convenience of the Buyer, or cannot be performed according to the agreed Project Schedule, there will be separate charges for multiple trips and rescheduling of Seller's personnel. Seller

reserves the right to charge for additional costs incurred as a result of Buyer initiated changes. Buyer shall also remain liable for meeting milestone payments as agreed in the project schedule.



Delivery Terms

Seller shall deliver Products to Buyer EXW Seller's facility, place of manufacture or warehouse (Incoterms 2000) Title to Products shipped from the U.S. shall pass to Buyer immediately after each item departs from the territorial land, seas and overlying airspace of the U.S with risk of loss transferring to Buyer upon title passage.

Seller shall deliver Products to Buyer FCA Port of Export (Incoterms 2000). Title to Products shipped from the U.S. shall pass to Buyer immediately after each item departs from the territorial land, seas and overlying airspace of the U.S with risk of loss transferring to Buyer upon title passage.

Payment Terms

Our proposal is based upon the following payment schedule.

10% Order Placement
25% Submittal of Initial Design Drawings
50% Shipment of Hardware
10% Mobilization to Site for Installation
5% Completion of Installation and Commissioning

All payments are net 30 days

Terms and Conditions

This proposal and commercial offer are subject to the below terms.

- Form ES104 (rev02) GE Terms And Conditions for Sale And Lease Of Products And Services attached.
- GE Software License Addendum To Terms And Conditions For Sale And Lease Of Products

And Services

Purchase Order

Buyer's Purchase order shall provide the following deliverables:

- Purchase Order conforming to this proposal.

  Note: Deviations from the proposal in Scope, Price, payment schedule, Terms and Conditions, Shipment Cycle, or Installation Cycle may cause delays or non-acceptance of Purchase Order.
- Site Specific Drawings as detailed in this proposal.

  NOTE: Submittal of these drawings prior to the Kickoff meeting will allow Seller's engineers to become familiar with the site-specific details and will make the site meetings more efficient.

Seller will issue Acknowledgement to Buyer Purchase order with in 3 business days from receipt of
'acceptable' Purchase order.

The execution period of this contract starts from Sellers Order Acknowledgement date. Upon the Buyer's decision to submit a purchase order, please address the Purchase order to:

3800 North Wilson Avenue

Loveland, CO 80538-2075

Legal Entity - GEII

Attn: Tim Smiejkal - Sales Manager

Pricing Limitations

Seller reserves the right to review and re-quote this job if there is a discrepancy between this proposal and the purchase order. If Seller receives a specification between the issuance date of this proposal and receipt of the purchase order, Seller reserves the right to re-evaluate this proposal.

Changes to specifications, drawings, services or hardware will be evaluated by Seller for a Change in Scope to the contract. Seller will quote the changes and a customer change order must be received before work is to proceed.

The pricing breakouts outlined in this proposal are for accounting purposes only and are not to be considered as stand alone prices.

The prices quoted herein exclude tax or other regulatory fees.

Pricing for out-of-scope items will be based according to the rates attached herein

Out of Scope Works

"Out of scope works" shall be defined as "Any additional work required, requested, or recommended not specifically defined in the scope of work proposed herein". Upon receipt of written request, Seller may provide a firm price quotation or perform the work at the rates provided herein. Additional works will not commence until additional pricing and/or changes to schedule have been agreed.

Delays

Delays in the performance of work beyond the reasonable control of Seller, or delays caused by acts of the Buyer or prerequisite work by others, shall entitle Seller to an adjustment of time and price for completion of its work and expenses resulting there from.

Price Escalation

The base prices stated in this proposal shall be subject to adjustment for components delivered in subsequent years pursuant to the provisions of this clause. Such base prices shall be adjusted annually upward based on SIC and other published index.

Transfer to Subsidiary or Affiliated Company

Seller may assign or transfer its rights and obligations regarding this proposal, in part or in whole, to one or more of the General Electric Inc. wholly owned subsidiaries upon written notice to Buyer setting forth the effective date of such assignment or transfer. Upon the effective date of such assignment or transfer, all of the rights and obligations of Seller under this Contract shall vest solely in the General Electric Inc subsidiaries. Buyer agrees to execute such documents as may be necessary to effect the assignment or transfer. Seller guarantees the performance of the General Electric Inc subsidiaries after the assignment or transfer takes effect. The delegation or assignment by Buyer of any or all of its duties or rights under this order without Seller's prior written consent shall be void.

Trademark Notice

Product and company names utilized in this document are trademarks or trade names of their respective companies.

Defined Terms

The following terms shall have the meanings set forth below as used throughout this Proposal.

"Buyer" means the entity to which Seller's proposal is directed, namely Watson Cogeneration Company.

"Buyer's Equipment" or "Unit(s)" means Buyer's equipment into which the Parts will be installed and on which the Services will be performed.

"Contract" means the contract between Seller and Buyer resulting from this Proposal.

"Contract Price" or "Proposal Price" means the price to be paid by the Buyer to the Seller under this Proposal or any resulting Contract for the Parts and Services.

"Parts" means the equipment, parts, materials, supplies, components and other goods, which Seller has identified in this Proposal.

"Primary Services" means such planning, management, Technical Advisory Services, labor, tools and incidental goods necessary to install the Parts identified herein and to move, install, assemble, modify, repair, modernize, start-up and/or maintain the Buyer's Equipment, in connection with any of the foregoing.

"Seller" means, "GE Optimization and Control"

"Services" means all the Primary Services and the Supplementary Services to be performed or provided by Seller under this Proposal.

"Site" means the premises where the Buyer's Equipment is located.

"Supplementary Services" means any of the following, which are identified by Seller in this Proposal:
Engineering Study/Inspection/Test, meaning system design and/or analysis of equipment or systems which can be performed in a repair service shop or at the Site by competent, experienced personnel using special techniques, instruments or devices with the objective of reporting opinions or recommendations related to the current condition and future serviceability of the equipment or system.

Such other services as the parties agree in writing will be performed as Supplementary Services.

"Technical Advisory Services" or "Field Engineering Services" means technical advice and counsel from Technical Advisors or Field Engineers provided by Seller based on Seller's current engineering, manufacturing, installation and operation practices as applicable to the Parts. To the extent specified in this Proposal, such services may also include testing, adjustment, programming and other similar services. Unless otherwise specified in this Proposal, "Technical Advisory Services" / "Field Engineering Services" do not include supervision or management of Buyer's employees, agents, or other contractors.

This proposal and commercial offer are subject to the below terms.

Attachments

FORM ES104 (REV 2): TERMS AND CONDITIONS FOR SALE and LEASE OF Products and Services

ES104_Rev2_110104.pdf

Form ES104 (Rev 1): SOFTWARE LICENSE ADDENDUM TO TERMS AND CONDITIONS FOR SALE AND LEASE OF PRODUCTS AND SERVICES

ES-Software-Addendum English-Rev1.pdf

-RUSH-

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: Mahinahina Sub 50 Repl Tsf 2

Project Number: M0000807
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-11

Commitment Date: 2006-11

Primary Corporate Goal: Cap Exp

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$0	$0	$687	$0	$0	$0	$0	$687

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	33	24	117

Purpose/Objectives:

Replace the existing transformer no.2 at the existing Mahinahina Sub 50.

Scope Description:

Purchase and install a new 10/12.5 MVA, 69-12.47kV transformer to replace the existing 7.5/9.375MVA, 69-12.47kV transformer no. 2 at Mahinahina Sub 50.

This project is currently estimated at 686,586.46 for 2007 and the 2007 budget is $684,810. The additional $1,776.46 will be funded by completed project M0000761 Kai Malu @ Wailea with a 2007 budget of $34,321.

This project is expected to be completed by November 2007.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Required Resources:
DASENG = 90 hours. DCCREW = 96 hours; DCSUPV = 16 hours; DECREW = 400 hours; DESUPV = 32 hours;
DKCREW = 120 hours; DKSUPV = 12 hours; DRCREW = 20 hours; DRDISP = 100 hours;
DRDSUP = 100 hours; DRFSUP = 16 hours. DRSENG = 64 hours; WSSENG = 220 hours;
WSSUPV = 48 hours;

Outside Constr. = $35,000; Outside ENGR = $50,000 HECO ENGR = $27,467

Materials:
Outside (Misc.) = $25,000; Outside (Transformer) = $400,000; Stock = $1,000

See attached pillar estimate.

Justification:

The replacement of transformer no. 2 at the existing Mahinahina Sub 50 will provide additional capacity in the Mahinahina/Napili area to address future loads.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

This project is required to meet our obligation to maintain service. Failure to go ahead with this project will adversely affect our customers

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines. October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: Approval Required ● Not Required

Approved, Date of Decision & Order: - - Docket Number:

Awaiting PUC Approval. Application Filed - -

Authorization for: Engineering Materials Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** _____

Originator's Name: Fred Oshiro

Responsible Estimator: Kim Kawanara
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: Kimberly Kawana

Date: 11/20/2006

Required Approvals to Initialize a Project:

N/A
Responsible Manager Date

N/A
MECO President Date

Required Approvals to Authorize a Project:

Neal Sky 11/21/06
Responsible Manager Date

11/22/06

N/A
VP, Government and Community Affairs Date
(not required if PUC approval is obtained)

11/22/06
MECO Accounting Manager Date

Edward F. Reinhardt 11/22/06
MECO President Date

11/20/2006 *PIA VIEW: Total Proj $>DT52 Mahinahina 9:54AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	FY07
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	401		Stores OHM0000807	226,000.00
									$0.11610
									$26,238.60
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	404		En Del OHM0000807	1,104.00
									$26.44
									$29,189.76
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	406		Corp Adm OH M0000807	1,334.00
									$3.67
									$4,895.78
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	421		NPW OH M0000807	1,334.00
									$4.55
									$6,069.70
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	422		Empl Benefits OHM0000807	1,334.00
									$12.24
									$16,326.16
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	423		PR Tax OH M0000807	49,821.40
									$0.08790
									$4,379.30
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	430		AFUDC nonclkt cy Component ProjectM0000807	8.00
									$1,399.59
									$11,196.76
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDA	405	MAU	NI	150	DASENG	T&D Staff ENGR	90.00
									$27.14
									$2,442.60
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDC	417	MAU	NI	150	DCCREW	DC Labor	96.00
									$36.39
									$3,493.44
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDC	417	MAU	NI	150	DCSUPV	DC Supv Labor	16.00
									$39.43
									$630.88
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	150	DECREW	DE Labor	400.00
									$39.62
									$15,848.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	150	DESUPV	DE Supv Labor	32.00
									$36.58
									$1,170.56
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	201		O/M Misc	25,000.00
									$1
									$25,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	201		O/M Transformer	200,000.00
									$1
									$200,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	201M		O/M Transformer	200,000.00
									$1
									$200,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	505		Outside Constr	35,000.00
									$1
									$35,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDK	417	MAU	NI	150	DKCREW	Construction Crew	120.00
									$37.48
									$4,498.80
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDK	417	MAU	NI	150	DKSUPV	Construction Supv	12.00
									$57.32
									$687.84
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDK	417	MAU	NI	201		Stock Material	1,000.00
									$1
									$1,000.00

11/20/2006 *PIA VIEW: Total Proj $>DT52 Mahinahina 9:54AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	FY07
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRCREW	Troubleman Labor	20.00
									$40.88
									$817.60
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRDISP	Dispatcher	100.00
									$38.72
									$3,872.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRDSUP	Dispatcher Supv	100.00
									$49.99
									$4,999.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRFSUP	Troubleman Supv	16.00
									$44.43
									$710.88
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	419	MAU	NI	150	DRSENG	SCADA Engr	64.00
									$35.74
									$2,287.36
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	150	WSSENG	WS Labor	220.00
									$30.75
									$6,765.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	150	WSSUPV	Supv Staff ENGR	48.00
									$33.28
									$1,597.44
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	506		Outside ENGR	50,000.00
									$1
									$50,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	550		HECO ENGR ($27,467)	27,467.00
									$1
									$27,467.00
M0000807									$686,586.46
									$686,586.46

11/20/2006 *PIA VIEW: Total Proj $>DT52 Mahinahina 9:43AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	FY07
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	401		Stores OHM0000807	228,000.00
									$0.11610
									$26,238.60
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	404		En Del OHM0000807	1,224.00
									$26.44
									$32,362.56
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	406		Corp Adm OH M0000807	1,454.00
									$3.67
									$5,335.18
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	421		NPW OH M0000807	1,454.00
									$4.55
									$6,615.70
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	422		Empl Benefits OHM0000807	1,454.00
									$12.24
									$17,795.96
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	423		PR Tax OH M0000807	54,575.80
									$0.08790
									$4,797.21
M0000807	Mahinahina Sub 50 Repl Tsf 2	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000807	8.00
									$1,399.59
									$11,196.76
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDA	405	MAU	NI	150	DASENG	T&D Staff ENGR	90.00
									$27.14
									$2,442.60
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDC	417	MAU	NI	150	DCCREW	DC Labor	96.00
									$35.39
									$3,493.44
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDC	417	MAU	NI	150	DCSUPV	DC Supv Labor	16.00
									$39.43
									$630.88
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	150	DECREW	DE Labor	400.00
									$39.62
									$15,848.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	150	DESUPV	DE Supv Labor	32.00
									$36.58
									$1,170.56
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	201		O/M Misc	25,000.00
									$1
									$25,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	201		O/M Transformer	200,000.00
									$1
									$200,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	201M		O/M Transformer	200,000.00
									$1
									$200,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NI	505		Outside Constr.	35,000.00
									$1
									$35,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDE	417	MAU	NR	150	DECREW	DE Labor REMOVAL	120.00
									$39.62
									$4,754.40
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDK	417	MAU	NI	150	DKCREW	Construction Crew	120.00
									$37.49
									$4,498.80
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDK	417	MAU	NI	150	DKSUPV	Construction Supv	12.00
									$57.32
									$687.84
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDK	417	MAU	NI	201		Stock Material	1,000.00
									$1
									$1,000.00

11/20/2006 *PIA VIEW: Total Proj $>DT52 Mahinahina 9 43AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	FY07
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRCREW	Troubleman Labor	20.00
									$40.88
									$817.60
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRDISP	Dispatcher	100.00
									$38.72
									$3,872.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRDSUP	Dispatcher Supv	100.00
									$49.99
									$4,999.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	417	MAU	NI	150	DRFSUP	Troubleman Supv	16.00
									$44.43
									$710.88
M0000807	Mahinahina Sub 50 Repl Tsf 2	MDR	419	MAU	NI	150	DRSENG	SCADA Engr	64.00
									$35.74
									$2,287.36
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	150	WSSENG	WS Labor	220.00
									$30.75
									$6,765.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	150	WSSUPV	Supv Staff ENGR	48.00
									$33.28
									$1,597.44
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	595		Outside ENGR	50,000.00
									$1
									$50,000.00
M0000807	Mahinahina Sub 50 Repl Tsf 2	MWS	405	MAU	NI	550		HECO ENGR ($27,467)	27,467.00
									$1
									$27,467.00
M0000807									$697,386.77
									$697,386.77

—Rush—

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: Napili Sub 29 Tsf. 2 Replace

Project Number: M0000810
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-08

Commitment Date: 2006-11

Primary Corporate Goal: CAID

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$0	$0	$687	$0	$0	$0	$0	$687

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	33	24	117

Purpose/Objectives:

Replace the existing transformer No. 2 at the existing Napili Sub 29.

Include major loads identified in the load forecast.

Maui Preparatory Academy (301 kVA)
Honolua Ridge Ph. 2 (989 kVa)

Scope Description:

Purchase and install a new 10/12.5 MVA, 69-12.47kV transformer to replace the existing 7.5/9.375 MVA, 69-12.47 kV transformer no. 2 at Napili Sub 29.

This project is currently estimated at a total cost of $686,586.46 for 2007 and the 2007 approved budget is $658,800. The additional $27,786.46 will be funded by completed project M0000761 Kai Malu @ Wailea with a 2007 budget of $34,321.

This project is expected to be completed by August 2007.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

DASENG=90 hrs. DCCREW=96 hrs; DC SUPV=16 hrs; DECREW=400; DE SUPV=32 hrs; DK CREW=120 hrs; DK SUPV=12 hrs; DRDISP=100 hrs. DRDSUP=100 hrs. DR CREW=20 hrs; DR SUPV=16hrs; DRSENG=64 hrs; WSSENG=220 hrs; WSSUPV=48 hrs;

Outside Materials=$425,000; Stock Materials= $1,000 Outside Service/Constr=$35,000; Outside Engr=$50,000; HECO Services$27,467;

See attached pillar estimate file.

Justification:

Distribution Load Forecast and Distribution Contingency Switching Model has identified this project as necessary to satisfy MECO's Distribution Planning Criteria

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Estimated Completion Date: August 2007.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval Application Filed - -

Authorization for: Engineering Materials Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** _____

Originator's Name: FOshiro

Responsible Estimator: Fred Oshiro (Pillar UserID)

Resp. Estimator Dept: Engineering (Pillar Department Folder)

Project Manager: Kim Kawahara

Date: 11/20/2006

Required Approvals to Initialize a Project:

_____
Responsible Manager Date

_____
MECO President Date

Required Approvals to Authorize a Project:

Neal Sakamoto 11/21/06
Responsible Manager Date

_____
VP, Government and Community Affairs Date
(not required if PUC approval is obtained)

11/22/07
MECO Accounting Manager Date

Edward A. Reinhart 11/27/06
MECO President Date

an 11/20/06

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	FY07
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	401		Stores OHM0000810	226,000.00
									$0.11610
									$26,238.60
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	404		En Del OHM0000810	1,104.00
									$26.44
									$29,189.76
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	406		Corp Adm OH M0000810	1,334.00
									$3.67
									$4,895.78
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	421		NPW OH M0000810	1,334.00
									$4.55
									$6,069.70
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	422		Empl Benefits OHM0000810	1,334.00
									$12.24
									$16,328.16
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	423		PR Tax OH M0000810	48,821.40
									$0.08790
									$4,379.30
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	430		AFUDC nonbkrl by Component ProjectM0000810	8.00
									$1,399.59
									$11,196.76
M0000810	Napili Sub 29 Tsf. 2 Replace	MDA	405	MAU	NI	150	DASENG	T&D Staff Engineer	90.00
									$27.14
									$2,442.60
M0000810	Napili Sub 29 Tsf. 2 Replace	MDC	419	MAU	NI	150	DCCREW	DC CREW	96.00
									$36.39
									$3,493.44
M0000810	Napili Sub 29 Tsf. 2 Replace	MDC	419	MAU	NI	150	DCSUPV	DC SUPV	16.00
									$39.43
									$630.88
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	150	DECREW	Maint	400.00
									$39.62
									$15,848.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	150	DESUPV	Maint Supv.	32.00
									$36.58
									$1,170.56
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	201		Outside Materials-Misc	25,000.00
									$1
									$25,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	201		Outside Materials-Transformer	200,000.00
									$1
									$200,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	201M		Outside Materials-Transformer	200,000.00
									$1
									$200,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	505		Outside Services - Constr	35,000.00
									$1
									$35,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDK	417	MAU	NI	150	DKCREW	Construction Crew	120.00
									$37.49
									$4,498.80
M0000810	Napili Sub 29 Tsf. 2 Replace	MDK	417	MAU	NI	150	DKSUPV	Const. Supv	12.00
									$57.32
									$687.84
M0000810	Napili Sub 29 Tsf. 2 Replace	MDK	417	MAU	NI	201		Stock Material	1,000.00
									$1
									$1,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRCREW	Troubleman Labor	20.00
									$40.88
									$817.60
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRDISP	Dispatcher	100.00
									$38.72
									$3,872.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRDSUP	Dispatcher Supv.	100.00
									$49.99
									$4,999.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRFSUP	Troubleman Supv.	16.00
									$44.43
									$710.88

11/20/2006 *PIA/VIEW: Total Project $>M0000810 9:47AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	FY07
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	419	MAU	NI	150	DRSENG	SCADA Engineer	64.00
									$35.74
									$2,287.36
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	150	WSSENG	Staff Engineer	220.00
									$30.75
									$6,765.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	150	WSSUPV	Supv Staff Engineer	48.00
									$33.28
									$1,597.44
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	506		Outside Engineering	50,000.00
									$1
									$50,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	550		HECO Engineering	27,467.00
									$1
									$27,467.00
									$686,586.46

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	FY07
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	401		Stores OHM0000810	226,000 00 $0.11610 $26,238 60
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	404		En Del OHM0000810	1,224.00 $26 44 $32,362 56
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	406		Corp Adm OH M0000810	1,454.00 $3 67 $5,336.18
M0000810	Napili Sub 29 Tsf. 2 Replace	*	*	*	*	421		NPW OH M0000810	1,454 00 $4 55 $6,615 70
M0000810	Napili Sub 29 Tsf 2 Replace	*	*	*	*	422		Empl Benefits OHM0000810	1,454 00 $12.24 $17,796.96
M0000810	Napili Sub 29 Tsf 2 Replace	*	*	*	*	423		PR Tax OH M0000810	54,575 60 $0.08790 $4,797 21
M0000810	Napili Sub 29 Tsf 2 Replace	*	*	*	*	430		AFUDC nonbkt by Component ProjectM0000810	8 00 $1,399.59 $11,196.76
M0000810	Napili Sub 29 Tsf. 2 Replace	MDA	405	MAU	NI	150	DASENG	T&D Staff Engineer	90 00 $27.14 $2,442 60
M0000810	Napili Sub 29 Tsf. 2 Replace	MDC	419	MAU	NI	150	DCCREW	DC CREW	96 00 $36 39 $3,493 44
M0000810	Napili Sub 29 Tsf 2 Replace	MDC	419	MAU	NI	150	DCSUPV	DC SUPV	16.00 $39 43 $630 88
M0000810	Napili Sub 29 Tsf 2 Replace	MDE	417	MAU	NI	150	DECREW	Maint	400 00 $39.62 $15,848.00
M0000810	Napili Sub 29 Tsf 2 Replace	MDE	417	MAU	NI	150	DESUPV	Maint. Supv	32 00 $36.58 $1,170.56
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	201		Outside Materials-Misc	25,000.00 $1 $25,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	201		Outside Materials-Transformer	200,000.00 $1 $200,000 00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	201M		Outside Materials-Transformer	200,000 00 $1 $200,000 00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NI	505		Outside Services - Constr	35,000.00 $1 $35,000 00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDE	417	MAU	NR	150	DECREW	DE Labor REMOVE	120 00 $39 62 $4,754 40
M0000810	Napili Sub 29 Tsf. 2 Replace	MDK	417	MAU	NI	150	DKCREW	Construction Crew	120 00 $37.49 $4,498.80
M0000810	Napili Sub 29 Tsf. 2 Replace	MDK	417	MAU	NI	150	DKSUPV	Const. Supv.	12 00 $57 32 $687.84
M0000810	Napili Sub 29 Tsf. 2 Replace	MDK	417	MAU	NI	201		Stock Material	1,000 00 $1 $1,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRCREW	Troubleman Labor	20 00 $40 88 $817 60
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRDISP	Dispatcher	100 00 $38.72 $3,872 00
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRDSUP	Dispatcher Supv.	100.00 $49.99 $4,999 00

11/20/2006 *PIA/VIEW: Total Project $>M0000810 9:47AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	FY07
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	417	MAU	NI	150	DRFSUP	Troubleman Supv.	16.00
									$44.43
									$710.88
M0000810	Napili Sub 29 Tsf. 2 Replace	MDR	419	MAU	NI	150	DRSENG	SCADA Engineer	64.00
									$35.74
									$2,287.36
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	150	WSSENG	Staff Engineer	220.00
									$30.75
									$6,765.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	150	WSSUPV	Supv Staff Engineer	48.00
									$33.28
									$1,597.44
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	506		Outside Engineering	50,000.00
									$1
									$50,000.00
M0000810	Napili Sub 29 Tsf. 2 Replace	MWS	405	MAU	NI	550		HECO Engineering	27,467.00
									$1
									$27,467.00
									$697,386.77

07-048 (GK)
M7900000

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: METERS & METER'G EQUIP

Plant Addition Date: -

Project Number: M7900000
(Permanent)

Commitment Date: -

Primary Corporate Goal: Res Cust-Satisf

Stategic Plan Linkage: 2B - Increase Electric Sales
(Primary)

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$503	$517	$524	$535	$545	$0	$2,624

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
15	15	0	0	12	42

Purpose/Objectives:

Purchase, install and test meters and metering equipment.

Scope Description:

Purchase, install and test meters and metering equipment.

The 2007 approved BUDGET is $502,892.71.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Justification:

Funds required for the purchase, installation and testing of meters and metering equipment for new and existing customers.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Increase sales, accommodate new customers, and new customer satisfaction. Equipment needed to accurately and efficiently monitoring customer power usage.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Gregory Kauhi **Phone/Ext #:** 2366

Originator's Name: GREG KAUHI

Responsible Estimator: GREG KAUHI
(Pillar UserID)

Resp. Estimator Dept: Customer Installations
(Pillar Department Folder)

Project Manager: GREG KAUHI

Date: 01/31/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

Neal Sky 2/2/07
Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

Edward L. Reinhardt 2/12/07
MECO President **Date**

2/6/07
2/12/07
2/12/07

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
	401	M7900000	METERS & METERING EQUIP (RB)	*	*	*		Stores OHM7900000	319,506 25
									$0 11640
									$37,190.53
*	404	M7900000	METERS & METERING EQUIP (RB)	*	*	*		En Del OHM7900000	1,488 00
									$25.37
									$37,750 56
*	406	M7900000	METERS & METERING EQUIP (RB)	*	*	*		Corp Adm OH M7900000	1,740 00
									$3 88
									$6,751.20
*	407	M7900000	METERS & METERING EQUIP (RB)	*	*	*		Cust Install OHM7900000	252 00
									$31.43
									$7,920.36
*	421	M7900000	METERS & METERING EQUIP (RB)	*	*	*		NPW OH M7900000	1,740 00
									$4.46
									$7 760 40
*	422	M7900000	METERS & METERING EQUIP (RB)	*	*	*		Empl Benefits OHM7900000	1,740.00
									$12 22
									$21,262 80
*	423	M7900000	METERS & METERING EQUIP (RB)	*	*	*		PR Tax OH M7900000	59,077 68
									$0 08790
									$5,192.93
*									$123,828.78
MDM	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	DMCREW	Meter-New Comm Maui Install	288 00
									$34.18
									$9,843 84
MDM	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	DMCREW	Meter-New Res Maui Install	1,080 00
									$34.18
									$36,914 40
MDM	201	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI		O/S Matl-Purchase Meters/Equipment	293,125.00
									$1 090
									$319,506.25
MDM									$366,264 49
MDR	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	DRCREW	Service Crew-New Comm Maui Install	96.00
									$41 26
									$3,960.96
MDR	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	DRCREW	Service Crew-New Res Maui Install	24 00
									$41 26
									$990 24
MDR									$4,951.20
MWP	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	WPJPNR	Gr. 10-Design New Comm Maui Install	60 00
									$26 20
									$1,572 00
MWP	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	WPJPNR	Gr. 10-Design New Res Maui Install	24 00
									$26 20
									$628 80
MWP	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	WPPLNR	Gr. 12-Design New Comm Maui Install	144 00
									$29 90
									$4,305.60
MWP	150	M7900000	METERS & METERING EQUIP (RB)	601	MAU	NI	WPDPNR	Gr. 15-Design New Comm Maui Install	24 00
									$35 91
									$861 84
MWP	522	M7900000	METERS & METERING EQUIP (RB)	601	MAL	NI		Interisland Travel for Meter Electrician	480.00
									$1
									$480.00
MWP									$7 848 24

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
									$502,892.71

07-044 (GK)

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

M7000000

The Project identified below has already been established in MIMS

Project Title: OVHD SVCS & EXTN

Project Number: M7000000
(Permanent)

Stategic Plan Linkage: 2A - Retain Customers
(Primary)

Plant Addition Date: -

Commitment Date: -

Primary Corporate Goal: Res Cust-Satisf

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$825	$961	$975	$995	$1,015	$0	$4,771

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	0	0	0	0	45

Purpose/Objectives:

Install minor overhead services and line extensions for new customers.

Scope Description:

Install minor overhead services and line extensions for new customers.

The 2007 approved BUDGET is $824,705.42.✓

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Justification:

Funds required for installation of overhead facilities for new customers requiring electrical service.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

New customer satisfaction, provide power to new customers, and revenue.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: Approval Required ● Not Required

Approved, Date of Decision & Order: - - Docket Number:

Awaiting PUC Approval, Application Filed - -

Authorization for: Engineering Materials Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Gregory Kauhi **Phone/Ext #:** 2366

Originator's Name: GREG KAUHI

Responsible Estimator: GREG KAUHI
(Pillar UserID)

Resp. Estimator Dept: Customer Installations
(Pillar Department Folder)

Project Manager: GREG KAUHI

Date: 02/01/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

Neal Sly 2/2/07
Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

2/13/07
MECO Accounting Manager **Date**

Edward J. Reinwald 2/13/07
MECO President **Date**

rm 2/6/07
2/12/07
2/13/07

2/1/2007 *PIA/VIEW:Proj $>M70000000 OH SVC&EXT 9:41A

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
	401	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		Stores OHM7000000	97,470.50 $0.11640 $11,345.57
*	404	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		En Del OHM7000000	2,808.00 $25.37 $71,238.96
*	406	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		Corp Adm OH M7000000	8,316.00 $3.88 $32,266.08
*	407	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		Cust Install OHM7000000	4,932.00 $31.43 $155,012.76
*	421	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		NPW OH M7000000	8,316.00 $4.46 $37,089.36
*	422	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		Empl Benefits OHM7000000	8,316.00 $12.22 $101,621.52
*	423	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		PR Tax OH M7000000	274,251.96 $0.08790 $24,106.75
*	430	M7000000	OVERHEAD SERVICES & EXTENSIONS	*	*	*		AFUDC-Blkt-MM7000000	810,683.41348 $0.01805 $14,622.01
*									$447,303.00
MDE	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI	DECREW	Maintenance-New Res Maui Install	12.00 $39.98 $479.76
MDE									$479.76
MDK	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI	DKSUPV	Line Crew Supv-New Res Maui Install	192.00 $54.45 $10,454.40
MDK	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI	DKCREW	Line Crew-New Res Maui Install	480.00 $37.83 $18,158.40
MDK	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI	DKSUPV	Line Crew Supv-New Comm Maui Install	72.00 $54.45 $3,920.40
MDK	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI	DKCREW	Line Crew-New Comm Maui Install	480.00 $37.83 $18,158.40
MDK	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	443	MAU	NI	DKCREW	Line Crew-New Comm Maui Install	72.00 $37.83 $2,723.76
MDK	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI		Stock Matl	27,287.00 $1 $27,287.00
MDK	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI		Stock Matl-New Comm Maui	11,301.50 $1 $11,301.50
MDK	505	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI		O/S Construction	999.96 $1 $999.96
MDK	505	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI		O/S Construction-New Comm Install	1,000.00 $1 $1,000.00
MDK									$94,003.82

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
..DL	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAL	NI	DLCREW	Line Crew-New Res Lanai Install	240 00 $40.35 $9,684 00
MDL									$9,684 00
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI	DRDSUP	Dispatch Supv-New Res Maui Install	24.00 $45 88 $1,101.12
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI	DRDISP	Dispatch-New Res Maui Install	24 00 $39 07 $937 68
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI	DRCREW	Service Crew-New Res Maui Install	240 00 $41.26 $9 902.40
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI	DRDSUP	Dispatch Supv-New Comm Maui Install	12 00 $45.88 $550.56
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI	DRDISP	Dispatch-New Comm Maui Install	12 00 $39 07 $468 84
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI	DRCREW	Service Crew-New Comm Maui Install	144.00 $41.26 $5,941.44
MDR	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	445	MAU	NI	DRCREW	Service Crew-Repl Res Maui Install	120 00 $41 26 $4,951.20
MDR	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI		Services Stock Material-New Res Maui	3,000 00 $1 $3,000.00
MDR	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI		Service Stock Material-New Comm Maui Install	3,000.00 $1 $3,000 00
MDR	505	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAU	NI		O/S Construction-New Res Maui Install	1,000 00 $1 $1,000 00
MDR	505	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAU	NI		O/S Construction-New Comm Maui	1,000 00 $1 $1 000 00
MDR									$31,853 24
MDS	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	415	MAU	NI		Stock Mat-Construct Distr Maui Install	3 000 00 $1 $3 000 00
MDS									$3,000 00
MDT	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	415	MAM	NI	DTCREW	Line Crew-Const Dist Molokai Install	72 00 $35 08 $2,525 76
MDT	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	415	MAM	NI	DTCREW	Line Crew-Construct Distr Molokai Install	240 00 $35 08 $8,419 20
MDT	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAM	NI	DTCREW	Line Crew-New Res Molokai Install	180 00 $35 08 $6,314 40
MDT	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	442	MAM	NI	DTCREW	Line Crew-New Comm Molokai Install	240.00 $35 08 $8,419 20
MDT	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	415	MAM	NI		Molokai Stock Matl-Construct Distr	30 000 00 $1 $30 000.00

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
MOT	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	440	MAM	NI		Molokai Stock Matl-New Res	1,800.00 $1 $1,800.00
MOT									$57,478.56
MWL	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	928	MAU	NI	WLTC	Land-Process Easements	120.00 $31.42 $3,770.40
MWL									$3,770.40
...	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAU	NI	WMPLNR	Planner Aide-New Res Maui Install	48.00 $26.43 $1,268.64
..	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WMPLNR	Planner Aide-New Comm Maui Install	48.00 $26.43 $1,268.64
									$2,537.28
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	403	MAU	NI	WPSUPV	Cust Engr Supv-Design Distr Maui Install	120.00 $40.62 $4,874.40
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	403	MAU	NI	WPDENR	Designer-Design Distr Maui Install	192.00 $29.17 $5,600.64
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	403	MAU	NI	WPDPNR	Gr. 15-Design Distr Maui Install	240.00 $35.91 $8,618.40
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAL	NI	WPJPNR	Gr. 10-Design Res Lanai Install	72.00 $26.20 $1,886.40
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAM	NI	WPJPNR	Gr. 10-Design Res Molokai Install	120.00 $26.20 $3,144.00
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAU	NI	WPJPNR	Gr. 10-Design Res Maui Install	1,800.00 $26.20 $47,160.00
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAU	NI	WPPLNR	Gr. 12-Design Res Maui Install	240.00 $29.90 $7,176.00
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAU	NI	WPDPNR	Gr. 15-Design Res Maui Install	480.00 $35.91 $17,236.80
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAL	NI	WPJPNR	Gr. 10-Design Comm Lanai Install	24.00 $26.20 $628.80
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAL	NI	WPPLNR	Gr. 12-Design Comm Lanai Install	24.00 $29.90 $717.60
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAM	NI	WPJPNR	Gr. 10-Design Comm Molokai Install	60.00 $26.20 $1,572.00
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WPSUPV	Cust Engr Supv-Design Comm Maui Install	96.00 $40.62 $3,899.52
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WPDENR	Designer-Design Comm Maui Install	120.00 $29.17 $3,500.40
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WPJPNR	Gr. 10- Design Comm Maui Install	600.00 $26.20 $15,720.00

*...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WPPLNR	Gr. 12-Design Comm Maui Install	720.00 $29.90 $21,528.00
MWP	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WPDPNR	Gr. 15-Design Comm Maui Install	240.00 $35.91 $8,618.40
MWP	201	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI		STOCK MATL	18,082.00 $1 $18,082.00
MWP	522	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAL	NI		Interisland Travel-Lanai	240.00 $1 $240.00
MWP	522	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAM	NI		Interisland Travel-Molokai	480.00 $1 $480.00
MWP	522	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAL	NI		Interisland Travel-Lanai	480.00 $1 $480.00
MWP	522	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAM	NI		Interisland Travel-Molokai	480.00 $1 $480.00
MWP									$171,643.36
MWS	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAU	NI	WSSENG	STAFF ENGR	48.00 $30.75 $1,476.00
MWS	150	M7000000	OVERHEAD SERVICES & EXTENSIONS	427	MAU	NI	WSSENG	STAFF ENG	48.00 $30.75 $1,476.00
MWS	501	M7000000	OVERHEAD SERVICES & EXTENSIONS	425	MAU	NI		STAFF ENGR 12hrs@$88.08	0.00 $0 $0.00
MWS									$2,952.00
									$824,705.42

07-035
M0000687

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: Kanaha Tsf #B Replacement
Project Number: M0000687
(Permanent)
Plant Addition Date: 2007-10
Commitment Date: 2006-06
Primary Corporate Goal: Cap Exp
Stategic Plan Linkage: 2J - Environmental Relations
(Primary)
Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$794	$0	$0	$0	$0	$0	$794

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
30	0	50	33	24	137

Purpose/Objectives:

Purchase and install a new substation transformer to replace the existing tranformer B at Kanaha Sub 2.

Temporary Project number is DHenna14_

Change of Scope - Purchase and installation of new switchgear added to project.

Scope Description:

Purchase and install a new substation transformer to replace the existing tranformer B at Kanaha Sub 2.
(Total cost w/OH = $517,484.82 >MDE317MAUNIM0000687)

This project is estimated at $517,484.82 for 2007 and will be funded by project M0000686 - Wailuku Tsf #3 Replacement with a 2007 approved budget of $686,530 ($398,410.04) and project M0000461 T&D/Main Ofc Bldg Upgrade $144,062 ($119,074.42).

REAUTHORIZATION of PIF#06-123 for $517,484.82 in 2007. Change of Scope - Purchase and installation of new switchgear added to project. The current project estimate is $793,786.44 and the 2007 approved budget is $581,908. The additional $211,878.44 will be funded by project M0000215 Sub 36 - Sub 3 - KBY Fiber Optic Link that will be partially deferred.

Kanaha #B transformer and switchgear to be retired.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

DE labor 104hrs
DE supervision 12hrs
DK labor 160hrs
DK supervisor 8hrs
DR Dispatch supervisor 16hrs
DR labor Dispatch 16hrs
DR labor switchman 16hrs
DA Staff Engineer 112 hrs
Purchase Transformer $426,000.00
Purchase Switchgear w/ Batteries $173,000
Crane $30,000.00
Stock Material $5000.00
See attached Pillar file.
Existing Transformer and switchgear to be retired.

Justification:

The B transformer at Kanaha Sub 2 was manufactured in 1975 and has been in service for 30 years. The transformer's LTC and main tank has extensive corrosion and has had oil leaks that were repaired.
The new transformer would be a 10 MVA transformer due to the additional load from the airport improvement projects.

Change of Scope - Engineering determined that the existing switchgear should be replaced due to age and condition.

REAUTHORIZATION of PIF#06-123 for $517,484.82 in 2007. Change of Scope - Purchase and installation of new switchgear added to project.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

1. The LTC unit and main tank for this transformer has extensive corrosion which impacts the structural integrity of the transformer.
2. Environmental cleanup costs associated with spilled oil may eventually be more than replacing the unit.
3. The transformer has been in service for 30 years and is nearing the end of its lifecycle.
4. The new transformer would be a 10 MVA transformer due to the additional load from the airport improvement projects. The existing transformer is 7.5 MVA

Change of Scope - Engineering determined that the existing switchgear should be replaced due to age and condition.

REAUTHORIZATION of PIF#06-123 for $517,484.82 in 2007. Change of Scope - Purchase and installation of new switchgear added to project.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Chris Reynolds **Phone/Ext #:** 2360

Originator's Name: Chris Reynolds

Responsible Estimator: Chris Reynolds (Pillar UserID) **Resp. Estimator Dept:** Engineering (Pillar Department Folder)

Project Manager: Ray Okazaki

Date: 01/11/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

01/12/2007

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

1/26/07

MECO Accounting Manager **Date**

1/25/07

MECO President **Date**

1/12/2007 *PIA VIEW: Total Project Cost-P-M0000687 6.15Ai

Project	*Project #	*RA #	*Act #	*Loc #	*Ind #	*EE #	Line Item	Feb 07	Mar 07	Apr 07	May 07	Jun 07	Jul 07	Aug 07	Sep 07	Oct 07	FY07	
Kanawha Tsf #B Replacement	M0000687					401	Stores OH-M0000687	0.00	0.00	0.00	173,000.00	202,000.00	2,000.00	0.00	0.00	0.00	377,000.00	
								$0.11610	$0.11610	$0.11610	$0.11610	$0.11610	$0.11610	$0.11610	$0.11610	$0.11610	$0.11610	1.64 ✓
							43,782.80	$0.00	$0.00	$0.00	$20,085.30	$23,452.20	$232.20	$0.00	$0.00	$0.00	$43,769.70	
Kanawha Tsf #B Replacement	M0000687					404	Fn Del OH-M0000687	16.00	16.00	16.00	64.00	184.00	32.00	88.00	120.00	120.00	656.00	
								$26.44	$26.44	$26.44	$26.44	$26.44	$26.44	$26.44	$26.44	$26.44	$26.44	25.37 ✓
							17,150.12	$423.04	$423.04	$423.04	$2,220.96	$4,864.96	$846.08	$2,326.72	$3,172.80	$3,172.80	$17,673.44	
Kanawha Tsf #B Replacement	M0000687					408	Corp Adm OH M0000687	32.00	32.00	32.00	104.00	220.00	32.00	88.00	120.00	120.00	780.00	
								$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	3.58 ✓
							3,036.40	$117.44	$117.44	$117.44	$381.68	$807.40	$117.44	$322.96	$440.40	$440.40	$2,862.60	
Kanawha Tsf #B Replacement	M0000687					421	NPW OH M0000687	32.00	32.00	32.00	104.00	220.00	32.00	88.00	120.00	120.00	780.00	
								$4.55	$4.55	$4.55	$4.55	$4.55	$4.55	$4.55	$4.55	$4.55	$4.55	4.46 ✓
							3,478.80	$145.60	$145.60	$145.60	$473.20	$1,001.00	$145.60	$400.40	$546.00	$546.00	$3,549.00	
Kanawha Tsf #B Replacement	M0000687					422	Empl Benefits OH-M0000687	32.00	32.00	32.00	104.00	220.00	32.00	88.00	120.00	120.00	780.00	
								$12.24	$12.24	$12.24	$12.24	$12.24	$12.24	$12.24	$12.24	$12.24	$12.24	12.12 ✓
							9,531.60	$391.68	$391.68	$391.68	$1,272.96	$2,692.80	$391.68	$1,077.12	$1,468.80	$1,468.80	$9,547.20	
Kanawha Tsf #B Replacement	M0000687					423	PR Tax OH M0000687	928.24	928.24	928.24	3,838.16	7,909.92	1,243.52	3,462.24	4,496.00	4,496.00	28,224.56	
								$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	$0.08790	
								$81.42	$81.42	$81.42	$337.37	$695.28	$109.31	$304.33	$395.20	$395.20	$2,480.94	
Kanawha Tsf #B Replacement	M0000687					430	AF GOC nonbkl by Component Project-M0000687	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00	
								$194.20	$210.55	$227.01	$1,674.18	$5,256.79	$5,330.44	$5,425.26	$5,539.58	$5,654.72	$3,279.14	
								$194.20	$210.55	$227.01	$1,674.18	$5,256.79	$5,330.44	$5,425.26	$5,539.58	$5,654.72	$29,512.22	
Kanawha Tsf #B Replacement	M0000687							1,039.24	1,039.24	1,039.24	177,235.16	210,764.82	3,372.57	3,815.24	4,977.00	4,977.00	408,249.56	
								$1,313.38	$1,369.72	$1,386.19	$28,445.65	$38,769.93	$7,172.75	$9,856.79	$11,562.78	$11,677.92	$109,595.10	
Kanawha Tsf #B Replacement	M0000687	MDA	304	MAU	NI	150	Kanawha SS Unit B Tsf Repl-T&D Staff Engr Labor	16.00	16.00	16.00	16.00	32.00	0.00	0.00	0.00	0.00	96.00	
								$27.14	$27.14	$27.14	$27.14	$27.14	$27.14	$27.14	$27.14	$27.14	$27.14	
								$434.24	$434.24	$434.24	$434.24	$868.48	$0.00	$0.00	$0.00	$0.00	$2,605.44	
Kanawha Tsf #B Replacement	M0000687	MDA						16.00	16.00	16.00	16.00	32.00	0.00	0.00	0.00	0.00	96.00	
								$434.24	$434.24	$434.24	$434.24	$868.48	$0.00	$0.00	$0.00	$0.00	$2,605.44	
Kanawha Tsf #B Replacement	M0000687	MDC	317	MAU	NI	150	Kanawha SS Unit B Tsf Repl-OC Labor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.00	80.00	160.00	
								$36.39	$36.39	$36.39	$36.39	$36.39	$36.39	$36.39	$36.39	$36.39	$36.39	
								$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2,911.20	$2,911.20	$5,822.40	
Kanawha Tsf #B Replacement	M0000687	MDC						0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.00	80.00	160.00	
								$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2,911.20	$2,911.20	$5,822.40	
Kanawha Tsf #B Replacement	M0000687	MDE	317	MAU	NI	150	Kanawha SS Unit B Tsf Repl-OE Labor	0.00	0.00	0.00	0.00	0.00	24.00	80.00	40.00	40.00	184.00	
								$39.62	$39.62	$39.62	$39.62	$39.62	$39.62	$39.62	$39.62	$39.62	$39.62	
								$0.00	$0.00	$0.00	$0.00	$0.00	$950.88	$3,169.60	$1,584.80	$1,584.80	$7,290.08	
Kanawha Tsf #B Replacement	M0000687	MDE	317	MAU	NI	150	Kanawha SS Unit B Tsf Repl-OE Supervision	0.00	0.00	0.00	4.00	8.00	8.00	8.00	0.00	0.00	28.00	
								$36.58	$36.58	$36.58	$36.58	$36.58	$36.58	$36.58	$36.58	$36.58	$36.58	
								$0.00	$0.00	$0.00	$146.32	$292.64	$292.64	$292.64	$0.00	$0.00	$1,024.24	
Kanawha Tsf #B Replacement	M0000687	MDF	317	MAU	NI	201	Kanawha SS Unit B Tsf Repl-10 MVA Transformer w/ LTC	0.00	0.00	0.00	0.00	200,000.00	0.00	0.00	0.00	0.00	200,000.00	
								$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	
								$0.00	$0.00	$0.00	$0.00	$200,000.00	$0.00	$0.00	$0.00	$0.00	$200,000.00	
Kanawha Tsf #B Replacement	M0000687	MDF	317	MAU	NI	201	Kanawha SS Unit B Tsf Repl-Stock material	0.00	0.00	0.00	0.00	2,000.00	2,000.00	0.00	0.00	0.00	4,000.00	
								$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	
								$0.00	$0.00	$0.00	$0.00	$2,000.00	$2,000.00	$0.00	$0.00	$0.00	$4,000.00	
Kanawha Tsf #B Replacement	M0000687	MDE	317	MAU	NI	201	Kanawha SS Unit B Tsf Repl-Switchgear w/ Battery Cabinet	0.00	0.00	0.00	173,000.00	0.00	0.00	0.00	0.00	0.00	173,000.00	
								$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	
								$0.00	$0.00	$0.00	$173,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$173,000.00	✓
Kanawha Tsf #B Replacement	M0000687	MDE	317	MAU	NI	201M	Kanawha SS Unit B Tsf Repl-10 MVA Transformer w/ LTC	0.00	0.00	0.00	0.00	200,999.00	0.00	0.00	0.00	0.00	200,999.00	
								$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	
								$0.00	$0.00	$0.00	$0.00	$200,999.00	$0.00	$0.00	$0.00	$0.00	$200,999.00	
Kanawha Tsf #B Replacement	M0000687	MDE	317	MAU	NI	501	Kanawha SS Unit B Tsf Repl-OPS Engineering	25,000.00	0.00	0.00	0.00	25,000.00	0.00	0.00	0.00	0.00	50,000.00	
								$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	
								$25,000.00	$0.00	$0.00	$0.00	$25,000.00	$0.00	$0.00	$0.00	$0.00	$50,000.00	

Project	*Project #	*RA #	*Act #	*Loc #	*Ind #	*EE #	Line Item	Feb 07	Mar 07	Apr 07	May 07	Jun 07	Jul 07	Aug 07	Sep 07	Oct 07	FY07
Kanaha Tsf #B Replacement	M0000687	MDR	317	MAU	NI	501	Kanaha SS Unit B Tsf Repl-Transportation/Crane	0.00	0.00	0.00	0.00	28,500.00	0.00	0.00	0.00	0.00	28,500.00
								$1	$1	$1	$1	$1	$1	$1	$1	$1	$1
								$0.00	$0.00	$0.00	$0.00	$28,500.00	$0.00	$0.00	$0.00	$0.00	$28,500.00
Kanaha Tsf #B Replacement	M0000687	MDR						25,000.00	0.00	0.00	173,004.00	456,507.00	2,032.00	88.00	40.00	40.00	656,711.00
								$25,000.00	$0.00	$0.00	$173,146.32	$456,791.64	$1,241.52	$1,462.24	$1,584.80	$1,584.80	$664,813.32
Kanaha Tsf #B Replacement	M0000687	MDR	317	MAU	NI	150	Kanaha SS Unit B Tsf Repl-Dk Labor	0.00	0.00	0.00	40.00	120.00	0.00	0.00	0.00	0.00	160.00
								$37.49	$37.49	$37.49	$37.49	$37.49	$37.49	$37.49	$37.49	$37.49	$37.49
								$0.00	$0.00	$0.00	$1,499.60	$4,496.80	$0.00	$0.00	$0.00	$0.00	$5,996.40
Kanaha Tsf #B Replacement	M0000687	MDR	317	MAU	NI	150	Kanaha SS Unit B Tsf Repl-Dk Supervision	0.00	0.00	0.00	4.00	4.00	0.00	0.00	0.00	0.00	8.00
								$57.32	$57.32	$57.32	$57.32	$57.32	$57.32	$57.32	$57.32	$57.32	$57.32
								$0.00	$0.00	$0.00	$229.28	$229.28	$0.00	$0.00	$0.00	$0.00	$458.56
Kanaha Tsf #B Replacement	M0000687	MDR						0.00	0.00	0.00	44.00	124.00	0.00	0.00	0.00	0.00	168.00
								$0.00	$0.00	$0.00	$1,728.88	$4,728.08	$0.00	$0.00	$0.00	$0.00	$6,456.96
Kanaha Tsf #B Replacement	M0000687	MDR	317	MAU	NI	150	Kanaha SS Unit B Tsf Repl-Disp Supv Labor	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	16.00
								$49.99	$49.99	$49.99	$49.99	$49.99	$49.99	$49.99	$49.99	$49.99	$49.99
								$0.00	$0.00	$0.00	$399.92	$399.92	$0.00	$0.00	$0.00	$0.00	$799.84
Kanaha Tsf #B Replacement	M0000687	MDR	317	MAU	NI	150	Kanaha SS Unit B Tsf Repl-DR Labor (Dispatch)	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	16.00
								$38.72	$38.72	$38.72	$38.72	$38.72	$38.72	$38.72	$38.72	$38.72	$38.72
								$0.00	$0.00	$0.00	$309.76	$309.76	$0.00	$0.00	$0.00	$0.00	$619.52
Kanaha Tsf #B Replacement	M0000687	MDR	317	MAU	NI	150	Kanaha SS Unit B Tsf Repl-DR Labor (Switching)	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	16.00
								$40.88	$40.88	$40.88	$40.88	$40.88	$40.88	$40.88	$40.88	$40.88	$40.88
								$0.00	$0.00	$0.00	$327.04	$327.04	$0.00	$0.00	$0.00	$0.00	$654.08
Kanaha Tsf #B Replacement	M0000687	MDR						0.00	0.00	0.00	24.00	24.00	0.00	0.00	0.00	0.00	48.00
								$0.00	$0.00	$0.00	$1,036.72	$1,036.72	$0.00	$0.00	$0.00	$0.00	$2,073.44
Kanaha Tsf #B Replacement	M0000687	MWS	304	MAU	NI	150	Kanaha SS Unit B Tsf Repl-Staff Engr Labor	16.00	16.00	16.00	16.00	32.00	0.00	0.00	0.00	0.00	96.00
								$30.75	$30.75	$30.75	$30.75	$30.75	$30.75	$30.75	$30.75	$30.75	$30.75
								$492.00	$492.00	$492.00	$492.00	$984.00	$0.00	$0.00	$0.00	$0.00	$2,952.00
Kanaha Tsf #B Replacement	M0000687	MWS						16.00	16.00	16.00	16.00	32.00	0.00	0.00	0.00	0.00	96.00
								$492.00	$492.00	$492.00	$492.00	$984.00	$0.00	$0.00	$0.00	$0.00	$2,952.00
	M0000687							26,071.24	1,071.24	1,071.24	350,339.16	867,473.92	5,404.52	3,903.24	5,087.00	5,087.00	1,085,528.56
								$27,279.62	$2,295.96	$2,312.43	$203,283.81	$503,178.85	$10,416.27	$13,319.03	$18,058.78	$16,173.92	$794,318.68
								$27,279.62	$2,295.96	$2,312.43	$203,283.81	$503,178.85	$10,416.27	$13,319.03	$18,058.78	$16,173.92	$794,318.68

794,318.68
43,733.00
17,472.44
2,502.00
2,265.30
9,551.20
43,882.60
17,130.12
3,026.40
3,470.80
9,551.00
011
793,769.44

PEDERSEN POWER PRODUCTS
The Sign of Quality
3900 Dahlman Avenue • Omaha, Nebraska 68107-1594 • Telephone (402) 734-3900
FAX (402) 734-0622

December 5, 2006

Maui Electric Company LTD
210 W. Kamehameha Avenue
Kahului, HI 96732
Attention: Ms. Kathy Haake

Subject: P.P.P. Quote 2779
Quotation for 2007 Switchgear Requirements.

Dear Kathy,

We are pleased to submit our quotation per the subject specification, drawings and our Bill of Material.

ITEM	DESCRIPTION	PRICE
1	One (1) Line-up of 15KV Outdoor Non-Walk In Metalclad Switchgear, consisting of three (3) sections, which include one (1) incoming auxiliary section with transformer throat connection and two (2) 1200A Feeder Breaker sections.	**$152,980.00**

Comments/clarifications:

Prices quoted do not include the following items:

1. Sales or Use Tax.
2. Relay Coordination Study or Programming.
3. Cable Lugs.
4. Freight.
5. Unloading, Installation, Field Service.

Quote includes changes requested in David Park's e-mail dated 11/29/06.

Price quoted includes stainless steel construction, with an electro-stacically applied Polyester Powder Paint finish.

Prices quoted include all drawings required by the pertinent specification for all parts integral to this equipment. Drawings will be prepared using AutoCAD 2004.

This material will be manufactured, designed and tested in our Omaha, Nebraska facility, utilizing our normal labor force.

Manufacturer's standard production tests per ANSI shall be performed prior to shipment.

Should Installation or Field Service be required, our Alliance rates of $850/ day, plus $1900 per trip (Installation), and $950/ day plus $1900 per trip (Field Testing/Training) would apply. This does not include crane rental for off-loading.

Prices quoted do not include freight, as it is standard practice for us to prepay the freight and add to invoice for MECO orders.

This quotation is subject to the Terms and Condition of the Maui Electric Company LTD provided, and the following:

WARRANTY:.....	18 Months from Shipment, or 12 Months from Start-up, which ever comes first.
DELIVERY:.....	One Unit 8/07. One Unit 9/07.
PAYMENT TERMS:.....	Net 30 Days
F.O.B:.....	Destination, Freight Prepaid and Add.
PRICES:.....	FIRM, through quoted delivery
PRICE VALIDITY:.....	90 Days

Please do not hesitate to contact me should you have any questions or require any additional information.

Sincerely,
Pedersen Power Products
Mark Bandemer
Estimating Manager

cc: Mr. Peter Infranca, P.P.P.

MAUI ELECTRIC COMPANY LTD

Date: 12/05/2006
Time: 10:49:05

Attention: HAAKE,KATHY.
Detailed Quote Report

Quote No 002779-00

Date Quoted 11/30/2006

Job Name 2007 REQUIRMENTS **Description** 15KV OUTDOOR SWITCHGEAR

Part No	Description	Quantity	Manufacturer
3A73950G05 (150VCP-W500)	VCB,VCPW,15KV,1200A,500 MVA	2	
7816C75G02	CP,VCPW,15KV,1200A,41KA, GP,L-B	2	
6510C50G12	MOC,VCPW,5/15KV,5A/5B,TE ST-CON	2	
1A30136G02	ACC,STD BKR,VCPW	1	
691C607G11	YOKE,BKR LIFTING,VCPW,5/15KV	1	
1VW51	HOIST,CHAIN,1/2TON	1	
6526C23G11	JUMPER,BKR TEST,VCPW,5/15KV	1	
6510C49G12	TOC,VCPW,5/15KV,5A/5B	2	
6353C89H10 (SCV-D)	CT,SCV-D,600/5SR,C200	6	
6353C89H12 (SCV-D)	CT,SCV-D,1000/5SR,C200	3	
765X021048 (JVM-5)	PT,JVM-5,7200/120V,1 FU,110KV BIL	3	
10519	CPT,7200:120/240V,15KVA,95 KV BIL	1	
677C453G09	FU,CUR LIMITING,15.5KV,3E	1	
TQD22100WL	MCCB,2P,100A,240VAC,W/LU GS	1	
03516Y335526X1	PHASE/OVERCURRENT REL	3	
7805C (LOR)	RLY,LOCKOUT,48VDC,5 DECK	1	
508A207G02 (W-2)	BREAKER CONTROL SWITCH	2	
508A244G01 (W-2)	CIRCUIT BREAKER CONTROL SWITCH	2	
9306LP (SER.31TR)	RELAY TAGGING SWITCH	1	
9303NR (SER.31LSR)	LATCHING SWITCH RELAY	2	
9304LJ (SER.31LSR)	TAGGING RELAY	2	
293B254A18 (SG)	AUXILIARY RELAY	2	
MGF70N00MMMMMM	AUXILIARY RELAY	1	
RPLH16-01-04-02	IL,LED,48VDC,G	2	
RPLH16-01-02-02	IL,LED,48VDC,A	1	
632A305A (RAW-1D)	AUXILIARY RELAY	3	
129A501G01 (FT-1)	TS,10P,0C/10P	1	
9676A53G01	TS,10P,0C/10P,DIFF COLORED HANDLES	1	
129A514G01 (FT-1)	TS,10P,6C/4P	5	
386C42G45	TS,10P,0C/10P,DIFF COLORED HANDLES	2	
9676A87G01	TS,10P,0C/10P,DIFF COLORED HANDLES	2	
129A520G01 (FT-1)	TS,10P,4C/6P	2	

MAUI ELECTRIC COMPANY LTD

Date: 12/05/2006
Time: 10:49:05

Attention: HAAKE,KATHY
Detailed Quote Report

Quote No 002779-00

Date Quoted 11/30/2006

Job Name 2007 REQUIRMENTS **Description** 15KV OUTDOOR SWITCHGEAR

201-A (MTS)	TS,1P,R HNDL	3
202-B (MTS)	TS,2P,OC/2P,SM,FC,R HNDL	5
M25008	TB,SL,8P,30A,600V -NS	1
MTWIE1B-29001N00	MULTICOMM RT METER	1
ZQ3F02300	POWER METER	1
ORION5R-A10-B1-48V	ORION5R-A10-B1-48V-01-04-42-46-83	1
5530 T	DATANODE	1
5502 (INFONODE)	POWER QUALITY MONITOR	1
V250LA40B	VARISTOR	2
DCE304	CONVERTOR	1
TYPE AQ AC PANELBOARD	ACP,1PH,3W,10KA	1
TEY120	MCCB,1P,20A,277VAC/125VDC,BOLT-ON	3
TEY220	MCCB,2P,20A,125/250VDC,BOLT-ON	1
TEY3B	BASE,MCCB MTG	2
CF3022-N-SN	CON,FLEX,700A -NS	7
C272A-5	CABLE,COM,5FT	1
C272A-15	CABLE,COM,15FT	1
C272A-24	CABLE,COM,24FT	1
CABLE 1	COMMUNICATION CABLE	1
NETWORK CROSSOVER	NETWORK CROSSOVER CABLE	1
C282-12	COMMUNICATION CABLE	1
S-5168	DESICANT,BAG,DRI II	6
HLM-15RO	VELCRO TIE WRAP	7
NAS34-2N	CON,TERM,1/0-500,1/2RING STUD,2H,UN	2
1039-U19	HINGE,SS,AISLESS OUTSIDE DOOR	16
HLT2I-X0	VELCRO LOOP TIE	4
INSTRUCTION MANUAL	MANUALS	6
910015155	STL,ASSY,CUB,5-27KV	3
930015158	STL,ASSY,SKIN,36"X6"BASE, AISLELESS	3

— RUSH —

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: Kihei Unit Sub #4 Addition

Project Number: M0000809
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-11

Commitment Date: 2006-11

Primary Corporate Goal: Cap Exp

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$0	$4	$1,159	$0	$0	$0	$0	$1,163

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	33	24	117

Purpose/Objectives:

Distribution Load Forecast and Distribution Contingency Switching Model has identified this project as necessary to satisfy MECO's Distribution Planning Criteria.

Include major loads identified in the load forecast.

Maui High Performance Computing Center (1667 kVA), Ke Alii Kai II (424 KVA), Ke Alii Villas Subdivision (757 kVA), MEDB (400 kVA), Hope Chapel (436 kVA), Aloha Village (676 kVA), Maui Highlands Golf View Estates (244kVA), Walaka Maui Condo (105 kVA), Liloa Village (342kVA), Kalama Heights Condo (615kVA), Maui Highlands Golf View Estates (244kVA), Cove Beach Villas (214 kVA), Kihei Commercial Condo (820kVA), Piilani Mauka Plaza (235 kVA), Kamali'I Alayna Subdivision and Well Pump (313 kVA)

Scope Description:

Install:
New Unit Sub (10/12.5MVA Transformer and Switchgear) and related structures
Motor Operated Switch and related structures
69kV Bus and related structures
SCADA Equipment
Two new 12.47kV underground feeders.

This project is currently estimated at a total cost of $1,162,544.51 with $3,633.66 in 2006 and $1,158,910.85 in 2007. The 2007 approved budget is $1,145,535 for this project. The additional $13,375.85 in 2007 will be funded by completed project M0000770 Kamali'i Alayna Subd which has a 2007 approved budget of $137,570. The unbudgeted $3,633.66 in 2006 will be funded by deferred project M0000353 PMCo Distr Line Esmt.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

See attached pillar estimate file.

2006 costs are unbudgeted. Due to increased lead times for major equipment, project start is being pulled back to ensure timely completion of installation in 2007.

Justification:

Distribution Load Forecast and Distribution Contingency Switching Model has identified this project as necessary to satisfy MECO's Distribution Planning Criteria.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Estimated completion date: November 2007.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: [signature] **Phone/Ext #:** 3202

Originator's Name: FOshiro

Responsible Estimator: Fred Oshiro
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: Fred Oshiro

Date: 10/25/2006

Required Approvals to Initialize a Project:

N/A
Responsible Manager **Date**

N/A
MECO President **Date**

Required Approvals to Authorize a Project:

[signature] 11/3/06
Responsible Manager **Date**

N/A
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

[signature]
MECO Accounting Manager **Date**

[signature] 11/8/06
MECO President **Date**

*Project #	Project	*R...	*Ac...	*Lo...	*In...	*E...	*Labor Class #	Line Item	FY06	FY07	Total $ Year Cost
M0000809	Kihei Unit Sub #4 Addi .	*	*	*	*	401		Stores OHM0000809	0 00	464,000.00	$54,009 60
									$0 00000	$0.11640	
									$0.00	$54,009 60	
M0000809	Kihei Unit Sub #4 Addi ..	*	*	*	*	404		En Del OHM0000809	36.00	1,998 00	$51,978.06
									$35 80	$25.37	
									$1,288 80	$50,689 26	
M0000809	Kihei Unit Sub #4 Addi .	*	*	*	*	406		Corp Adm OH M0000809	36.00	2,494 00	$9,808 48
									$3 66	$3.88	
									$131.76	$9,676.72	
M0000809	Kihei Unit Sub #4 Addi...	*	*	*	*	407		Cust Install OHM0000809	0 00	60 00	$1,885.80
									$0 00	$31.43	
									$0 00	$1,885 80	
M0000809	Kihei Unit Sub #4 Addi...	*	*	*	*	421		NPW OH M0000809	36 00	2,494 00	$11,287.04
									$4 55	$4.48	
									$163 80	$11,123 24	
M0000809	Kihei Unit Sub #4 Addi...	*	*	*	*	422		Empl Benefits OHM0000809	36 00	2,494 00	$30,877.00
									$11 12	$12 22	
									$400.32	$30,476.68	
M0000809	Kihei Unit Sub #4 Addi ..	*	*	*	*	423		PR Tax OH M0000809	1,518.12	92,496 40	$8,261.30
									$0 08620	$0 08790	
									$130 88	$8,130 43	
M0000809	Kihei Unit Sub #4 Addi ..	*	*	*	*	430		AFUDC nonbkt by Component Proj..	0 00	11 00	$20,862.72
									$0 00	$1,878 43	
									$0 00	$20,862.72	
M0000809	Kihei Unit Sub #4 Addi...	MDA	417	MAU	NI	150	DASENG	T&D Staff Engineer	0 00	160 00	$4,885.20
									$0 00	$27.14	
									$0 00	$4,885.20	
M0000809	Kihei Unit Sub #4 Addi...	MDC	417	MAU	NI	201		Outside Materials-SCADA	0 00	10,000.00	$10 000.00
									$0	$1	
									$0.00	$10,000.00	
M0000809	Kihei Unit Sub #4 Addi...	MDC	419	MAU	NI	150	DCCREW	Comm CREW	0.00	280 00	$10,281 60
									$0 00	$36.72	
									$0 00	$10,281.60	
M0000809	Kihei Unit Sub #4 Addi...	MDC	419	MAU	NI	150	DCSUPV	Comm SUPV	0 00	16 00	$634 56
									$0.00	$39 66	
									$0.00	$634 56	
M0000809	Kihei Unit Sub #4 Addi..	MDE	417	MAU	NI	150	DECREW	Maint	0 00	850 00	$33,983.00
									$0 00	$39 98	
									$0 00	$33,983 00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	150	DESUPV	Maint. Supv.	0 00	64 00	$2,255 36
									$0 00	$35 24	
									$0 00	$2,255.36	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Batteries (48 VDC)	0 00	4 000 00	$4,000 00
									$0	$1	
									$0.00	$4,000 00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Battery enclosure	0 00	8,000 00	$8,000.00
									$0	$1	
									$0 00	$8,000 00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Misc Electrical	0 00	20,000.00	$20,000.00
									$0	$1	
									$0.00	$20,000.00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Structural Steel	0.00	15,000 00	$15 000 00
									$0	$1	
									$0 00	$15,000 00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Switchgear	0.00	175,000.00	$175,000 00
									$0	$1	
									$0.00	$175,000.00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Switchgear Use ..	0 00	7,000 00	$7,000 00
									$0	$1	
									$0.00	$7,000 00	
M0000809	Kihei Unit Sub #4 Addi ..	MDE	417	MAU	NI	201		Outside Materials-Switch and Motor ..	0 00	15,000 00	$15,000 00
									$0	$1	
									$0 00	$15,000.00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Outside Materials-Transformer	0 00	200,000.00	$200,000 00
									$0	$1	
									$0 00	$200,000 00	
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201		Stock Material	0 00	10,000 00	$10,000.00
									$0	$1	
									$0 00	$10,000.00	

*Project #	Project	*R...	*Ac...	*Lo...	*In...	*E...	*Labor Class #	Line item	FY06	FY07	Total 5 Year Cost
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201M		Outside Materials-Transformer	0.00 $0 $0.00	180,000.00 $1 $180,000.00	$180,000.00
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	201M		Outside Materials-Transformer Us...	0.00 $0 $0.00	17,000.00 $1 $17,000.00	$17,000.00
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	501		Outside Materials-Transformer Ship...	0.00 $0 $0.00	32,000.00 $1 $32,000.00	$32,000.00
M0000809	Kihei Unit Sub #4 Addi...	MDE	417	MAU	NI	505		Outside Services - Crane	0.00 $0.000 $0.00	10,000.00 $1.064 $10,640.00	$10,640.00
M0000809	Kihei Unit Sub #4 Addi...	MDE	418	MAU	NI	505		Outside Services - Constr	0.00 $0.000 $0.00	80,000.00 $1.064 $85,120.00	$85,120.00
M0000809	Kihei Unit Sub #4 Addi...	MDK	417	MAU	NI	150	DKCREW	Construction Crew	0.00 $0.00 $0.00	380.00 $37.83 $14,375.40	$14,375.40
M0000809	Kihei Unit Sub #4 Addi...	MDK	417	MAU	NI	150	DKSUPV	Const. Supv.	0.00 $0.00 $0.00	40.00 $54.45 $2,178.00	$2,178.00
M0000809	Kihei Unit Sub #4 Addi...	MDM	417	MAU	NI	150	DMCREW	Meter Elec	0.00 $0.00 $0.00	48.00 $34.18 $1,640.64	$1,640.64
M0000809	Kihei Unit Sub #4 Addi...	MDR	407	MAU	NI	150	DRSENG	SCADA Engineer	0.00 $0.00 $0.00	104.00 $22.17 $2,305.68	$2,305.68
M0000809	Kihei Unit Sub #4 Addi...	MDR	417	MAU	NI	150	DRCREW	Troubleman Labor	0.00 $0.00 $0.00	20.00 $41.26 $825.20	$825.20
M0000809	Kihei Unit Sub #4 Addi...	MDR	417	MAU	NI	150	DRDISP	Dispatcher	0.00 $0.00 $0.00	16.00 $39.07 $625.12	$625.12
M0000809	Kihei Unit Sub #4 Addi...	MDR	417	MAU	NI	150	DRDSUP	Dispatcher Supv.	0.00 $0.00 $0.00	16.00 $45.88 $734.08	$734.08
M0000809	Kihei Unit Sub #4 Addi...	MDR	417	MAU	NI	150	DRFSUP	Troubleman Supv.	0.00 $0.00 $0.00	16.00 $39.89 $638.24	$638.24
M0000809	Kihei Unit Sub #4 Addi...	MWL	928	MAU	NI	150	WLTC	Land Labor	0.00 $0.00 $0.00	16.00 $31.42 $502.72	$502.72
M0000809	Kihei Unit Sub #4 Addi...	MWL	928	MAU	NI	501		Land/Permitting Cost	0.00 $0 $0.00	10,000.00 $1 $10,000.00	$10,000.00
M0000809	Kihei Unit Sub #4 Addi...	MWP	405	MAU	NI	150	WPDENR	Design Engineer	0.00 $0.00 $0.00	60.00 $29.17 $1,750.20	$1,750.20
M0000809	Kihei Unit Sub #4 Addi...	MWP	405	MAU	NI	150	WPSUPV	Dist. Engineer Supv.	0.00 $0.00 $0.00	16.00 $40.62 $649.92	$649.92
M0000809	Kihei Unit Sub #4 Addi...	MWS	405	MAU	NI	150	WSSENG	Staff Engineer	0.00 $0.00 $0.00	64.00 $30.75 $1,968.00	$1,968.00
M0000809	Kihei Unit Sub #4 Addi...	MWS	405	MAU	NI	150	WSSENL	Lead Engineer	36.00 $42.17 $1,518.12	228.00 $42.11 $9,601.08	$11,119.20
M0000809	Kihei Unit Sub #4 Addi...	MWS	405	MAU	NI	150	WSSUPV	Supv Staff Engineer	0.00 $0.00 $0.00	80.00 $33.28 $2,662.40	$2,662.40
M0000809	Kihei Unit Sub #4 Addi...	MWS	405	MAU	NI	506		Outside Engineering	0.00 $0 $0.00	50,000.00 $1 $50,000.00	$50,000.00
M0000809	Kihei Unit Sub #4 Addi...	MWS	405	MAU	NI	550		HECO Protection	0.00 $0 $0.00	15,000.00 $1 $15,000.00	$15,000.00
M0000809	Kihei Unit Sub #4 Addi...	MWS	406	MAU	NI	506		SMA Application	0.00 $0 $0.00	4,000.00 $1 $4,000.00	$4,000.00

*Project #	Project	*R...	*Ac...	*Lo...	*In...	*E...	*Labor Class #	Line item	FY06	FY07	Total 5 Year Cost
M0000809	Kihei Unit Sub #4 Addi...	MWS	417	MAU	NI	505		Relay Test Engineer	0.00	10,000.00	$10,000.00
									$0	$1	
									$0.00	$10,000.00	
M0000809	Kihei Unit Sub #4 Addi...	MWS	417	MAU	NI	550		HECO Relay Testing	0.00	2,000.00	$2,000.00
									$0	$1	
									$0.00	$2,000.00	
									$3,633.66	$1,158,910.85	$1,162,544.51

F 1916.54

1164461.61

—RUSH—

06-240
M0000697

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: Waikapu 69kv Reloc

Plant Addition Date: 2007-12

Project Number: M0000697 /M3500000
(Permanent)

Commitment Date: 2006-12

Primary Corporate Goal: PBR

Stategic Plan Linkage: 2A - Retain Customers
(Primary)

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$16	$65	$1,523	$0	$0	$0	$0	$1,604

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	25	0	12	97

Purpose/Objectives:

Relocate existing 12/69kV pole line in way of private developement (Spencer Homes)

D&O No.22991
Dated 10/30/2006
Docket No. 2006-0157

Scope Description:

Install 28 steel poles ranging in height from 70 to 80 feet tall, 6,680 circuit feet of #556.4 MCM AL 69kV transmission conductors, 6,680 circuit feet of #356.4 MCM AL 69kV static conductor, 6,680 circuit feet of #336.4 MCM AL distribution conductors, #3/0 AAAC neutral conductor and related fixtures, devices, etc.

This project M0000697 is currently estimated at $1,603,861.01 ($64,976.85 in 2006, $1,523,340.54 in 2007 and $15,543.61 in prior years). The approved budget is $1,537,127 for 2006 and $1,527,636 for 2007. Project is expected to be completed by December 2007.

Removals:
1-40ft wood pole (1971) 1-40ft wood pole (1984) 20-65ft wood pole (1971)
1-70ft wood pole (1971) 1-75ft wood pole (1979) 8-anchors (1971), 1-anchor (1974)
54-115kV side mount insulators (1971),3-115kV side mount insulators (1991)
82 suspension insulators (1971),23 suspension insulators (1974), 21 suspension insulators (1984)
19,074 circuit ft of #336.4MCM AL 69kV transmission conductors (1971)
12,716 circuit ft. of #3/0 AAAC static/neutral conductors (1971)
19,074 circuit ft. of #336.4MCM AL 12kV distribution conductors (1971)

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Resource needed:
MDK CREW = 4,200 hours
MDK SUPV = 267 hours
MDR CREW = 117hours
MDR DISP = 114 hours
MWP ENGR = 208
MWP SUPV = 24 hours
MWL LAND = 20 hours
Materials: $563,320; O/S Aina $321,485; O/S Pacific Helicopter = $17,010, Archaeologist = $9842; HECO Eng Svc = $32,000, HECO REGS Svc = $1,621 ESMTS = $750, Appraisal = $13,542.

See attached pillar estimate files and Ellipse Actuals.

Justification:

MECO received a letter from Spencer Homes, Inc., Towne Realty and Maui Lani 100, LLC in which they made a joint request to relocate the portion of our 69kV poles lines to make way for the new Spencer Homes Subdivision and the Waiale Road extension. Existing easement with Wailuku Agribusiness has a one time relocation clause.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

MECO will be replacing the existing transmission wood poles with steel poles which will eliminate anchors wherever possible. The new steel pole line will be rerouted on the new Waiale Road alignment and on Waiko Road. The existing 12kV feed to Apana Recycling facilities will be rerouted to Waiko Road. This would remove the existing 12kV pole line presently in the new partially constructed retention basin for the Kehalani Development Offsite Drainage system.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ● Approval Required ○ Not Required

● Approved, Date of Decision & Order: 2006-12-30 Docket Number: 2006-0157

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Bernadette Johnson **Phone/Ext #:** 2368

Originator's Name: B. Johnson

Responsible Estimator: B. Johnson (Pillar UserID) **Resp. Estimator Dept:** Engineering (Pillar Department Folder)

Project Manager: . Johnson

Date: 12/15/2006

Required Approvals to Initialize a Project:

N/A
Responsible Manager **Date**

N/A
MECO President **Date**

Required Approvals to Authorize a Project:

Neal Sly 12/15/06
Responsible Manager **Date**

N/A
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

12/20/06
MECO Accounting Manager **Date**

Edward L. Reinwald 12/20/06
MECO President **Date**

Atty 12/19/06
ar 12/19/06

W/O REMOVALS

12/15/2006

Project #	Project	*In...	*R...	*Ac...	*Lo...	*E...	*Labor Class #	Line item	FY06	FY07	Total 5 Yea...
M0000697	69kV Reloc Waikapu	*	*	*	*	401		Stores OHM0000697	0.00 $0.00000 $0.00	580,320.00 $0.11610 $67,375.15	$67,375.15
M0000697	69kV Reloc Waikapu	*	*	*	*	404		Ft Del OHM0000697	0.00 $0.00 $0.00	4,451.00 $26.44 $117,684.44	$117,684.44
M0000697	69kV Reloc Waikapu	*	*	*	*	406		Corp Adm OH M0000697	18.00 $3.66 $65.88	4,950.00 $3.57 $16,166.50	$18,232.38
M0000697	69kV Reloc Waikapu	*	*	*	*	437		Cust Install OHM0000697	15.00 $96.60 $1,449.00	208.00 $32.13 $6,683.04	$8,132.04
M0000697	69kV Reloc Waikapu	*	*	*	*	421		NPW OH M0000697	18.00 $4.55 $81.93	4,950.00 $4.55 $22,522.50	$22,604.40
M0000697	69kV Reloc Waikapu	*	*	*	*	422		Empl Benefits OHM0000697	18.00 $11.12 $200.16	4,950.00 $12.24 $60,588.00	$60,788.16
M0000697	69kV Reloc Waikapu	*	*	*	*	423		PR Tax OH M0000697	719.07 $0.08620 $61.98	189,861.00 $0.08790 $16,686.78	$16,790.77
M0000697	69kV Reloc Waikapu	*	*	*	*	430		AFUDC nonpkt by Component ProjectM0000C...	1.00 $18.51 $18.51	12.00 $3,929.22 $47,150.65	$47,169.16
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	150	DKCREW	Waikapu 69/12kV Reloc-DK Crew - Transmiss...	0.00 $0.00 $0.00	2,100.00 $37.49 $78,729.00	$78,729.00
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	150	DKSUPV	Waikapu 69/12kV Reloc-DK SUPV - Transmis...	0.00 $0.00 $0.00	135.00 $57.32 $7,738.20	$7,738.20
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	201		Waikapu 69/12kV Reloc-O/S Materials Steel ...	0.00 $0.000 $0.00	425,000.00 $1.040 $442,000.00	$442,000.00
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	505		Waikapu 69/12kV Reloc-O/S Constr-Aina (Tra...	0.00 $0.000 $0.00	321,485.00 $1.040 $334,344.40	$334,344.40
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	505		Waikapu 69/12kV Reloc-O/S Constr-Pacific H...	0.00 $0.000 $0.00	17,010.00 $1.040 $17,690.40	$17,690.40
M0000697	69kV Reloc Waikapu	NI	MDK	415	MAU	150	DKCREW	Waikapu 69/12kV Reloc--DK Crew - Dist	0.00 $0.00 $0.00	2,100.00 $37.49 $78,729.00	$78,729.00
M0000697	69kV Reloc Waikapu	NI	MDK	415	MAU	150	DKSUPV	Waikapu 69/12kV Reloc--DK SUPV - Dist	0.00 $0.00 $0.00	132.00 $57.32 $7,566.24	$7,566.24
M0000697	69kV Reloc Waikapu	NI	MDK	415	MAU	201		Waikapu 69/12kV Reloc--Stock Materials	0.00 $0.000 $0.00	133,000.00 $1.040 $138,320.00	$138,320.00
M0000697	69kV Reloc Waikapu	NI	MDR	315	MAU	150	DRCREW	Waikapu 69/12kV Reloc--DR Crew - Transmis ...	0.00 $0.00 $0.00	117.00 $40.88 $4,782.96	$4,782.96
M0000697	69kV Reloc Waikapu	NI	MDR	315	MAU	150	DRDISP	Waikapu 69/12kV Reloc--DR DISP - Transmis...	0.00 $0.00 $0.00	114.00 $38.72 $4,414.08	$4,414.08

W/REMOVA

12/15/2006

*Project #	Project	*In...	*R...	*Ac...	*Lo...	*E...	*Labor Class #	Line item	FY06	FY07	Total 5 Yea...
M0000697	69kV Reloc Waikapu	*	*	*	*	401		Stores OHM0000697	0.00 $0.00000 $0.00	580,320.00 $0.11610 $67,375.15	$67,375.15
M0000697	69kV Reloc Waikapu	*	*	*	*	404		En Del OHM0000697	0.00 $0.00 $0.00	4,930.00 $26.44 $130,349.20	$130,349.20
M0000697	69kV Reloc Waikapu	*	*	*	*	406		Corp Adm OH M0000697	18.00 $3.66 $65.88	5,476.00 $3.67 $20,096.92	$20,162.80
M0000697	69kV Reloc Waikapu	*	*	*	*	407		Cust Install OHM0000697	15.00 $96.60 $1,449.00	208.00 $32.13 $6,683.04	$8,132.04
M0000697	69kV Reloc Waikapu	*	*	*	*	421		NPW OH M0000697	18.00 $4.55 $81.90	5,476.00 $4.55 $24,915.80	$24,997.70
M0000697	69kV Reloc Waikapu	*	*	*	*	422		Empl Benefits OHM0000697	18.00 $11.12 $200.16	5,476.00 $12.24 $67,026.24	$67,226.40
M0000697	69kV Reloc Waikapu	*	*	*	*	423		PR Tax OH M0000697	719.07 $0.08620 $61.98	210,512.75 $0.08790 $18,504.07	$18,566.05
M0000697	69kV Reloc Waikapu	*	*	*	*	430		AFUDC nonbld by Component ProjectM0000...	1.00 $18.51 $18.51	12.00 $3,929.22 $47,150.65	$47,169.16
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	150	DKCREW	Waikapu 69/12kV Reloc-DK Crew - Transmiss...	0.00 $0.00 $0.00	2,100.00 $37.49 $78,729.00	$78,729.00
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	150	DKSUPV	Waikapu 69/12kV Reloc-DK SUPV - Transmis...	0.00 $0.00 $0.00	135.00 $57.32 $7,738.20	$7,738.20
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	201		Waikapu 69/12kV Reloc-O/S Materials Steel ...	0.00 $0.000 $0.00	425,000.00 $1.040 $442,000.00	$442,000.00
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	505		Waikapu 69/12kV Reloc-O/S Constr-Ana (Tra...	0.00 $0.000 $0.00	321,485.00 $1.040 $334,344.40	$334,344.40
M0000697	69kV Reloc Waikapu	NI	MDK	315	MAU	505		Waikapu 69/12kV Reloc-O/S Constr-Pacific H...	0.00 $0.000 $0.00	17,010.00 $1.040 $17,690.40	$17,690.40
M0000697	69kV Reloc Waikapu	NI	MDK	415	MAU	150	DKCREW	Waikapu 69/12kV Reloc--DK Crew - Dist	0.00 $0.00 $0.00	2,100.00 $37.49 $78,729.00	$78,729.00
M0000697	69kV Reloc Waikapu	NI	MDK	415	MAU	150	DKSUPV	Waikapu 69/12kV Reloc--DK SUPV - Dist	0.00 $0.00 $0.00	132.00 $57.32 $7,566.24	$7,566.24
M0000697	69kV Reloc Waikapu	NI	MDK	415	MAU	201		Waikapu 69/12kV Reloc--Stock Material	0.00 $0.000 $0.00	133,000.00 $1.040 $138,320.00	$138,320.00
M0000697	69kV Reloc Waikapu	NI	MDR	315	MAU	150	DRCREW	Waikapu 69/12kV Reloc--DR Crew - Transmis...	0.00	117.00	$4,782.96

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Items Edit Tools Help

OK | Revert

Work Order: EE002471 Waikapu 69/23/12kV Relocation ENGR

From Period: 01/06 To Period: 12/06

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	AFUDC	E	2468.17		0.00	
2	LABOR	E	15773.95	OR	425.25	
3	OVERHEADS	E	22117.29		0.00	
4						
5						
6						

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Items Edit Tools Help

OK | Revert

Work Order: EE002472 Waikapu 69/23/12kV Relocation LAND

From Period: 01/06 To Period: 12/06

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	AFUDC	E	221.60		0.00	
2	LABOR	E	998.70	OR	30.00	
3	OVERHEADS	E	1544.38		0.00	
4						
5						
6						

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Items Edit Tools Help

OK | Revert

Work Order: EE002704 Waikapu 69/12kV Relocation Eng'g

From Period: 01/06 To Period: 12/06

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	LABOR	E	330.18	OR	12.00	
2	O/S SVCS	E	13541.58		0.00	
3	OTHER	E	5124.08		0.00	
4	OVERHEADS	E	260.42		0.00	
5						
6						

2006 CURRENT YEAR/PRIOR COSTS
$ 62,380.35

PRIOR YEARS COST
GRAND TOTAL: $15,543.67
1,377.27
10,434.48
820.78
144.12
2,767.02

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LT...

File Items Edit Tools Help

OK | Revert

Work Order: EE002471 Waikapu 69/23/12kV Relocation ENGR

From Period: 01/04 To Period: 12/04

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic
1	AFUDC	E	12.94		0.00
2	LABOR	E	516.95	OR	16.00
3	OVERHEADS	E	847.38		0.00

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LT...

File Items Edit Tools Help

OK | Revert

Work Order: EE002471 Waikapu 69/23/12kV Relocation ENGR

From Period: 01/05 To Period: 12/05

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic
1	AFUDC	E	489.19		0.00
2	LABOR	E	4299.03	OR	123.25
3	OVERHEADS	E	5646.26		0.00
4					
5					

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LT...

File Items Edit Tools Help

OK | Revert

Work Order: EE002472 Waikapu 69/23/12kV Relocation LAND

From Period: 01/05 To Period: 12/05

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic
1	AFUDC	E	25.36		0.00
2	LABOR	E	403.27	OR	12.00
3	OVERHEADS	E	392.15		0.00
4					

PRIOR YEARS COST

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LT...

File Items Edit Tools Help

OK | Revert

Work Order: EE002167 SYS 69/12KV RELOC KEHALANI PROJ ENG

From Period: 01/04 To Period: 12/04

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic
1	AFUDC	E	144.12		0.00

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LT...

File Items Edit Tools Help

OK | Revert

Work Order: EE002167 SYS 69/12KV RELOC KEHALANI PROJ ENG

From Period: 01/03 To Period: 12/03

Expense/Revenue:

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic
1	AFUDC	E	77.42		0.00
2	LABOR	E	998.00	OR	31.50
3	OVERHEADS	E	1691.60		0.00
4					

12-94 *
516-95 *
847-58 *
489-19 *
4-299-63 *
5-546-20 *
25-36
405-27 *
392-15 *
144-12 *
77-42 *
998-00 *
1-691-60 *

-5-545-076 *

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of MAUI ELECTRIC COMPANY, LIMITED For Approval to Construct a 69kV Overhead Transmission Line Pursuant To HRS Section 269-27.5 for Project M0000697, Waikapu 69kV Line Relocation, Relocation of an Existing Overhead Transmission System.	DOCKET NO. 2006-0157

DECISION AND ORDER NO. 22991

Filed Oct. 30, 2006

At 11 o'clock A .M.

Karen Higashi

Chief Clerk of the Commission

ATTEST: A True Copy
KAREN HIGASHI
Chief Clerk, Public Utilities
Commission, State of Hawaii.

K. Higashi

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of MAUI ELECTRIC COMPANY, LIMITED For Approval to Construct a 69kV Overhead Transmission Line Pursuant To HRS Section 269-27.5 for Project M0000697, Waikapu 69kV Line Relocation, Relocation of an Existing Overhead Transmission System.	Docket No. 2006-0157 Decision and Order No. 22991

DECISION AND ORDER

By this Decision and Order, the commission approves MAUI ELECTRIC COMPANY, LIMITED's ("MECO") proposal to relocate an existing sixty-nine kilovolt ("69kV") transmission line above the surface of the ground, pursuant to Hawaii Revised Statutes ("HRS") § 269-27.6(a), in connection with Project M0000697, the Waikapu 69kV Line Relocation project, Relocation of an Existing Overhead Transmission System.

I.

Background

MECO is a Hawaii corporation, which was initially organized under the laws of the Territory of Hawaii on or about April 28, 1921. MECO, a public utility as defined by HRS § 269-1, is engaged in the production, purchase, transmission, distribution, and sale of electricity on the island of Maui; the production, transmission, distribution, and sale of electricity

on the island of Molokai; and the production, distribution, and sale of electricity on the island of Lanai in the State of Hawaii.

A.

Application

On June 13, 2006, MECO filed an application seeking commission approval to relocate an existing overhead transmission system above the surface of the ground ("Application"), Project M0000697--the Waikapu 69kV Line Relocation project, Relocation of an Existing Overhead Transmission system (the "Proposed Project"). MECO requested that the commission: (1) conduct a public hearing pursuant to HRS § 269-27.5 regarding its proposal to relocate an existing 69kV transmission line through a residential area under its Proposed Project; and (2) determine, pursuant to HRS § 269-27.6(a), that MECO's proposal to relocate the 69kV transmission line above the surface of the ground is appropriate.[1]

In accordance with HRS § 269-27.5, the commission held a public hearing on August 11, 2006, regarding MECO's proposed construction plans at Lihikai School Cafeteria, 335 S. Papa Avenue, Kahului, Maui, Hawaii, 96732 ("Public Hearing").[2]

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[1]Copies of MECO's Application were served on the DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"), an ex officio party to this docket pursuant to HRS § 269-51 and Hawaii Administrative Rules § 6-61-62. No persons moved to intervene or participate in this proceeding.

[2]During the scheduled Public Hearing, testimonies of MECO, the Consumer Advocate, and one individual (David H. Gleason,

1.

Proposed Project

The Proposed Project was initiated at the request of landowners in the project area (Spencer Homes, Inc. ("Spencer"); Maui Lani; and Kihei Gardens & Landscaping Company, LLP ("Kihei Gardens")) and is being proposed to accommodate construction of new residential units and drainage needs for the Waikapu Gardens Subdivision and the development of future subdivisions in the area. Generally, the Proposed Project involves the relocation of a portion of the existing Waikapu 69kV transmission line (which normally serves the Waikapu and Wailuku areas of Maui) and underbuilt 12kV Waiale Circuit 1266 to a new right-of-way on Waiale Drive, located at Waikapu, Maui.

Work associated with the Proposed Project involves the installation of:

(1) Approximately 28 steel poles, ranging from 70-80 feet in height above ground;

(2) 6,680 circuit feet of 556.5 KCM transmission conductors;

(3) 6,680 feet of 3/0 static line;

(4) 6,680 circuit feet of 336.4 MCM distribution conductors; and

(5) 6,680 feet of #3/0 AAAC neutral conductors.

Partner, Maui Lani 100 LLC ("Maui Lani") who testified in support of the Proposed Project) were received by the commission into the record of this proceeding. The transcript of the Public Hearing was filed with the commission on September 11, 2006.

Upon completion of the new steel pole line (which is designed for wind speeds of 100 miles per hour), the existing Waikapu 69kV transmission and 12kV Waiale Circuit 1266 lines, which are currently installed on wooden poles will be removed (i.e., 24 wooden poles and 6,367 circuit feet of 69kV transmission and 12kV distribution conductors).

MECO's construction plans have been approved by Spencer. Spencer agreed to grant MECO a substitute easement to relocate the 69kV and 12kV lines from the current alignment to the proposed new roadway. Specifically, Spencer agreed to provide MECO with an 80-foot wide roadway easement and a 15-foot wide perpetual easement parallel with the roadway easement. Kihei Gardens also agreed to provide MECO with a 15-foot wide perpetual easement parallel with the remaining portion of the roadway fronting its property.

MECO represents that the Proposed Project satisfies the requirements of HRS § 269-27.6(a). Specifically, MECO contends that the benefits (if any) of placing the 69kV and 12kV lines underground do not outweigh the costs associated with the project. "MECO estimates that it would cost approximately $2.7 million more ($4.4 million versus $1.7 million) to underground the 69kV and 12kV lines than to relocate them overhead."[3] It also states that the exiting overhead alignment would not be feasible for an underground line since the land

[3]See Application at 8.

under the existing easement is being developed for new homes and a drainage retention basin.[4]

Further, MECO represents that the visual impact due to the Proposed Project will not be significantly increased since the existing 69kV and 12kV lines are already constructed overhead in the project area. Moreover, MECO represents that, to the best of its knowledge: (1) there is no governmental public policy requiring the underground placement of the lines; (2) there is no other party willing to pay for the additional costs associated with constructing the lines underground; and (3) it is unaware of any other factors that warrant placement of the lines underground.

The current estimated cost of the Proposed Project is $1,673,000. The relocation of the existing lines is estimated to take approximately three (3) months, with an additional two (2) months to remove the existing poles and lines.

2.

Possible Temporary Work

If the Proposed Project is not completed before the start of Phase 5 of Spencer's construction in the project area, MECO states that Spencer has requested, and will pay for, the installation (and subsequent removal) of temporary wooden poles. The possible temporary work involves the replacement of three

[4]While MECO considered condemnation of the easement, it determined that such action would cost approximately $1.1 million (including legal fees) versus the cost of approximately $400,000 for "in-kind" wood pole line relocation. Id.

(3) of the existing wooden poles within the existing corridor with four (4) new wooden poles to accommodate Spencer's construction. MECO represents that the temporary poles will be the same height as the existing wooden poles and that existing conductors will be attached to the new poles using the same conductor framing found on the existing poles. Thus, MECO asserts that the installation of the temporary poles to accommodate Spencer's construction schedule should not be considered a "new" line.[5]

MECO contends that a commission determination regarding the overhead construction of the temporary poles, as described in the Application, is not required under HRS § 269-27.6(a) nor is a public hearing required under HRS § 269-27.5. Nonetheless, if the commission determines otherwise, MECO requests commission approval of the installation of the temporary poles and a public hearing on the matter during the public hearing on the permanent overhead relocation of the 69kV line.

B.

Consumer Advocate's Position

On September 14, 2006, the Consumer Advocate filed its Statement of Position informing the commission that it does not object to commission approval of the Application ("CA's Statement of Position"). In sum, the Consumer Advocate states that the

[5]The installation of temporary wooden poles is estimated to cost approximately $36,000. The installed temporary poles will be removed upon the completion of the relocation of permanent overhead lines.

relocation of the 69kV line is reasonable since the existing alignment of the line runs directly through the construction site of the Waikapu Gardens Subdivision and the required drainage retention basin for the new subdivision. The Consumer Advocate's position is based on its review of the Proposed Project under the criteria of HRS § 269-27.6(a).

According to the Consumer Advocate, there appears to be "no significant immediate cost benefit to placing the relocated lines underground that would outweigh the additional" costs associated with underground placement of the lines.[6] Among other things, it appears to the Consumer Advocate that the overhead relocation of the lines will not have a significant visual impact in the project area since: (1) MECO's existing facilities are currently located on overhead facilities and the proposed relocation of the lines appears to closely track the existing overhead route; (2) it observed during a site visit that the proposed route of the line is "largely undeveloped land with minimal scenic views"[7]; and (3) the existing 69kV and 12kV lines are currently attached to wooden poles that are approximately 60-70 feet tall.

The Consumer Advocate also states that there is no governmental mandate requiring the underground placement of the 69kV line. The Consumer Advocate recognizes that MECO, as the grantee, is responsible for the relocation cost of the lines under the easement agreement with the grantors. Additionally,

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[6] See CA's Statement of Position at 8.

[7] Id. at 6.

the Consumer Advocate states that it believes that there is no governmental agency or any other party willing to contribute to the cost to underground the lines. The Consumer Advocate notes that no testimonies were presented or written statements received at the Public Hearing that raised concerns regarding the proposed overhead relocation of the 69kV line and that it is unaware of any other relevant factors related to the instant application aside from the reasonableness of the relocation of the lines by MECO.

Although not relevant to the Application, the Consumer Advocate notes that the cost of the Proposed Project, in general, does not appear to vary significantly when compared to other similar projects; however, it does recognize that the projected costs are estimates. Thus, the Consumer Advocate reserves the right to review the final costs associated with the Proposed Project in MECO's rate proceeding following completion of the Proposed Project.

II.

Discussion

HRS § 269-27.6(a) titled "Construction of high-voltage electric transmission lines; overhead or underground construction" states:

> Notwithstanding any law to the contrary, whenever a public utility applies to the public utilities commission for approval to place, construct, erect, or otherwise build a new forty-six kilovolt or greater high voltage electric transmission system, either above or below the surface of the ground, the public utilities commission shall determine whether the electric transmission system shall be placed,

> constructed, erected, or built above or below the surface of the ground; provided that in its determination, the public utilities commission shall consider:
>
> (1) Whether a benefit exists that outweighs the costs of placing the electric transmission system underground;
>
> (2) Whether there is a governmental public policy requiring the electric transmission system to be placed, constructed, erected, or built underground, and the governmental agency establishing the policy commits funds for the additional costs of undergrounding;
>
> (3) Whether any governmental agency or other parties are willing to pay for the additional costs of undergrounding;
>
> (4) The recommendation of the division of consumer advocacy of the department of commerce and consumer affairs, which shall be based on an evaluation of the factors set forth under this subsection; and
>
> (5) Any other relevant factors.

HRS § 269-27.6(a).

A.

HRS § 269-27.6(a) Analysis

First, under HRS § 269-27.6(a)(1), the commission finds that no benefit exists that outweighs the costs associated with constructing the lines underground. The cost differential to place the lines underground as opposed to overhead construction of the lines is projected to be approximately $2.7 million (i.e., $4.4 million less $1.7 million). As the Consumer Advocate indicated, the project area is basically undeveloped with minimal scenic views that would be obstructed by the relocation of the

existing overhead lines to overhead facilities.[8] MECO's existing facilities are currently located above ground, and the proposed relocation of the 69kV and 12kV lines will closely be aligned with the current route of the existing overhead facilities. Additionally, any presumed reduction of maintenance expenses resulting from underground placement of the lines would be minimal, if any, since MECO plans to use steel poles in the project area which: (1) are designed for wind speeds of 100 miles per hour[9]; (2) have a projected life span of approximately double that of wooden poles[10]; and (3) would eliminate termite problems.[11] Further, the commission received no public comments prior to, during, or after the Public Hearing regarding the benefits of placing the lines underground. Accordingly, there does not appear to be a benefit that outweighs the additional costs of placing the 69kV and 12kV lines of the Proposed Project underground.

Second, under HRS § 269-27.6(a)(2), the commission is unaware of any governmental policies requiring the underground placement of the 69kV line. As noted by the Consumer Advocate, there have been State legislative efforts to study the feasibility of requiring underground placement of all utility

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[8] Id.

[9] See Application at 4.

[10] See Letter from Edward L. Reinhardt, President of MECO, to the Consumer Advocate responding to the Consumer Advocate's informal information requests, Exhibit A at 1 (September 12, 2006).

[11] Id.

facilities, but none of the recommendations have resulted in a legislative mandate to underground all electric transmission lines.

Third, under HRS § 269-27.6(a)(3), the commission is unaware of any governmental agency or any other party willing to pay for the additional costs of placing the lines underground. In a letter dated May 16, 2006, the County of Maui ("County") confirmed its position that the underground placement of the utility lines in the project area is cost prohibitive and that the County's budget does not allow it the flexibility to pay for undergrounding the lines in the project area.[12] In addition, the landowners in the project area (Spencer, Maui Lani, and Kihei Gardens) have informed MECO that they will not pay for converting the transmission lines in the project area into an underground system.[13]

Fourth, under HRS § 269-27.6(a)(4), the commission recognizes that the Consumer Advocate, after reviewing the Proposed Project under HRS § 269-27.6(a), stated that it "does not object to the relocation of the 69kV lines to the proposed overhead facilities."[14]

Finally, under HRS § 269-27.6(a)(5), the commission notes that the underground alternative also appears to be cost prohibitive, in this case, since over 50% of the homes that Spencer is constructing in the new subdivision will be sold as

[12] Id. at Exhibit B.

[13] See Application, Exhibits III, IV, and V.

[14] See CA's Statement of Position at 11.

affordable housing pursuant to Spencer's agreements with the County and the State of Hawaii.[15]

Based on the foregoing, the commission concludes that the overhead construction of the lines in association with the Proposed Project, in the manner set forth in the Application, should be approved.

B.

Possible Temporary Work

If the Proposed Project is not completed before the start of Spencer's construction in the project area, Spencer has requested, and will pay for, the installation (and subsequent removal) of temporary wooden poles. MECO contends that a commission determination regarding the overhead construction of the temporary poles is not required under HRS § 269-27.6(a) nor is a public hearing required under HRS § 269-27.5.

Having reviewed MECO's representations, the commission finds that the temporary installation proposed by MECO does not trigger the public hearing requirement of HRS § 269-27.5[16] nor

[15] See Application, Exhibit III.

[16] HRS § 269-27.5 (Construction of high-voltage electric transmission lines; hearing) states the following:

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

analysis under HRS 269-27.6(a) since both statutes apply to the construction of "new" transmission lines. The installation of the temporary lines, as described in the Application, does not appear to constitute a "new" transmission system under the particular facts since: (1) it involves the replacement of three (3) existing wooden poles with four (4) new ones within the same existing corridor; (2) the replacement poles will be the same height as the existing poles; and (3) the existing conductor will be attached to the replacement poles using the same conductor framing found on the existing poles.

Based on the above, the commission concludes that the potential installation of the temporary poles, as contemplated in the Application, does not trigger the HRS § 269-27.5 public hearing requirement or analysis under HRS 269-27.6(a) in this particular instance.

III.

Orders

THE COMMISSION ORDERS:

1. The overhead construction of the 69kV transmission line in association with the Proposed Project, in the manner set forth in the Application, is approved, pursuant to HRS § 269-27.6(a).

---

provided in section 269-16 for notice of public hearings.

HRS § 269-27.5 (emphasis added).

2. This docket is closed, unless ordered otherwise by the commission.

DONE at Honolulu, Hawaii OCT 30 2006.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By _____
Carlito P. Caliboso, Chalirman

By _____
John E. Cole, Commissioner

APPROVED AS TO FORM:

_____
Ji Sook Kim
Commission Counsel

2006-0157.en

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 22991 upon the following parties, by causing a copy hereof to be mailed, postage prepaid, and properly addressed to each such party.

CATHERINE P. AWAKUNI
EXECUTIVE DIRECTOR
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
DIVISION OF CONSUMER ADVOCACY
P. O. Box 541
Honolulu, HI 96809

EDWARD REINHARDT
PRESIDENT
MAUI ELECTRIC COMPANY, LIMITED
P.O. Box 398
Kahului, HI 96733-6898

DEAN MATSUURA
DIRECTOR
REGULATORY AFFAIRS
HAWAIIAN ELECTRIC COMPANY, INC.
P.O. Box 2750
Honolulu, HI 96840-0001

Karen Higashi

Karen Higashi

DATED: OCT 30 2006

07-052 (GK)
M8000000

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: UG SVCS & EXTENSIONS

Plant Addition Date: -

Project Number: M8000000
(Permanent)

Commitment Date: -

Primary Corporate Goal: Res Cust-Satisf

Stategic Plan Linkage: 2B - Increase Electric Sales
(Primary)

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$3,480	$4,073	$4,131	$4,214	$4,274	$0	$20,172

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	-15	0	33	0	63

Purpose/Objectives:

Install minor underground services and line extensions for new customers.

Scope Description:

Install minor underground services and line extensions for new customers.

The 2007 approved BUDGET is $3,480,094.45.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Justification:

Funds required for installation of minor underground facilities for new customers requiring electrical service.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Address the community concern regarding environmental aethestics. Prevents the loss of large new customers. Promotes increased customer satisfaction.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Gregory Kauhi for **Phone/Ext #:** 2364

Originator's Name: Greg Kauhi

Responsible Estimator: Greg Kauhi
(Pillar UserID)

Resp. Estimator Dept: Customer Installations
(Pillar Department Folder)

Project Manager: Greg Kauhi

Date: 01/31/2007

Required Approvals to Initialize a Project:

N/A
Responsible Manager **Date**

N/A
MECO President **Date**

Required Approvals to Authorize a Project:

Neal Shy 2/2/07
Responsible Manager **Date**

N/A
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

2/13/07
MECO Accounting Manager **Date**

Robert I. Rickett 2/13/07
MECO President **Date**

rec 2/6/07
2/12/07
cm 2/10/07

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	Expense Category	Line Item	FY07
M8000000	UNDERGROUND SERVIC	*	*	*	*	401	Overheads	Stores OHM8000000	$60 466.51
M8000000	UNDERGROUND SERVIC	*	*	*	*	404	Overheads	Er Del OHM8000000	$484 871.44
M8000000	UNDERGROUND SERVIC	*	*	*	*	406	Overheads	Corp Adm OH M8000000	$132 354.55
0000	UNDERGROUND SERVIC	*	*	*	*	407	Overheads	Cust Instal OHM8000000	$403 056.84
00000	UNDERGROUND SERVIC	*	*	*	*	421	Overheads	NPW OH M8000000	$152 139.52
M8000000	UNDERGROUND SERVIC	*	*	*	*	422	Overheads	Empl Benefits OHM8000000	$416 848.64
M8000000	UNDERGROUND SERVIC	*	*	*	*	423	Overheads	PR Tax OH M8000000	$106 014.38
M8000000	UNDERGROUND SERVIC	*	*	*	*	430	AFUDC	AFUDC-Bkt MM8000000	$61 701.98
M8000000	UNDERGROUND SERVIC	MDE	416	MAU	NI	150	Labor	DE CREW	$2 878.56
M8000000	UNDERGROUND SERVIC	MDE	441	MAU	NI	150	Labor	DE CREW	$3 838.08
M8000000	UNDERGROUND SERVIC	MDE	446	MAU	NI	150	Labor	DE CREW	$2 398.80
M8000000	UNDERGROUND SERVIC	MDK	404	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	416	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	416	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	416	MAU	NI	150	Labor	DK SUPV	$7 840.80
M8000000	UNDERGROUND SERVIC	MDK	416	MAU	NI	201	Materials	Stock Matl	$158 292.51
M8000000	UNDERGROUND SERVIC	MDK	426	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	440	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	441	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	441	MAU	NI	150	Labor	DK CREW	$68 094.00
M8000000	UNDERGROUND SERVIC	MDK	441	MAU	NI	150	Labor	DK SUPV	$7 840.80
M8000000	UNDERGROUND SERVIC	MDK	441	MAU	NI	201	Materials	O/S Matl	$654.00
M8000000	UNDERGROUND SERVIC	MDK	441	MAU	NI	505	Outside Svcs	O/S Construction (Ama)	$1 200.00
M8000000	UNDERGROUND SERVIC	MDK	443	MAL	NI	150	Labor	DK CREW	$37 237.60
M8000000	UNDERGROUND SERVIC	MDK	443	MAL	NI	201	Materials	O/S Matl	$1 308.00
M8000000	UNDERGROUND SERVIC	MDK	443	MAL	NI	522	Other	Interisland Travel	$200.00
M8000000	UNDERGROUND SERVIC	MDK	443	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDK	443	MAU	NI	150	Labor	DK SUPV	$7 840.80
M8000000	UNDERGROUND SERVIC	MDK	443	MAU	NI	201	Materials	Stock Matl	$152 185.80
M8000000	UNDERGROUND SERVIC	MDK	446	MAU	NI	150	Labor	DK CREW	$45 396.00
M8000000	UNDERGROUND SERVIC	MDL	441	MAL	NI	150	Labor	DL CREW	$1 938.80
M8000000	UNDERGROUND SERVIC	MDL	443	MAL	NI	150	Labor	DL CREW	$45 353.40
M8000000	UNDERGROUND SERVIC	MDM	404	MAU	NI	150	Labor	DM CREW	$3 281.28
M8000000	UNDERGROUND SERVIC	MDM	416	MAU	NI	150	Labor	DM CREW	$8 203.20
M8000000	UNDERGROUND SERVIC	MDM	441	MAU	NI	150	Labor	DM CREW	$8 203.20
M8000000	UNDERGROUND SERVIC	MDM	443	MAU	NI	150	Labor	DM CREW	$8 203.20
M8000000	UNDERGROUND SERVIC	MDR	416	MAU	NI	150	Labor	DR CREW	$4 951.20
M8000000	UNDERGROUND SERVIC	MDR	416	MAU	NI	150	Labor	DR DISP	$937.68
M8000000	UNDERGROUND SERVIC	MDR	416	MAU	NI	150	Labor	DR DSUP	$2 752.80
M8000000	UNDERGROUND SERVIC	MDR	426	MAU	NI	150	Labor	DR CREW	$4,951.20
M8000000	UNDERGROUND SERVIC	MDR	441	MAU	NI	150	Labor	DR CREW	$99 024.00
M8000000	UNDERGROUND SERVIC	MDR	441	MAU	NI	150	Labor	DR DISP	$2 344.20
M8000000	UNDERGROUND SERVIC	MDR	441	MAU	NI	150	Labor	DR DSUP	$2 752.80
M8000000	UNDERGROUND SERVIC	MDR	441	MAU	NI	201	Materials	Stock Matl	$1 090.00
M8000000	UNDERGROUND SERVIC	MDR	441	MAU	NI	505	Outside Svcs	O/S Construction (Ama)	$600.00
M8000000	UNDERGROUND SERVIC	MDR	443	MAU	NI	150	Labor	DR CREW	$14 853.60
M8000000	UNDERGROUND SERVIC	MDR	443	MAU	NI	150	Labor	DR DISP	$3 750.72
M8000000	UNDERGROUND SERVIC	MDR	443	MAU	NI	150	Labor	DR DSUP	$2 752.80
M8000000	UNDERGROUND SERVIC	MDR	446	MAU	NI	150	Labor	DR CREW	$2 475.60
M8000000	UNDERGROUND SERVIC	MDR	446	MAU	NI	150	Labor	DR DISP	$937.68
M8000000	UNDERGROUND SERVIC	MDS	416	MAU	NI	201	Materials	O/S Matl	$130.80
M8000000	UNDERGROUND SERVIC	MDT	441	MAM	NI	150	Labor	DT CREW	$4 209.00
M8000000	UNDERGROUND SERVIC	MDT	441	MAU	NI	150	Labor	DT CREW	$1 262.68
M8000000	UNDERGROUND SERVIC	MDT	443	MAM	NI	150	Labor	DT CREW	$5 051.52
M8000000	UNDERGROUND SERVIC	MDT	443	MAU	NI	150	Labor	DT CREW	$1 533.84
M8000000	UNDERGROUND SERVIC	MWL	928	MAL	NI	150	Labor	LAND AGENT	$21 868.32
M8000000	UNDERGROUND SERVIC	MWM	426	MAU	NI	150	Labor	PLANNER AIDE	$634.32
M8000000	UNDERGROUND SERVIC	MWM	426	MAU	NI	150	Labor	PLANNER AIDE	$1 585.80
M8000000	UNDERGROUND SERVIC	MWP	404	MAU	NI	150	Labor	CUST ENGR SUPRV	$4,874.40
M8000000	UNDERGROUND SERVIC	MWP	404	MAU	NI	150	Labor	DES PLNR	$10 773.00
M8000000	UNDERGROUND SERVIC	MWP	404	MAU	NI	150	Labor	DESIGNER	$28 003.20
M8000000	UNDERGROUND SERVIC	MWP	404	MAU	NI	150	Labor	JR PLNR	$6 288.00
M8000000	UNDERGROUND SERVIC	MWP	404	MAU	NI	150	Labor	PLANNER	$7 176.00
M8000000	UNDERGROUND SERVIC	MWP	416	MAU	NI	150	Labor	DES PLNR	$8 616.45
M8000000	UNDERGROUND SERVIC	MWP	426	MAL	NI	150	Labor	PLANNER	$5 382.00
M8000000	UNDERGROUND SERVIC	MWP	426	MAM	NI	150	Labor	JR PLNR	$5 030.40
M8000000	UNDERGROUND SERVIC	MWP	426	MAM	NI	522	Other	Interisland Travel	$200.00
M8000000	UNDERGROUND SERVIC	MWP	426	MAU	NI	150	Labor	CUST ENGR SUPRV	$9 748.80
M8000000	UNDERGROUND SERVIC	MWP	426	MAU	NI	150	Labor	DES PLNR	$34 473.00
00000	UNDERGROUND SERVIC	MWP	426	MAU	NI	150	Labor	DESIGNER	$7 000.80
000000	UNDERGROUND SERVIC	MWP	426	MAU	NI	150	Labor	JR PLNR	$67 880.00
M8000000	UNDERGROUND SERVIC	MWP	426	MAU	NI	150	Labor	PLANNER	$55 232.00
M8000000	UNDERGROUND SERVIC	MWP	426	MAU	NI	201	Materials	Stock Matl	$117 720.00

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
	401	M8000000	UNDERGROUND SERVICES & EXTNS.	*	*	*		Stores OHM8000000	433,561 12 $0.11640 $50,466.51
*	404	M8000000	UNDERGROUND SERVICES & EXTNS.	*	*	*		En Del OHM8000000	19,112 00 $25.37 $484,871 44
*	406	M8000000	UNDERGROUND SERVICES & EXTNS	*	*	*		Corp Adm OH M8000000	34,112 00 $3.88 $132,354.56
*	407	M8000000	UNDERGROUND SERVICES & EXTNS.	*	*	*		Cust Install OHM8000000	13,788 00 $31.43 $433,356 84
*	421	M8000000	UNDERGROUND SERVICES & EXTNS	*	*	*		NPW OH M8000000	34,112 00 $4.46 $152,139 52
*	422	M8000000	UNDERGROUND SERVICES & EXTNS.	*	*	*		Empl Benefits OHM8000000	34,112.00 $12 22 $416,848 64
*	423	M8000000	UNDERGROUND SERVICES & EXTNS	*	*	*		PR Tax OH M8000000	1,206,079 44 $0 08790 $106,014.38
*	430	M8000000	UNDERGROUND SERVICES & EXTNS	*	*	*		AFUDC-Blkt-MM8000000	3,418,392 46273 $0 01805 $61,701 98
*									$1,837,753 88
MDE	150	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI	DECREW	DE CREW	72 00 $39.98 $2,878 56
MDE	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	DECREW	DE CREW	96 00 $39 98 $3,838 08
MDE	150	M8000000	UNDERGROUND SERVICES & EXTNS.	446	MAU	NI	DECREW	DE CREW	60 00 $39.98 $2,398.80
MDE									$9,115 44
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS.	404	MAU	NI	DKCREW	DK CREW	1,200.00 $37 83 $45,396.00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS.	415	MAU	NI	DKCREW	DK CREW	1 200 00 $37 83 $45,396 00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	416	MAU	NI	DKCREW	DK CREW	1,200 00 $37 83 $45,396 00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI	DKSUPV	DK SUPV	144.00 $54 45 $7,840 80
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	DKCREW	DK CREW	1,200 00 $37 83 $45,396 00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	440	MAU	NI	DKCREW	DK CREW	1,200 00 $37 83 $45,396 00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAL	NI	DKCREW	DK CREW	1,200.00 $37 83 $45 396 00

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
..DK	150	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAU	NI	DKCREW	DK CREW	1,800.00 $37.83 $68,094.00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	DKSUPV	DK SUPV	144.00 $54.45 $7,840.80
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAL	NI	DKCREW	DK CREW	720.00 $37.83 $27,237.60
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI	DKCREW	DK CREW	1,200.00 $37.83 $45,396.00
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI	DKSUPV	DK SUPV	144.00 $54.45 $7,840.80
MDK	150	M8000000	UNDERGROUND SERVICES & EXTNS	446	MAU	NI	DKCREW	DK CREW	1,200.00 $37.83 $45,396.00
MDK	201	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI		Stock Matl	145,222.50 $1,090 $158,292.53
MDK	201	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI		O/S Matl	600.00 $1,090 $654.00
MDK	201	M8000000	UNDERGROUND SERVICES & EXTNS.	443	MAL	NI		O/S Matl	1,200.00 $1,090 $1,308.00
MDK	201	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI		Stock Matl	139,620.00 $1,090 $152,185.80
MDK	505	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI		O/S Construction (Aina)	1,200.00 $1 $1,200.00
MDK	522	M8000000	UNDERGROUND SERVICES & EXTNS.	443	MAL	NI		Interisland Travel	200.00 $1 $200.00
MDK									$795,862.33
MDL	150	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAL	NI	DLCREW	DL CREW	48.00 $40.35 $1,936.80
MDL	150	M8000000	UNDERGROUND SERVICES & EXTNS.	443	MAL	NI	DLCREW	DL CREW	1,124.00 $40.35 $45,353.40
MDL									$47,290.20
MDM	150	M8000000	UNDERGROUND SERVICES & EXTNS	404	MAU	NI	DMCREW	DM CREW	96.00 $34.18 $3,281.28
MDM	150	M8000000	UNDERGROUND SERVICES & EXTNS	416	MAU	NI	DMCREW	DM CREW	240.00 $34.18 $8,203.20
MDM	150	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAU	NI	DMCREW	DM CREW	240.00 $34.18 $8,203.20
MDM	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI	DMCREW	DM CREW	240.00 $34.18 $8,203.20
..M									$27,890.88

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
JR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI	DRCREW	DR CREW	120.00 $41.26 $4,951.20
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI	DRDISP	DR DISP	24.00 $39.07 $937.68
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI	DRDSUP	DR DSUP	60.00 $45.88 $2,752.80
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	DRCREW	DR CREW	120.00 $41.26 $4,951.20
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAU	NI	DRCREW	DR CREW	2,400.00 $41.26 $99,024.00
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	DRDISP	DR DISP	60.00 $39.07 $2,344.20
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	DRDSUP	DR DSUP	60.00 $45.88 $2,752.80
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	443	MAU	NI	DRCREW	DR CREW	360.00 $41.26 $14,853.60
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS.	443	MAU	NI	DRDISP	DR DISP	96.00 $39.07 $3,750.72
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI	DRDSUP	DR DSUP	60.00 $45.88 $2,752.80
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS	446	MAU	NI	DRCREW	DR CREW	60.00 $41.26 $2,475.60
MDR	150	M8000000	UNDERGROUND SERVICES & EXTNS	446	MAU	NI	DRDISP	DR DISP	24.00 $39.07 $937.68
MDR	201	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAU	NI		Stock Matl	1,000.00 $1.090 $1,090.00
MDR	505	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI		O/S Construction (Aina)	600.00 $1 $600.00
MDR									$144,174.28
MDS	201	M8000000	UNDERGROUND SERVICES & EXTNS	416	MAU	NI		O/S Matl	120.00 $1.090 $130.80
MDS									$130.80
MDT	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAM	NI	DTCREW	DT CREW	120.00 $35.08 $4,209.60
MDT	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	DTCREW	DT CREW	36.00 $35.08 $1,262.88
MDT	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAM	NI	DTCREW	DT CREW	144.00 $35.08 $5,051.52

R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
...DT	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI	DTCREW	DT CREW	48.00 $35.08 $1,683.84
MDT									$12,207.84
MWL	150	M8000000	UNDERGROUND SERVICES & EXTNS.	928	MAL	NI	WLTC	LAND AGENT	696.00 $31.42 $21,868.32
MWL									$21,868.32
..	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WMPLNR	PLANNER AIDE	24.00 $26.43 $634.32
..	150	M8000000	UNDERGROUND SERVICES & EXTNS.	428	MAU	NI	WMPLNR	PLANNER AIDE	60.00 $26.43 $1,585.80
...									$2,220.12
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	404	MAU	NI	WPSUPV	CUST ENGR SUPRV	120.00 $40.62 $4,874.40
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	404	MAU	NI	WPDPNR	DES PLNR	300.00 $35.91 $10,773.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	404	MAU	NI	WPDENR	DESIGNER	960.00 $29.17 $28,003.20
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	404	MAU	NI	WPJPNR	JR PLNR	240.00 $26.20 $6,288.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	404	MAU	NI	WPPLNR	PLANNER	240.00 $29.90 $7,176.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	416	MAU	NI	WPDPNR	DES PLNR	240.00 $35.91 $8,618.40
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAL	NI	WPPLNR	PLANNER	180.00 $29.90 $5,382.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAM	NI	WPJPNR	JR PLNR	192.00 $26.20 $5,030.40
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WPSUPV	CUST ENGR SUPRV	240.00 $40.62 $9,748.80
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WPDPNR	DES PLNR	960.00 $35.91 $34,473.60
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WPDENR	DESIGNER	240.00 $29.17 $7,000.80
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WPJPNR	JR PLNR	2,400.00 $26.20 $62,880.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WPPLNR	PLANNER	1,680.00 $29.90 $50,232.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	428	MAL	NI	WPPLNR	PLANNER	192.00 $29.90 $5,740.80

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line item	FY07
..WP	150	M8000000	UNDERGROUND SERVICES & EXTNS	428	MAU	NI	WPSUPV	CUST ENGR SUPRV	192.00 $40.62 $7,799.04
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	428	MAU	NI	WPDPNR	DES PLNR	720.00 $35.91 $25,855.20
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	428	MAU	NI	WPDENR	DESIGNER	960.00 $29.17 $28,003.20
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	428	MAU	NI	WPJPNR	JR PLNR	720.00 $26.20 $18,864.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	428	MAU	NI	WPPLNR	PLANNER	960.00 $29.90 $28,704.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	432	MAU	NI	WPDENR	DESIGNER	120.00 $29.17 $3,500.40
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAU	NI	WPDPNR	DES PLNR	2,400.00 $35.91 $86,184.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	WPJPNR	JR PLNR	60.00 $26.20 $1,572.00
MWP	150	M8000000	UNDERGROUND SERVICES & EXTNS	443	MAU	NI	WPJPNR	JR PLNR	24.00 $26.20 $628.80
MWP	201	M8000000	UNDERGROUND SERVICES & EXTNS.	426	MAU	NI		Stock Matl	108,000.00 $1.090 $117,720.00
MWP	201	M8000000	UNDERGROUND SERVICES & EXTNS.	428	MAU	NI		Stock Matl	1,000.00 $1.090 $1,090.00
MWP	201	M8000000	UNDERGROUND SERVICES & EXTNS	432	MAU	NI		Stock Matl	1,000.00 $1.090 $1,090.00
MWP	506	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI		O/S Engineering	500.00 $1 $500.00
MWP	522	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAM	NI		Intrastand Travel	200.00 $1 $200.00
MWP									$567,932.04
MWS	150	M8000000	UNDERGROUND SERVICES & EXTNS	404	MAU	NI	WSSENG	STAFF ENGR	60.00 $30.75 $1,845.00
MWS	150	M8000000	UNDERGROUND SERVICES & EXTNS	426	MAU	NI	WSSENG	STAFF ENGR	48.00 $30.75 $1,476.00
MWS	150	M8000000	UNDERGROUND SERVICES & EXTNS	428	MAU	NI	WSSENG	STAFF ENGR	60.00 $30.75 $1,845.00
MWS	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	WSSENG	STAFF ENGR	120.00 $30.75 $3,690.00
MWS	150	M8000000	UNDERGROUND SERVICES & EXTNS	441	MAU	NI	WSSENL	STAFF ENGR LEAD	0.00 $0.00 $0.00

*...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
.WS	150	M8000000	UNDERGROUND SERVICES & EXTNS.	441	MAU	NI	WSSUPV	STAFF ENGR SUPV	144.00
									$33.28
									$4,792.32
MWS									$13,648.32
									$3,480,094.45

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

07-049 (GK)
M7910000

The Project identified below has already been established in MIMS

Project Title: TRANSF. & RELATED EQUIP
Project Number: M7910000
(Permanent)

Plant Addition Date: -
Commitment Date: -
Primary Corporate Goal: SAIF

Stategic Plan Linkage: 2B - Increase Electric Sales
(Primary)

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$1,351	$1,391	$1,411	$1,438	$1,465	$0	$7,056

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
0	0	0	33	0	33

Purpose/Objectives:

Purchase miscellaneous distribution transformers, switch fuse units, reclosers, capacitors, regulators and related equipment to serve and maintain system adequacy.

Scope Description:

Purchase miscellaneous distribution transformers, switch fuse units, reclosers, capacitors, regulators and related equipment to serve and maintain system adequacy.

The 2007 approved BUDGET is $1,351,351.02.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Justification:

Funds required for the purchase of necessary equipment which will provide proper utilization of voltages tonew and existing customers.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

These necessary equipment will provide proper utilization of voltages to new and existing customers. As a result, improve efficiency and customer satisfaction.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Gregoryson Kauhi **Phone/Ext #:** 23666

Originator's Name: GREG KAUHI

Responsible Estimator: GREG KAUHI
(Pillar UserID)

Resp. Estimator Dept: Customer Installations
(Pillar Department Folder)

Project Manager: GREG KAUHI

Date: 01/31/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

Neal Sly 2/2/07
Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

2/13/07
MECO Accounting Manager **Date**

2/13/07
MECO President **Date**

nc 2/6/07
2/12/07
2/13/07

*R...	*E...	*Project #	Project	*Ac...	*Lo...	*In...	*Labor Class #	Line Item	FY07
	401	M7910000	TRANSFORMERS & REL. EQ. (RB)	*	*	*		Stores OHM7910000	1,176,527.38 $0.11640 $137,180.59
*	404	M7910000	TRANSFORMERS & REL. EQ. (RB)	*	*	*		En Del OHM7910000	408.00 $25.37 $10,350.96
*	406	M7910000	TRANSFORMERS & REL. EQ. (RB)	*	*	*		Corp Adm OH M7910000	408.00 $3.88 $1,583.04
*	421	M7910000	TRANSFORMERS & REL. EQ. (RB)	*	*	*		NPW OH M7910000	408.00 $4.46 $1,819.68
*	422	M7910000	TRANSFORMERS & REL. EQ. (RB)	*	*	*		Empl Benefits OHM7910000	408.00 $12.22 $4,985.76
*	423	M7910000	TRANSFORMERS & REL. EQ. (RB)	*	*	*		PR Tax OH M7910000	15,537.84 $0.08790 $1,365.78
*									$157,285.80
MDE	150	M7910000	TRANSFORMERS & REL. EQ. (RB)	482	MAU	NI	DECREW	Maintenance-Constr UG Distr Maui (Prep Tra...	48.00 $39.98 $1,919.04
MDE									$1,919.04
MDK	150	M7910000	TRANSFORMERS & REL. EQ. (RB)	479	MAU	NI	DKCREW	Line Crew-Constr Distr Maui Install	360.00 $37.83 $13,618.80
MDK	201	M7910000	TRANSFORMERS & REL. EQ. (RB)	479	MAU	NI		O/S Matl-Constr Distr Maui Install	1,020.00 $1 $1,020.00
MDK									$14,638.80
MWP	201	M7910000	TRANSFORMERS & REL. EQ. (RB)	479	MAU	NI		Maui Stock Matl-Construct OH Distr Maui Instal	1,080,282.00 $1.090 $1,177,507.38
MWP									$1,177,507.38
									$1,351,351.02

07-153
M3141001

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: MPP M18-18MW Steam Turbine

Project Number: M3141001
(Temporary)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2006-10

Commitment Date: 1995-01

Primary Corporate Goal: EFOR

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$60,924	$3,887	$0	$0	$0	$0	$0	$64,811

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	-15	50	33	0	113

Purpose/Objectives:

Maalaea 18 - To provide for the increase in electrical power demand and to improve the overall reliability of its generation system.

Scope Description:

Maalaea 18, phase 3 of the Maalaea PP Dual Train Combined Cycle No. 2 consist of the purchase and installation of a nominal 18 MW steam turbine generator, 2 HRSGs, 1 air cooled condenser and auxiliary equipment.

8/2/07 RE-AUTHORIZATION:
This PIF is to re-authorize an amount of $3,887,239 capital costs in 2007. This project is included in 2007 BOD approved budget in the amount of $308,294. Total estimated project costs is $64,810,985 (please see Justification section).

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

HECO Planning and Engineering-Project management, engineering, environmental and planning support.
MECO Power Supply-Administrative and operational support.
Outside Consultant-Design, specify and monitor installation of the generating unit.
Outside Contractor-Install generating unit per design specifications.

Justification:

Maalaea 18 - See PUC Docket No. 7744, Interim Accounting Report dated March 5, 2007 and Annual Dual Train Combined Cycle reviews for detailed information.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ● Approval Required ○ Not Required

● Approved, Date of Decision & Order: 1995-01-11 Docket Number: 7744

○ Awaiting PUC Approval, Application File(1993-06-23

Authorization for: ☑ Engineering ☑ Materials ☑ Construction

Approval Option: Authorize expenditures that are unbudgeted

Submitted by: [signature] for Kenji Kusaka **Phone/Ext #:** x 7071

Originator's Name: Kenji Kusaka

Responsible Estimator: Kenji Kusaka (Pillar UserID)

Resp. Estimator Dept: Planning & Engineering (Pillar Department Folder)

Project Manager: Mike Ribao

Date: 08/02/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

REVIEWED
AUG 02 2007
BY: [signature]

Required Approvals to Authorize a Project:

Michael P Ribao 08/02/07
Responsible Manager **Date**

8/7/07
8/7/07
8/7/07

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

[signature] 8/2/07
MECO Accounting Manager **Date**

[signature] 8/10/07
MECO President **Date**

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

March 5, 2007

Edward L. Reinhardt
President

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

Dear Commissioners:

Subject: Docket No. 7744, Item PN-314
Maalaea Dual-Train Combined Cycle Unit Number Two
Maalaea Unit No. 18
Interim Accounting Report

Pursuant to Decision and Order No. 13730 ("D&O 13730"), filed January 11, 1995, which approved the commitment of funds for the Maalaea Dual-Train Combined Cycle ("DTCC") No. 2 project, MECO hereby provides: (1) an interim report accounting for the expenditures to-date for the Maalaea Unit No. 18 ("M18") project, and (2) an updated estimate of the total costs for the project (including remaining charges).[1] Additional time is required to accurately account for these outstanding charges. MECO will submit the final Maalaea M18 cost report to the Commission after all the outstanding charges have been reconciled.

Maalaea M18 became commercially available on October 27, 2006, after connecting into the transmission grid on Maui.[2] Warranty and operational issues remain to be resolved before a final cost report can be completed.

Maalaea M18 Cost Estimate

The estimated total project cost is approximately $64.8 million, which is approximately

[1] M18 is the third and final phase of the DTCC No. 2 project. The first phase, Maalaea Unit M17, was placed into commercial operation on December 16, 1998, and the second phase, Maalaea Unit M19, was placed into commercial operation on September 1, 2000. An Interim Accounting Report and a Final Cost Report for M17 were filed on March 31, 1999 and November 5, 2001, respectively. An Interim Accounting Report and a Final Cost Report for M19 were filed on November 28, 2000 and December 4, 2003, respectively.

[2] By letter dated December 26, 2006, MECO requested an extension from December 26, 2006 to February 26, 2007 for the filing of the M18 cost report. By letter dated December 28, 2006, the Commission approved MECO's request. By letter dated February 26, 2007, MECO asked for a further extension from February 26, 2007 to March 5, 2007 for the filing of the M18 cost report.

$19.4 million or 43% higher than the estimate that was submitted in this docket in 1994 which assumed an April 2000 commercial operation date.[3] (See Attachment I.) MECO has incurred approximately $60.9 million in costs through December 31, 2006 for this project and expects that an additional $3.9 million will be incurred after all engineering, construction, and material costs are finalized. Approximately $1.1 million of the outstanding charges are for equipment that have been installed, but not paid for due to warranty or operational issues.

The primary reasons for the cost increase are: (1) the market conditions for the construction industry in Hawaii, the Mainland United States, and China made it difficult to attract bidders for the construction work and which resulted in significantly higher than expected construction costs; (2) "normal" escalation from the estimated and actual commercial operation dates of April 2000 and October 2006,[4] respectively, and (3) the change in work scope to separate the DTCC No. 2 project into three separate and individual projects as a result of the deferral of the M18 commercial operation date from April 2000 to October 2006.

Outside Construction

The estimated Outside Construction cost of approximately $29.8 million is approximately $17.1 million higher than the $12.6 million cost estimate that was submitted in this docket in 1994.

The higher than estimated Outside Construction costs were due to:

1. Market Condition -A strong economy in Hawaii, Mainland U.S., and China: The strong Hawaii, Mainland U.S., and China economies made it impossible to hire a contractor that could construct M18 within the construction cost estimate that was submitted in 1994 in this docket. During the screening process for general contractors, MECO discussed M18 construction with seven general contractors. After this initial contact, two contractors elected not to bid due to their existing and future construction workloads. On June 17, 2005, Request for Proposals ("RFP") were issued to the remaining five general contractors. On the July 22, 2005 proposal due date, two general contractors declined to bid due to their workloads, two general contractors partnered together to submit one proposal, and one general contractor submitted an individual proposal. The two proposals received ranged from $25.1 million to $27.7 million, which were significantly

[3] In its Rebuttal Testimony, MECO RT-4, filed October 7, 1994, MECO revised the cost estimate for DTCC No. 2 to approximately $115,099,700, including a revised cost estimate of $45,395,000 for M18, based on a commercial operation date of April 1, 2000. The revised estimate of $115,099,700 for DTCC No. 2 was included in D&O 13730.

[4] D&O 13730 required MECO to review annually MECO's need for additional generating capacity, and the continuing viability of phases II and III of DTCC No. 2, with the results of MECO's review submitted to the Commission and the Consumer Advocate. MECO submitted ten annual reports from January 16, 1996 to March 31, 2005 that confirmed the continuing need for M18 and provided revisions to the M18 service date.

higher than the estimated amount of $12.6 million. (MECO selected the lower bidder.)

MECO investigated the possibility of dividing the construction package into three separate packages: civil/structural, mechanical, and electrical, to allow more contractors to bid on the project. However on August 29, 2005, Hurricane Katrina struck and devastated the Gulf Coast, which prompted the Gulf Coast states and the federal government to immediately declare a state of emergency. With laborers, equipment, and materials being diverted to the Gulf Coast, it was assessed that dividing the work package would only delay the project, and benefits or cost savings would be minimal or none at all.

The proposals received were much higher than estimated due mainly to construction market conditions, an abnormally high escalation rate of construction material starting in late 2004 (e.g., copper wire, concrete, steel, conduits, etc.), and the need to import mainland labor and pay for their living expenses. Due to extremely busy construction market conditions, contractors were also more selective with respect to projects they wanted to bid on and accept. Contractors were reluctant to take the risk of constructing a power plant, when other jobs were available that required less diversified skilled labor, technical knowledge, and overall manpower.

High construction costs were also being reported by other projects in Hawaii during the same time period. (See Attachment II for news articles concerning the high cost of construction in Hawaii.) Some other projects were deferred due to the high cost; however that option was not available to MECO due to the forecasted power capacity requirements. The construction contract for Maalaea M18 was awarded on September 29, 2005, approximately the same time frame as the news articles.

2. <u>Normal Escalation - Deferral of the commercial operation date from April 1, 2000 to October 27, 2006:</u>

With the extension of MECO's 12 MW purchase power contract with Hawaiian Commercial and Sugar to December 2007 and the implementation of DSM programs, the required need date for M18 was revised from 2000 to 2006. Based on annual reviews conducted per D&O 13730, the need date for M18 was revised as follows: April 2000 (Annual Review No. 1, January 16, 1996); May 2001 (Annual Review No. 2, January 31, 1997); 2001 to 2003 (Annual Review No. 3, January 15, 1998); 2003 to 2005 (Annual Review No. 4, March 31, 1999); 2004 to 2007 (Annual Review No. 5, January 31, 2000); 2005 to 2007 (Annual Review No. 6, February 15, 2001); 2005 to 2007 (Annual Review No. 7, February 15, 2002); January 2006 (Annual Review No. 8, February 18, 2003); September 2006 (Annual Review No. 9, February 17, 2004); and September 2006 (Annual Review No. 10, March 31, 2005).

MECO's original project cost estimate was based on 1995 dollars and included escalation from 1995 to April 2000 (the original estimated forecasted commercial operation date for M18). MECO incurred additional costs due to escalation of construction labor and equipment rental rates, living expenses for contractors and consultants, and contractor supplied material from April 2000 to when the actual construction was completed in October 2006.

There are no indices that monitor heavy industrial growth in Maui County or the State of Hawaii due to a very limited numbers of industrial facilities. However, for reference purposes, an escalation range was obtained using an index that monitors utility construction in the Pacific region (Handy-Whitman Index of Public Utility Construction Costs, Bulletin 164, 1912 to July 1, 2006) and an index that monitors high-rise construction (Hawaii State Department of Business, Economic Development & Tourism escalation index for High-Rise Building) in Hawaii. The estimated escalation amount from April 2000 to October 2006 ranged from $3.5 million to $4.1 million, depending on the index selected.

Outside Engineering and HECO Engineering

The estimated Engineering cost of approximately $9.0 million is approximately $3.7 million higher than the $5.3 million cost estimate included in the estimate that was submitted in this docket in 1994.

The higher than estimated amount was due to:

1. Separating the DTCC No. 2 project into three separate and individual projects: At the time of the application, it was assumed that Maalaea 17, 19, and 18 would be designed and constructed by one consultant project team. That plan allowed consolidating permitting efforts, providing higher productivity during periods when two generating units were being designed and built simultaneously, and reduced the potential for errors or inconsistencies in the project design. However, the deferred M18 commercial operation date significantly increased the consultant cost since mutual activities and expenses could not be shared between the generating units. Also, M18 incurred additional costs when the consultant project team employed new team members who had to be oriented to MECO's standards and the existing facilities already installed with M17 and M19.

   In June 1994, the outside consultant service cost for M18, based on one project team for M17, M18, and M19, was estimated at approximately $4.1 million. In May 2002, MECO issued an outside consultant service contract to the lowest bidder for M18 for $6.6 million, which was an increase of $2.5 million. In addition, HECO engineering incurred an additional cost of approximately $300,000 related to having three individual projects.

2. Updating Air Permit Application: During the review process for the DTCC No. 2 air permit application that was submitted in August 1994, the State of Hawaii Department of Health ("DOH") had concerns regarding Best Available Control Technology ("BACT") for NOx emission during combined cycle operations. Since generating capacity was needed as soon as possible and BACT for simple cycle operations was not an issue, in March 1996, MECO requested that the air permit application for DTCC No. 2 be separated into two phases. Phase 1 (the installation of combustion turbine units M17 and M19 for simple cycle operations), and Phase 2 (the installation of heat recovery steam generators and steam turbine unit M18 to allow combine cycle operations). DOH approved the phased approach with a condition that MECO update the BACT and its analysis of air quality impacts during combined cycle operations. MECO incurred an additional HECO cost of approximately $336,000 and $315,000 in consultant costs to update the M18 air permit application and to respond to DOH and Environmental Protection Agency ("EPA") information requests.

3. Post Construction Monitoring: As a result of M18 having a separate air permit from M17 and M19, DOH requested MECO collect one year of air quality data after Maalaea M18 became commercial. This resulted in an increase of approximately $221,000 for Maalaea M18.

4. Additional Work Scope: Additional costs of approximately $85,000 (approximately $40,000 in HECO engineering cost and approximately $45,000 in consultant costs) were incurred to select a consultant for M18 engineering and construction management services through the Request for Proposal process, coordinating design activities with a foreign vendor and its subcontractors, and unforeseen issues that developed during the design and construction of M18.

Materials

The estimated Materials cost of approximately $22.0 million is approximately $0.2 million over the $21.8 million cost estimate that was submitted in this docket in 1994. All major equipment and materials listed in Attachment 1 were competitively bid and purchase orders were awarded to the lowest priced vendor that was evaluated.

With the collapse of Enron and the energy market in 2002, sales of power generating equipment fell dramatically. Energy companies cancelled or suspended purchase orders for power generating equipment, thereby creating a buyer's market. The purchase of the M18 steam turbine, heat recovery steam generators, and air-cooled condenser occurred during this period of depressed equipment prices.

However, equipment purchased in 2005, such as pre-cast concrete piles, steam turbine

building structural steel, and power & control cables were much higher than estimated due to the growing demand for industrial equipment and raw material driven by the strong economic growth in the Mainland United States and China. The saving realized with the major equipment purchases offset these overruns. The market conditions and the competitive bid process helped maintain material costs close to the budgeted amount.

MECO Labor & Overhead

The estimated MECO Labor & Overhead cost of approximately $0.4 million is approximately $0.1 million higher than the $0.3 million cost estimate that was submitted in this docket in 1994. The increase is due to the escalation of labor and overhead costs. The original cost estimated was based on MECO labor and expenses starting in 1998, and ending in 2001. The actual labor charges started in May 2002 and should end in 2007.

AFUDC

The estimated AFUDC of approximately $3.6 million is approximately $1.8 million below the $5.4 million estimate that was submitted in this docket in 1994. The decrease in AFUDC was due to a compressed design schedule compared to the original schedule and negotiating major equipment payment terms to occur later in the schedule. Accrual of AFUDC was stopped on October 27, 2006, when M18 became commercial.

Sincerely,

Edward L. Reinhardt

Attachments

cc: Division of Consumer Advocacy

MAALAEA M18

Docket No. : 7744
Project Title: Maalaea Dual-Train Combined Cycle Unit Number Two
Budget Item: M3141001

	Item #	DESCRIPTION	D&O 13730 ESTIMATE A	ACTUAL COSTS TO 12/31/2006 B	OUTSTANDING COSTS C	TOTAL COST D=B+C	VARIANCE $ E=D-A
I.		MATERIALS					
		Mechanical & Structural					
	1	Steam Turbine	$ 5,971,200	$ 4,479,375	$ 715,165	$ 5,194,540	
	2	Valves	$ 184,100	$ -	$ -	$ -	
	3	Control Valves	$ 276,500	$ 419,595	$ 5,000	$ 424,595	
	4	Pumps	$ 408,400	$ 355,741	$ 34,791	$ 390,532	
	5	Condensate Tank	(2)	$ 92,811		$ 92,811	
	6	Service & Instrument Air	$ 151,600	$ 59,081		$ 59,081	
	7	Shop Fabricated Pipe	$ 252,800	$ -	$ -	$ -	
	8	Air Cooled Condenser	$ 5,428,400	$ 4,153,010	$ 15,821	$ 4,168,831	
	9	Heat Recovery Steam Generator (2)	$ 5,541,600	$ 6,846,983	$ 48,242	$ 6,895,225	
	10	Sampling System	$ 350,400	$ 185,212	$ 2,500	$ 187,712	
	11	Boiler Chemical Feed System	$ 138,400	$ 64,959		$ 64,959	
	12	Bridge crane	$ 181,700	$ 168,742	$ 2,071	$ 170,813	
	13	Pre Cast Concrete Piles	$ 141,500	$ 390,384		$ 390,384	
	14	Steam Turbine Building Structural Fabrication	$ 712,100	$ 975,158	$ 32,000	$ 1,007,158	
	15	Steam Turbine Control Building Structural Fabrication	(3)	$ 386,452	$ -	$ 386,452	
	16	HVAC	$ 67,200			$ -	
	17	Misc. Mechanical		$ 82,289	$ 63,961	$ 146,250	
		Subtotal Mechanical Equipment	$ 19,805,900	$ 18,659,792	$ 919,551	$ 19,579,343	$ (226,557)
		Electrical					
	18	Main Transformer	$ 497,600	$ 597,963	$ 6,250	$ 604,213	
	19	Auxiliary Transformer	$ 155,600	$ 64,239		$ 64,239	
	20	13.8V Switchgear, Generator Breaker	$ 93,100	$ 112,794		$ 112,794	
	21	480V Bus Duct - 3000A	$ 80,800	$ 25,723		$ 25,723	
	22	480V Switchgear	$ 208,000	$ 232,809	$ 99,884	$ 332,693	
	23	480V MCC	$ 169,000	$ 76,953		$ 76,953	
	24	Distributed Control System (DCS)	(4)	$ 616,250	$ 24,427	$ 640,677	
	25	Generator/Control Panels	$ 33,000			$ -	
	26	Protective Relay Panel-Generation	$ 228,700	$ 37,650	$ 750	$ 38,400	
	27	69KV Breakers-Switchyard	$ 108,700	$ 110,145		$ 110,145	
	28	Disconnect Switches-Switchyard	$ 40,300	$ 2,596		$ 2,596	
	29	Power & Control Cables and Fiber Optic Cable	$ 364,600	$ 444,457	$ 320	$ 444,777	
		Subtotal Electrical Equipment	$ 1,979,400	$ 2,321,579	$ 131,631	$ 2,453,210	$ 473,810
	30	Material Escalation	(1)				
		TOTAL MATERIALS	$ 21,785,300	$ 20,981,371	$ 1,051,182	$ 22,032,553	$ 247,253
II		OUTSIDE SERVICES					
	31	Civil/Structural Construction	$ 4,607,000	$ 8,868,428	$ 235,603	$ 9,104,031	
	32	Mechanical Construction	$ 5,996,600	$ 14,621,640	$ 2,097,684	$ 16,719,324	
	33	Electrical Construction	$ 2,027,600	$ 3,783,360	$ 66,329	$ 3,849,689	
	34	Construction Escalation	(1)	$ -	$ -	$ -	
		TOTAL OUTSIDE CONSTRUCTION	$ 12,631,200	$ 27,273,428	$ 2,399,616	$ 29,673,044	$ 17,041,844
	35	Plant Design Engineering (S&W)	$ 2,485,900	$ 5,100,639	$ 100,000	$ 5,200,639	
	36	Start-up Services (S&W)	$ 551,300	$ 720,043	$ 84,900	$ 804,943	
	37	Construction Management (S&W)	$ 1,252,100	$ 1,079,176	$ 64,300	$ 1,143,476	
	38	Post Construction Monitoring	$ -	$ 81,211	$ 139,564	$ 220,775	
	39	HECO Services	$ 998,900	$ 1,631,134	$ 42,056	$ 1,673,190	
	40	Engineering Escalation	(1)	$ -	$ -	$ -	
		ENGINEERING	$ 5,288,200	$ 8,612,203	$ 430,820	$ 9,043,023	$ 3,754,823

MAALAEA M18

Docket No. : 7744
Project Title: Maalaea Dual-Train Combined Cycle Unit Number Two
Budget Item: M3141001

	Item #	DESCRIPTION	D&O 13730 ESTIMATE A	ACTUAL COSTS TO 12/31/2006 B	OUTSTANDING COSTS C	TOTAL COST D=B+C	VARIANCE $ E=D-A
III		LABOR					
	41	Direct Labor	$ 148,600	$ 230,625	$ 6,000	$ 236,625	$ 88,025
IV		OVERHEADS (ON-COSTS)					
	42	Loadings	$ 130,000	$ 181,687	$ 4,000	$ 185,687	$ 55,687
V		TRANSPORTATION					
	43	Vehicles		$ 96	$ -	$ 96	$ 96
VI		AFUDC					
	44	AFUDC	$ 5,411,700	$ 3,639,957	$ -	$ 3,639,957	$ (1,771,743)
		GRAND TOTAL	$ 45,395,000	$ 60,919,367	$ 3,891,618	$ 64,810,985	$ 19,415,985
							43%

(1) Separate escalation costs included in the estimate were allocated to individual items.
(2) The cost for the condensate tank was inadvertently not included in the estimate.
(3) The cost for the steam turbine control building was originally included with the steam turbine building (Item #14). However, a separate prefabricated steam turbine control building was constructed instead.
(4) The cost for the M18 DCS was originally included as part of the M17 and M19 DCS projects.

Kapi'olani sewer line pricetag is exploding

Two-year project will cost $10 million more than estimates

BY MARY VORSINO
Advertiser Urban Honolulu Writer

The cost of a two-year project to revamp deteriorating water and sewer lines along Kapi'olani Boulevard has ballooned by about $10 million from its original estimates in 2005, officials said.

The 45 percent cost increase is largely because of the island's construction boom and increased prices for petroleum — used not only to run equipment but to make asphalt and piping, officials said.

"People are facing tremendous cost escalation," Board of Water Supply spokeswoman Su Shin said. "Prices have gone through the roof."

City and state officials said the $32 million pricetag for the project, set to start in September, comes as the cost of crude oil continues to increase, pushing up construction costs and leaving contractors in a guessing game as they try to forecast oil prices for projects months or even a year away.

From 2004 to 2005, the price of asphalt alone went up 10 percent. Oil costs have soared since then,

SEE SEWER, A10

EXPECT TRAFFIC

Two lanes will be lost to drivers during Kapi'olani project | A10

Sewer

CONTINUED FROM A1

and the city expects bids due next week for a large, five-street repaving project will be well over earlier estimates.

"There's a lot of things that have happened since the end of 2005," said Marvin Char, chief of the civil division at the city Department of Design and Construction. "Oil prices have climbed. Just the demand for construction products is higher."

Department of Transportation spokesman Scott Ishikawa said rising asphalt prices increased the cost of a six-month project to repave a 2-mile stretch of Kalaniana'ole Highway, from Castle Junction to the Castle Medical Center, by $85,000.

The original cost of the project was $1.8 million.

"Obviously with the oil prices continuing to rise with the situation in the Middle East and other factors, we may have to increase the projected cost of projects," Ishikawa said, adding that if crude oil prices continue to increase, the state will likely have to "rearrange the budget" and put off some work until future fiscal years.

Meanwhile, contractors say the work of guessing how high fuel will go is difficult and inexact. Some have even come up short.

"The guessing game for the contractors is what the price is going to be six months to a year from now. It's a gamble," said Grace Pacific Vice President Bill Paik, adding that the costs of construction projects statewide have also increased because of a dearth of companies and people to do the work.

The Kapi'olani Boulevard work originally was slated to start in February but was pushed back while the board asked for a second round of bids to try to get the cost down.

Officials said it is one of the largest projects undertaken by both the Board of Water Supply and city in recent years.

The water board's work involves installing a 12-inch main to replace a 70-year-old line under Kapi'olani Boulevard. A new water main also will be put in at Atkinson Drive.

There have been 31 water main breaks of the Kapi'olani line since 1990, six of which happened this year or last. Shin said the new main is expected to last for 80 years.

During the project, the city will install a "cured in place" resin pipeline inside a 30-inch sewer main under Kapi'olani. The sewer main was installed in 1923.

City officials said the new work, coupled with emergency repairs in 2004, is expected to extend the life of the line by 50 years.

Shin acknowledged the work will be lengthy and inconvenient, but said it is necessary to avoid future water line breaks. "It impacts our customers and we know that," Shin said, adding that main breaks are often more disruptive.

"The work has to be done."

Part of the work will coincide with a two-phase project to repave Ala Moana and the tail-end of Nimitz Highway. The repaving will only be done at night, though. Ishikawa said work will likely start at 8 or 9 p.m. and wrap up by 5 a.m.

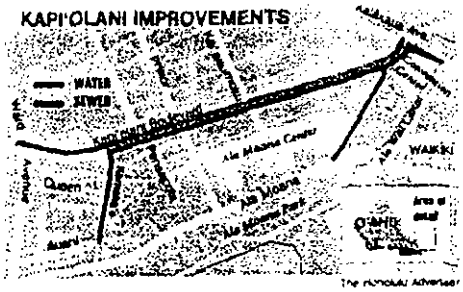
The first part of the project, which will cost $12.5 million, will run from Fort Street Mall on Nimitz Highway to Pi'ikoi Street on Ala Moana.

Also, city Department of Design and Construction Director Eugene Lee said all of Kapi'olani Boulevard likely will be repaved with the help of a federal grant sometime after the sewer and water line project is complete.

He said the work will involve taking up the first few layers of the roadway, and will be more complicated than a more traditional repaving project.

It's still unclear how long the project will take and when it will start.

Reach Mary Vorsino at mvorsino@honoluluadvertiser.com or (808) 525-8021.



KAPI'OLANI PROJECT MEETING

A public meeting to discuss the water and sewer project along Kapi'olani Boulevard will be held tonight at McKinley High School.

The meeting will start at 7 p.m. in Hirata Hall.

More information on the project is available online at www.kapiolaniwatersewer.org. Meanwhile, a hot line has been set up to handle questions or comments.

Call the hot line at 587-8032.

Pacific Business News (Honolulu) - September 12, 2005
http://pacific.bizjournals.com/pacific/stories/2005/09/12/story1.html

PACIFIC BUSINESS NEWS

EXCLUSIVE REPORTS
From the September 9, 2005 print issue

Katrina may delay construction projects

Jim Kelly
Pacific Business News

The Hawaii construction industry, but not tourism, is expected to be dampened by Hurricane Katrina and projects may be delayed by the shortage of steel, glass and lumber.

Even sky-high fuel prices locally and on the Mainland are having almost no impact so far on the Hawaii economy.

The state Council on Revenues last week forecast that the Hawaii economy will grow 6 percent by June 2006, a healthy number that was not adjusted downward even with the catastrophic impact of Katrina taken into account.

But Paul Brewbaker, the Bank of Hawaii economist who also is chairman of the council, said even with the numbers suggesting the economy will grow beyond 6 percent, the council adopted a "conservative posture" because of the unknowns swirling around Katrina, gas prices and the cost of building materials.

"It led us to tilt our forecast a little bit more conservative but only in conjunction with other factors that were also tilting in that direction," Brewbaker said.

"It wasn't the hurricane or its aftermath per se but it was when you added that to the list, it contributed to a number of things that were already on the list like higher oil prices, an approach to the end of the real estate investment cycle."

Developers and contractors told PBN this week that the scarcity and cost of materials will delay some of the dozens of major projects, including high-rise condominium towers, shopping malls and military housing, that haven't broken ground.

"What will happen is you'll see projects being delayed and projects becoming a bit more expensive," said Gary Wiseman, president of the Hawaii chapter of the Associated Builders & Contractors Inc.

Developers and contractors are trying to lock in prices for material and prioritizing their projects. "I was already concerned over the last six months over the rise in construction costs," said Jeff Arce, chief financial officer of The MacNaughton Group. "This in all likelihood is going to make it worse. But I don't know the impact on the timing of the projects, on moving forward or not moving forward yet." State economists are sticking with their forecast of a record 7.4 million visitors for the year. In fact, some vacationers and even conventions that had been booked in New Orleans may switch to Hawaii.

"We have had some calls from people looking at options," said Randy Tanaka of SMG Hawaii, the managers of the Hawaii Convention Center. SMG also is the manager of the New Orleans Superdome.

Last year, 29,000 people from Mississippi and Louisiana, including 7,352 from New Orleans, visited Hawaii.

Tourism industry executives say they worry about jet fuel driving up the cost of air fares, and say the longer consumers are paying $3 or $4 for a gallon of gas, the less appealing a vacation will be.

"The biggest negative impact is in the increase in cost of oil, and how it will impact airline fares," said Robert Taylor, CEO of Maui Divers Jewelry. "I'm very concerned about the cost of a Hawaii vacation becoming too expensive, with hotel rates and airplane rates going up."

Print version - © COPYRIGHT 2005 The Honolulu Advertiser - Hawaii's Newspaper , a division of Gan... Page 1 of 2

HonoluluAdvertiser.com

Posted on: Monday, September 26, 2005

Construction looks to Mainland to fill crews

By Dan Nakaso
Advertiser Staff Writer

Shawn McLeod read a notice in the carpenters' union hall in Butte, Mont., about opportunities 3,050 miles away in Hawai'i, then got on a plane in May to join the trickle of Mainland construction workers finding jobs in the Islands.

Shawn McLeod, an electrician from Butte, Mont., came to Hawai'i in May after seeing a notice about work opportunities at a union hall. Many co-workers feared taking a risk and relocating. McLeod took the step and is now earning nearly twice as much as before.

JEFF WIDENER / The Honolulu Advertiser

Last week, McLeod climbed down from a scaffolding inside what will be a three-story wing of Castle Medical Center in Kailua and said he's happy to be making almost twice as much money in Hawai'i — $32.95 per hour — and earning more generous benefits during Hawai'i's latest building boom.

"A lot of us back in Montana were interested," said McLeod, 42. "But they weren't willing to take the plunge."

After seemingly exhausting the supply of local journeymen and Hawai'i construction workers living on the Mainland, some construction companies and unions are now turning to Mainland workers with no ties to the Islands to help handle the boom in business.

"The labor force is getting real slim," said Lloyd Tokunaga, superintendent for Shioi Construction, who has worked in Hawai'i's construction industry since 1969. "This is as busy as I've ever seen it. ... So the opportunities are real good for guys from the Mainland. If they're skilled, I would definitely welcome them."

In January 2004, Sang-Hyop Lee, a University of Hawai'i assistant professor of economics, told government officials and labor leaders that Hawai'i will need another 7,425 construction workers through 2008.

Lee, who continues to monitor workforce trends in Hawai'i, said last week that "the prediction has not changed."

In the nearly two years that followed Lee's projections, Hawai'i's trade unions, Rep. Neil Abercrombie, Gov. Linda Lingle's administration, Honolulu Community College, building trade associations and others have been pushing to fill construction openings with local hires.

They've designed job fairs, beefed up apprentice programs, visited high schools and contacted former Island workers in places like Las Vegas to tell them about an industry that's expected to continue humming for several more years.

Since then, anyone who wants to come home already has, said Jonathan Brown, director of organizing for the state's biggest trade union, the 6,000-member Hawai'i Carpenters Union.

MORE JOBS THAN PEOPLE

At the same time, the number of registered apprentices for all Hawai'i trade unions increased from 2,800 three years ago to 3,800 six months ago to 5,500 last week, said Fred Moore, president of the Building Industry Association-Hawai'i, citing statistics from the state Department of Labor and Industrial Relation's workforce development division

"That's a significant jump," Moore said. "It means we're getting people interested in our trades. The confidence is there."

Still most of Hawai'i's construction unions take five years to turn an apprentice worker into a journeyman.

"Our first intent was to squeeze the blood out of our local turnip," Brown said. "That was the general game plan for everybody. But it's come to the point where we've squeezed that turnip as much as we can."

So the carpenters union plans to begin soliciting other union locals around the country to emphasize the higher pay and benefits their members can earn in the Islands.

They'll be competing against other hot construction areas like California, Washington, Boston and Florida. And they know that many of the potential workers will be wooed by the billions of dollars of reconstruction work that has yet to begin in the Gulf Coast following hurricanes Katrina and Rita.

TENSION AT JOB SITES

The push comes as Hawai'i continues to enjoy a seasonally adjusted unemployment rate that has been either the lowest or second lowest in the country every month since January 2004, giving Hawai'i residents plenty of opportunities outside of construction. In August, Hawai'i again led the nation with a 2.6 percent unemployment rate.

But not all of Hawai'i's trade unions are ready to begin recruiting Mainland workers, whose presence has occasionally caused tension on some job sites.

"There's always a little fear — 'Who are these guys?' " said Bill Naone, apprenticeship coordinator for Hawai'i's second largest trade union, the 3,500-member Laborer's International Union of North America, Local 368. " 'Are they going to take local work?' That's a natural human reaction and it's been a gripe from workers for a very long time."

Naone acknowledges that "we are starting to get thin in our applicant list and we can see that the labor pool is starting to be drained."

But he refuses to concede that the laborer's union needs to look to the Mainland.

"We think the other trades are lazy because they don't do outreach," Naone said. "They do as little as possible to go out to the areas where construction workers are generally coming from, the more depressed economic areas of Hawai'i. You don't get most of your laborers and your carpenters from Hawai'i Kai, 'Aina Haina and Kahala. You get them from the Pearl Cities and 'Ewa Beaches. We haven't had to go to our affiliates on the Mainland to import people, nor are we looking at doing so. ... I don't think anyone has done enough to ensure that our local people truly know what opportunities exist. We find it abhorrent that they would go to the Mainland when we have a lot of people who are still not working. I am unconvinced that they're doing enough."

Construction workers like 49-year-old Jeffrey Hammerand of Springfield, Mo., continue to arrive in the Islands, anyway.

Hammerand and his Missouri accent landed in Kailua, Kona, on the Big Island on Jan. 11 to work as a foreman supervising a crew of 20 Mexican and local workers building high-end condominiums.

Hammerand's construction career has taken him to 36 states so far but "the Big Island takes the cake."

He loves the diving and fishing along the Kona Coast and believes the workers on his crew are the best trained that he's ever seen.

Some have even brought Hammerand into their homes, invited him on their boats and taken him scuba diving — and offered him all sorts of food Hammerand never imagined existed.

"I've had goat and pig and the chicken feet," Hammerand said. "I've tried it all because you don't want to offend anybody."

On one lunch break a co-worker ordered laulau from a plate lunch wagon. "I said, 'What kind of meat's in there?' And he said, 'I'm not really sure.' You won't find that on any menu in Springfield, Missouri," Hammerand said.

Hammerand now understands what workers mean when they talk about "pukas" and "puke" and he offers his own homespun sayings, such as "these prices are higher than a cat's back. Or if I'm doing something real quick, I'll say, 'I'm on it like a duck on a June bug.' They just kind of laugh but they understand what I'm saying."

Tony Ross, a 38-year-old electrician who works with Hammerand, still thinks it's odd when Hammerand breaks out pork and beans for lunch when everyone else is eating a plate lunch. But Ross otherwise appreciates Hammerand's ability to fit in and supervise a diverse crew of workers.

"He has a really good attitude," Ross said.

"Because if a guy comes in thinking they're going to be a hotshot, the local guys would eat him up."

FEELING AT HOME

Tom Cowie, 38, and his friend and co-worker, Lee Wilke, 47, adopted a similar open-minded, self-deprecating approach when they left Phoenix, Ariz., in April for better pay and benefits on O'ahu.

They now make more than double the $15.55 per hour salary they earned back in Phoenix and feel they've been welcomed with "open arms" by co-workers, who have invited them to the beach and on camping trips.

Both of them now plan to set up permanent residence here.

"I came here for a career move — more pay, better benefits," Wilke said. "I'm here to live."

Or as Cowie said, "This is my home now."

Reach Dan Nakaso at dnakaso@honoluluadvertiser.com.

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HonoluluAdvertiser.com

Posted on: Wednesday, October 5, 2005

Plans for Costco on Kaua'i derailed

By Jan Tenbruggencate and Dan Nakaso
Advertiser Staff Writers

LIHU'E, Kaua'i — Costco's plan to build a store and gas station on Kaua'i has been derailed, at least temporarily, amid a statewide increase in labor costs and shortage of construction materials.

Costco president Jeff Brotman said yesterday that construction bids for the 150,000-square-foot store and gas station on 15 acres at Kukui Grove Village came in at 30 percent more than the firm anticipated — far more than the company feels it can pay.

"It's way over what we can afford. We will never build if it continues at this level," Brotman said.

The huge demand for material to rebuild cities damaged in Hurricanes Katrina and Rita has exacerbated construction supply shortages in Hawai'i. Meanwhile, the cost of hiring some union carpenters has just topped $50 per hour.

Kaua'i Mayor Bryan Baptiste said the county faces a shock almost every time it opens a bid on a construction project.

"All the contracts that we are opening now are 150 to 200 percent of what we expected," Baptiste said.

"It's supply and demand. There is more work than the industry can handle right now."

That's a story being replayed on all Islands.

"It's not only happening on Kaua'i, it's happening throughout our state," said Karen Nakamura, CEO of the Building Industry Association-Hawaii. "The reason is the high cost of doing business. Everything has gone up."

The state Department of Labor and Industrial Relations last month increased the minimum hourly wage for many journeymen carpenters to $32.95. With benefits, the increase comes to $50.25 per hour, Nakamura said.

"The increase in wages comes whether you are union or non-union," she said. "Because in this market, in order to keep your workers, you have to pay prevailing wages."

Hurricanes Katrina and Rita helped drive up shipping and fuel surcharges as well, Nakamura said, and suppliers are imposing quotas on how much material states can receive.

"If you have reached your quota, they're not sending you any more material," Nakamura said. "You have to wait until next month."

Kaua'i's rapidly expanding economy has made it difficult for businesses to find employees and pushed up the cost of living so high that new workers can't afford to move to the island, Leroy Laney, First Hawaiian Bank economic consultant, said last week.

The Kaua'i Costco facility received planning commission permits earlier this year and had hoped to start construction this year.

Costco president Brotman said that some of the construction bids were "crazy numbers." In some cases, it would be far less expensive to fly in crews from the Mainland and house them during construction than to pay the bid prices, he said.

The company has not given up and is reviewing a range of options, he said.

"If we could build a building that met our cost parameters, we could proceed. But it's not looking good," Brotman said.

The Lihu'e Costco would be the sixth in the state, joining three stores on O'ahu and one each on Maui and in Kona. Brotman said the company

continues to look at other Hawai'i sites, whose location he would not disclose.

Reach Jon TenBruggencate at jon@honoluluadvertiser.com and Dan Nakaso at dnakaso@honoluluadvertiser.com.

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Neighbors

Kīkīaola harbor upgrade stalled by bid overruns

$9 million budgeted, but dredging, other fixes will cost $17M

Associated Press

LĪHU'E, Kaua'i — The state delayed a project to upgrade Kaua'i's Kīkīaola Small Boat Harbor after bids came in last month at twice the projected cost.

The $9 million project to dredge the harbor between Waimea and Kekaha and make other improvements was proposed in 1999 by the U.S. Army Corps of Engineers and the state. Money was included in the federal budget in 2003.

Recreational boaters thought there would be a floating dock accommodating 45 boats, as well as a rebuilt breakwater.

But nothing has happened.

"The project is dead," said Richard Rice, administrator for small harbors at the state Department of Land and Natural Resources' Division of Boating and Ocean Recreation.

When bids for the project came in last month, they were each for about $17 million, or twice the projected cost, Rice said.

"I don't know why the bids came in so high," he said.

"The bids came in high," said William Mossman, a leader of the Hawai'i Boaters Political Action Association, "but we have to do something to salvage part of the plan."

A meeting is planned for today in Honolulu with state officials to discuss the project, said Mossman.

About 80 percent of the cost was to be funded by the federal government, with the rest coming from the state.

Rice said a public meeting would be held next month, but Mossman said that would be too little, too late.

"I hate to see our money get wasted. The track we have to take now is to concentrate on the dredging and not the breakwater. We have enough money to do that," Mossman said.

Mossman's son, Glenn Mossman of Kekaha, president of the Kīkīaola Westside Boat Club, said that the lack of dredging in the harbor has damaged boats, and that without a breakwater, waves breaking at the harbor entrance create a dangerous situation.

During high-surf conditions, many boaters in Waimea and Kekaha use the Port Allen Small Boat Harbor instead to get to the ocean, he said.

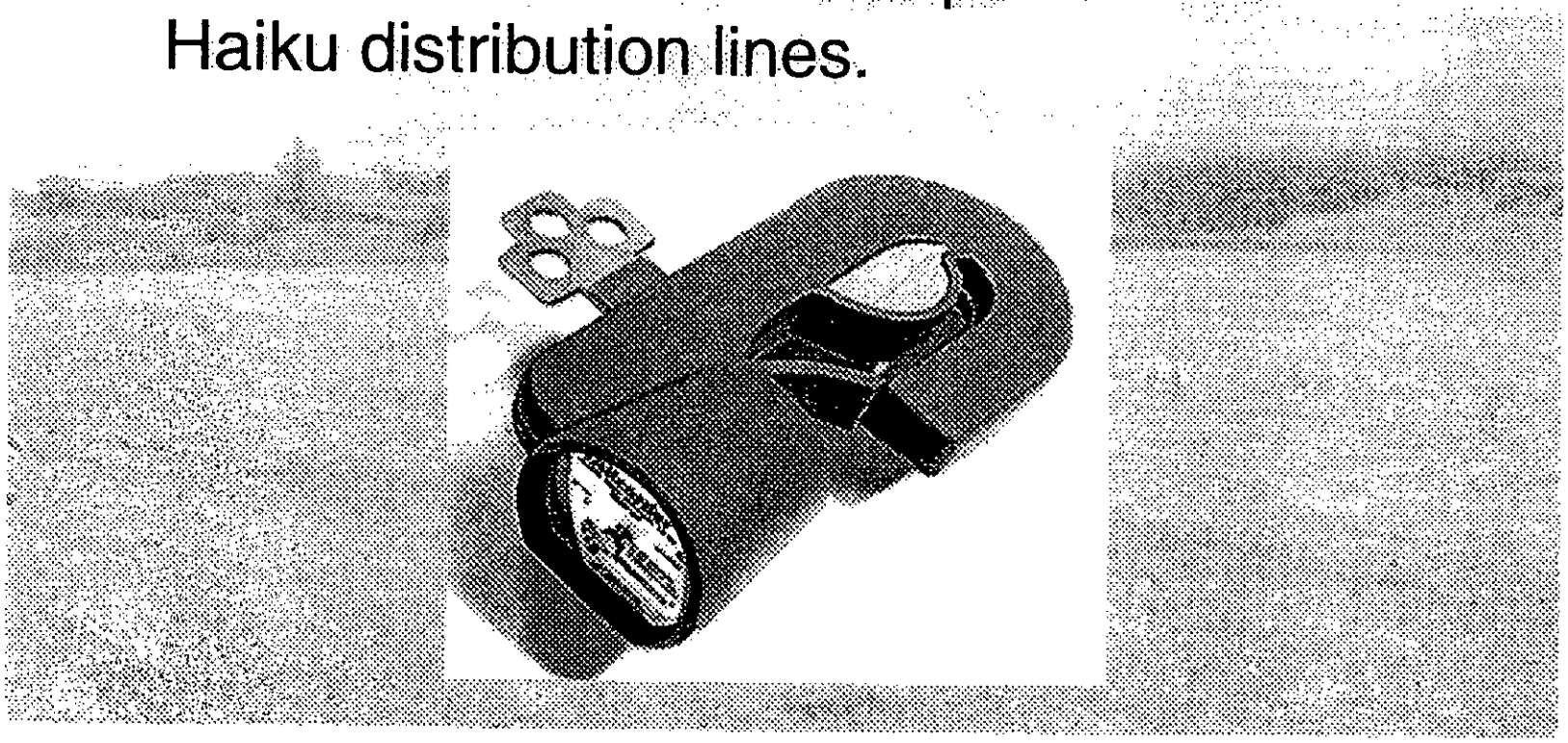
Peahi Substation
By MECO Staff Engineering
TSF
REG
REG
REG
JUNCTION CAB
RECL
RECL
TSF
COMM

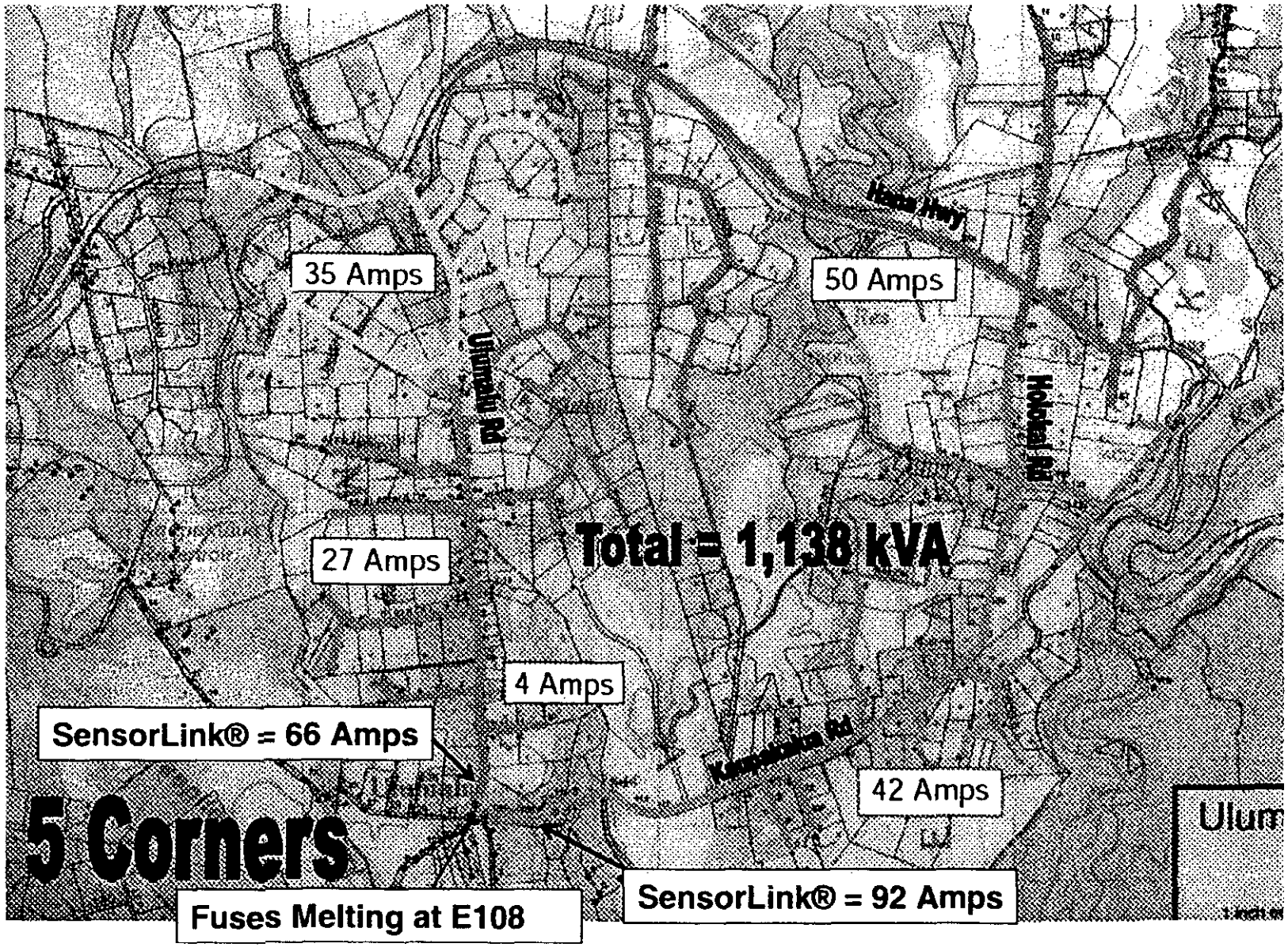
Topics of Discussion

- Existing Loads on Haiku Substation #16
- The New Peahi Substation
- Where will Peahi Substation Serve?
- System Improvements from Peahi Sub

Existing Loads on Haiku Sub 16

- Single phase SensorLink® load loggers were installed on various points on the Haiku distribution lines.

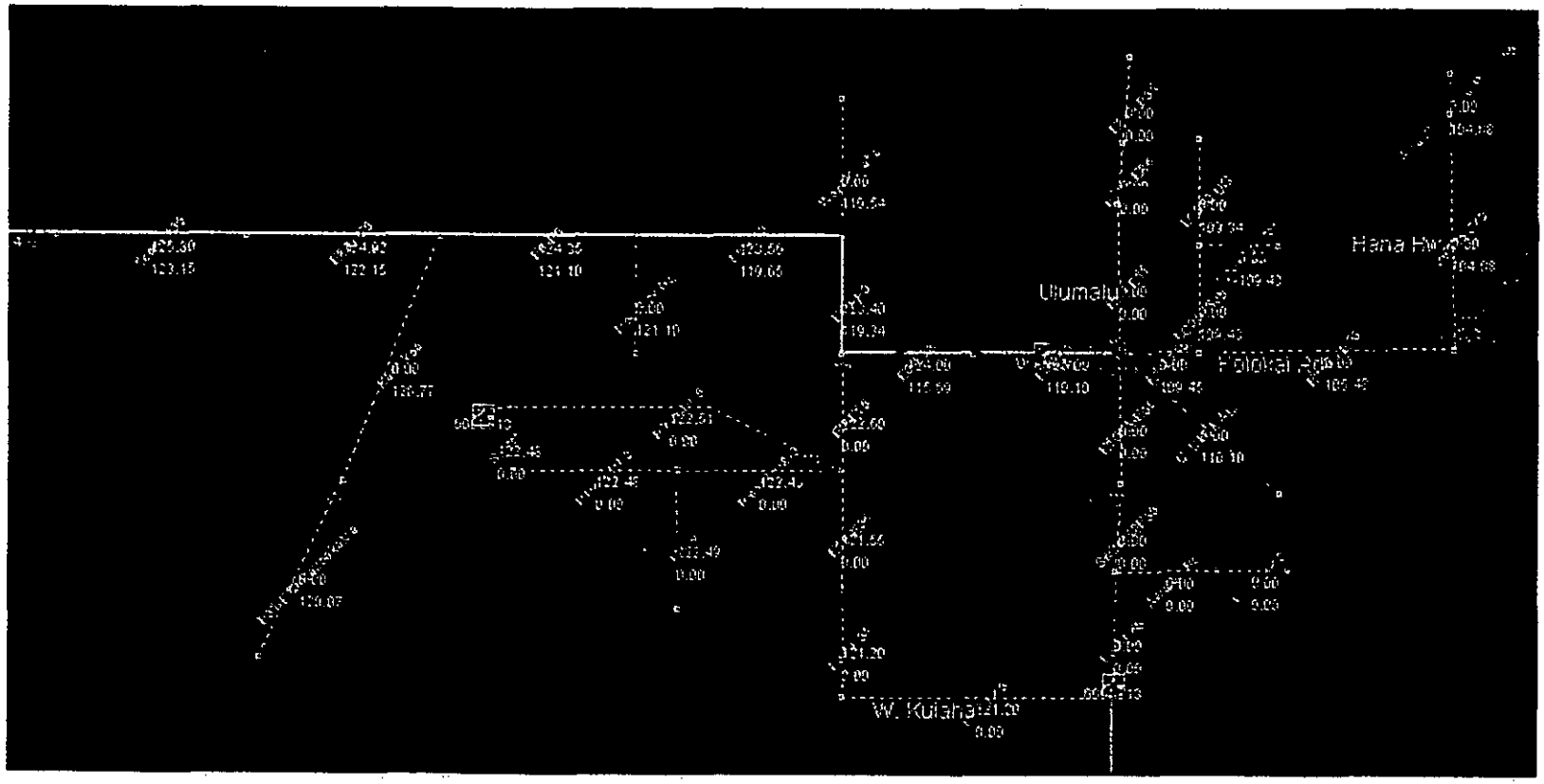



35 Amps
50 Amps
Hana Hwy
Ulumalu Rd
Hokokai Rd
Total = 1,138 kVA
27 Amps
4 Amps
SensorLink® = 66 Amps
42 Amps
5 Corners
Fuses Melting at E108
SensorLink® = 92 Amps
Ulum

Existing Loads (cont.)

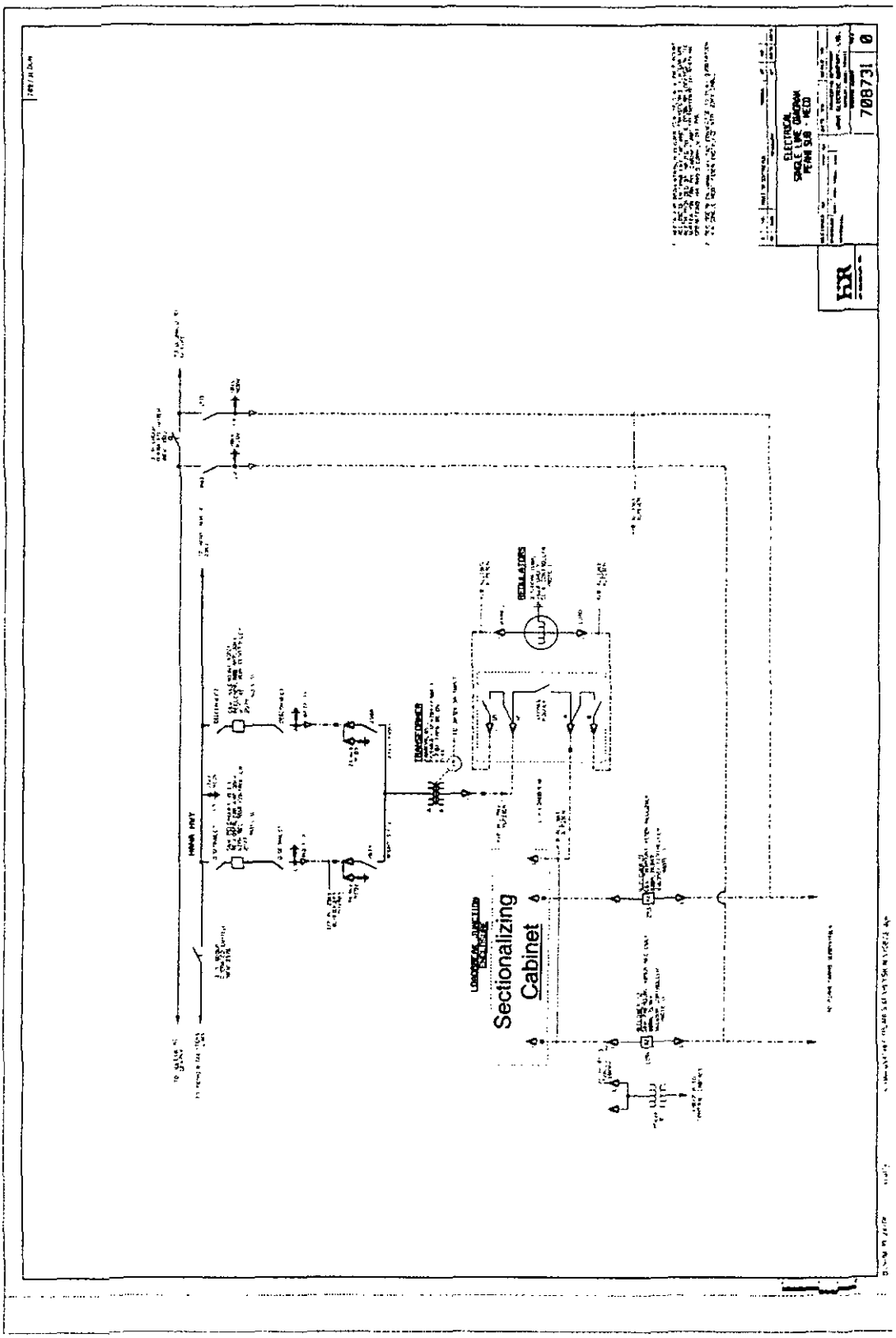
- Used load logger data in a SynerGEE® model of Haiku Sub 16.
- The large amount of current drawn and the distance away from the substation both contributed to the low theoretical voltage calculations

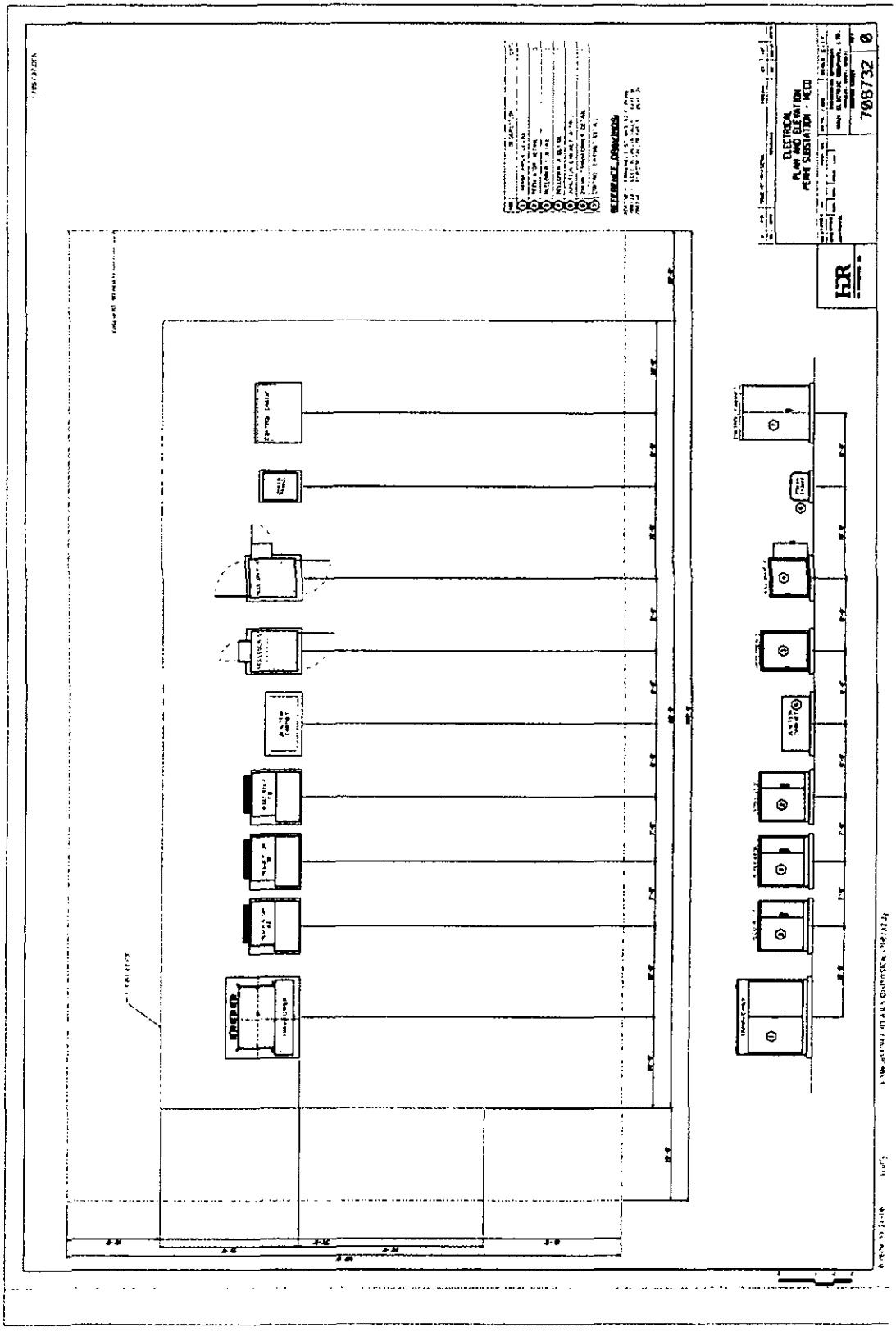
Unacceptable Low Voltage Areas are Circled

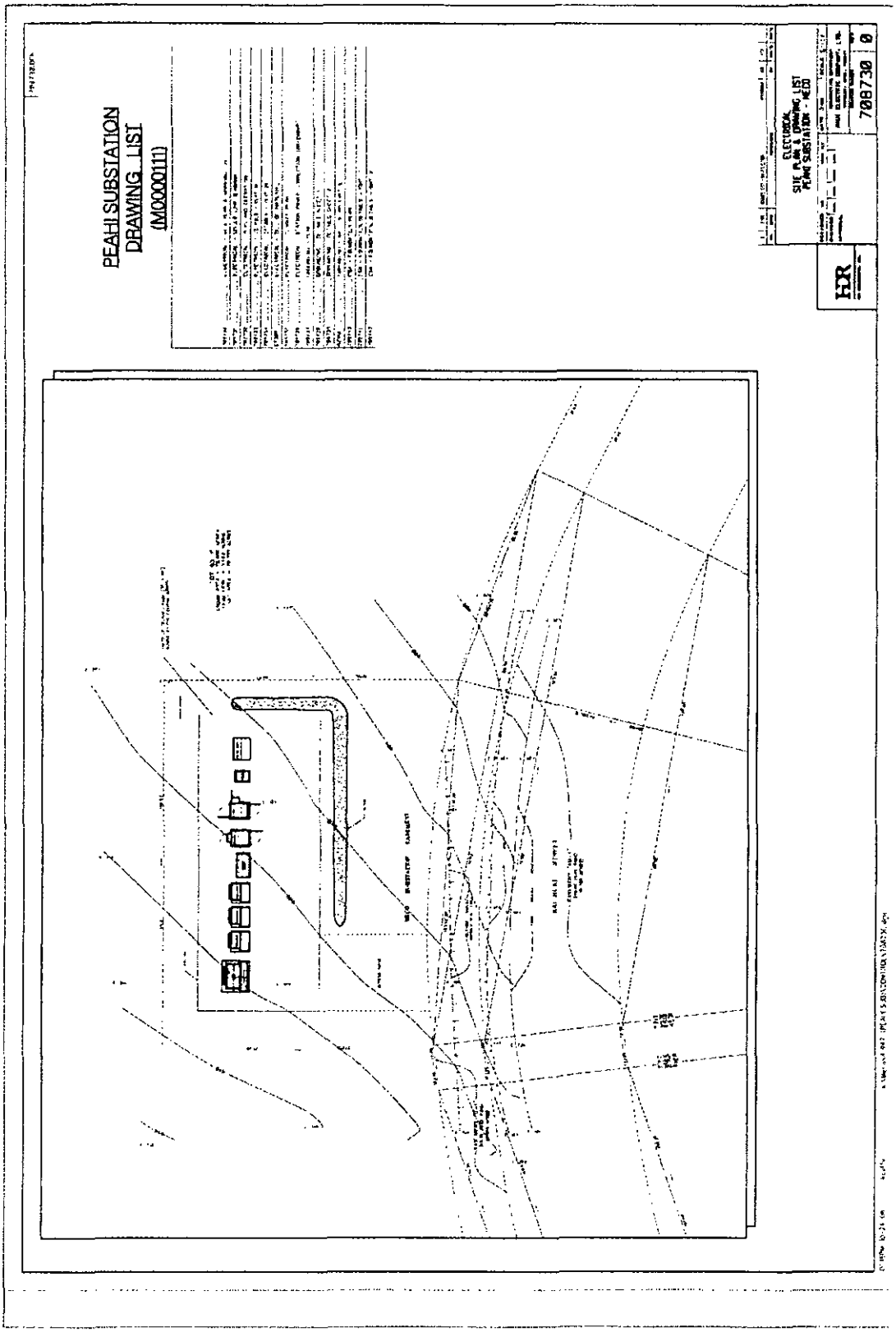


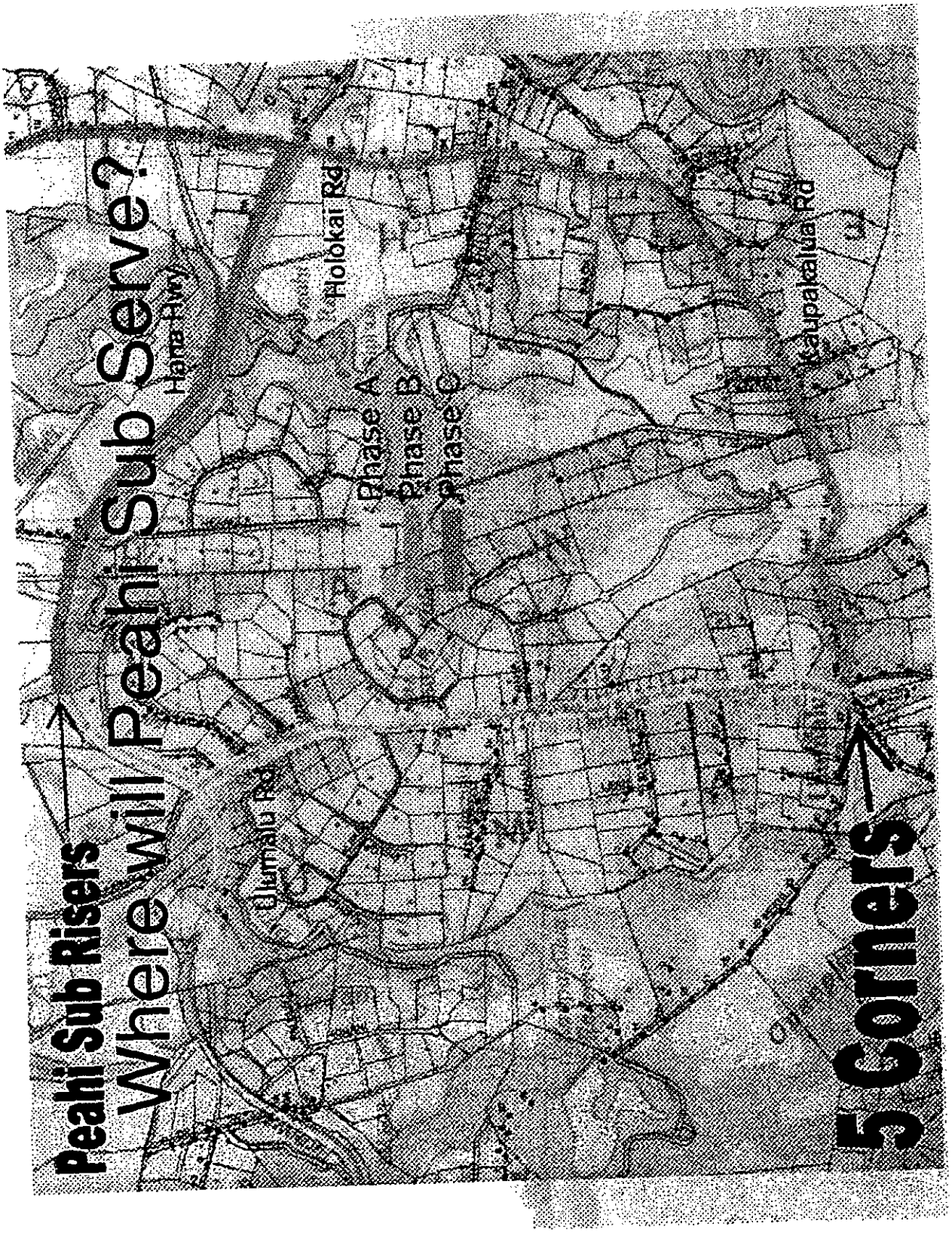
The New Peahi Substation

- 2500 kVA, 3-Phase, Transformer
- (3) Padmount Regulators
- (1) Junction Cabinet
- (2) Padmount Reclosers
- (1) 25kVA, 1-Phase, Transformer
- (1) Communications Equipment Enclosure
- (2) Polemount Reclosers
- (2) 3-Phase Group Operated Switch
- 7,500 ft. #1/0 AAC – Distribution Line Extension


Sectionalizing
Cabinet
708731
0


REFERENCE DRAWINGS
ELECTRICAL
PLAN AND ELEVATION
PEAK SUBSTATION - HECO
708732
0
HDR


PEAHI SUBSTATION
DRAWING LIST
(M0000111)
ELECTRICAL
SITE PLAN & DRAWING LIST
PEAHI SUBSTATION - MEED
HDR
7088730
0


Peahi Sub Risers
Where will Peahi Sub Serve?
Hana Hwy
Hoolokai Rd
Ulumalu Rd
Phase A
Phase B
Phase C
Kaupakalua Rd
5 Corners

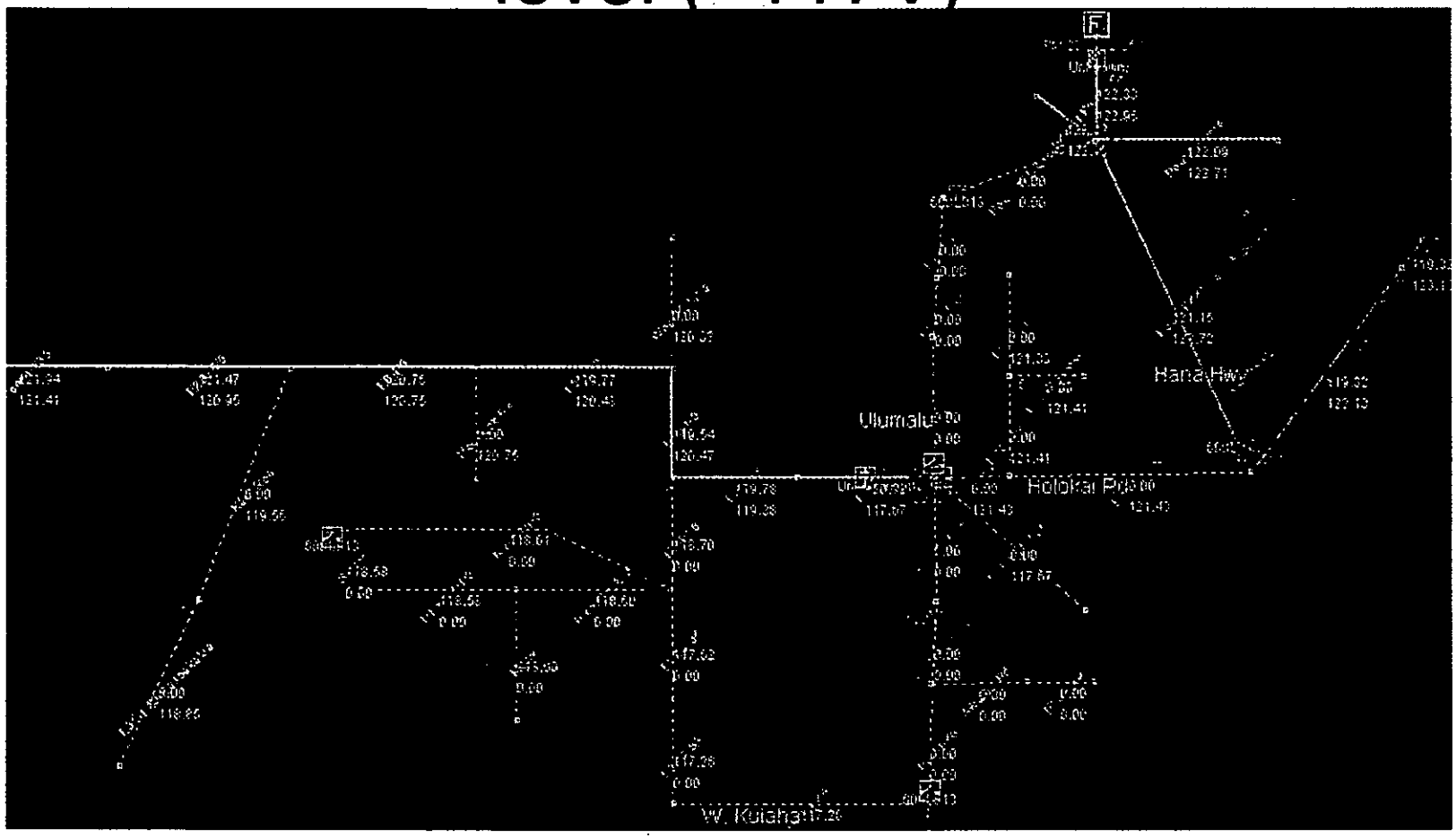
System Improvements from Peahi Sub

- Theoretical Voltages on Haiku Sub and Peahi Sub distribution lines are at an acceptable level (≥117 Volts)
- **SynerGEE shows System Losses are improved by 132 kW!**
- **Annual Cost of Energy Losses**

  = 8760H x Loss Factor x Peak losses x $/KWH

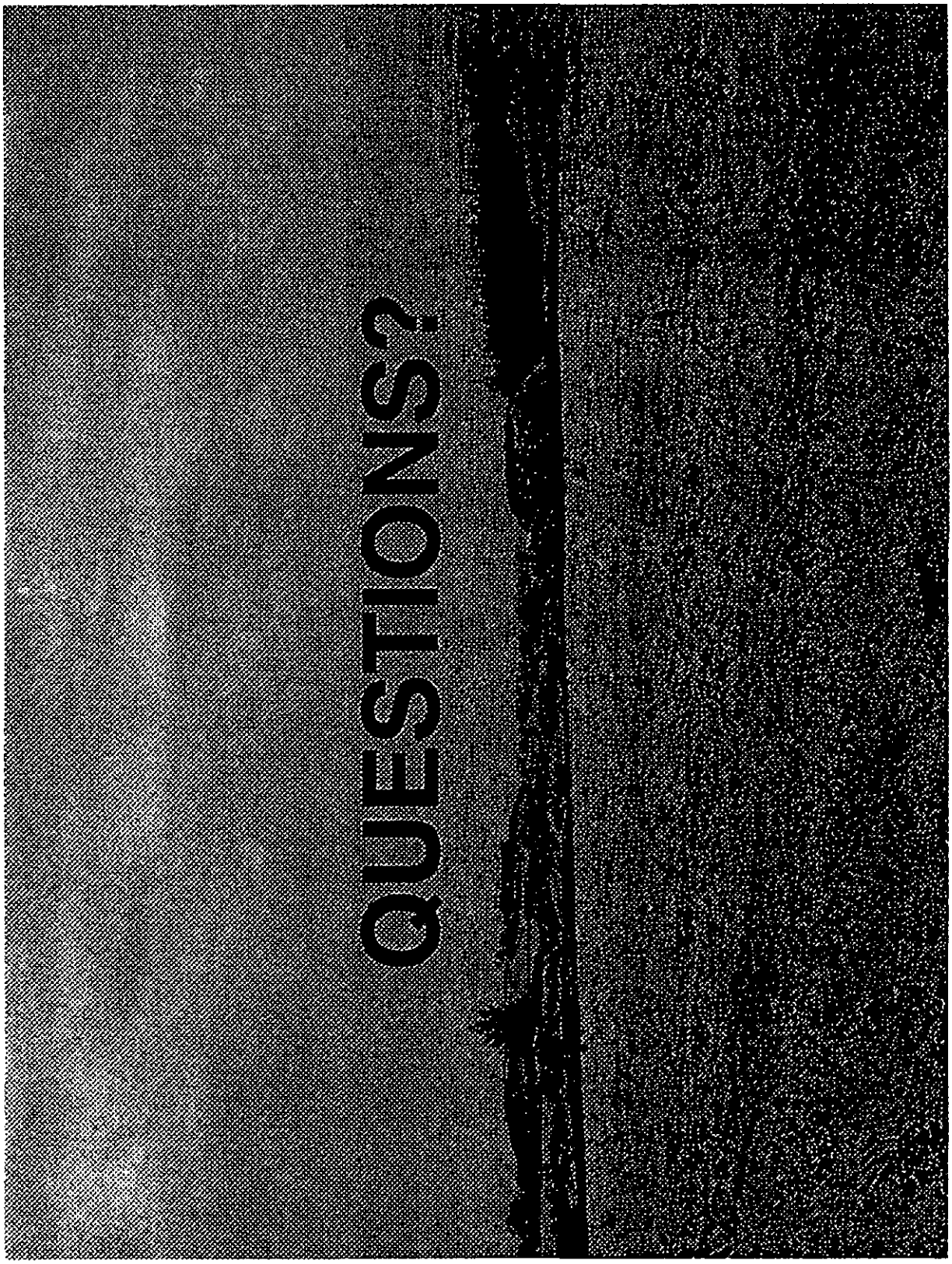
  = 8760H x 0.3 x 132KW x $0.1/KWH ~ $35,000

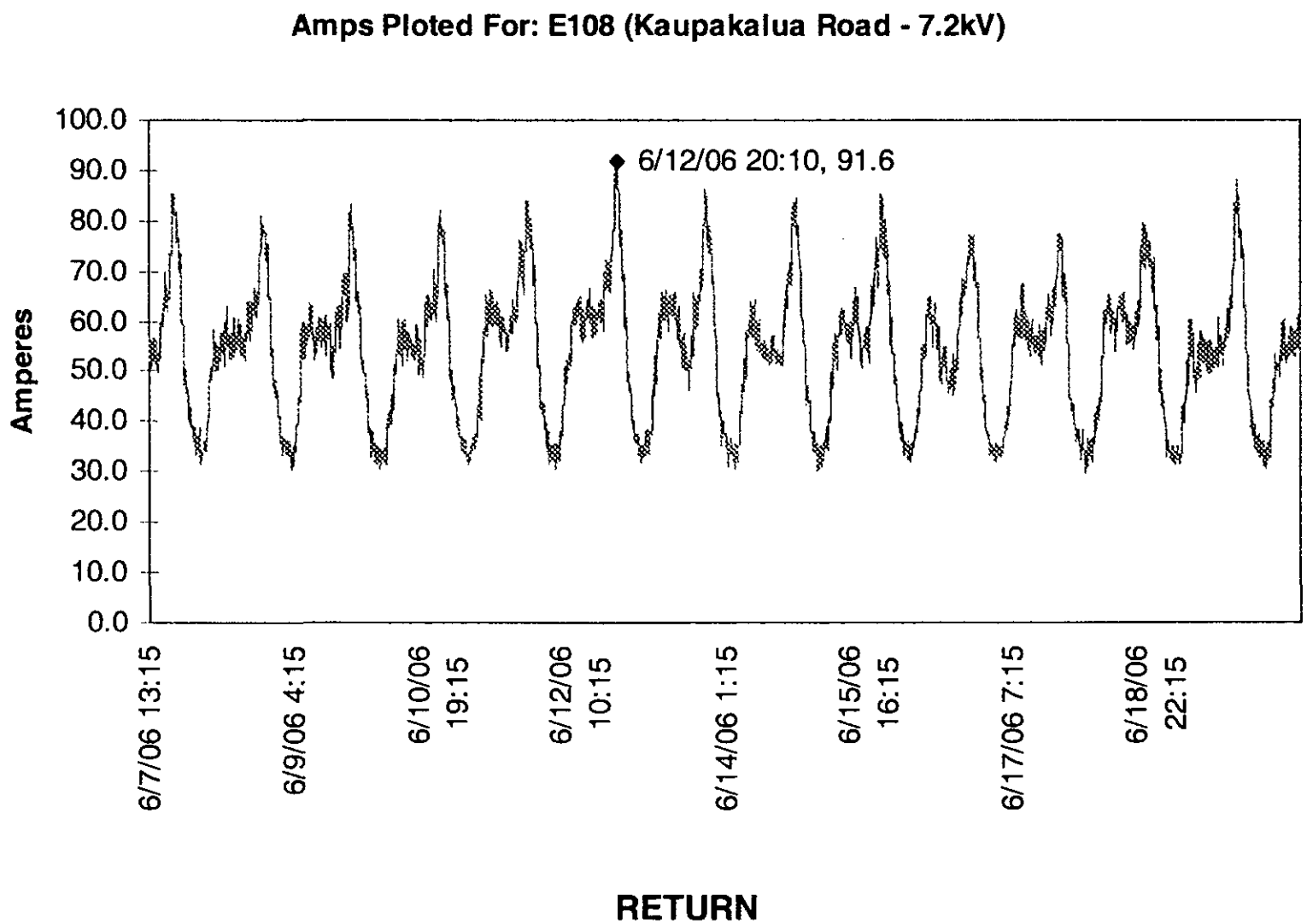
Voltages are now at an acceptable level (≥117V)

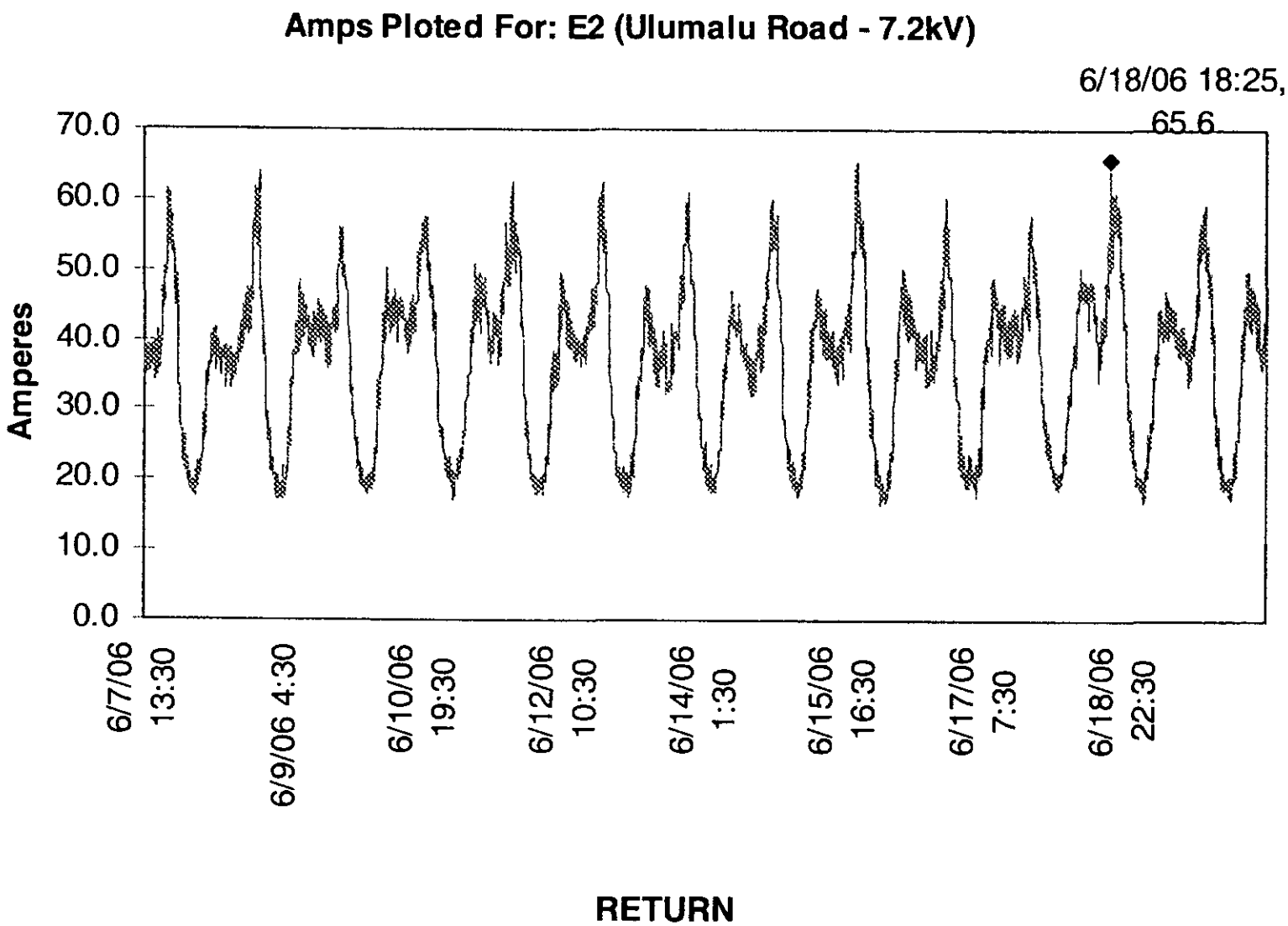


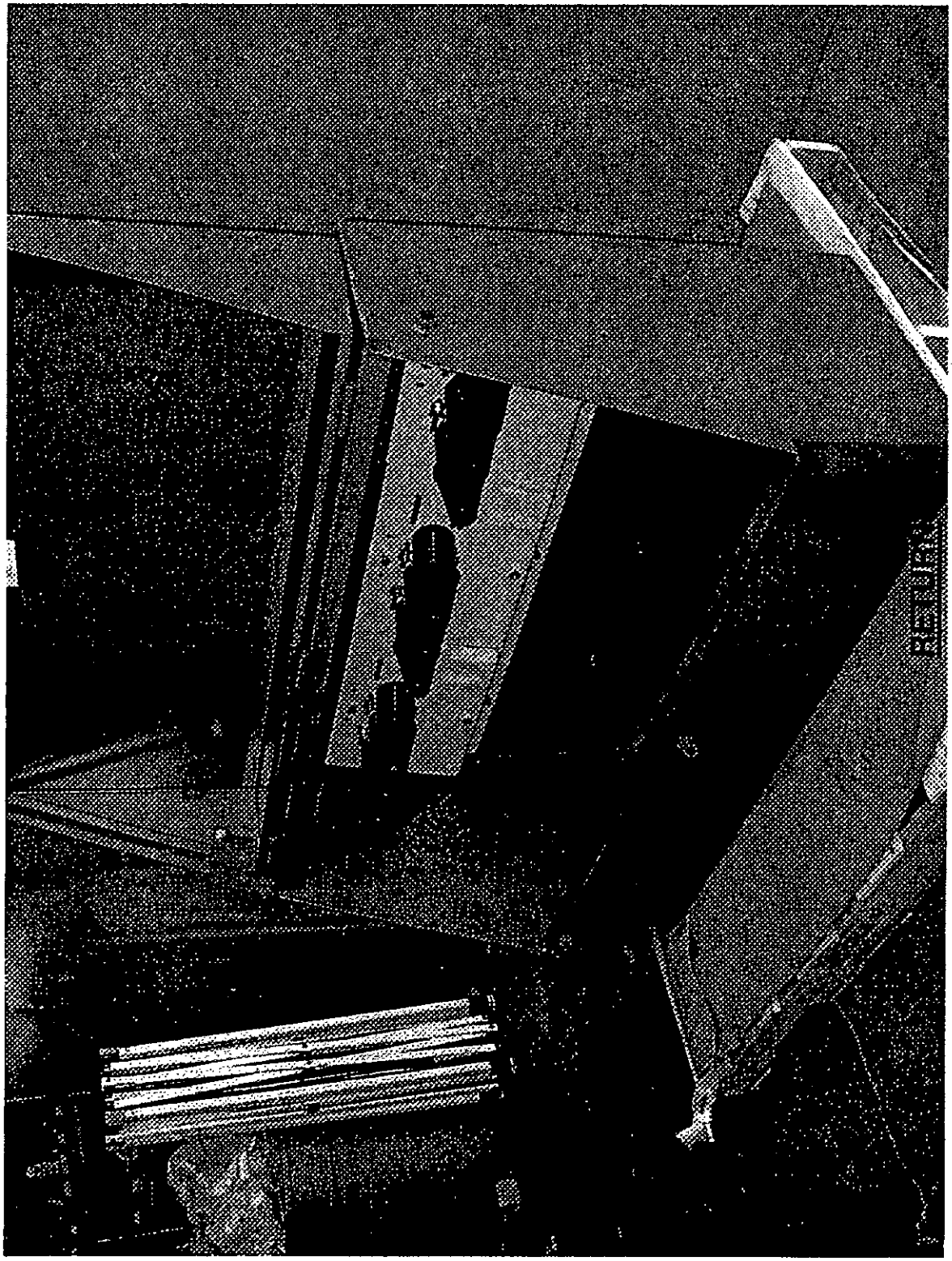
Recap

- Unacceptable distribution voltages exist on Ulumalu Rd., Holokai Rd., and Hana Hwy. (<117 volts)
- The new Peahi Substation will be able to pick up these low voltage areas with a 7,500 ft. distribution line extension.
- Due to the Peahi Sub, low distribution voltages disappear and there is a significant system losses improvement.
- **The addition of the new Peahi Sub and the Distribution Line Extensions are very essential to the Haiku area.**


QUESTIONS?


Amps Ploted For: E108 (Kaupakalua Road - 7.2kV)
Amperes
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
6/12/06 20:10, 91.6
6/7/06 13:15
6/9/06 4:15
6/10/06 19:15
6/12/06 10:15
6/14/06 1:15
6/15/06 16:15
6/17/06 7:15
6/18/06 22:15
RETURN


Amps Ploted For: E2 (Ulumalu Road - 7.2kV)
6/18/06 18:25,
65.6
Amperes
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
6/7/06 13:30
6/9/06 4:30
6/10/06 19:30
6/12/06 10:30
6/14/06 1:30
6/15/06 16:30
6/17/06 7:30
6/18/06 22:30
RETURN



Justification for Mahinahina Sub 50 Repl Tsf 2 (M0000807) and Napili Sub 29 Repl Tsf 2 (M0000810)

The following shows the loading on Mahinahina Substation Tsf 50-2 and Napili Substation Tsf 29-1 & Tsf 29-2 during emergency conditions (one circuit outage). These transformers have ratings of 7500 KVA (9375 KVA with fans operating).
Note the overload conditions highlighted in red. These overloads are the reason for changing out these transformers in 2007. (This information came from our 2006 substation load forecasting spreadsheet.)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Circuit Out	Transfer Circuit	Transfer Tsf	Transfer Tsf FA Rating (KVA)	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09
2													
20													
21	1381	1420	Tsf 29-2	9375	10878	11169	11623	12058	[illegible]	12949	13406	13669	13935
22		1421 to1232	Tsf 29-1	9375	6995	7240	7558	7839	8123	8754	9674	10272	10665
23													
24	1232	1420	Tsf 29-2	9375	10673	10994	11542	12029	[illegible]	13367	14683	15886	15479
25													
26	1420	1381	Tsf 50-2	9375	10878	11169	11623	12058	[illegible]	12949	13406	13669	13935
27													
28	1421	1232	Tsf 29-1	9375	6995	7240	7558	7839	8123	8754	9674	10272	10665
29													
30													
31	336 AAC = 515 amps = 11,123 KVA (normal)												
32	336 AAC = 595 amps = 13,090 KVA (emergency)												
33													
34	[illegible]												
35													
36													
37													
38													

The following shows the load forecast spreadsheets for the Napili and Mahinahina substation transformers.

Microsoft Excel - West Maui

Type a question for help

Book Antiqua 10

O21

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Napili Sub 29 Tsf 1												
2	(7500/9375 KVA, 69 KV to 12.47 KV)												
3													
4	YEAR		Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
5													
6	Transformer Starting Load (kVA)		4105	4108	4228	4356	4486	4621	4833	5045	5257	5478	5683
7	Power Factor	0.95											
8	Load Growth 2% per year		0	123	127	131	135	0	0	0	0	0	0
9													
10	PROJECT	Project No.											
11													
12	CIRCUIT 1232 (Honolua)												
13	Kapalua Site 6-0 (1275kVA)	DD						212	212	212	213	213	213
14													
15													
16													
17	CIRCUIT 1233 (Kahana)												
18													
19													
20													
21	YEAR		Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
22	Transformer Ending Load	Tsf Load (KV,	4105	4228	4356	4486	4621	4833	5045	5257	5478	5683	5896
23		Tsf OA Rating	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
24		Tsf FA Rating	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375
25													
26			Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
27	Circuit 1232 (100%)												
28													

Sub29-1

Ready NUM

Microsoft Excel - West Maui

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Book Antiqua 10

F26

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Napili Sub 29 Tsf 2															
2	(7500/9375 KVA, 69 KV to 12.47 KV)															
3																
4	YEAR		Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-1
5																
6	Transformer Starting Load (kVA)		6568	6588	6768	7197	7543	7899	8524	9639	9836	10010	10035	10061	10096	1015
7	Power Factor	0.95														
8	Load Growth 2% per year		0	150	0	0	0	0	0	11	0	25	26	36	71	107
9																
10	PROJECT	Project No.														
11																
12	CIRCUIT 1420 (Kapalua 01)															
13	Maui Preparatory Academy (301 kVA)	M0017797 DD			231											
14	West Maui Village (743 KW/828KVA)	M0020883RN				206	206	206	206							
15																
16	CIRCUIT 1421 (Kapalua 02)															
17	Honolua Ridge Ph. 2 (989 kVa)	M0017950 MF			150	150	150	239	300							
18	Mackin Residence (41 kVA)	M0018292 AI			41											
19	Caputo Residence (47 kVA)	M0017328 AI		47												
21	Kapalua Mauka															
22	Mahana Estates (900 kVA)	RN						180	180	180	180					
23	Driving Range (47 kVA)								47							
24	Clubhouse (200 kVA)								200							
25	22 Multifamily Homes (181 kVA)								181							
26																
27	A (2297 kVA)											96	89		81	
28	E (706 kVA)										176	177		177		
29	N (566 kVA)														141	

Sub29-2

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E11

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Makinahina Sub 50 Tsf 1																
2	(7500 KVA, 69 KV to 12.47 KV)																
3																	
4	YEAR		Dec-97	Dec-98	Dec-99	Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08
5																	
6	Transformer Starting Load		0	0	0	0	0	0	0	0	7500	7500	7871	8756	9019	9289	9568
7	Power Factor	0.95															
8	Load Growth 2% per year		0	0	0	0	0	0	0	0	0	0	0	263	271	279	9
9																	
10	PROJECT	Project No.															
11																	
12	CIRCUIT 1218 (Napili)																
13																	
14																	
15																	
16																	
17																	
18	CIRCUIT 1219 (Honokowai)																
19	West Maui Breakers (795 kVA)	M0015967 PN											795				
20	Honua Kai (2000kVA) 12/07	M0019952 PN															1000
21	Honua Kai Temp (471 KVA)	M0020532 VS										471					
22																	
23	YEAR		Dec-97	Dec-98	Dec-99	Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08
24	Transformer Ending Load	Tsf Load (KV	0	0	0	0	0	0	0	0	7500	7971	8756	9019	9289	9568	10568
25		Tsf OA Rating	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
26		Tsf FA Rating	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375
27																	
28	Circuit 1219 (1000x)			Dec-98	Dec-99	Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08

Sub50-1

Ready

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A1 Mahinahina Sub 50 Tsf 2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Mahinahina Sub 50 Tsf 2																
2	(7500 KVA, 69 KV to 12.47 KV)																
3																	
4	YEAR		Dec-97	Dec-98	Dec-99	Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08
5																	
6	Transformer Starting Load		0	0	0	0	0	0	0	0	7200	7200	7418	7638	7868	8104	8347
7	Power Factor	0.95															
8	Load Growth 2% per year		0	0	0	0	0	0	0	0	0	216	196	229	236	243	250
9																	
10	PROJECT	Project No.															
11																	
12	CIRCUIT 1380 (Spare)																
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20	CIRCUIT 1381 (Napili)																
21	Bay Point - Kahana Residence (2	M0018102 Ai											26				
22																	
23																	
24	YEAR		Dec-97	Dec-98	Dec-99	Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08
25	Transformer Ending Load	Tsf Load (KV	0	0	0	0	0	0	0	0	7200	7418	7638	7868	8104	8347	8597
26		Tsf OA Rating	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
27		Tsf FA Rating	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375
28																	

Sub50-2

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Ready NUM

Justification for the Kanaha Substation #B – Unit Transformer #B and Switchgear Replacement (M0000687)

The following shows the loading on Kanaha Substation Tsf 2-2 (#B) under the transformer normal loading conditions. This transformer has a rating of 7500KVA (outdoor air-cooled or OA) and 9375 KVA (with fans operating - FA). Please note the overload conditions highlighted in red (Exhibit A & B) projected in Dec. 2007 which included the anticipated Customer's project demands load. This includes the State of Hawaii – Airport projects. The heavy loading condition would not only affect the integrity of the transformer insulation but affect our ability to transfer load from other transformer circuits during normal Switching and Emergency conditions. (This information comes from our 2006 substation load forecasting spreadsheet).

EXHIBIT A:

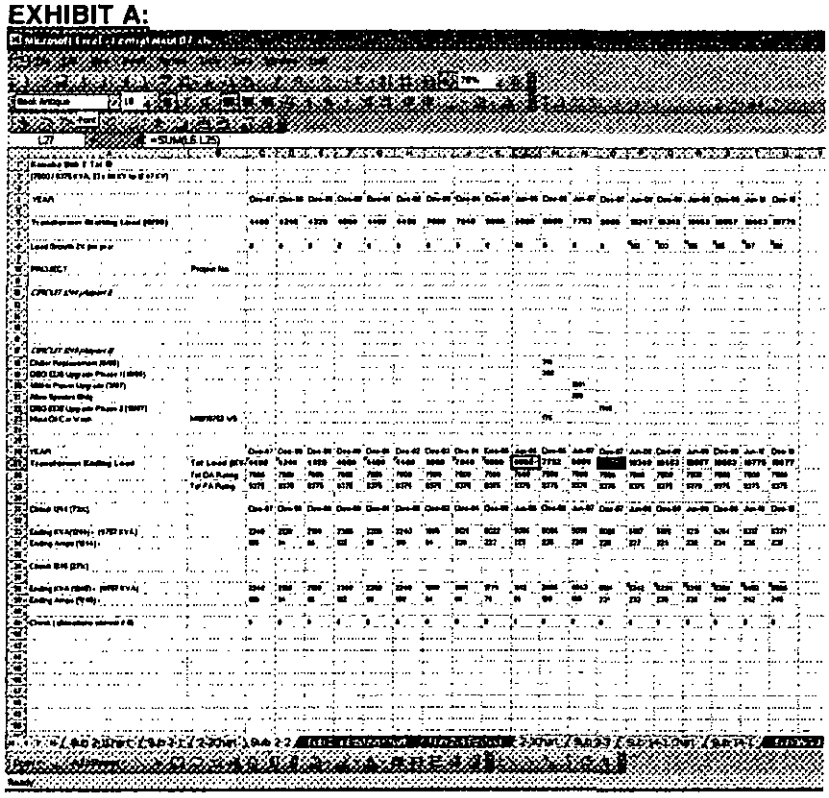


EXHIBIT B:

Central Maui 12kV Substation Loading Summary (6/2006)

Kahului Sub 9 Tsf 9-3

	Jun-06	Dec-06	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Dec-10
Tsf Load (KVA)	6612	6928	6883	7630	7908	10861	11080	11171	11287	11398	11610
Tsf OA Rating	7500	7500	7500	10000	10000	10000	10000	10000	10000	10000	10000
Tsf FA Rating	9375	9375	9375	12500	12500	12500	12500	12500	12500	12500	12500

Kaneohe Sub 2 Tsf 2-1

	Dec-06	Jun-08	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
Tsf Load (KVA)	9634	9841	9208	9466	9561	9668	9753	9857	9949	10049	10142
Tsf OA Rating	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Tsf FA Rating	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500

Kaneohe Sub 2 Tsf 2-2

	Dec-06	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
Tsf Load (KVA)	6830	6868	7752	9099	[illegible]	10349	10453	10557	10663	10770	10877
Tsf OA Rating	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
Tsf FA Rating	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375	9375

Kaneohe Sub 2 Tsf 2-3

	Dec-06	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
Tsf Load (KVA)	9684	10281	8774	8356	8469	8560	8642	8726	8815	8904	8993
Tsf OA Rating	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Tsf FA Rating	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500

Waikiki Sub 14 Tsf 14-1

	Dec-06	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
Tsf Load (KVA)	0	0	5273	5380	5513	5630	5753	5873	5995	6113	6233
Tsf OA Rating	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Tsf FA Rating	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500

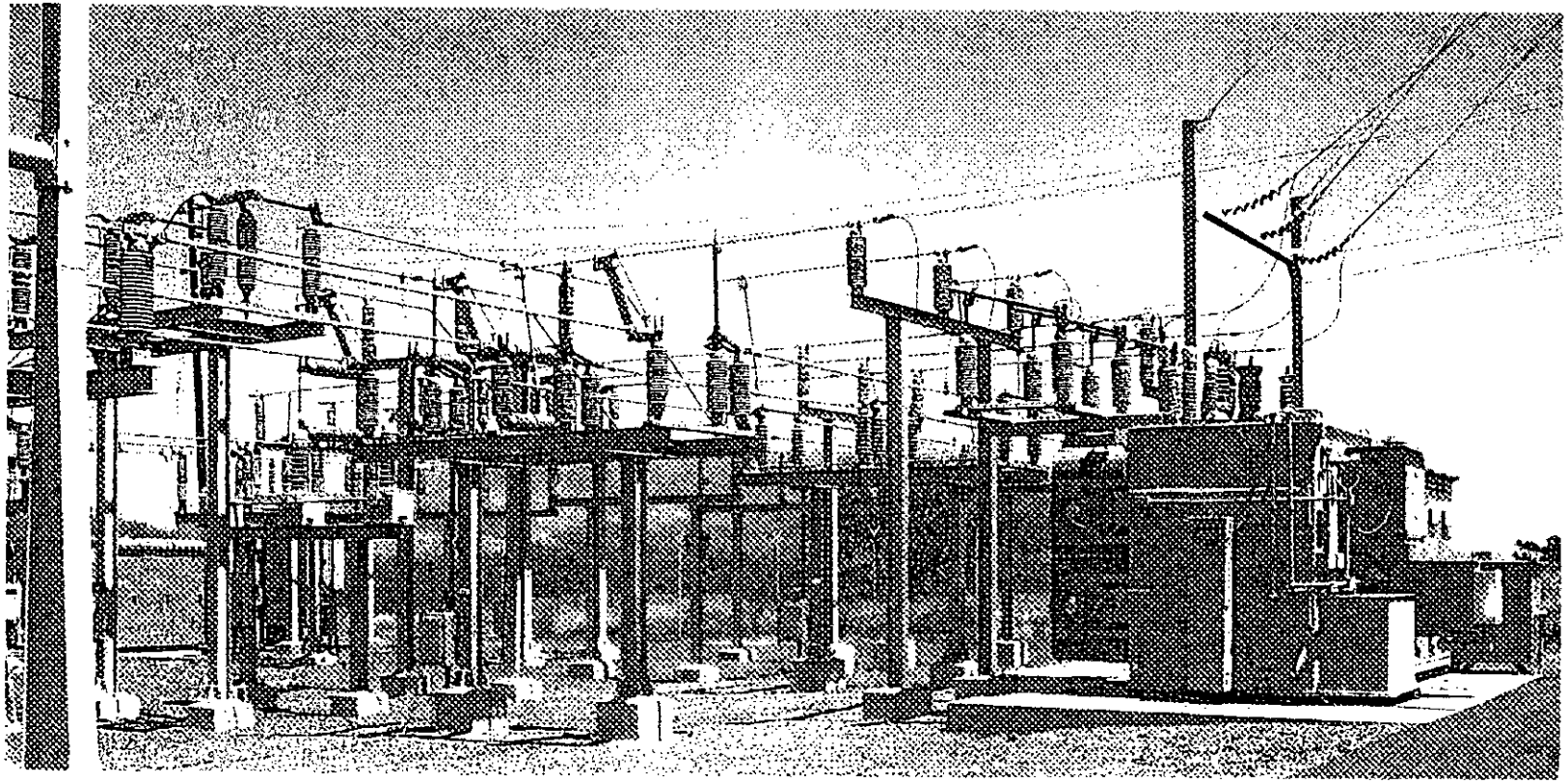
Waiau Sub 36 Tsf 36-3 AM

	Dec-06	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
Tsf Load (KVA)	11153	11387	5321	6896	7371	7446	7797	8054	8199	8344	8489
Tsf OA Rating	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Tsf FA Rating	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500

Waiau Sub 36 Tsf 36-4 PM

South Maui Distribution Update Fall 2006

By MECO Staff Engineering



Disclaimer

- Please keep in mind that the following information is based on worst case scenarios.
  - i.e. Fault locations

Discussion Points

- Existing Condition
- Future Loads
- Existing System with Future Loading
- Required Distribution System Upgrade
- Future Load with Upgraded Distribution System
- Transformer Loading Timeline
- Conclusion

Existing Condition

- With the recent upgrades of Kihei Sub Transformers #1 & #2, we have accommodated for the current load demand of South Maui.
- During switching analysis, Kihei Sub Tsf #1 will be loaded a little over FA (forced air) rating of 12.5 MVA when circuit 1473 is out.

Existing Switching Analysis

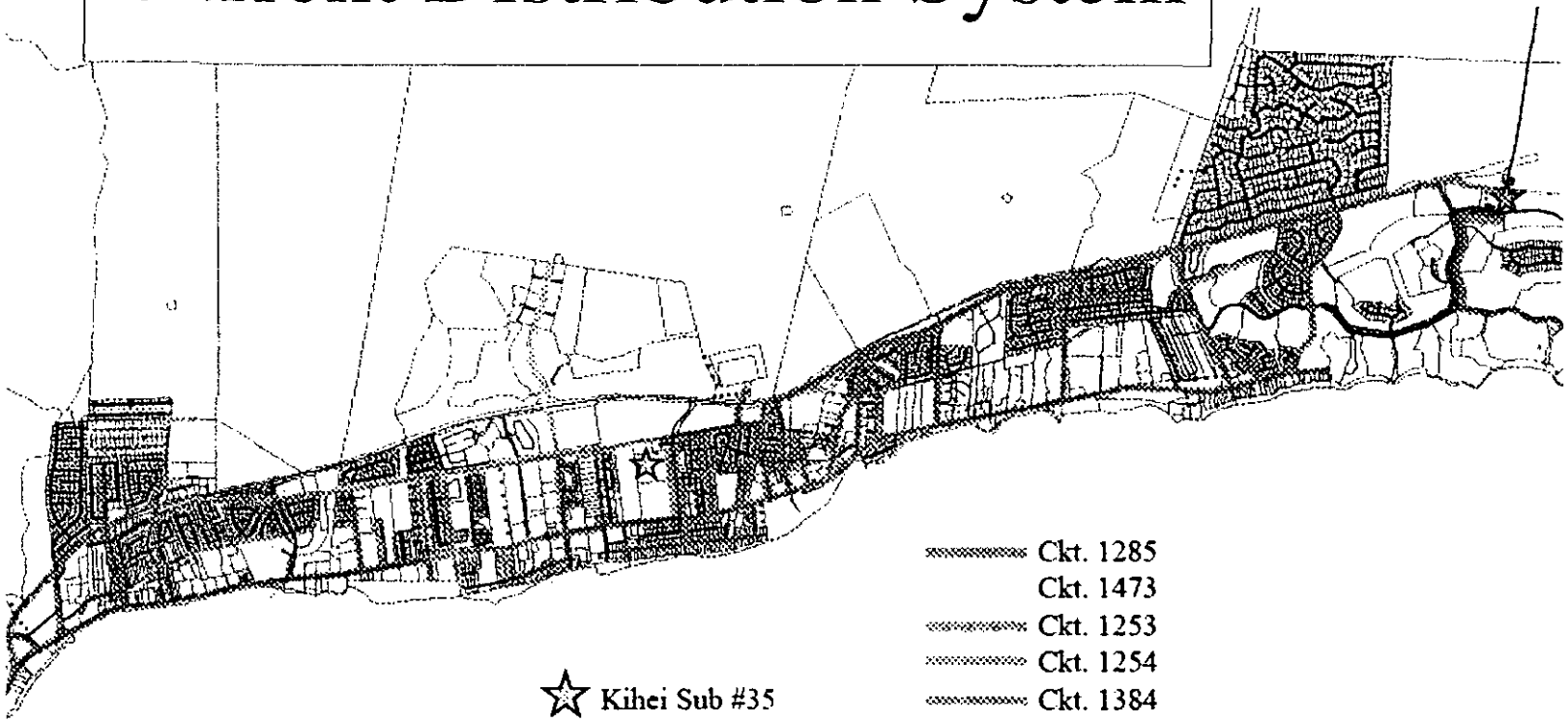
Blow-up

Sub TSF #	Circuit #	Normal Conditions (kVA)	Total (kVA)							ONE CIRCUIT OUT							
				1285	TOTAL	1253	TOTAL	1254	TOTAL	1384	TOTAL	1385	TOTAL	1472	TOTAL	1473	TOTAL
Maalaea TSF #1	1285	5250	7000		7000	5250	7000	5250	7000	5250	7000	5250	7000	5250	7000	10101	11851
	1286	1750		7000		1750		1750		1750		1750		1750		1750	
Kihei TSF #1	1253	1294	6903	1294	6903		5609	1294	1294	1294	12188	1294	6903	1294	6903	6965	12574
	1254	5609		5609		5609				10894		5609		5609		5609	
Kihei TSF #2	1384	9208	9208	9208	9208	9208	9208	12317	12317		0	9208	9208	9208	9208	9208	9208
	1385	0		0		0		0		0				0		0	
Kihei TSF #3	1472	0	10522	0	10522	0	11816	0	10522	0	10522	0	10522		10522	0	0
	1473	10522		10522		11816		10522		10522		10522		10522			
Wailea TSF #1	1280	8000	8000	8000	8000	8000	8000	10500	10500	11923	11923	8000	8000	8000	8000	8000	8000
	1281	0		0		0		0		0		0		0		0	

- This table shows how loads are distributed when there is a one circuit outage.
- Where existing switches and disconnects are located, Kihei Transformer #1 will be loaded to 12.5 MVA when circuit 1473 is out.

Sub TSF #	Circuit #	Normal Conditions (kVA)	Total (kVA)	1285	TOTAL	1253	TOTAL	1254	TOTAL
Maalaea TSF #1	**1285**	5250	7000		7000	5250	7000	5250	7000
	1286	1750		**7000**		1750		1750	
Kihei TSF #1	**1253**	1294	6903	1294	6903		5609	1294	1294
	1254	5609		5609		5609			
Kihei TSF #2	**1384**	9208	9208	9208	9208	9208	9208	**12317**	12317
	1385	0		0		0		0	
Kihei TSF #3	**1472**	0	10522	0	10522	0	11816	0	10522
	1473	10522		10522		**11816**		10522	
Wailea TSF #1	**1280**	8000	8000	8000	8000	8000	8000	**10500**	10500
	1281	0		0		0		0	

Current Distribution System



Future Loads (until Dec '08)

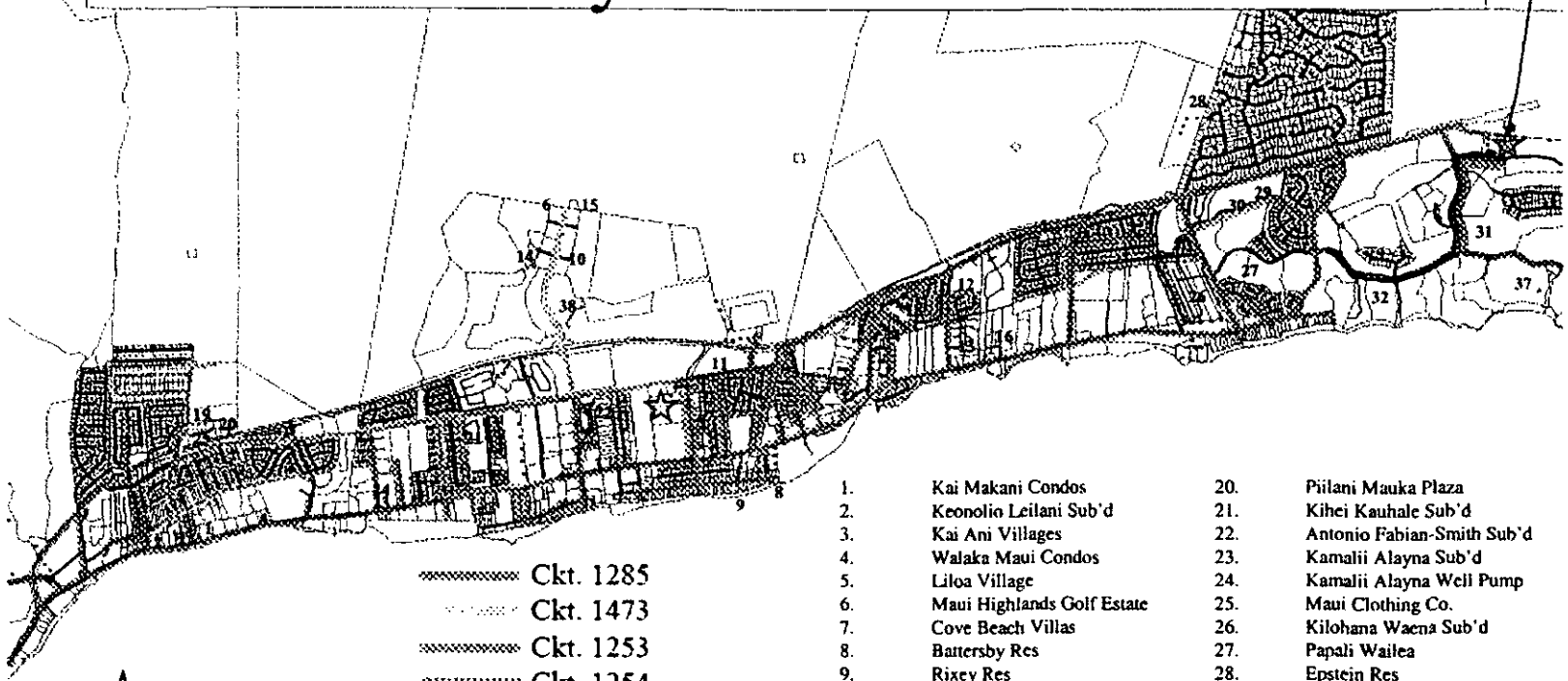
- 38 Large Upcoming Projects in South Maui
- Total Load = 12.5 MVA
- Total Load equals FA MAX CAPACITY for a whole new 10 MVA transformer!

Upcoming Project Name & Load (kVA) – Untill Dec '08

1. Kai Makani Condos	432	20. Piilani Mauka Plaza	235
2. Keonolio Leilani Sub'd	21	21. Kihei Kauhale Sub'd	81
3. Kai Ani Villages	487	22. Antonio Fabian-Smith Sub'd	50
4. Walaka Maui Condo	105	23. Kamalii Alayna Sub'd	284
5. Liloa Village	342	24. Kamalii Alayna Well Pump	29
6. Maui Highlands Golf Estate	244	25. Maui Clothing Co.	220
7. Cove Beach Villas	214	26. Kilohana Waena Sub'd	183
8. Battersby Res	15	27. Papali Wailea	198
9. Rixey Res	54	28. Epstein Res	76
10. Maui High Performance	1667	29. Kai Malu	1083
11. Hale Mahaolu Ehiku	98	30. Wailea MF-5	312
12. Ke Alii Kai II	423	31. Wailea Town Center	647
13. Ke Alii Villas Sub'd	756	32. Norby Res	20
14. MEBD	400	33. Papaanui Sub'd	111
15. Maui Highlands Well Pump	90	34. Flannery Res	41
16. Aloha Village	676	35. Palauea Beach Villas	21
17. Kalama Heights Condo	615	36. Stevens Res	38
18. Osterstock Sub'd	35	37. Wailea MF-9	752
19. Kihei Commercial Condos	820	38. Hokulani Golf Villas	625

TOTAL 12500 kVA

Location of Projects and Current Distribution System



☆ Kihei Sub #35

☆ Wailea Sub #25

Ckt. 1285
Ckt. 1473
Ckt. 1253
Ckt. 1254
Ckt. 1384
Ckt. 1280
Ckt. 1320 & 1281
Ckt. 1321 & 1396

1. Kai Makani Condos
2. Keonolio Leilani Sub'd
3. Kai Ani Villages
4. Walaka Maui Condos
5. Liloa Village
6. Maui Highlands Golf Estate
7. Cove Beach Villas
8. Battersby Res
9. Rixey Res
10. Maui High Performance
11. Hale Mahaolu Ehiku
12. Ke Alii Kai II
13. Ke Alii Villas Sub'd
14. MEDB
15. Maui Highlands Well Pump
16. Aloha Village
17. Kalama Heights Condo
18. Osterstock Sub'd
19. Kihei Commercial Condos
20. Piilani Mauka Plaza
21. Kihei Kauhale Sub'd
22. Antonio Fabian-Smith Sub'd
23. Kamalii Alayna Sub'd
24. Kamalii Alayna Well Pump
25. Maui Clothing Co.
26. Kilohana Waena Sub'd
27. Papali Wailea
28. Epstein Res
29. Kai Malu
30. Wailea MF-5
31. Wailea Town Center
32. Norby Res
33. Papaanui Sub'd
34. Flannery Res
35. Palauea Beach Villas
36. Stevens Res
37. Wailea MF-9
38. Hokulani Golf Villas

Existing System with Future Loading

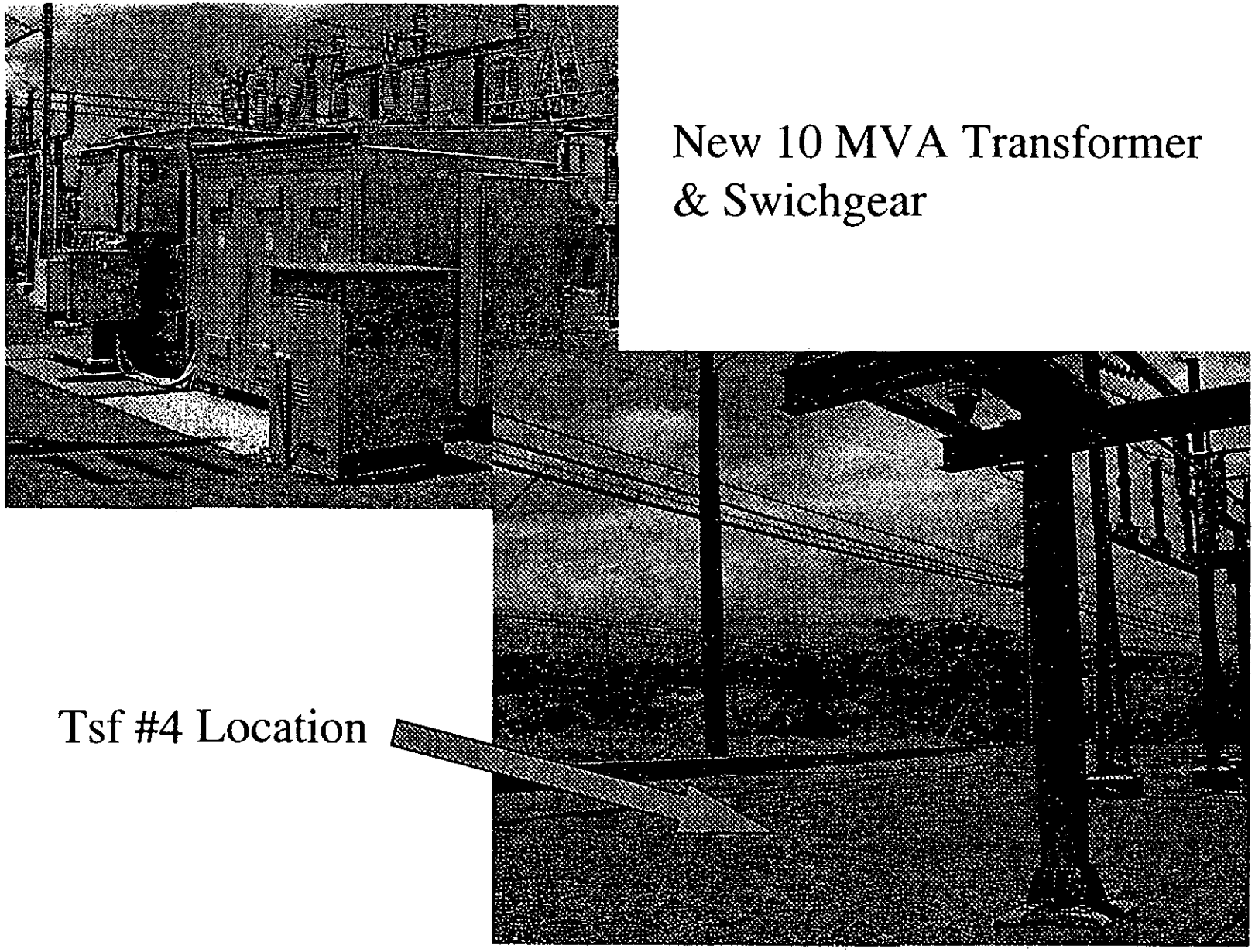
- At peak hours, Kihei Tsf #3 would be loaded to 13.3MVA.
- Three different circuit outages would cause transformer overloading at Maalaea, Kihei, and Wailea Substations.
  - Ckt. 1254 OUT – Kihei Tsf #2 Overload
  - Ckt. 1384 OUT – Kihei Tsf #1 & Wailea Tsf #1 Overload
  - Ckt. 1473 OUT – Maalaea Tsf #1 & Kihei Tsf #1 Overload

Existing Switching Analysis with Added Future Load

Sub TSF #	Circuit #	Normal Conditions (kVA)	Total (kVA)	ONE CIRCUIT OUT													
				1285	TOTAL	1253	TOTAL	1254	TOTAL	1384	TOTAL	1385	TOTAL	1472	TOTAL	1473	TOTAL
Maalaea	1285	5837	7587	X	7587	5837	7587	5837	7587	5837	7587	5837	7587	5837	7587	11982	13732
TSF #1	1286	1750		7587		1750		1750		1750		1750		1750		1750	
Kihei	1253	1660	7827	1660	7827	X	7167	1660	1660	1660	14381	1660	7827	1660	7827	8844	15011
TSF #1	1254	6167		6167		7167		X		12721		6167		6167		6167	
Kihei	1384	11418	11418	11418	11418	11418	11418	14585	14585	X	0	11418	11418	11418	11418	11418	11418
TSF #2	1385	0		0		0		0		0		X		0		0	
Kihei	1472	0	13329	0	13329	0	13989	0	13329	0	13329	0	13329	X	13329	0	0
TSF #3	1473	13329		13329		13989		13329		13329		13329		13329		X	
Wailea	1280	8396	9094	8396	9094	8396	9094	11396	12094	13260	13958	8396	9094	8396	9094	8396	9094
TSF #1	1281	698		698		698		698		698		698		698		698	

Required Distribution System Upgrade

- New 10MVA Transformer and Switchgear at Kihei Sub 35 (Transformer #4)
- Two new circuits fed by Kihei Tsf #4
- Group Operated Loadbreak Switches installed at various locations for switching purposes.


New 10 MVA Transformer
& Swichgear
Tsf #4 Location

Future Load with Upgraded Distribution System

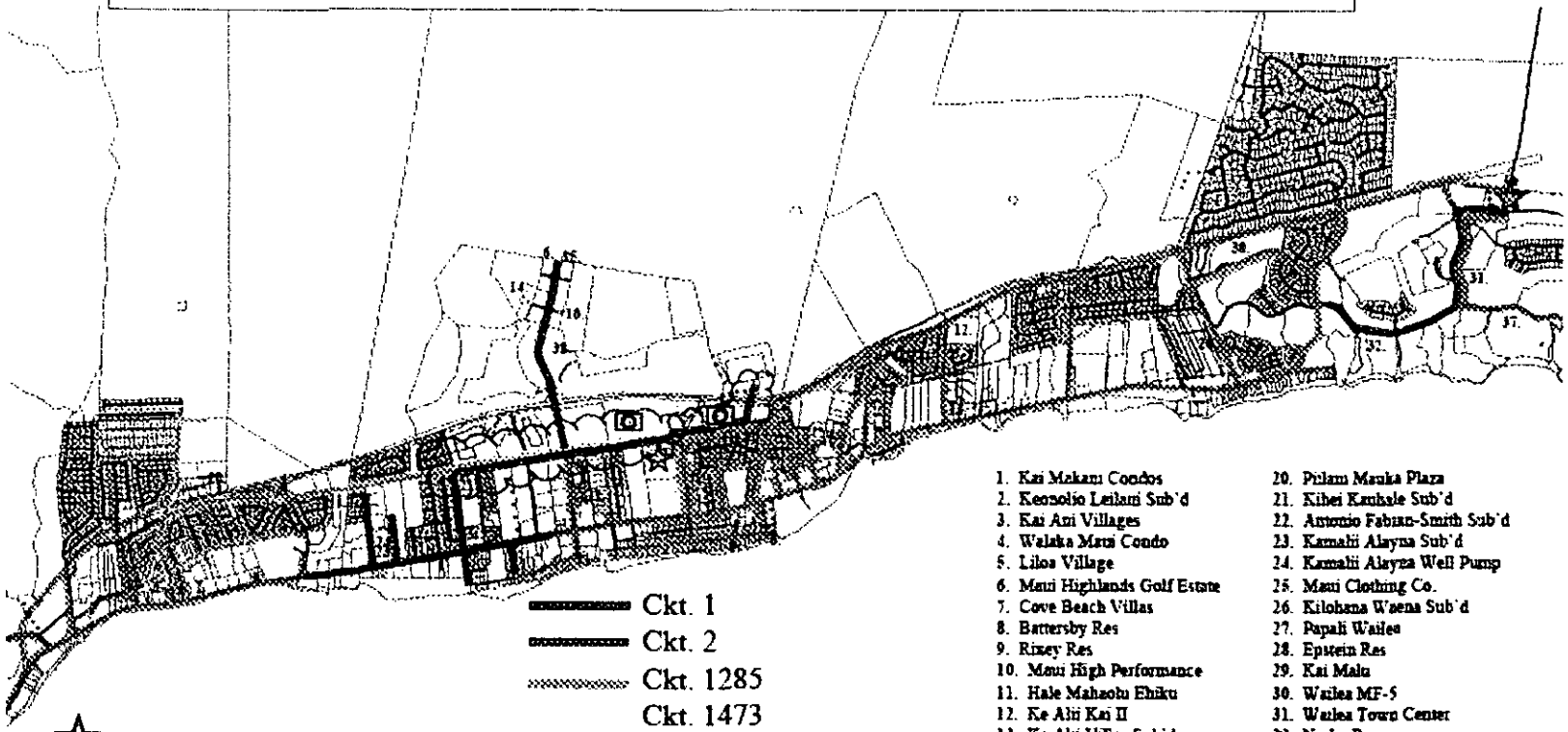
- All South Maui transformers loaded to 11 MVA or less during peak hours

- Analyzed System during Switching
  - Ckt. 1254 OUT – Kihei Tsf. #2 loaded to 12.5 MVA
  - Ckt. 1384 OUT – Wailea Tsf. #1 loaded to 12.5 MVA
  - Ckt. 1473 OUT – Kihei Tsf. #1 loaded to 12.5 MVA
    Kihei Tsf. #4 loaded to 12.5 MVA
  - Ckt. 1 OUT – Kihei Tsf. #3 loaded to 12.5 MVA

Switching Analysis for Upgraded Distribution System

Sub TSF #	Circuit #	Normal Conditions (kVA)	Total (kVA)	ONE CIRCUIT OUT																	
				1285	TOTAL	1253	TOTAL	1254	TOTAL	1384	TOTAL	1385	TOTAL	1472	TOTAL	1473	TOTAL	1	TOTAL	2	TOTAL
Maalaea TSF #1	1285	5595	7345	X	7345	5595	7345	5595	7345	5595	7345	5595	7345	5595	7345	6195	7945	7895	9645	5595	7345
	1286	1750		7345		1750		1750		1750		1750		1750		1750		1750		1750	
Kihei TSF #1	1253	1660	7827	1660	7827	X	6167	1660	1660	1660	12237	1660	7827	1660	7827	6420	12587	1660	7827	1660	7827
	1254	6167		6167		6167		X		10577		6167		6167		6167		6167		6167	
Kihei TSF #2	1384	8320	8320	8320	8320	8320	8320	11987	11987	X	0	8320	8320	8320	8320	8320	8320	8320	8320	10918	10918
	1385	0		0		0		0		0		X		0		0		0		0	
Kihei TSF #3	1472	0	6936	0	6936	0	8596	0	6936	0	7436	0	6936	X	6936	0	0	0	12523	0	6936
	1473	6936		6936		8596		6936		7436		6936		6936		X		12523		6936	
Kihei TSF #4	1	7887	10985	7887	10985	7887	10985	7887	10985	7887	10985	7887	10985	7887	10985	9463	12561	X	3098	7887	7887
	2	3098		3098		3098		3098		3098		3098		3098		3098		3098		X	
Wailea TSF #1	1280	8396	9094	8396	9094	8396	9094	10896	11594	11806	12504	8396	9094	8396	9094	8396	9094	8396	9094	8896	9594
	1281	698		698		698		698		698		698		698		698		698		698	
Wailea TSF #2	1320	5843	11138	5843	11138	5843	11138	5843	11138	5843	11138	5843	11138	5843	11138	5843	11138	5843	11138	5843	11138
	1321	5295		5295		5295		5295		5295		5295		5295		5295		5295		5295	
Wailea TSF #3	1395	59	8475	59	8475	59	8475	59	8475	59	8475	59	8475	59	8475	59	8475	59	8475	59	8475
	1396	8416		8416		8416		8416		8416		8416		8416		8416		8416		8416	

Upgraded Distribution System



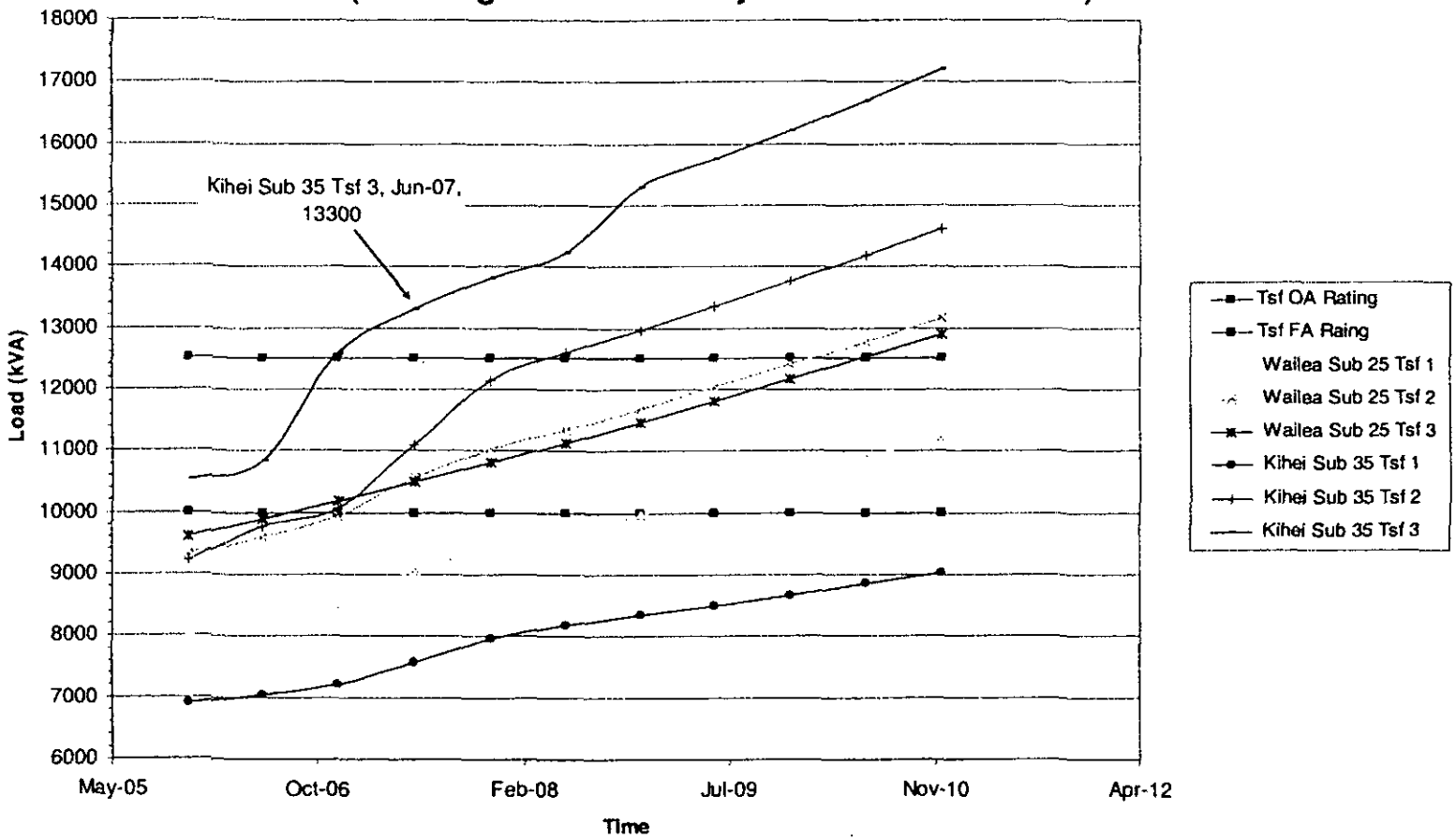
Kihei Sub #35

Wailea Sub #25

Ckt. 1
Ckt. 2
Ckt. 1285
Ckt. 1473
Ckt. 1253
Ckt. 1254
Ckt. 1384
Ckt. 1280
Ckt. 1320 & 1281
Ckt. 1321 & 1396

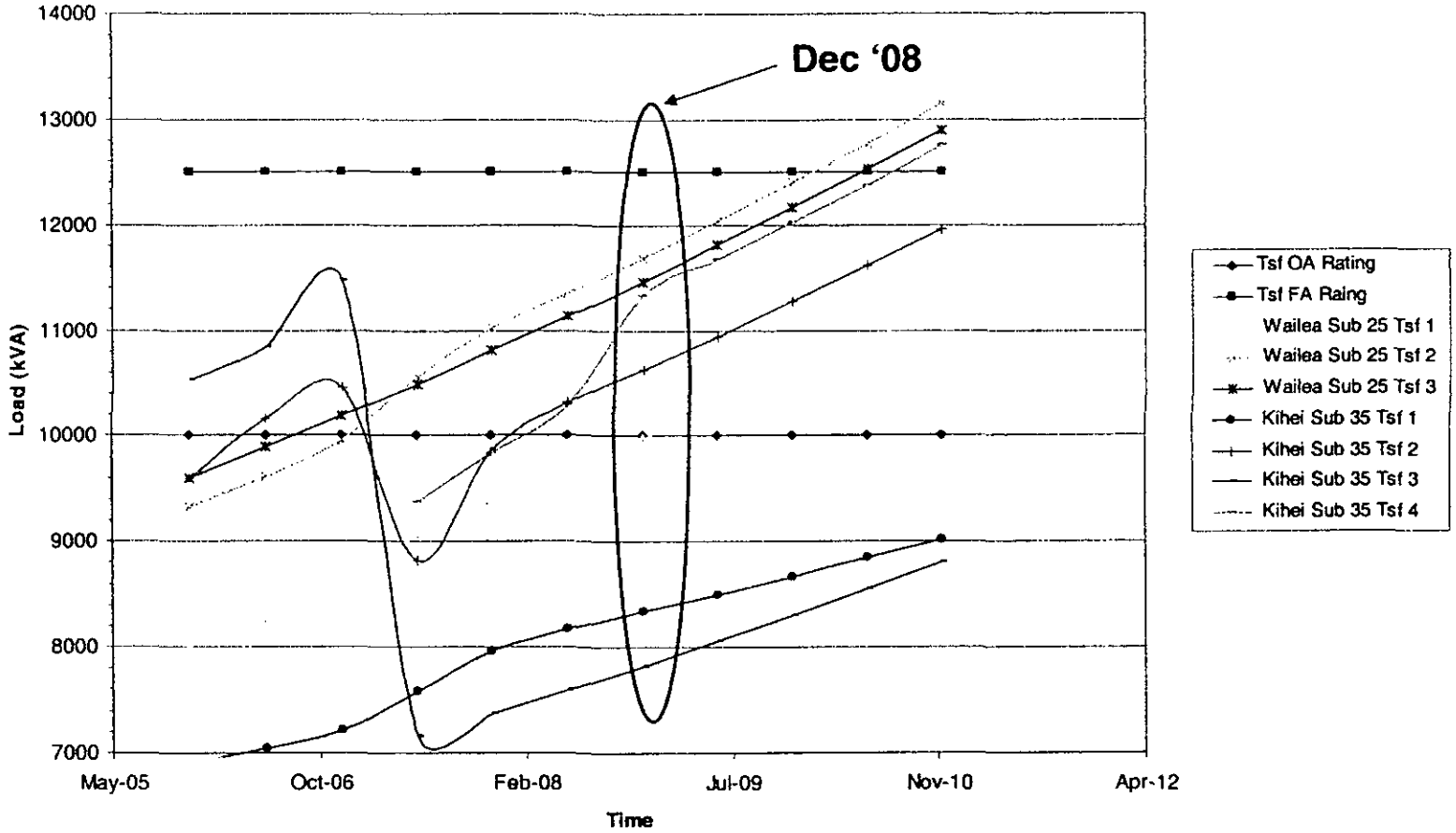
1. Kai Makani Condos
2. Keonolio Leilani Sub'd
3. Kai Ani Villages
4. Waiaka Maui Condo
5. Lilos Village
6. Maui Highlands Golf Estate
7. Cove Beach Villas
8. Battersby Res
9. Rixey Res
10. Maui High Performance
11. Hale Mahaolu Ehiku
12. Ke Alii Kai II
13. Ke Alii Villas Sub'd
14. MEBD
15. Maui Highlands Well Pump
16. Aloha Village
17. Kalama Heights Condo
18. Osterstock Sub'd
19. Kihei Commercial Condos
20. Piilani Mauka Plaza
21. Kihei Kaukale Sub'd
22. Antonio Fabian-Smith Sub'd
23. Kamalii Alayna Sub'd
24. Kamalii Alayza Well Pump
25. Maui Clothing Co.
26. Kilohana Waena Sub'd
27. Papali Wailea
28. Epstein Res
29. Kai Malu
30. Wailea MF-5
31. Wailea Town Center
32. Norby Res
33. Papaanui Sub'd
34. Flannery Res
35. Palamea Beach Villas
36. Stevens Res
37. Wailea MF-9
38. Hokulani Golf Villas

Approximate Transformer Loadings
(Existing Distribution System w/ Future Load)



*** During Peak Hours**

Approximate Transformer Loadings
(Upgraded Distribution System w/ Future Load)



*** During Peak Hours**

Conclusion

- Existing distribution system
  - Overloads Kihei Transformer #1 when Circuit 1473 is out during switching.
  - Transformers will be overloaded/loaded to FA Rating (12.5MVA) by Dec '08 during peak hours.
  - Switching will be impossible to perform with the future load coming on by Dec '08.
  - Violation of distribution planning criteria.

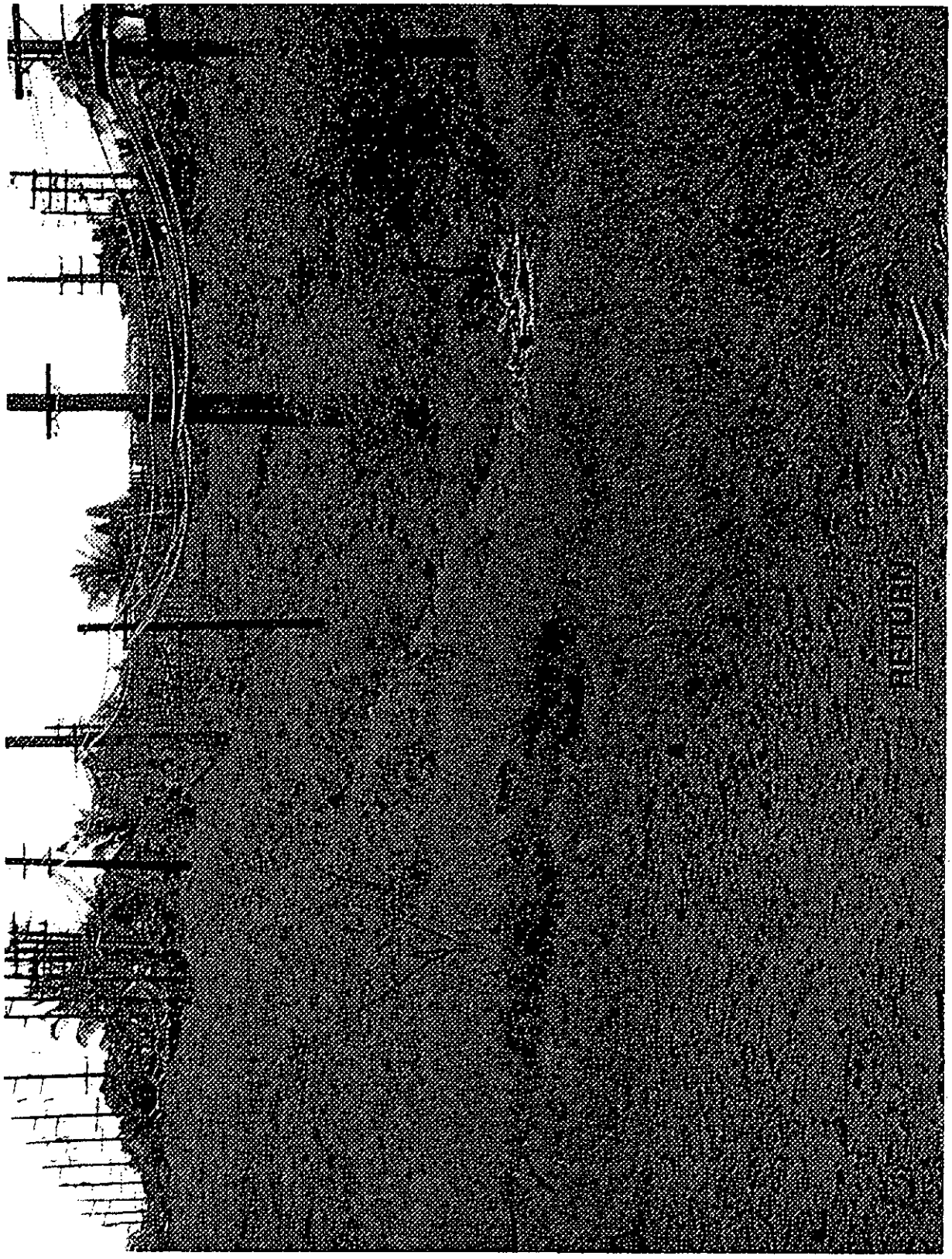
Conclusion (cont.)

- Upgrades are required to accommodate for the 12.5MVA future load (by Dec '08)
  - 10 MVA Transformer (Kihei Tsf #4)
  - Switchgear
  - Two new circuits fed from Kihei Tsf #4
  - Group Operated Loadbreak Switches

Conclusion (cont.)

- Results from distribution upgrades with future loading
  - Accommodates for the future load adequately for the time being.
    - Transformers not loaded to FA Rating during peak hours.
    - Various transformers are loaded to FA Rating during switching.
- These upgrades are required by the end of June 2007 at the latest.

¿Questions?


REFURB

SUBJECT PROPERTY SUMMARY
Waikapu, Maui, Hawaii

Larger Parcel						Easement Area			
Larger Parcel No.	Survey Map ID	TMK	Owner	Area (Ac)	Highest & Best Use	ID	Area (sf)	Appraisal Methodology	Easement Market Value
1	C	3-5-02-por. 01	Spencer Homes, Inc	94.2	SF Residential	5 (Por.)	38,082	Cost of Relocation	$750,000
2	L & N	3-5-02-por. 01	Spencer Homes, Inc	12.2	Roadway	5 (Por.)	4,404	Nuisance Value	$2,000
3	G	3-5-02-por. 01	Spencer Homes, Inc	34.4	Drainage Basin	5 (Por.)	31,816	Nuisance Value	$2,000
4	11-D-1-A-1	3-8-07-131	Maui Lani 100 LLC	258.4	Residential/Mixed Use	4 & 5 & 6 (Por.)	52,522	Disutility Analysis	$250,000
5	H	3-5-02-por. 01	Kihei Garden & Landscaping Company, LLP	25.0	Agricultural	5 (Por.)	30,227	Nuisance Value	$2,000
6	A	3-8-07-92	County of Maui	37.2	Landfill	5 (Por.)	8,136	Nuisance Value	$1,500
7	K	3-5-01-por. 64	Hawaii Land & Farming Co. Inc. et al.	0.9	Roadway	3 (Por.)	9,575	Nuisance Value	$1,500
								Total	$1,009,000

Waikapu 69 kV Line Relocation
Project: M0000697

EXHIBIT VIII
PAGE 1 OF 2

In-Kind Wood Pole Construction Estimate

Line Item	Total Item Cost		2006	2007
AFUDC		Unit:	8.00	3.00
		Rate:	$559.49	$1,884.12
	$10,128.28	Amount:	$4,475.92	$5,652.37
AFUDC TOTAL:	**$10,128.28**		**$4,475.92**	**$5,652.36**
Stores OH		Unit:	0.00	125,948.16
		Rate:	$0	$0.13520
	$17,028.19	Amount:	$0.00	$17,028.19
Energy Delivery OH		Unit:	54.00	1,156.50
		Rate:	$27.32	$25.87
	$31,393.94	Amount:	$1,475.28	$29,918.66
Corp Adm OH		Unit:	713.00	1,349.50
		Rate:	$3.66	$3.80
	$7,737.68	Amount:	$2,609.58	$5,128.10
Customer Installation OH		Unit:	477.50	79.00
		Rate:	$36.19	$36.21
	$20,141.32	Amount:	$17,280.73	$2,860.59
Non-Productive Wages OH		Unit:	713.00	1,349.50
		Rate:	$4.55	$4.58
	$9,424.86	Amount:	$3,244.15	$6,180.71
Employee Benefits OH		Unit:	713.00	1,349.50
		Rate:	$12.12	$12.71
	$25,793.71	Amount:	$8,641.56	$17,152.15
Payroll Tax OH		Unit:	28,264.56	48,610.27
		Rate:	$0.08620	$0.08590
	$6,612.03	Amount:	$2,436.40	$4,175.62
OVERHEAD TOTAL:	**$118,131.71**		**$35,687.70**	**$82,444.01**
Construction Crew (Transmission)		Unit:	0.00	521.50
		Rate:	$0	$34.63
	$18,059.55	Amount:	$0.00	$18,059.55
Construction Supervisor (Transmission)		Unit:	0.00	53.00
		Rate:	$0	$43.32
	$2,295.96	Amount:	$0.00	$2,295.96
Construction Crew (Distribution)		Unit:	0.00	521.00
		Rate:	$0	$34.63
	$18,042.23	Amount:	$0.00	$18,042.23
Construction Supervisor (Distribution)		Unit:	0.00	52.00
		Rate:	$0	$43.32
	$2,252.64	Amount:	$0.00	$2,252.64
Operations Crew (Transmission)		Unit:	0.00	58.00
		Rate:	$0	$37.95
	$2,201.10	Amount:	$0.00	$2,201.10

Waikapu 69 kV Line Relocation
Project: M0000697

In-Kind Wood Pole Construction Estimate

Line Item	Total Item Cost		2006	2007
Operations Dispatch (Transmission)		Unit:	0.00	56.00
		Rate:	$0	$37.99
	$2,127.44	Amount:	$0.00	$2,127.44
Land Agent		Unit:	54.00	0.00
		Rate:	$32.33	$0
	$1,745.82	Amount:	$1,745.82	$0.00
Engineering Designer		Unit:	477.50	79.00
		Rate:	$39.50	$40.98
	$22,098.67	Amount:	$18,861.25	$3,237.42
Engineering Supervisor		Unit:	181.50	9.00
		Rate:	$42.19	$43.77
	$8,051.42	Amount:	$7,657.49	$393.93
LABOR TOTAL:	$76,874.82		$28,264.56	$48,610.27
O/S Construction by Aina	$25,757.68	Amount:	$0.00	$25,757.68
O/S Helicopter Services	$17,690.40	Amount:	$0.00	$17,690.40
O/S Appraisal	$13,542.00	Amount:	$13,542.00	$0.00
O/S Easement	$1,000.00	Amount:	$1,000.00	$0.00
O/S Archeological Monitoring	$10,235.68	Amount:	$0.00	$10,235.68
O/S HECO Regulatory	$3,366.00	Amount:	$3,366.00	$0.00
OUTSIDE SERVICES TOTAL:	$71,591.76		$17,908.00	$53,683.76
Stock Material	$125,948.16	Amount:	$0.00	$125,948.16
MATERIALS TOTAL:	$125,948.16		$0.00	$125,948.16
PROJECT TOTAL:	$402,674.73		$86,336.18	$316,338.56

Waikapu 69 kV Line Relocation
Project: M0000697

EXHIBIT IX
PAGE 1 OF 2

Overhead Steel Pole Construction Estimate

Line Item	Total Item Cost		2006	2007
AFUDC		Unit:	8.00	12.00
		Rate:	$801.10	$5,548.27
	$72,988.04	Amount:	$6,408.80	$66,579.24
AFUDC TOTAL:	**$72,988.04**		**$6,408.80**	**$66,579.24**
Stores OH		Unit:	0.00	613,780.96
		Rate:	$0	$0.13520
	$82,983.19	Amount:	$0.00	$82,983.19
Energy Delivery OH		Unit:	54.00	4,431.00
		Rate:	$27.32	$25.87
	$116,105.25	Amount:	$1,475.28	$114,629.97
Corp Adm OH		Unit:	767.00	4,872.00
		Rate:	$3.66	$3.80
	$21,320.82	Amount:	$2,807.22	$18,513.60
Customer Installation OH		Unit:	508.50	170.00
		Rate:	$36.19	$36.21
	$24,558.32	Amount:	$18,402.62	$6,155.70
Non-Productive Wages OH		Unit:	767.00	4,872.00
		Rate:	$4.55	$4.58
	$25,803.61	Amount:	$3,849.85	$22,313.76
Employee Benefits OH		Unit:	767.00	4,872.00
		Rate:	$12.12	$12.71
	$71,219.16	Amount:	$9,296.04	$61,923.12
Payroll Tax OH		Unit:	30,459.42	172,925.13
		Rate:	$0.08620	$0.08590
	$17,479.87	Amount:	$2,625.60	$14,854.27
OVERHEAD TOTAL:	**$359,470.21**		**$38,096.61**	**$321,373.60**
Construction Crew (Transmission)		Unit:	0.00	2,100.00
		Rate:	$0	$34.63
	$72,723.00	Amount:	$0.00	$72,723.00
Construction Supervisor (Transmission)		Unit:	0.00	135.00
		Rate:	$0	$43.32
	$5,848.20	Amount:	$0.00	$5,848.20
Construction Crew (Distribution)		Unit:	0.00	2,100.00
		Rate:	$0	$34.63
	$72,723.00	Amount:	$0.00	$72,723.00
Construction Supervisor (Distribution)		Unit:	0.00	132.00
		Rate:	$0	$43.32
	$5,718.24	Amount:	$0.00	$5,718.24
Operations Crew (Transmission)		Unit:	0.00	117.00
		Rate:	$0	$37.95
	$4,440.15	Amount:	$0.00	$4,440.15

Waikapu 69 kV Line Relocation
Project: M0000697

EXHIBIT IX
PAGE 2 OF 2

Overhead Steel Pole Construction Estimate

Line Item	Total Item Cost		2006	2007
Operations Dispatch (Transmission)		Unit:	0.00	114.00
		Rate:	$0	$37.99
	$4,330.86	Amount:	$0.00	$4,330.86
Land Agent		Unit:	54.00	0.00
		Rate:	$32.33	$0
	$1,745.82	Amount:	$1,745.82	$0.00
Engineering Designer		Unit:	508.50	170.00
		Rate:	$39.50	$40.98
	$27,052.35	Amount:	$20,085.75	$6,966.60
Engineering Supervisor		Unit:	204.50	4.00
		Rate:	$42.19	$43.77
	$8,802.94	Amount:	$8,627.85	$175.08
LABOR TOTAL:	$203,384.55		$30,459.42	$172,925.13
O/S Construction by Aina	$334,344.40	Amount:	$0.00	$334,344.40
O/S Helicopter Services	$17,690.40	Amount:	$0.00	$17,690.40
O/S Appraisal	$13,542.00	Amount:	$13,542.00	$0.00
O/S Easement	$1,000.00	Amount:	$1,000.00	$0.00
O/S Archeological Monitoring	$10,235.68	Amount:	$0.00	$10,235.68
O/S HECO Structural Engineering	$42,840.00	Amount:	$42,840.00	$0.00
O/S HECO Regulatory	$3,366.00	Amount:	$3,366.00	$0.00
OUTSIDE SERVICES TOTAL:	$423,018.48		$60,748.00	$362,270.48
O/S Material	$517,129.60	Amount:	$0.00	$517,129.60
Stock Material	$96,651.36	Amount:	$0.00	$96,651.36
MATERIALS TOTAL:	$613,780.96		$0.00	$613,780.96
PROJECT TOTAL:	$1,672,642.24		$135,712.83	$1,536,929.41

Waikapu 69 kV Line Relocation
Project: M0000697

EXHIBIT X
PAGE 1 OF 2

Underground Conversion Estimate

Line Item	Total Item Cost		2006	2007
AFUDC		Unit:	10.00	4.00
		Rate:	$768.99	$8,034.09
	$39,826.31	Amount:	$7,689.90	$32,136.37
AFUDC TOTAL:	**$39,826.26**		**$7,689.90**	**$32,136.37**
Stores OH		Unit:	0.00	1,421,017.52
		Rate:	$0	$0.13520
	$192,121.57	Amount:	$0.00	$192,121.57
Energy Delivery OH		Unit:	352.00	1,547.00
		Rate:	$25.22	$25.87
	$48,898.33	Amount:	$8,877.44	$40,020.89
Corp Adm OH		Unit:	1,161.00	1,704.00
		Rate:	$3.66	$3.80
	$10,724.46	Amount:	$4,249.26	$6,475.20
Customer Installation OH		Unit:	604.50	35.00
		Rate:	$36.19	$36.21
	$23,144.21	Amount:	$21,876.86	$1,267.35
Non-Productive Wages OH		Unit:	1,161.00	1,704.00
		Rate:	$4.55	$4.58
	$13,086.87	Amount:	$5,282.55	$7,804.32
Employee Benefits OH		Unit:	1,161.00	1,704.00
		Rate:	$12.12	$12.71
	$35,729.16	Amount:	$14,071.32	$21,657.84
Payroll Tax OH		Unit:	44,224.77	60,527.55
		Rate:	$0.08620	$0.08590
	$9,011.49	Amount:	$3,812.17	$5,199.32
OVERHEAD TOTAL:	**$332,716.09**		**$58,169.60**	**$274,546.49**
Construction Crew (Transmission)		Unit:	300.00	300.00
		Rate:	$33.46	$34.63
	$20,427.00	Amount:	$10,038.00	$10,389.00
Underground Inspector (Transmission)		Unit:	0.00	771.00
		Rate:	$0	$34.63
	$26,699.73	Amount:	$0.00	$26,699.73
Construction Supervisor (Transmission)		Unit:	0.00	77.00
		Rate:	$0	$43.32
	$3,335.64	Amount:	$0.00	$3,335.64
Construction Crew (Distribution)		Unit:	0.00	406.00
		Rate:	$0	$34.63
	$14,059.78	Amount:	$0.00	$14,059.78
Construction Supervisor (Distribution)		Unit:	0.00	41.00
		Rate:	$0	$43.32
	$1,776.12	Amount:	$0.00	$1,776.12

Waikapu 69 kV Line Relocation
Project: M0000697

Underground Conversion Estimate

Line Item	Total Item Cost		2006	2007
Operations Crew (Transmission)		Unit:	0.00	35.00
		Rate:	$0	$37.95
	$1,328.25	Amount:	$0.00	$1,328.25
Operations Dispatch (Transmission)		Unit:	0.00	35.00
		Rate:	$0	$37.99
	$1,329.65	Amount:	$0.00	$1,329.65
Land Agent		Unit:	52.00	0.00
		Rate:	$32.33	$0
	$1,681.16	Amount:	$1,681.16	$0.00
Engineering Designer		Unit:	604.50	35.00
		Rate:	$39.50	$40.98
	$25,312.05	Amount:	$23,877.75	$1,434.30
Engineering Supervisor		Unit:	204.50	4.00
		Rate:	$42.19	$43.77
	$8,802.94	Amount:	$8,627.86	$175.08
LABOR TOTAL:	$104,752.32		$44,224.77	$60,527.55
O/S Construction Riser Pole Foundation	$46,845.54	Amount:	$46,845.54	$0.00
O/S Construction UG Infrastructure	$2,368,917.24	Amount:	$2,368,917.24	$0.00
O/S Appraisal	$13,542.00	Amount:	$13,542.00	$0.00
O/S Easement	$1,000.00	Amount:	$1,000.00	$0.00
O/S Archeological Monitoring	$57,276.24	Amount:	$28,360.08	$28,916.16
O/S HECO Engineering	$6,120.00	Amount:	$6,120.00	$0.00
O/S HECO Regulatory	$3,366.00	Amount:	$3,366.00	$0.00
OUTSIDE SERVICES TOTAL:	$2,497,067.02		$2,468,150.86	$28,916.16
O/S Material (Riser Poles)	$86,878.48	Amount:	$0.00	$86,878.48
O/S Material (UG Transmission)	$1,085,149.52	Amount:	$0.00	$1,085,149.52
Stock Material (Distribution)	$248,989.52	Amount:	$0.00	$248,989.52
MATERIALS TOTAL:	$1,421,017.52		$0.00	$1,421,017.52
PROJECT TOTAL:	$4,395,379.20		$2,578,235.13	$1,817,144.08

Waikapu 69 kV Line Relocation
Project: M0000697

EXHIBIT XI
PAGE 1 OF 1

69 kV Overhead Lines Versus 69 kV Underground Lines Cost Comparison

Overhead 69 kV Lines cost: $1,672,642.24

The 69 kV overhead line cost estimate assumes the installation of:

1) Twenty-eight (28) steel poles 70 to 80 feet tall.
2) Approximately 6,680 circuit feet of three phase 556.4 MCM aluminum 69 kV transmission conductors.
3) Approximately 6,680 linear feet of 336.4 MCM static line.
4) Approximately 6,680 circuit feet of 336.4 MCM aluminum 12.47kV primary conductors.
5) Approximately 6,680 linear feet of #3/O AAAC neutral conductor.

The estimated cost breakdown is shown below:

AFUDC:	$ 72,988.04
Overheads:	$ 359,470.21
Labor:	$ 203,384.55
Outside Services:	$ 423,018.48
Materials:	$ 613,780.96
Total Overhead Estimated Cost:	**$1,672,642.24**

Underground 69 kV Line cost: $4,,395,379.20

The 69 kV underground line cost estimate assumes the installation of:

1) Sixty-three (63) 6'x11' manholes.
2) Fourteen (14) 5'x7' manholes.
3) Approximately 487 feet of 1-6" ducts.
4) Approximately 525 feet of 2-4" ducts.
5) Approximately 6,745 feet of 2-5" ducts.
6) Approximately 12,854 feet of 4-5" ducts.
7) Approximately 450 feet of 4-6" ducts.
8) Approximately 7,684 circuit feet of 3-1/c 1500 KCM 69 kV cable.
9) Approximately 8,102 circuit feet of 3-1/c 1000 MCM 12.47 kV cable.

The estimated cost breakdown is shown below:

AFUDC:	$ 39,826.26
Overheads:	$ 332,716.09
Labor:	$ 104,752.32
Outside services:	$2,497,067.02
Material:	$1,421,017.52
Total Underground Estimated Cost:	**$4,395,379.20**

Overhead vs. Underground Summary:

Total Underground Costs	$4,395,379.20
Total Overhead Costs	$1,672,642.24
Underground Cost exceeds Overhead Cost by:	***$2,722,736.96***

CA-IR-324

Ref: MECO Response to CA-IR-98, Attachment 1 (Labor Hours Capital vs. O&M).

Please provide the following information:

a. Explain the process and input data used to estimate the test year labor hours that would be chargeable to capital versus O&M activities.

b. Provide complete copies of the information relied upon in preparing test year labor hour forecasts to determine amounts of time chargeable to capital projects.

c. Explain all known reasons why test year capitalized labor hours are expected to be at lower than historical levels for MGA and MGT.

d. Provide actual year-to-date O&M Capital and O&M hours by RA through August in the format of Attachment 1 and explain any known unusual or non-recurring activities reflected in such data.

MECO Response:

a. To determine whether a project is capital or O&M, MECO Power Supply personnel follow the Company-wide policies and procedures. Costs are classified as capital or asset if the item received has future value (i.e., provides future benefits to the Company and the value spans more than twelve months). Costs are classified as O&M or expense if the item received is valuable and provides benefits for less than twelve months. Below is the criteria for classifying costs as capital and must meet all criteria:

1. Costs of more than $300
2. Useful service life of more than one year
3. Property unit – Costs, including the costs for replacements or additions, must be for a complete recognized property unit. If less than a property unit, costs incurred must result in significant additional value in terms of prolonged useful service life or increased efficiency or capacity of existing property units as in the case of improvements, betterments or alterations. A Property Unit Catalog is available to identify property units.

Time and costs related to the operation and maintenance of the Company's power system are charged to a separate work order or code block with the appropriate accounting classification (i.e., NI for non-billable install-capital, NR for non-billable removal, and NE for non-billable O&M Expense other than Supervision).

Every year, department managers and project managers review and determine which projects/programs should be considered for inclusion in the upcoming five-year budget which is presented to the Board of Directors for approval (including any on-going projects) based on assigned priority ratings. When a capital project has been determined and identified, the project manager is responsible for providing the estimates for the labor hours as well as other resources needed. The estimated labor hours are allocated to capital and/or non -capital. The project managers estimate the labor hours by reviewing historical labor hours of the same or similar capital project and current trends that would impact the respective program project, and by assessing the hours needed to a complete a project based on experience. Meetings to discuss the prioritization of the projects are then held to determine which capital projects will proceed through the budget process for review by the Capital Budget Committee (CBC). Note: Rankings are generally based on the value of each identified project to the Company's strategic goals & objectives & their respective priority assessment ratings. During the prioritization process, total project/program costs should remain at or below these spending targets. As part of the budget preparation process, the Accounting Department sets spending targets and issues them to the departments. Projects reviewed and approved by the CBC for inclusion in the annual budget are flagged as such in Pillar and presented to the President for review and approval. Projects not approved by the BOARD are classified as "unbudgeted" and must be approved in accordance with established Company approval levels.

The process and input data used for the O&M labor hours are also identified in our response to CA-IR-283. (Copies provided in Attachment 1 of this response). The following procedures are performed to develop the department's non-project/project Pillar estimates for the test year forecast:

Pillar Overhaul Project- Labor Estimates (O&M). Staffing and labor estimates are based on the two-year overhaul schedule. The Supervisors use historical overhaul labor hours plus identified overhaul scope work requirements in determining budget labor hour estimates. In addition, the Pillar Labor Resource Leveling report is used to check the labor resources available as compared to the demand on labor resources.

Pillar Non-Project -Labor Estimates (O&M). On an annual basis, the Supervisors determine total labor hours including overtime, based upon the head count provided by the Manager. This high-level estimate is entered into a spreadsheet showing total labor available per month, overtime hours, overhaul hours, capital hours, and general maintenance hours. The overhaul and capital labor requirements are determined first, followed by general maintenance. Historical trending is used to ensure reasonableness. In addition, the Pillar Labor Resource Leveling report is used to check the labor resources available as compared to the demand on labor resources.

b. The requested information relied upon in preparing test year labor hour forecasts to determine amounts of time chargeable to capital projects is provided in Attachment 4.

c. For MGA, the year-to-date recorded capital labor hours for 2007 through August 2007 is 348 hours, as shown on Attachment 3, page 1. The test year 2007 estimate of 412 capital labor hours is lower than prior years, because the M18 steam turbine project accounted for a substantial amount of capital labor hours in 2004, 2005, and 2006. Since the M18 steam turbine was placed in service in October 2006, there are no capital labor hours for the project

in 2007, resulting in a lower number of test year capital labor hours relative to prior years. See Attachment 2, Page 1, for MGA capital project details.

For MGT, the year-to-date recorded capital labor hours for 2007 through August 2007 is 368 hours, as shown on Attachment 3, page 1. The test year 2007 estimate of 127 hours is lower than prior years because MECO has less capital projects scheduled in 2007, compared to 2004, 2005, and 2006. See Attachment 2, Page 2, for MGT capital project details.

d. Please see Attachment 3 for actual year-to-date O&M and Capital labor hours by RA through August 31, 2007 in the format of CA-IR-98 Attachment 1. The following are explanations of known unusual or non-recurring activities reflected in Attachment 3:

1. MGA: The actual year-to-date labor hours are more than the year-to-date budgeted labor hours mainly due to the following:
    a. Capital. Labor hours for TCPSEN relating to M18-18MW capital project.
    b. O&M. Labor hours for TCPSEN relating to Kaheawa Wind Power contract administration.
2. MGB: The actual year-to-date labor hours are less than the year-to-date budgeted labor hours mainly due to the following:
    a. Capital - Labor hours budgeted for the following capital projects, which has not been recorded due to timing differences and delay in schedule:
        i. KPP Welding Lean-to Roof originally forecasted to be placed in service in March 2007 but moved to September 2007.
        ii. KPP Condensate Storage Tank Pedestal originally forecasted to be placed in service in July 2007 but moved to August 2008.
        iii. KPP Compressor originally forecasted to be placed in service in March 2007 but moved to September 2007.

iv. KPP Used Oil Berm originally forecasted to be placed in service in September 2007 but moved to December 2007.

b. O&M - The 2007 labor budget included a transfer employee from MGK to MGB. This employee was not transferred into MGB until August 2007. The result of this delayed transfer is less labor hours for MGB and more labor hours for MGK.

3. MGC: There are no known unusual or non-recurring activities labor hours were charged to capital. However, the actual year-to-date O&M labor hours are more than the budgeted year-to-date mainly due to the compressor and bearing problems for M14; increased labor hours are projected to complete the replacement of engine with a leased engine.

4. MGD: The actual year-to-date O&M labor hours are more than the budgeted year-to-date mainly due to unbudgeted labor hours for overhaul maintenance of units X2, M08 and M10 and corrective maintenance at Maalaea Power Plant (MPP) such as lube oil purifier no. 1 vibration problems, M12 vent fan shaft and bearing damage, M10 and M11 basement floor sump pump and MPP station common maintenance.

5. MGE: The year-to-date O&M hours are less than budgeted because MECO has not been able to fill two vacancies for qualified technicians in MGE. Because of this staffing shortage non-essential 2007 MGE O&M work has been postponed when possible.

6. MGK: The 2007 labor budget accounted for the transfer of one employee from MGK to MGB. This employee was not transferred into MGB until August 2007. The result of this delayed transfer is less labor hours for MGB and more labor hours for MGK.

The Kahului Plant Manager (MGA) has been out on long term sick leave in 2007. One of the MGK Supervisors has been filling in for this position. The other MGK Supervisors have accordingly been working over-time to cover for the displaced Supervisor.

Also, for periods of time in 2007 MGK has not had a qualified relief crew for sick/vacation coverage, which has resulted in additional over-time hours by the MGK Supervisors. Several MGK personnel are new and have been in training in 2007. Eventually these personnel will be qualified to provide relief coverage, which will reduce the MGK hours.

7. MGL: The actual year-to-date O&M labor hours are less than the budgeted year-to-date mainly due to the timing of the filling of a new position added this year. The position, which was originally forecasted for an Operator Helper, which was subsequently changed to as a Maintenance Electrician and was filled on July 16, 2007.
8. MGM: The actual year-to-date O&M labor hours are less than the budgeted year-to-date mainly due to retirements of two positions and extended absence of one position, namely, Operator Helper, Operations Supervisor and Control and Switch Board Operator.
9. MGT: There are no known unusual or non-recurring activities labor hours were charged to capital and O&M.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: K1 Generator Rotor Rewind

Project Number: M0000423
(Temporary)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-10

Commitment Date: 2007-03

Primary Corporate Goal: Cap Exp

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$478	$0	$0	$0	$0	$0	$478

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	66	12	138

Purpose/Objectives:

Provide continued usage of K1 generator at the Kahului Power Plant.

updated in Pillar 5/29/07 vn

updated in Pillar 8/14

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KAHULUI POWER PLANT

updated in Pillar 2/23/07 vn

Scope Description:

Rewind unit K1 generator rotor.

This PIF is to authorize $478,426.25. This project is in the 2007 proposed capital budget in the amount $443,331 and titled as "K1 Turbine Rotor Rewind" and it should be "K1 Generator Rotor Rewind". The increase of $35,095.25 is due to the increases in transportation costs and expedited request for the rotor to be rewind in order to shorten the lenght of the outage for this unit.

The additional amount of $35,095.25 will be funded by M0000558 K1 Generator Stator Rewind, budgeted in 2007 for $597,427 with a balance available in the amount of $206,025.63.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Outside contractor and MECO labor. Quote recieved from Siemens which includes materials and labor. Please see attached quote.

Justification:

Existing windings are 50 plus years old. Insulation will fail in the near future. In Sargent & Lundy's remaining useful life and generation assest management study report dated September 1999, recommendations for improvements included rewinds of the generator rotor in 2007.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The K1 unit would be out of service for approximately 15 weeks. Attached is a ~~an email~~ revised quote from the vendor with the estimated breakdown of the costs for materials and services.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: [illegible] **Phone/Ext #:** 4105 2355

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 01/19/2007

Required Approvals to Initialize a Project:

[illegible]
Responsible Manager **Date**

MECO President **Date**

REVIEWED
JAN 19 2007
BY. [illegible]

Required Approvals to Authorize a Project:

Pls. See signature on the "Initialize" section.

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

1/24/07
MECO Accounting Manager **Date**

[illegible] 1/24/07
MECO President **Date**

1/19/2007 M0000423 K1 Rotor Rewind 9:58AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Sep 07	Oct 07	FY07
M0000423	K1 Generator Rotor ...	*	*	*	*	401		Stores OHM0000423	0.00	47,879.22	47,879.22
									$0.11640	$0.11640	$0.11640
									$0.00	$5,573.14	$5,573.14
M0000423	K1 Generator Rotor ...	*	*	*	*	405		Pwr Sup OH M0000423	40.00	40.00	80.00
									$4.30	$4.30	$4.30
									$172.00	$172.00	$344.00
M0000423	K1 Generator Rotor ...	*	*	*	*	406		Corp Adm OH M0000423	40.00	40.00	80.00
									$3.88	$3.88	$3.88
									$155.20	$155.20	$310.40
M0000423	K1 Generator Rotor ...	*	*	*	*	421		NPW OH M0000423	40.00	40.00	80.00
									$4.46	$4.46	$4.46
									$178.40	$178.40	$356.80
M0000423	K1 Generator Rotor ...	*	*	*	*	422		Empl Benefits OHM0000423	40.00	40.00	80.00
									$12.22	$12.22	$12.22
									$488.80	$488.80	$977.60
M0000423	K1 Generator Rotor ...	*	*	*	*	423		PR Tax OH M0000423	1,456.00	1,456.00	2,912.00
									$0.08790	$0.08790	$0.08790
									$127.98	$127.98	$255.96
M0000423	K1 Generator Rotor ...	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000423	1.00	1.00	2.00
									$18.49	$3,405.90	$1,712.19
									$18.49	$3,405.90	$3,424.38
M0000423	K1 Generator Rotor ...	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		K1 Generator Rewind Rotor AFUDC	1.00	1.00	2.00
									$0.00	$0.00	$0.00
									$0.00	$0.00	$0.00
M0000423	K1 Generator Rotor ...	MGE	212	N01	NI	150	GEMANT	K1 Generator Rewind Rotor (GEMANT Labor)	40.00 ✓	40.00 ✓	80.00
									$36.40	$36.40	$36.40
									$1,456.00	$1,456.00	$2,912.00
M0000423	K1 Generator Rotor ...	MGE	212	N01	NI	201		K1 Generator Rewind Rotor-Mat'l	0.00	47,879.22	47,879.22
									$1	$1	$1
									$0.00	$47,879.22	$47,879.22 ✓
M0000423	K1 Generator Rotor ...	MGE	212	N01	NI	501		K1 Generator Rewind Rotor-Install Svc	0.00	336,392.74	336,392.74 ✓
									$1	$1	$1
									$0.00	$336,392.74	$336,392.74
M0000423	K1 Generator Rotor ...	MGE	212	N01	NI	640		K1 Generator Rewind Rotor-Freight	0.00	80,000.00	80,000.00 ✓
									$1	$1	$1
									$0.00	$80,000.00	$80,000.00
M0000423									$2,596.87	$475,829.38	$478,426.25
									$2,596.87	$475,829.38	$478,426.25

07-035
M0000724

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: K1 Static Exciter

Project Number: M0000724
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-09

Commitment Date: 2007-03

Primary Corporate Goal: *Cap Exp*

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$0	$0	$189	$0	$0	$0	$0	$189

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	66	12	138

Purpose/Objectives:

Provide dependable excitation for K1 generator in the Kahului Power Plant. Reduce outages and O&M labor and material costs.

updated in Pillar 5/29/07 m

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JAN 24 2007
KAHULUI POWER PLANT

Updated in Pillar 2/23/07 m

Scope Description:

Replace rotating exciter with static excitation system on K1 during 2007 overhaul.

This PIF is to authorize $189,417.99 for capital costs only. The total costs for this project is $195,036.70, with removal costs of $5,618.71. This is in the proposed capital budget for 2007 in the amount of $175,530; a difference of $13,887.99 due to the increases in the material costs from American Electric Co. and GE Energy Services.

The additional costs will be funded by M0000725 K2 Static Exciter which is budgeted in 2007 for $170,208. However, due to the changes in the overhaul schedule for K2 unit, a PIF was approved (06-210) to authorize funding in 2006 for $110,007 and the remaining costs in $2007 for 60,973. Balance available to be expended in 2007 is $109,235 for K2 Static Exciter.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Outside contractor and MECO labor. Revised quotes from American Electric Co. and GE Energy Services are attached.

Justification:

Existing rotating exciter is obsolete, spare parts are unavailable, commutator is worn and requires replacement. Replacement of the rotating exciter with a static exciter is more cost effective by reducing maintenance cost and by increasing unit reliability.

We would plan to retire old ratoating exciter.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The exciter provides power to the generator main field in order to produce electricity. Without a functioning exciter, the unit would not be able to produce electricity.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: Engineering ○ Materials ○ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: [illegible] **Phone/Ext #:** 4905 2305

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 12/26/2006

Required Approvals to Initialize a Project:

REVIEWED
DEC 26 2006
BY: [illegible]

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

[illegible] 1/17/07

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

[illegible] 1/17/07

MECO President **Date**

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	Sep 07	FY07
M0000724	K1 Static Exciter	*	*	*	*	401		Stores OHM0000724	108,676.00	108,676.00
									$0.11610	$0.11610
									$12,617.28	$12,617.28
M0000724	K1 Static Exciter	*	*	*	*	405		Pwr Sup OH M0000724	208.00	208.00
									$4.28	$4.28
									$890.24	$890.24
M0000724	K1 Static Exciter	*	*	*	*	406		Corp Adm OH M0000724	208.00	208.00
									$3.67	$3.67
									$763.36	$763.36
M0000724	K1 Static Exciter	*	*	*	*	421		NPW OH M0000724	208.00	208.00
									$4.55	$4.55
									$946.40	$946.40
M0000724	K1 Static Exciter	*	*	*	*	422		Empl Benefits OHM0000724	208.00	208.00
									$12.24	$12.24
									$2,545.92	$2,545.92
M0000724	K1 Static Exciter	*	*	*	*	423		PR Tax OH M0000724	7,695.92	7,695.92
									$0.08790	$0.08790
									$676.47	$676.47
M0000724	K1 Static Exciter	*	*	*	*	430		AFUDC nonbkt by Component ProjectM0000724	1.00	1.00
									$1,348.46	$1,348.46
									$1,348.46	$1,348.46
M0000724	K1 Static Exciter	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		K1 Static Exciter	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000724	K1 Static Exciter	MGB	260	N01	NR	150	GBMANT	K1 Static Exciter - GBMANT Lbr REMOVAL	8.00	8.00
									$34.74	$34.74
									$277.92	$277.92
M0000724	K1 Static Exciter	MGE	260	N01	NI	150	GEMANT	K1 Static Exciter - GEMANT Lbr	80.00	80.00
									$36.07	$36.07
									$2,885.60	$2,885.60
M0000724	K1 Static Exciter	MGE	260	N01	NI	150	GESUPV	K1 Static Exciter - GESUPV Lbr	40.00	40.00
									$41.17	$41.17
									$1,646.80	$1,646.80
M0000724	K1 Static Exciter	MGE	260	N01	NI	201		K1 Static Exciter - Am Electric - Matl	17,077.00	17,077.00
									$1	$1
									$17,077.00	$17,077.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	201		K1 Static Exciter - Exciter (GE)	91,599.00	91,599.00
									$1	$1
									$91,599.00	$91,599.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	501		K1 Static Exciter - Am Electric - Install	38,097.15	38,097.15
									$1	$1
									$38,097.15	$38,097.15
M0000724	K1 Static Exciter	MGE	260	N01	NI	501		K1 Static Exciter - Comissioning	10,500.00	10,500.00
									$1	$1
									$10,500.00	$10,500.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	501		K1 Static Exciter - Consultant	5,775.00	5,775.00
									$1	$1
									$5,775.00	$5,775.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	506		K1 Static Exciter - Engineering	4,504.50	4,504.50
									$1	$1
									$4,504.50	$4,504.50
M0000724	K1 Static Exciter	MGE	260	N01	NR	150	GEMANT	K1 Static Exciter - GEMANT Lbr - REMOVAL	80.00	80.00
									$36.07	$36.07
									$2,885.60	$2,885.60
M0000724									$195,036.70	$195,036.70
									$195,036.70	$195,036.70

Removal Closes

12/26/2006 K1 Static Exciter (Capital Costs ONLY) 2:54PM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	Sep 07	FY07
M0000724	K1 Static Exciter	*	*	*	*	401		Stores OHM0000724	108,676.00	108,676.00
									$0.11610	$0.11610
									$12,617.28	$12,617.28
M0000724	K1 Static Exciter	*	*	*	*	405		Pwr Sup OH M0000724	120.00	120.00
									$4.28	$4.28
									$513.60	$513.60
M0000724	K1 Static Exciter	*	*	*	*	406		Corp Adm OH M0000724	120.00	120.00
									$3.67	$3.67
									$440.40	$440.40
M0000724	K1 Static Exciter	*	*	*	*	421		NPW OH M0000724	120.00	120.00
									$4.55	$4.55
									$546.00	$546.00
M0000724	K1 Static Exciter	*	*	*	*	422		Empl Benefits OHM0000724	120.00	120.00
									$12.24	$12.24
									$1,468.80	$1,468.80
M0000724	K1 Static Exciter	*	*	*	*	423		PR Tax OH M0000724	4,532.40	4,532.40
									$0.08790	$0.08790
									$398.40	$398.40
M0000724	K1 Static Exciter	*	*	*	*	430		AFUDC nonlkt by Component ProjectM0000724	1.00	1.00
									$1,348.46	$1,348.46
									$1,348.46	$1,348.46
M0000724	K1 Static Exciter	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		K1 Static Exciter	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000724	K1 Static Exciter	MGB	260	N01	NR	150	GBMANT	K1 Static Exciter - GBMANT Lbr REMOVAL	0.00	0.00
									$34.74	$0.00
									$0.00	$0.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	150	GEMANT	K1 Static Exciter - GEMANT Lbr	80.00	80.00
									$36.07	$36.07
									$2,885.60	$2,885.60
M0000724	K1 Static Exciter	MGE	260	N01	NI	150	GESUPV	K1 Static Exciter - GESUPV Lbr	40.00	40.00
									$41.17	$41.17
									$1,646.80	$1,646.80
M0000724	K1 Static Exciter	MGE	260	N01	NI	201		K1 Static Exciter - Am Electric - Mat'l	17,077.00	17,077.00
									$1	$1
									$17,077.00	$17,077.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	201		K1 Static Exciter - Exciter (GE)	91,599.00	91,599.00
									$1	$1
									$91,599.00	$91,599.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	501		K1 Static Exciter - Am Electric - Install	38,097.15	38,097.15
									$1	$1
									$38,097.15	$38,097.15
M0000724	K1 Static Exciter	MGE	260	N01	NI	501		K1 Static Exciter - Comissioning	10,500.00	10,500.00
									$1	$1
									$10,500.00	$10,500.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	501		K1 Static Exciter - Consultant	5,775.00	5,775.00
									$1	$1
									$5,775.00	$5,775.00
M0000724	K1 Static Exciter	MGE	260	N01	NI	506		K1 Static Exciter - Engineering	4,504.50	4,504.50
									$1	$1
									$4,504.50	$4,504.50
M0000724	K1 Static Exciter	MGE	260	N01	NR	150	GEMANT	K1 Static Exciter - GEMANT Lbr - REMOVAL	0.00	0.00
									$36.07	$0.00
									$0.00	$0.00
M0000724									$189,417.99	$189,417.99
									$189,417.99	$189,417.99

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: K1 Generator Stator Rewind

Project Number: M0000558
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-10

Commitment Date: 2007-03

Primary Corporate Goal: Cap Exp

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$391	$0	$0	$0	$0	$0	$391

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	66	12	138

Purpose/Objectives:

Provide continued usage of K1 generator at the Kahului Power Plant.

RECEIVED
JAN 26 2006 2007
KAHULUI POWER PLANT

updated in Pillar 2/23/07

Scope Description:

Rewind unit K1 generator stator.

This PIF is to authorize $391,402.37. This project is in the 2007 proposed capital budget in the amount of $597,428 and is titled as "K1 Turbine Stator Rewind."; the correct title is "K1 Generator Stator Rewind". The decrease of $206,025.63 is due to the new quote received from Siemens; original quote received was from AGT Services. However, there may be some significant increases in this authorization amount being requested depending upon the findings of the type of insulation material in the generator (costs to be determined).

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MtMS

Resource Needs:

Outside contractor and MECO labor. Quote received from Siemens which includes materials and labor. Please see attached.

Justification:

Existing windings are 50 plus years old. Insulation will fail in the near future. In Sargent & Lundy's remaining useful life and generation assest management study report dated September 1999, recommendations for improvements included rewinds of the generator stator in 2007.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The K1 unit would be out of service for approximately 15 weeks. Attached is ~~an email from~~ a revised quote fr. the vendor with the estimated breakdown of the costs for materials and services.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: [illegible] **Phone/Ext #:** 495/2355

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 01/19/2007

Required Approvals to Initialize a Project:

REVIEWED
JAN 19 2007
BY: [illegible]

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

Pls. see signature on the "Initialize" section. [illegible] 1/24/07

Responsible Manager **Date**

[illegible] 1/24/07

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

[illegible]

MECO Accounting Manager **Date**

[illegible] 1/24/07

MECO President **Date**

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Sep 07	Oct 07	FY07
M0000558	K1 Generator Stator ...	*	*	*	*	401		Stores OHM0000558	0.00	182,900.27	182,900.27
									$0.11640	$0.11640	$0.11640
									$0.00	$21,289.59	$21,289.59
M0000558	K1 Generator Stator ...	*	*	*	*	405		Pwr Sup OH M0000558	40.00	40.00	80.00
									$4.30	$4.30	$4.30
									$172.00	$172.00	$344.00
M0000558	K1 Generator Stator ...	*	*	*	*	406		Corp Adm OH M0000558	40.00	40.00	80.00
									$3.88	$3.88	$3.88
									$155.20	$155.20	$310.40
M0000558	K1 Generator Stator ...	*	*	*	*	421		NPW OH M0000558	40.00	40.00	80.00
									$4.46	$4.46	$4.46
									$178.40	$178.40	$356.80
M0000558	K1 Generator Stator ...	*	*	*	*	422		Empl Benefits OHM0000558	40.00	40.00	80.00
									$12.22	$12.22	$12.22
									$488.80	$488.80	$977.60
M0000558	K1 Generator Stator ...	*	*	*	*	423		PR Tax OH M0000558	1,456.00	1,456.00	2,912.00
									$0.08790	$0.08790	$0.08790
									$127.98	$127.98	$255.96
M0000558	K1 Generator Stator ...	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000558	1.00	1.00	2.00
									$18.49	$2,786.38	$1,402.43
									$18.49	$2,786.38	$2,804.86
M0000558	K1 Generator Stator ...	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		K1 Generator Rewind Stator AFUDC	1.00	1.00	2.00
									$0.00	$0.00	$0.00
									$0.00	$0.00	$0.00
M0000558	K1 Generator Stator ...	MGE	212	N01	NI	150	GEMANT	K1 Generator Rewind Stator (GEMANT Labor)	40.00	40.00	80.00
									$36.40	$36.40	$36.40
									$1,456.00	$1,456.00	$2,912.00
M0000558	K1 Generator Stator ...	MGE	212	N01	NI	201		K1 Generator Rewind Stator-Mat'l	0.00	182,900.27	182,900.27
									$1	$1	$1
									$0.00	$182,900.27	$182,900.27
M0000558	K1 Generator Stator .	MGE	212	N01	NI	501		K1 Generator Rewind Stator-Install Svc	0.00	179,250.88	179,250.88
									$1	$1	$1
									$0.00	$179,250.88	$179,250.88
M0000558	K1 Generator Stator ...	MGE	212	N01	NI	640		K1 Generator Rewind Stator-Freight	0.00	0.00	0.00
									$1	$1	$0
									$0.00	$0.00	$0.00
M0000558									$2,596.87	$388,805.50	$391,402.37
									$2,596.87	$388,805.50	$391,402.37

07-040
M0000725

PROJECT IDENTIFICATION FORM - ~~AUTHORIZE~~ REAUTHORIZE PROJECT

RUSH

The Project identified below has already been established in MIMS

Project Title: K2 Static Exciter

Project Number: M0000725
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-02

Commitment Date: 2006-06

Primary Corporate Goal: Cap Exp

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$29	$143	$0	$0	$0	$0	$0	$172

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	15	0	66	12	138

Purpose/Objectives:

Provide dependable excitation for K2 generator in the Kahului Power Plant. Reduce outages and O&M labor and material costs.

updated in Pillar 2/23/07

updated in Pillar 5/29/07

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FEB 23 2006
KAHULUI POWER PLANT

Scope Description:

Replace rotating exciter with static excitation system on K2 during 2007 overhaul.

This PIF is to re-authorize an amount of $142,773.06 (capital costs) + $5,156.77 (removal costs) = $147,929.83 for 2007 capital expenditures. The reason for this re-authorization is due to the delay in processing invoice received in December from G.E. Energy, which was estimated to post for December 2006. The funding for the additional amount needed, $81,799.14 for 2007 will be provided by this project, which was originally budgeted in 2007 in the amount of $170,208.

revised

BACKGROUND: (The following descriptions were disclosed on the re-authorization PIF submitted and approved on 11/13/06.) This is in the appoved 2006-2010 capital budget for $190,887 in 2007. The 2007 authorized PIF (06-108 GF) was approved for $171,849.46 + $5,565.82 removal = $177,415.28 total in 2007. This is also included in the proposed 2007-2011 budget. However, due to the change in K2 overhaul schedule from 01/08/07-03/02/07 to 10/2/06-10/27/06, majority of the labor and services, and materials are needed for the K2 Static Exciter and is expected to be received concurrent with the new K2 overhaul schedule.

On 11/15/06, a re-authorization PIF was approved (#06-210) for 2006 in the amount of $110,007.18 for capital costs only and for 2007 of $60,973.92 for capital and removal costs of $5,660.78. The total revised capital cost for this project (2006 and 2007) is $170,981.10; a difference of $868.36 from the 2007 approved PIF due to recent changes in the on-cost rates.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Outside contractor and MECO labor.

Justification:

Existing rotating exciter is obsolete, spare parts are unavailable, commutator is worn and requires replacement. Replacement of the rotating exciter with a static exciter is more cost effective by reducing maintenance cost and by increasing unit reliability.

We would plan to retire old rotating exciter.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The exciter provides power to the generator main field in order to produce electricity. Without a functioning exciter, the unit would not produce electricity.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number: -

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** 476-2355

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 01/24/2007

Required Approvals to Initialize a Project:

_____
Responsible Manager **Date**

_____
MECO President **Date**

REVIEWED
JAN 24 2007
BY: _____

Required Approvals to Authorize a Project:

1/22/07

_____
Responsible Manager **Date**

_____
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

2/2/01
_____
MECO Accounting Manager **Date**

2/5/07
_____
MECO President **Date**

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cla...	Line Item	Jan 07	Feb 07	FY07
M0000725	K2 Static Exciter	*	*	*	*	401		Stores OHM0000725	56,270.00	16,928.08	73,198.08
									$0.11640	$0.11640	$0.11640
									$6,549.83	$1,970.43	$8,520.26
M0000725	K2 Static Exciter	*	*	*	*	405		Pwr Sup OH M0000725	84.00	4.00	88.00
									$4.30	$4.30	$4.30
									$361.20	$17.20	$378.40
M0000725	K2 Static Exciter	*	*	*	*	406		Corp Adm OH M0000725	84.00	4.00	88.00
									$3.88	$3.88	$3.88
									$325.92	$15.52	$341.44
M0000725	K2 Static Exciter	*	*	*	*	421		NPW OH M0000725	84.00	4.00	88.00
									$4.46	$4.46	$4.46
									$374.64	$17.84	$392.48
M0000725	K2 Static Exciter	*	*	*	*	422		Empl Benefits OHM0000725	84.00	4.00	88.00
									$12.22	$12.22	$12.22
									$1,026.48	$48.88	$1,075.36
M0000725	K2 Static Exciter	*	*	*	*	423		PR Tax OH M0000725	3,243.04	140.24	3,383.28
									$0.08790	$0.08790	$0.08790
									$285.06	$12.33	$297.39
M0000725	K2 Static Exciter	*	*	*	*	430		AFUDC nonblkt by Component Projec...	1.00	1.00	2.00
									$734.52	$1,217.54	$976.03
									$734.52	$1,217.54	$1,952.06
M0000725	K2 Static Exciter	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUD...		K2 Static Exciter	1.00	1.00	2.00
									$0.00	$0.00	$0.00
									$0.00	$0.00	$0.00
M0000725	K2 Static Exciter	MGB	260	N02	NR	150	GBMANT	K2 Static Exciter - GBMANT Lbr REM ...	4.00	4.00	8.00
									$35.06	$35.06	$35.06
									$140.24	$140.24	$280.48
M0000725	K2 Static Exciter	MGE	260	N02	NI	150	GEMANT	K2 Static Exciter - GEMANT Lbr	40.00	0.00	40.00
									$36.40	$36.40	$36.40
									$1,456.00	$0.00	$1,456.00
M0000725	K2 Static Exciter	MGE	260	N02	NI	150	GESUPV	K2 Static Exciter - GESUPV Lbr	40.00	0.00	40.00
									$41.17	$41.17	$41.17
									$1,646.80	$0.00	$1,646.80
M0000725	K2 Static Exciter	MGE	260	N02	NI	201		K2 Static Exciter - Am Electric - Mat'l	0.00	16,277.00	16,277.00
									$1.040	$1.040	$1.040
									$0.00	$16,928.08	$16,928.08
M0000725	K2 Static Exciter	MGE	260	N02	NI	201		K2 Static Exciter - Exciter (GE)	56,270.00	0.00	56,270.00
									$1	$1	$1
									$56,270.00	$0.00	$56,270.00
M0000725	K2 Static Exciter	MGE	260	N02	NI	501		K2 Static Exciter - Am Electric - Install	0.00	36,283.00	36,283.00
									$1.040	$1.040	$1.040
									$0.00	$37,734.32	$37,734.32
M0000725	K2 Static Exciter	MGE	260	N02	NI	501		K2 Static Exciter - GE - Consultant	5,500.00	0.00	5,500.00
									$1	$1	$1
									$5,500.00	$0.00	$5,500.00
M0000725	K2 Static Exciter	MGE	260	N02	NI	501		K2 Static Exciter - GE- Commissioning	0.00	10,000.00	10,000.00
									$1	$1	$1
									$0.00	$10,000.00	$10,000.00
M0000725	K2 Static Exciter	MGE	260	N02	NI	508		K2 Static Exciter - GE - Engineering	0.00	0.00	0.00
									$1	$1	$0
									$0.00	$0.00	$0.00

(Capital Costs Only)

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cla...	Line Item	Jan 07	Feb 07	FY07
M0000725	K2 Static Exciter	MGE	260	N02	NR	150	GEMANT	K2 Static Exciter - GEMANT Lbr REM...	0.00	0.00	0.00
									$36.40	$36.40	$0.00
									$0.00	$0.00	$0.00
M0000725									$74,670.69	$68,102.38	$142,773.06
									$74,670.69	$68,102.38	$142,773.06

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cla...	Line item	Jan 07	Feb 07	FY07	
M0000725	K2 Static Exciter	*	*	*	*	401		Stores OHM0000725	56,270 00	16,928 08	73,198 08	
									$0.11640	$0.11640	$0.11640	
									$6,549 83	$1,970.43	$8,520 26	
M0000725	K2 Static Exciter	*	*	*	*	405		Pwr Sup OH M0000725	124.00	44 00	168.00	
									$4 30	$4.30	$4.30	
									$533.20	$189 20	$722.40	
M0000725	K2 Static Exciter	*	*	*	*	406		Corp Adm OH M0000725	124 00	44 00	168 00	
									$3 88	$3 88	$3 88	
									$481.12	$170 72	$651.84	
M0000725	K2 Static Exciter	*	*	*	*	421		NPW OH M0000725	124.00	44.00	168.00	
									$4.46	$4 46	$4.46	
									$553.04	$196.24	$749 28	
M0000725	K2 Static Exciter	*	*	*	*	422		Empl Benefits OHM0000725	124.00	44.00	168 00	
									$12.22	$12.22	$12 22	
									$1,515 28	$537.68	$2,052.96	
M0000725	K2 Static Exciter	*	*	*	*	423		PR Tax OH M0000725	4,699 04	1,596.24	6,295.28	
									$0 08790	$0.08790	$0 08790	
									$413 05	$140 31	$553.36	
M0000725	K2 Static Exciter	*	*	*	*	430		AFUDC nonblkt by Component Projec ..	1 00	1.00	2.00	
									$734 52	$1,217.54	$976.03	
									$734 52	$1,217.54	$1,952 06	
M0000725	K2 Static Exciter	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUD...		K2 Static Exciter	1 00	1.00	2.00	
									$0 00	$0 00	$0 00	
									$0 00	$0 00	$0.00	
M0000725	K2 Static Exciter	MGB	260	N02	NR	150	GBMANT	K2 Static Exciter - GBMANT Lbr REM...	4.00	4.00	8 00	
									$35 06	$35 06	$35 06	
									$140 24	$140.24	$280.48	
M0000725	K2 Static Exciter	MGE	260	N02	NI	150	GEMANT	K2 Static Exciter - GEMANT Lbr	40.00	0 00	40.00	
									$36 40	$36.40	$36.40	
									$1,456.00	$0 00	$1,456.00	
M0000725	K2 Static Exciter	MGE	260	N02	NI	150	GESUPV	K2 Static Exciter - GESUPV Lbr	40 00	0.00	40.00	✓
									$41.17	$41.17	$41.17	
									$1,646.80	$0 00	$1,646.80	
M0000725	K2 Static Exciter	MGE	260	N02	NI	201		K2 Static Exciter - Am Electric - Matl	0 00	16,277.00	16,277 00	
									$1.040	$1.040	$1 040	
									$0 00	$16,928 08	$16,928.08	
M0000725	K2 Static Exciter	MGE	260	N02	NI	201		K2 Static Exciter - Exciter (GE)	56,270 00	0.00	56,270.00	
									$1	$1	$1	
									$56,270 00	$0.00	$56,270.00	
M0000725	K2 Static Exciter	MGE	260	N02	NI	501		K2 Static Exciter - Am Electric - Install	0 00	36,283.00	36,283 00	✓
									$1.040	$1.040	$1.040	
									$0.00	$37,734 32	$37,734 32	
M0000725	K2 Static Exciter	MGE	260	N02	NI	501		K2 Static Exciter - GE - Consultant	5,500 00	0.00	5,500 00	✓
									$1	$1	$1	
									$5,500 00	$0 00	$5,500 00	
M0000725	K2 Static Exciter	MGE	260	N02	NI	501		K2 Static Exciter - GE- Commissioning	0.00	10,000.00	10,000.00	✓
									$1	$1	$1	
									$0 00	$10,000 00	$10,000.00	
M0000725	K2 Static Exciter	MGE	260	N02	NI	508		K2 Static Exciter - GE - Engineering	0 00	0 00	0 00	
									$1	$1	$0	
									$0.00	$0 00	$0 00	

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cla...	Line item	Jan 07	Feb 07	FY07
M0000725	K2 Static Exciter	MGE	260	N02	NR	150	GEMANT	K2 Static Exciter - GEMANT Lbr REM...	40 00	40 00	80 00
									$36 40	$36.40	$36 40
									$1,456.00	$1,456 00	$2,912 00
M0000725									$77,249 07	$70,680.76	$147,929 83
									$77,249 07	$70,680.76	$147,929.83

RUSH

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

07-015
M0000788

The Project identified below has already been established in MIMS

Project Title: K3 ID Fan
Project Number: M0000788
(Permanent)
Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-11
Commitment Date: 2007-03
Primary Corporate Goal: Cap Exp
Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$58	$0	$0	$0	$0	$0	$58

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
0	0	25	66	0	91

Purpose/Objectives:

Replace original induced draft fan on K3 unit at KPP.

✓ change PAD to 2008/01 m

RECEIVED
DEC 11 2006
KAHULUI POWER PLANT

updated in Pillar 2/23/07 m

Scope Description:

Replace original ID fan on K3 unit with new. - to be retired

This PIF is to authorize ~~$58,335.69~~ $68,760.28 (capital costs only) which is in the proposed budget for 2007 in the amount of $57,795; the increases are due to the changes in the on-cost rates. Total costs for this project is $68,778.81, with a removal costs of $10,443.12. The difference of $540.69 (capital costs budgeted vs capital costs authorized) will be funded by excess funds from the K2 Static Exciter 2007 budget.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Material
MECO Labor-GBMANT
Attached is a revised quote from Industrial Marketing Systems.

Justification:

The current K3 induced draft fan was the original that was installed with unit #3 at KPP. The ID fan is worn and showing signs of failure. The new ID fan is made of corten steel which will withstand sulfuric acid corrosion better than the orginal ID fan made of mild steel.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The fan blades are thin and could possibly break loose and destroy the fan and cause a forced outage of the unit for a prolonged period.

The old ID fan will be retired.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ☐ Approval Required ● Not Required

☐ Approved, Date of Decision & Order: - - Docket Number: .

☐ Awaiting PUC Approval, Application File(- -

Authorization for: _ Engineering _ Materials _ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: [signature] **Phone/Ext #:** 2358/2355

Originator's Name: Shane Evans

Responsible Estimator: Shave Evans
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Shane Evans

Date: 12/27/2006

REVIEWED
DEC 27 2006
BY: [signature]

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

[signature]

Responsible Manager **Date**

No 1/8/07
an 1/9/07

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

[signature] 1/9/07

MECO Accounting Manager **Date**

[signature] 1/9/07

MECO President **Date**

12/27/2006 K3 ID Fan (All Costs) 7:16AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Nov 07	FY07
M0000788	K3 ID Fan	*	*	*	*	401		Stores OHM0000788	38,114.70	38,114.70
									$0.11610	$0.11610
									$4,425.12	$4,425.12
M0000788	K3 ID Fan	*	*	*	*	405		Pwr Sup OH M0000788	333.00	333.00
									$4.28	$4.28
									$1,425.24	$1,425.24
M0000788	K3 ID Fan	*	*	*	*	406		Corp Adm OH M0000788	333.00	333.00
									$3.67	$3.67
									$1,222.11	$1,222.11
M0000788	K3 ID Fan	*	*	*	*	421		NPW OH M0000788	333.00	333.00
									$4.55	$4.55
									$1,515.15	$1,515.15
M0000788	K3 ID Fan	*	*	*	*	422		Empl Benefits OHM0000788	333.00	33[illegible]
									$12.24	$1[illegible]
									$4,075.92	$4,075.92
M0000788	K3 ID Fan	*	*	*	*	423		PR Tax OH M0000788	11,568.42	11,568.42
									$0.08790	$0.08790
									$1,016.86	$1,016.86
M0000788	K3 ID Fan	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000788	1.00	1.00
									$415.29	$415.29
									$415.29	$415.29
M0000788	K3 ID Fan	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		K3 ID Fan	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000788	K3 ID Fan	MGB	257	N03	NI	150	GBMANT	K3 ID Fan-GBMANT	166.00	166.00
									$34.74	$34.74
									$5,766.84	$5,766.84
M0000788	K3 ID Fan	MGB	257	N03	NI	201		K3 ID Fan-fan	36,614.70	36,614.70
									$1	$1
									$36,614.70	$36,61[illegible]
M0000788	K3 ID Fan	MGB	257	N03	NI	201		K3 ID Fan-misc materials(insulation,steel plates, etc.)	1,500.00	1,500.00
									$1	$1
									$1,500.00	$1,500.00
M0000788	K3 ID Fan	MGB	257	N03	NI	501		K3 ID Fan-rebabbit bearings	5,000.00	5,000.00
									$1	$1
									$5,000.00	$5,000.00
M0000788	K3 ID Fan	MGB	257	N03	NR	150	GBMANT	K3 ID Fan-GBMANT REMOVAL	167.00	167.00
									$34.74	$34.74
									$5,801.58	$5,801.58
M0000788									$68,778.81	$68,778.81
									$68,778.81	$68,778.81

12/27/2006 K3 ID Fan (Capital Costs Only) 7:14AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Nov 07	FY07
M0000788	K3 ID Fan	*	*	*	*	401		Stores OHM0000788	38,114.70	38,114.70
									$0.11610	$0.11610
									$4,425.12	$4,425.12
M0000788	K3 ID Fan	*	*	*	*	405		Pwr Sup OH M0000788	166.00	166.00
									$4.28	$4.28
									$710.48	$710.48
M0000788	K3 ID Fan	*	*	*	*	406		Corp Adm OH M0000788	166.00	166.00
									$3.67	$3.67
									$609.22	$609.22
M0000788	K3 ID Fan	*	*	*	*	421		NPW OH M0000788	166.00	166.00
									$4.55	$4.55
									$755.30	$755.30
M0000788	K3 ID Fan	*	*	*	*	422		Empt Benefits OHM0000788	166.00	166.00
									$12.24	$1
									$2,031.84	$2,031.84
M0000788	K3 ID Fan	*	*	*	*	423		PR Tax OH M0000788	5,766.84	5,766.84
									$0.08790	$0.08790
									$506.91	$506.91
M0000788	K3 ID Fan	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000788	1.00	1.00
									$415.29	$415.29
									$415.29	$415.29
M0000788	K3 ID Fan	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		K3 ID Fan	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000788	K3 ID Fan	MGB	257	N03	NI	150	GBMANT	K3 ID Fan-GBMANT	166.00	166.00
									$34.74	$34.74
									$5,766.84	$5,766.84
M0000788	K3 ID Fan	MGB	257	N03	NI	201		K3 ID Fan-fan	36,614.70	36,614.70
									$1	$1
									$36,614.70	$36,61
M0000788	K3 ID Fan	MGB	257	N03	NI	201		K3 ID Fan-misc materials(insulation,steel plates, etc.)	1,500.00	1,500.00
									$1	$1
									$1,500.00	$1,500.00
M0000788	K3 ID Fan	MGB	257	N03	NI	501		K3 ID Fan-rebabbit bearings	5,000.00	5,000.00
									$1	$1
									$5,000.00	$5,000.00
M0000788	K3 ID Fan	MGB	257	N03	NR	150	GBMANT	K3 ID Fan-GBMANT REMOVAL	0.00	0.00
									$34.74	$0.00
									$0.00	$0.00
M0000788									$58,335.69	$58,335.69
									$58,335.69	$58,335 69

Removal Cost * 10,443.12

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT RUSH

The Project identified below has already been established in MIMS

97-121
M0000783

Project Title: #4 Fuel Oil Tank Roof
Plant Addition Date: 2007-06
Project Number: M0000783
(Permanent)
Commitment Date: 2007-06
Primary Corporate Goal: Cap Exp
Stategic Plan Linkage: 1D - Continuous Improvement
(Primary)
Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2006	2007	2008	2009	2010	Future Years	Total
$0	$0	$50	$0	$0	$0	$0	$50

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
0	0	25	66	0	91

Purpose/Objectives:

Replace complete roof of Kahului Power Plant #4 fuel oil tank.

Scope Description:

Remove and replace KPP #4 fuel oil tank insulation and roof.

This PIF is to authorize the amount of $50,193.42 (capital costs) + $16,280 (removal costs) = $66,473.42 (total project costs). This is in the BOD 2007-2011 budget in the amount of 51,286.

The project no. is M0000783.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Outside contractor and MECO labor. Please see attached quote from Finishing Touch Roofing, Inc.

Justification:

The roofing materials on #4 fuel oil tank should be replaced. We have replaced both Tank #2 (in 2004) and Tank #1 (in 2006) due to leakage that allowed moisture to be trapped between the insulation of the roof and tank walls. Indications are that corrosion is beginning on Tank# 4 and will cause extensive damage to the metal tank if not corrected. The KPP fuel oil tanks are located adjacent to the ocean and are continuously saturated with ocean mist and moisture.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The roofing material on #4 fuel oil tank is leaking and allowing moisture to be trapped between the insulation of the roof and tank walls. Indications are that corrosion has already started and will cause extensive damage to the metal tank if not corrected. The KPP fuel oil tanks are located adjacent to the ocean and are continuously saturated with ocean mist and moisture.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: _ Approval Required ● Not Required

Approved, Date of Decision & Order: - - Docket Number:

Awaiting PUC Approval, Application Filed - -

Authorization for: ___ Engineering ___ Materials ___ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Tom DeMello **Phone/Ext #:** 2359

Originator's Name: Tom DeMello

Responsible Estimator: Tom DeMello
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Tom DeMello

Date: 06/06/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

REVIEWED
JUN 06 2007
BY:

Required Approvals to Authorize a Project:

Michael P. Libao 6/6/07

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

MECO President **Date**

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cla...	Line item	Jun 07	Jul 07	FY07
M0000783	KPP Tank#4 Roof	*	*	*	*	401		Stores OHM0000783	0.00	15,253.00	15,253.00
									$0.11640	$0.11640	$0.11640
									$0.00	$1,775.45	$1,775.45
M0000783	KPP Tank#4 Roof	*	*	*	*	405		Pwr Sup OH M0000783	80.00	0.00	80.00
									$4.30	$4.30	$4.30
									$344.00	$0.00	$344.00
M0000783	KPP Tank#4 Roof	*	*	*	*	406		Corp Adm OH M0000783	80.00	0.00	80.00
									$3.88	$3.88	$3.88
									$310.40	$0.00	$310.40
M0000783	KPP Tank#4 Roof	*	*	*	*	421		NPW OH M0000783	80.00	0.00	80.00
									$4.46	$4.46	$4.46
									$356.80	$0.00	$356.80
M0000783	KPP Tank#4 Roof	*	*	*	*	422		Empl Benefits OHM0000783	80.00	0.00	80.00
									$12.22	$12.22	$12.22
									$977.60	$0.00	$977.60
M0000783	KPP Tank#4 Roof	*	*	*	*	423		PR Tax OH M0000783	2,804.80	0.00	2,804.80
									$0.08790	$0.08790	$0.08790
									$246.54	$0.00	$246.54
M0000783	KPP Tank#4 Roof	*	*	*	*	430		AFUDC nonblkt by Component Projec...	1.00	1.00	2.00
									$35.99	$355.84	$195.91
									$35.99	$355.84	$391.83
M0000783	KPP Tank#4 Roof	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUD...		#4 Fuel Oil Tank Roof	1.00	1.00	2.00
									$0.00	$0.00	$0.00
									$0.00	$0.00	$0.00
M0000783	KPP Tank#4 Roof	MGB	212	NTF	NI	150	GBMANT	#4 Fuel Oil Tank Roof-GBMANT	80.00	0.00	80.00
									$35.06	$35.06	$35.06
									$2,804.80	$0.00	$2,804.80
M0000783	KPP Tank#4 Roof	MGB	212	NTF	NI	201		#4 Fuel Oil Tank Roof-Contractor Mat'l	0.00	15,253.00	15,253.00
									$1	$1	$1
									$0.00	$15,253.00	$15,253.00
M0000783	KPP Tank#4 Roof	MGB	212	NTF	NI	501		#4 Fuel Oil Tank Roof-Contractor Labor	0.00	27,733.00	27,733.00
									$1	$1	$1
									$0.00	$27,733.00	$27,733.00
M0000783	KPP Tank#4 Roof	MGB	212	NTF	NR	501		#4 Fuel Oil Tank Roof-Contractor RE...	0.00	16,280.00	16,280.00
									$1	$1	$1
									$0.00	$16,280.00	$16,280.00
M0000783									$5,076.13	$61,397.29	$66,473.42
									$5,076.13	$61,397.29	$66,473.42

0.00

Removal - 66,473.42

Capital - 16,280.00

50,193.42

CA-IR-324
DOCKET NO. 2006-0387
ATTACHMENT 4
PAGE 42 OF 89

07-071
M0000782

PROJECT IDENTIFICATION FORM - ~~AUTHORIZE~~ RE-AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: KPP Compressor
Project Number: M0000782
(Permanent)
Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-12
Commitment Date: 2007-09
Primary Corporate Goal: Cap Exp
Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$108	$0	$0	$0	$0	$0	$108

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
0	0	25	66	0	91

Purpose/Objectives:

Replace main Kahului Power Plant compressor.

Scope Description:

Replace main KPP air compressor with rotary screw air compressor.

An authorized PIF was approved on 07/03/06 (#06-110) with the intent of receiving the compressor in December 2006 ($61,164.04) and installing it by February 2007 ($34,072.40).

This PIF is to re-authorize an amount of $107,659.87 for 2007. This project is the BOD approved 2007 budget for $94,416; *increase in the amount of $13,243.87 due to the increases from original quotes provided in 2006 and* changes in the on-cost rates. The funding source for the additional amount needed will be provided by M0000558-K1 Generator Stator Rewind, budgeted in 2007 for $597,428.

M0000782

[illegible]

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Materials-compressor
Contractor-installation
MECO labor for installation

Justification:

The current main central air compressor at KPP is a vertical piston type compressor whose bore is beyond repair. Special built piston ring have temporarily repaired the compessor. This main air compressor for the plant provides air pressure for operations instrumentation, pnuematic drives (motors, blowers, etc) and plant tools (impact, sandblasting, etc). This new Ingersoll-Rand model SSR-EP100 is a rotary screw air type compressor.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

Without a fully operational main air compressor at KPP, we would rely on the smaller back up individually networked air compressors throughout the plant. These can only be used temporarily. Lead-time for a new plant air compressor is 3-4 months, not including installation. Without a functioning air compressor system at KPP, we cannot control the boiler and auxililaries which inturn would not operate the plant.

We are not planning to retire the old compressor at this time.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: Approval Required ● Not Required

Approved, Date of Decision & Order: - - Docket Number:

Awaiting PUC Approval, Application Filed - -

Authorization for: Engineering Materials Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** _____

Michael Randall for T. DeMello

Originator's Name: Shane Evans

Responsible Estimator: Shane Evans
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Shane Evans

Date: 08/27/2007

Required Approvals to Initialize a Project:

Responsible Manager	**Date**
MECO President	**Date**

RECEIVED AUG 27 2007

Required Approvals to Authorize a Project:

Responsible Manager	**Date**
VP, Government and Community Affairs (not required if PUC approval is obtained)	**Date**
MECO Accounting Manager	**Date**
MECO President	**Date**

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor C...	Line item	Sep 07	Oct 07	Nov 07	Dec 07	FY07
M0000782	KPP Compressor	*	*	*	*	401		Stores OHM0000782	10,487.80	0.00	0.00	62,191.00	72,678.80
									$0.12200	$0.12200	$0.12200	$0.12200	$0.12200
									$1,279.51	$0.00	$0.00	$7,587.30	$8,866.81
M0000782	KPP Compressor	*	*	*	*	405		Pwr Sup OH M0000782	0.00	0.00	0.00	120.00	120.00
									$3.70	$3.70	$3.70	$3.70	$3.70
									$0.00	$0.00	$0.00	$444.00	$444.00
M0000782	KPP Compressor	*	*	*	*	406		Corp Adm OH M0000782	0.00	0.00	0.00	120.00	120.00
									$3.88	$3.88	$3.88	$3.88	$3.88
									$0.00	$0.00	$0.00	$465.60	$465.60
M0000782	KPP Compressor	*	*	*	*	421		NPW OH M0000782	0.00	0.00	0.00	120.00	120.00
									$4.46	$4.46	$4.46	$4.46	$4.46
									$0.00	$0.00	$0.00	$535.20	$535.20
M0000782	KPP Compressor	*	*	*	*	422		Empl Benefits OHM0000782	0.00	0.00	0.00	120.00	120.00
									$12.22	$12.22	$12.22	$12.22	$12.22
									$0.00	$0.00	$0.00	$1,466.40	$1,466.40
M0000782	KPP Compressor	*	*	*	*	423		PR Tax OH M0000782	0.00	0.00	0.00	4,491.20	4,491.20
									$0.08790	$0.08790	$0.08790	$0.08790	$0.08790
									$0.00	$0.00	$0.00	$394.78	$394.78
M0000782	KPP Compressor	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000...	1.00	1.00	1.00	1.00	4.00
									$204.93	$206.40	$207.87	$763.24	$345.61
									$204.93	$206.40	$207.87	$763.24	$1,382.44
M0000782	KPP Compressor	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU..	*AFUDC...		KPP Compressor	1.00	1.00	1.00	1.00	4.00
									$0.00	$0.00	$0.00	$0.00	$0.00
									$0.00	$0.00	$0.00	$0.00	$0.00
M0000782	KPP Compressor	MGB	266	NST	NI	150	GBMANT	KPP Compressor-GBMANT	0.00	0.00	0.00	80.00	80.00
									$35.06	$35.06	$35.06	$35.06	$35.06
									$0.00	$0.00	$0.00	$2,804.80	$2,804.80
M0000782	KPP Compressor	MGB	266	NST	NI	150	GBSUPV	KPP Compressor-GBSUPV	0.00	0.00	0.00	40.00	40.00
									$42.16	$42.16	$42.16	$42.16	$42.16
									$0.00	$0.00	$0.00	$1,686.40	$1,686.40
M0000782	KPP Compressor	MGB	266	NST	NI	201		KPP Compressor-Compressor	0.00	0.00	0.00	60,674.15	60,674.15
									$1.025	$1.025	$1.025	$1.025	$1.025
									$0.00	$0.00	$0.00	$62,191.00	$62,191.00
M0000782	KPP Compressor	MGB	266	NST	NI	501		KPP Compressor-Install (Arisumi)	6,639.60	0.00	0.00	0.00	6,639.60
									$1.025	$1.025	$1.025	$1.025	$1.025
									$6,805.59	$0.00	$0.00	$0.00	$6,805.59
M0000782	KPP Compressor	MGE	266	NST	NI	150	GEMANT	KPP Compressor-GEMANT	0.00	0.00	0.00	0.00	0.00
									$36.40	$36.40	$36.40	$36.40	$0.00
									$0.00	$0.00	$0.00	$0.00	$0.00
M0000782	KPP Compressor	MGE	266	NST	NI	201		KPP Compressor-Amer Elec Materials	10,232.00	0.00	0.00	0.00	10,232.00
									$1.025	$1.025	$1.025	$1.025	$1.025
									$10,487.80	$0.00	$0.00	$0.00	$10,487.80
M0000782	KPP Compressor	MGE	266	NST	NI	501		KPP Compressor-Amer Elec O/S	9,882.00	0.00	0.00	0.00	9,882.00
									$1.025	$1.025	$1.025	$1.025	$1.025
									$10,129.05	$0.00	$0.00	$0.00	$10,129.05
M0000782									$28,906.88	$206.40	$207.87	$78,338.72	$107,659.87

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor C...	Line item	Sep 07	Oct 07	Nov 07	Dec 07	FY07
									$26,906 88	$206 40	$207 87	$78,338 72	$107,659 87

07-150
M0000784

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: KPP Welding Lean-to

Plant Addition Date: 2007-09

Project Number: M0000784
(Permanent)

Commitment Date: 2007-07

Primary Corporate Goal: Cap Exp

Stategic Plan Linkage: 1D - Continuous Improvement
(Primary)

Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$18	$0	$0	$0	$0	$0	$18

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
0	0	50	33	0	83

Purpose/Objectives:

Replace the welding lean-to at the Kahului Power Plant.

ENTERED
in Pillar 8/15/07 [illegible]

Scope Description:

Replace the existing welding lean-to which is located adjacent to the KPP welding shop/warehouse.

This PIF is to authorize $17,888.89 (capital costs) + $4,032.12 (removal costs) = $21,921.01 (total project costs).
This project is included in the 2007 BOD approved budget in the amount of $39,688.

[illegible]

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Contractor for installation
Materials
MECO labor-GBMANT for removal and GEMANT for installation
Engineering services

Justification:

The existing open air welding lean to is located adjacent to the KPP welding shop/warehouse building. The steel framing has corroded due to the constant exposure to ocean salt air. The roofing is partly gone due to wind damage exposing steel plating that is housed in this area. This area also doubles as a work station for welding and cutting and other large mechanical jobs. This new lean-to would be contructed of wood and less corrosive materials.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

The current welding lean-to will contiue to deteriate if not replaced. KPP has limited storage space for steel plating used throughout the plant. This lean-to currently cannot protect materials from the ocean salt air.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number:

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: Shane H. Evans / Michael Randall for T. DeMello **Phone/Ext #:** 2358 / 2355

Originator's Name: Shane Evans

Responsible Estimator: Shane Evans
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Shane Evans

Date: 07/26/2007

Required Approvals to Initialize a Project:

REVIEWED
JUL 26 2007
BY: [signature]

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

Rodney Jung FOR M. RIBAO 7/27/07
Responsible Manager **Date**

[illegible] 7/[illegible]/07
[illegible]
[illegible] 8/2/07

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

[signature] 8/2/07
MECO Accounting Manager **Date**

Edward J. Kellault 8/2/07
MECO President **Date**

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Sep 07	FY07
M0000784	KPP Welding Lean to	*	*	*	*	401		Stores OHM0000784	1,000.00	1,000.00
									$0.11640	$0.11640
									$116.40	$116.40
M0000784	KPP Welding Lean to	*	*	*	*	405		Pwr Sup OH M0000784	64.00	64.00
									$4.30	$4.30
									$275.20	$275.20
M0000784	KPP Welding Lean to	*	*	*	*	406		Corp Adm OH M0000784	64.00	64.00
									$3.88	$3.88
									$248.32	$248.32
M0000784	KPP Welding Lean to	*	*	*	*	421		NPW OH M0000784	64.00	64.00
									$4.46	$4.46
									$285.44	$285.44
M0000784	KPP Welding Lean to	*	*	*	*	422		Empl Benefits OHM0000784	64.00	64.00
									$12.22	$12.22
									$782.08	$782.08
M0000784	KPP Welding Lean to	*	*	*	*	423		PR Tax OH M0000784	2,421.76	2,421.76
									$0.08790	$0.08790
									$212.87	$212.87
M0000784	KPP Welding Lean to	*	*	*	*	430		AFUDC nonbfkt by Component ProjectM0000784	1.00	1.00
									$126.82	$126.82
									$126.82	$126.82
M0000784	KPP Welding Lean to	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		KPP Welding Lean-to	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	150	GBMANT	KPP Welding Lean-to-GBMANT	0.00	0.00
									$35.06	$0.00
									$0.00	$0.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	150	GBSUPV	KPP Welding Lean-to-GBSUPV	16.00	16.00
									$42.16	$42.16
									$674.56	$674.56
M0000784	KPP Welding Lean to	MGB	212	NST	NI	201		KPP Welding Lean-to-Materials	1,000.00	1,000.00
									$1	$1
									$1,000.00	$1,000.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	501		KPP Welding Lean-to-Contractor Svc	10,420.00	10,420.00
									$1	$1
									$10,420.00	$10,420.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	506		KPP Welding Lean-to-Engineering	2,000.00	2,000.00
									$1	$1
									$2,000.00	$2,000.00
M0000784	KPP Welding Lean to	MGB	212	NST	NR	150	GBMANT	KPP Welding Lean-to-GBMANT REMOVAL	0.00	0.00
									$35.06	$0.00
									$0.00	$0.00
M0000784	KPP Welding Lean to	MGE	212	NST	NI	150	GEMANT	KPP Welding Lean-to-GEMANT	48.00	48.00
									$36.40	$36.40
									$1,747.20	$1,747.20
M0000784									$17,888.89	$17,888.89
									$17,888.89	$17,888.89

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	Sep 07	FY07
M0000784	KPP Welding Lean to	*	*	*	*	401		Stores OHM0000784	1,000.00	1,000.00
									$0.11640	$0.11640
									$116.40	$116.40
M0000784	KPP Welding Lean to	*	*	*	*	405		Pwr Sup OH M0000784	128.00	128.00
									$4.30	$4.30
									$550.40	$550.40
M0000784	KPP Welding Lean to	*	*	*	*	406		Corp Adm OH M0000784	128.00	128.00
									$3.88	$3.88
									$496.64	$496.64
M0000784	KPP Welding Lean to	*	*	*	*	421		NPW OH M0000784	128.00	128.00
									$4.46	$4.46
									$570.88	$570.88
M0000784	KPP Welding Lean to	*	*	*	*	422		Empl Benefits OHM0000784	128.00	128.00
									$12.22	$12.22
									$1,564.16	$1,564.16
M0000784	KPP Welding Lean to	*	*	*	*	423		PR Tax OH M0000784	4,665.60	4,665.60
									$0.08790	$0.08790
									$410.11	$410.11
M0000784	KPP Welding Lean to	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000784	1.00	1.00
									$126.82	$126.82
									$126.82	$126.82
M0000784	KPP Welding Lean to	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		KPP Welding Lean-to	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	150	GBMANT	KPP Welding Lean-to-GBMANT	0.00	0.00
									$35.06	$0.00
									$0.00	$0.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	150	GBSUPV	KPP Welding Lean-to-GBSUPV	16.00	16.00
									$42.16	$42.16
									$674.56	$674.56
M0000784	KPP Welding Lean to	MGB	212	NST	NI	201		KPP Welding Lean-to-Materials	1,000.00	1,000.00
									$1	$1
									$1,000.00	$1,000.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	501		KPP Welding Lean-to-Contractor Svc	10,420.00	10,420.00
									$1	$1
									$10,420.00	$10,420.00
M0000784	KPP Welding Lean to	MGB	212	NST	NI	506		KPP Welding Lean-to-Engineering	2,000.00	2,000.00
									$1	$1
									$2,000.00	$2,000.00
M0000784	KPP Welding Lean to	MGB	212	NST	NR	150	GBMANT	KPP Welding Lean-to-GBMANT REMOVAL	64.00	64.00
									$35.06	$35.06
									$2,243.84	$2,243.84
M0000784	KPP Welding Lean to	MGE	212	NST	NI	150	GEMANT	KPP Welding Lean-to-GEMANT	48.00	48.00
									$36.40	$36.40
									$1,747.20	$1,747.20
M0000784									$21,921.01	$21,921.01

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Sep 07	FY07
									$21,921.01	$21,921.01

Removal Cost <$4,032.42>

Capital Cost $17,888.59

97-036
M0000629

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

RUSH

The Project identified below has already been established in MIMS

Project Title: M14 CT Controls

Project Number: M0000629
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-06

Commitment Date: 2007-01

Primary Corporate Goal: Cap Exp

Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$638	$0	$0	$0	$0	$0	$638

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
15	0	25	66	0	106

Purpose/Objectives:

Replace M14 Combustion Turbine Controls.

Preliminary engineering and fabrication to be started in January 2007. Fabrication of replacement components to be done in May 2007.

RECEIVED
JAN 26 2006
KAHULUI POWER PLANT

Updated in Pillar 2/23/07
Updated in Pillar 8/15/07

Scope Description:

Replace M14 governor and turbine auxiliaries controls.

This project is budgeted in the 2007 Proposed Capital Budget for $587,128. This PIF is authorizing $637,611.76 (capital costs) + $2,098.28 (removal costs) = $639,710.04; an increase of $52,582.04 because the 2007 proposed capital budget was based on the GE's original budgetary pricing of $775,000 which includes M14 and M16 units being serviced at the same time and splitting the engineering costs/design packages between the project. But because both units are not being retrofitted during the same outage (M16 CT Control Upgrade has been moved to 2008), the cost of the first unit (M14) is more than the second unit due to the initial engineering costs.

The funding for the additional amount needed for this project will be provided by excess funds from M0000558 K1 Generator Stator Rewind which is in the proposed budget for 2007 in the amount of $597,428.00.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Outside Contractor materials and services (Please see attached quote from GE International Inc.
MECO Labor

Justification:

The Woodward 503 governor controls are the original equipment installed with unit 14 at Maalaea Power Plant. These controls are vitial for the operation of unit M14. This triplex system controls the unit's governor and auxiliaries. A failure of one of the kernels will put the unit at risk of tripping off the line. These contols are obsolete and no longer supported by Woodward Company. Upgrading these controls will increase unit reliability.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

If this system is not updated, M14 reliability will be compromised.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ○ Approval Required ● Not Required

○ Approved, Date of Decision & Order: - - Docket Number: .

○ Awaiting PUC Approval, Application Filed - -

Authorization for: ○ Engineering ○ Materials ○ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** 9905

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 01/16/2007

Required Approvals to Initialize a Project:

REVIEWED
JAN 16 2007
BY:

Responsible Manager	**Date**
MECO President	**Date**

Required Approvals to Authorize a Project:

Responsible Manager	**Date**
VP, Government and Community Affairs (not required if PUC approval is obtained)	**Date**
MECO Accounting Manager	**Date** 1/24/07
MECO President	**Date** 1/24/07

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cl...	Line item	Apr 07	May 07	Jun 07	FY07	
M0000629	M14 CT Controls	*	*	*	*	401		Stores OHM0000629	0.00	0.00	302,600.00	302,600.00	
									$0.11610	$0.11610	$0.11610	$0.11610	
									$0.00	$0.00	$35,131.86	$35,131.86	$35,222.64
M0000629	M14 CT Controls	*	*	*	*	405		Pwr Sup OH M0000629	10.00	10.00	90.00	110.00	
									$4.28	$4.28	$4.28	$4.28	$4.30
									$42.80	$42.80	$385.20	$470.80	$473.00
M0000629	M14 CT Controls	*	*	*	*	406		Corp Adm OH M0000629	10.00	10.00	90.00	110.00	
									$3.67	$3.67	$3.67	$3.67	$3.58
									$36.70	$36.70	$330.30	$403.70	$426.50
M0000629	M14 CT Controls	*	*	*	*	421		NPW OH M0000629	10.00	10.00	90.00	110.00	
									$4.55	$4.55	$4.55	$4.55	$4.44
									$45.50	$45.50	$409.50	$500.50	$490.44
M0000629	M14 CT Controls	*	*	*	*	422		Empl Benefits OHM0000629	10.00	10.00	90.00	110.00	
									$12.24	$12.24	$12.24	$12.24	$12.27
									$122.40	$122.40	$1,101.60	$1,346.40	$1,344.20
M0000629	M14 CT Controls	*	*	*	*	423		PR Tax OH M0000629	411.70	411.70	3,297.30	4,120.70	
									$0.08790	$0.08790	$0.08790	$0.08790	
									$36.19	$36.19	$289.83	$362.21	
M0000629	M14 CT Controls	*	*	*	*	430		AFUDC nonblkt by Component ProjectM ..	1.00	1.00	1.00	3.00	
									$4.99	$10.01	$4,553.33	$1,522.77	
									$4.99	$10.01	$4,553.33	$4,568.32	
M0000629	M14 CT Controls	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_...		M14 CTControls	1.00	1.00	1.00	3.00	
									$0.00	$0.00	$0.00	$0.00	
									$0.00	$0.00	$0.00	$0.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GEMANT	M14 CT Controls-GEMANT	0.00	0.00	80.00	80.00	
									$36.07	$36.07	$36.07	$36.07	
									$0.00	$0.00	$2,885.60	$2,885.60	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GESUPV	M14 CT Controls-GESUPV	10.00	10.00	10.00	30.00	
									$41.17	$41.17	$41.17	$41.17	
									$411.70	$411.70	$411.70	$1,235.10	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-Control System	0.00	0.00	200,000.00	200,000.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$200,000.00	$200,000.00	✓
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-water inject valve,liquid...	0.00	0.00	102,600.00	102,600.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$102,600.00	$102,600.00	✓
M0000629	M14 CT Controls	MGE	212	M14	NI	201M		M14 CT Controls-Control System (201M)	0.00	0.00	232,293.05	232,293.05	
									$1	$1	$1	$1	
									$0.00	$0.00	$232,293.05	$232,293.05	✓
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Installation & factory ac..	0.00	0.00	55,725.18	55,725.18	
									$1	$1	$1	$1	
									$0.00	$0.00	$55,725.18	$55,725.18	✓
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Removal (GE Energy)	0.00	0.00	2,083.34	2,083.34	Removal Costs
									$1	$1	$1	$1	$2,098.28
									$0.00	$0.00	$2,083.34	$2,083.34	
M0000629									$700.27	$705.29	$638,200.49	$639,606.06	
									$700.27	$705.29	$638,200.49	$639,606.06	$639,710.04

1/16/2007 M14 CT Controls (Capital Costs ONLY) 8:31AM

Gas Cost Rates (eff. 1/1/07)

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Cl...	Line item	Apr 07	May 07	Jun 07	FY07	
M0000629	M14 CT Controls					401		Stores OHM0000629	0.00	0.00	302,600.00	302,600.00	
									$0.11610	$0.11610	$0.11610	~~$0.11610~~	$1.64
									$0.00	$0.00	$35,131.86	~~$35,131.86~~	$35,222.64
M0000629	M14 CT Controls					405		Pwr Sup OH M0000629	10.00	10.00	90.00	110.00	
									$4.28	$4.28	$4.28	~~$4.28~~	$4.30
									$42.80	$42.80	$385.20	~~$470.80~~	$473.02
M0000629	M14 CT Controls					406		Corp Adm OH M0000629	10.00	10.00	90.00	110.00	
									$3.67	$3.67	$3.67	~~$3.67~~	$3.88
									$36.70	$36.70	$330.30	~~$403.70~~	$426.80
M0000629	M14 CT Controls					421		NPW OH M0000629	10.00	10.00	90.00	110.00	
									$4.55	$4.55	$4.55	~~$4.55~~	$4.46
									$45.50	$45.50	$409.50	~~$500.50~~	$490.60
M0000629	M14 CT Controls					422		Empl Benefits OHM0000629	10.00	10.00	90.00	110.00	
									$12.24	$12.24	$12.24	~~$12.24~~	$12.22
									$122.40	$122.40	$1,101.60	~~$1,346.40~~	$1344.20
M0000629	M14 CT Controls					423		PR Tax OH M0000629	411.70	411.70	3,297.30	4,120.70	
									$0.08790	$0.08790	$0.08790	$0.08790	
									$36.19	$36.19	$289.83	$362.21	
M0000629	M14 CT Controls					430		AFUDC nonblkt by Component ProjectM...	1.00	1.00	1.00	3.00	
									$4.99	$10.01	$4,538.39	$1,517.79	
									$4.99	$10.01	$4,538.39	$4,553.38	
M0000629	M14 CT Controls	*AFUDC_Duration	*AFUD..	*AFUDC...	*AFU...	*AFUDC_...		M14 CTControls	1.00	1.00	1.00	3.00	
									$0.00	$0.00	$0.00	$0.00	
									$0.00	$0.00	$0.00	$0.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GEMANT	M14 CT Controls-GEMANT	0.00	0.00	80.00	80.00	
									$36.07	$36.07	$36.07	$36.07	
									$0.00	$0.00	$2,885.60	$2,885.60	
M0000629	M14 CT Controls	MGE	212	M14	NI	150	GESUPV	M14 CT Controls-GESUPV	10.00	10.00	10.00	30.00	
									$41.17	$41.17	$41.17	$41.17	
									$411.70	$411.70	$411.70	$1,235.10	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-Control System	0.00	0.00	200,000.00	200,000.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$200,000.00	$200,000.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	201		M14 CT Controls-water inject valve,liquid...	0.00	0.00	102,600.00	102,600.00	
									$1	$1	$1	$1	
									$0.00	$0.00	$102,600.00	$102,600.00	
M0000629	M14 CT Controls	MGE	212	M14	NI	201M		M14 CT Controls-Control System (201M)	0.00	0.00	232,293.05	232,293.05	
									$1	$1	$1	$1	
									$0.00	$0.00	$232,293.05	$232,293.05	
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Installation & factory ac...	0.00	0.00	55,725.18	55,725.18	
									$1	$1	$1	$1	
									$0.00	$0.00	$55,725.18	$55,725.18	
M0000629	M14 CT Controls	MGE	212	M14	NI	501		M14 CT Controls-Removal (GE Energy)	0.00	0.00	0.00	0.00	
									$1	$1	$1	$0	
									$0.00	$0.00	$0.00	$0.00	
M0000629									$700.27	$705.29	$636,102.21	~~$637,507.78~~	
									$700.27	$705.29	$636,102.21	~~$637,507.78~~	$637,41.72

07-073 GJM.
M0000792.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: E-Cell

Project Number: M0000792
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-07

Commitment Date: 2007-06

Primary Corporate Goal: Cap Exp

Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$189	$0	$0	$0	$0	$0	$189

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
15	0	25	66	0	106

Purpose/Objectives:

To increase water plant reliability with the addition of M18 combine cycle operation.

updated in Pillar 8/15/07

Scope Description:

To accomodate M18 combined cycle operation, we will install a new 100 GPM skid mounted E-Cell system in place of existing Osmonics mix bed demineralizer.

This PIF is to authorize an amount of $188,715.80 for capital costs. The total estimated costs for this project is $202,507.56, of which $13,791.76 is for removal costs. This is in the 2007-2011 BOD approved budget in the amount of $171,618; over budget by $17,097.80 due to the increased in costs based on the quote received from GE Water & Process Technologies for the E-Cell standard system and increased in labor hours for GCMANT from 160 to 220 hours for the installation of the system.

The funding for the additional amount needed for this project will be provided by M0000558 K1 Generator Stator Rewind, budgeted for 2007 in the amount of $597,428.

Are we retiring the existing Osmonic system? 3/9/07 - Per M. Alibin, we will retire existing system. VAC

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Materials
MECO Labor

Justification:

Once M18 is installed (October 2006) and the second combined cycle train is operating, 100 GPM of purified water will be needed. Currently we do not have the capability to produce the required amount of water needed when the existing E-cell goes down. Purfied water is injected into the combustor along with fuel for emission surpression. This is required per the M18 air permit. We currently have an operating E-Cell which produces 100 GPM. The Osmonic mix bed demineralizer is inoperable. It had a 100 GMP rating and operated using chemicals (acids and caustics) to regenerate the demineralizer. This new E-Cell operates using electricity (not checmicals) to continuesly regenerate the resins.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

We currently do not have the capability to produce the purfied water for continuous operation of both combined cycle trains.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: Approval Required ● Not Required

Approved, Date of Decision & Order: - - Docket Number:

Awaiting PUC Approval, Application Filed - -

Authorization for: Engineering Materials Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** x 4912

Originator's Name: John Mauri

Responsible Estimator: John Mauri
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: John Mauri

Date: 02/28/2007

Required Approvals to Initialize a Project:

Responsible Manager **Date**

MECO President **Date**

REVIEWED
FEB 28 2007
BY:

Required Approvals to Authorize a Project:

Responsible Manager **Date** 3/7/07

VP, Government and Community Affairs **Date** 3/8/07
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

MECO President **Date** 3/8/07

2/28/2007 E-Cell (Capital Costs Only) 10:05AM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Jun 07	Jul 07	FY07
M0000792	MPP E-Cell	*	*	*	*	401		Stores OHM0000792	141,667.12	1,000.00	142,667.12
									$0.11640	$0.11640	$0.11640
									$16,490.05	$116.40	$16,606.45
M0000792	MPP E-Cell	*	*	*	*	405		Pwr Sup OH M0000792	0.00	420.00	420.00
									$4.30	$4.30	$4.30
									$0.00	$1,806.00	$1,806.00
M0000792	MPP E-Cell	*	*	*	*	406		Corp Adm OH M0000792	0.00	420.00	420.00
									$3.88	$3.88	$3.88
									$0.00	$1,629.60	$1,629.60
M0000792	MPP E-Cell	*	*	*	*	421		NPW OH M0000792	0.00	420.00	420.00
									$4.46	$4.46	$4.46
									$0.00	$1,873.20	$1,873.20
M0000792	MPP E-Cell	*	*	*	*	422		Empl Benefits OHM0000792	0.00	420.00	420.00
									$12.22	$12.22	$12.22
									$0.00	$5,132.40	$5,132.40
M0000792	MPP E-Cell	*	*	*	*	423		PR Tax OH M0000792	0.00	15,198.00	15,198.00
									$0.08790	$0.08790	$0.08790
									$0.00	$1,335.90	$1,335.90
M0000792	MPP E-Cell	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000792	1.00	1.00	2.00
									$1,129.24	$1,337.88	$1,233.56
									$1,129.24	$1,337.88	$2,467.12
M0000792	MPP E-Cell	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		E-Cell	1.00	1.00	2.00
									$0.00	$0.00	$0.00
									$0.00	$0.00	$0.00
M0000792	MPP E-Cell	MGC	875	MWT	NI	150	GCMANT	E-Cell-GCMANT Lbr INSTALL	0.00	220.00	220.00
									$36.40	$36.40	$36.40
									$0.00	$8,008.00	$8,008.00
M0000792	MPP E-Cell	MGC	875	MWT	NI	150	GCSUPV	E-Cell-GCSUPV Lbr INSTALL	0.00	40.00	40.00
									$34.15	$34.15	$34.15
									$0.00	$1,366.00	$1,366.00
M0000792	MPP E-Cell	MGC	875	MWT	NI	201		E-Cell-100 GPM, skid mounted E-Cell	141,667.12	0.00	141,667.12
									$1	$1	$1
									$141,667.12	$0.00	$141,667.12
M0000792	MPP E-Cell	MGC	875	MWT	NI	201		E-Cell-misc materials (piping, wire, etc)	0.00	1,000.00	1,000.00
									$1	$1	$1
									$0.00	$1,000.00	$1,000.00
M0000792	MPP E-Cell	MGC	875	MWT	NR	150	GCMANT	E-Cell-GCMANT Lbr REMOVAL	0.00	0.00	0.00
									$36.40	$36.40	$0.00
									$0.00	$0.00	$0.00
M0000792	MPP E-Cell	MGC	875	MWT	NR	501		E-Cell-Outside Contractor REMOVAL	0.00	0.00	0.00
									$1	$1	$0
									$0.00	$0.00	$0.00
M0000792	MPP E-Cell	MGD	875	MWT	NR	150	GDMANT	E-Cell GDMANT Lbr REMOVAL	0.00	0.00	0.00
									$36.03	$36.03	$0.00
									$0.00	$0.00	$0.00
M0000792	MPP E-Cell	MGE	875	MWT	NI	150	GEMANT	E-Cell GEMANT Lbr INSTALL	0.00	160.00	160.00
									$36.40	$36.40	$36.40
									$0.00	$5,824.00	$5,824.00
M0000792	MPP E-Cell	MGE	875	MWT	NR	150	GEMANT	E-Cell-GEMANT Lbr REMOVAL	0.00	0.00	0.00
									$36.40	$36.40	$0.00
									$0.00	$0.00	$0.00
M0000792									$159,286.41	$29,429.38	$188,715.80
									$159,286.41	$29,429.38	$188,715.80

Removal costs = $29,391.72

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	Jun 07	Jul 07	FY07
M0000792	MPP E-Cell	*	*	*	*	401		Stores OHM0000792	141,667.12	1,000 00	142 667 12
									$0 11640	$0.11640	$0 11640
									$16,490 05	$116 40	$16,606 45
M0000792	MPP E-Cell	*	*	*	*	405		Pwr Sup OH M0000792	80 00	420 00	500 00
									$4 30	$4 30	$4 30
									$344 00	$1,806 00	$2,150 00
M0000792	MPP E-Cell	*	*	*	*	406		Corp Adm OH M0000792	80 00	420 00	500 00
									$3 88	$3 88	$3 88
									$310 40	$1,629 60	$1,940 00
M0000792	MPP E-Cell	*	*	*	*	421		NPW OH M0000792	80 00	420 00	500 00
									$4 46	$4 46	$4 46
									$356 80	$1,873 20	$2,230 00
M0000792	MPP E-Cell	*	*	*	*	422		Empl Benefns OHM0000792	80 00	420 00	500 00
									$12.22	$12 22	$12 22
									$977 60	$5,132 40	$6,110 00
M0000792	MPP E-Cell	*	*	*	*	423		PR Tax OH M0000792	2,912 00	15,198 00	18,110 00
									$0.08790	$0 08790	$0 08790
									$255 96	$1,335 90	$1,591 87
M0000792	MPP E-Cell	*	*	*	*	430		*AFUDC nonolit by Component ProjectM0000792*	*1 00*	*1 00*	*2 00*
									$1,129 24	$1,337 88	$1,233 56
									$1,129.24	$1,337.88	$2,467.12
M0000792	MPP E-Cell	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		E-Cell	1 00	1 00	2 00
									$0.00	$0 00	$0 00
									$0 00	$0 00	$0 00
M0000792	MPP E-Cell	MGC	875	MWT	NI	150	GCMANT	E-Cell-GCMANT Lbr INSTALL	0 00	220 00	220 00
									$36 40	$36 40	$36 40
									$0 00	$8,008 00	$8,008 00
M0000792	MPP E-Cell	MGC	875	MWT	NI	150	GCSUPV	E-Cell-GCSUPV Lbr INSTALL	0 00	40 00	40 00
									$34 15	$34 15	$34 15
									$0 00	$1,366 00	$1,366 00
M0000792	MPP E-Cell	MGC	875	MWT	NI	201		E Cell-100 GPM, skid mounted E-Cell	141,667.12	0.00	141,667 12
									$1	$1	$1
									$141,667.12	$0 00	$141,667.12
M0000792	MPP E-Cell	MGC	875	MWT	NI	201		E Cell-misc materials (piping, wire, etc)	0 00	1,000 00	1,000 00
									$1	$1	$1
									$0 00	$1,000.00	$1,000 00
M0000792	MPP E-Cell	MGC	875	MWT	NR	150	GCMANT	E-Cell-GCMANT Lbr REMOVAL	40 00	0 00	40 00
									$36 40	$36.40	$36 40
									$1,456 00	$0 00	$1,456 00
M0000792	MPP E-Cell	MGC	875	MWT	NR	501		E-Cell-Outside Contractor REMOVAL	0.00	8,635 00	8 635 00
									$1	$1	$1
									$0 00	$8,635 00	$8,635 00
M0000792	MPP E-Cell	MGD	875	MWT	NR	150	GDMANT	E Cell-GDMANT Lbr REMOVAL	0 00	0 00	0.00
									$36 03	$36 03	$0 00
									$0 00	$0 00	$0 00
M0000792	MPP E-Cell	MGE	875	MWT	NI	150	GEMANT	E Cell-GEMANT Lbr INSTALL	0 00	160 00	160 00
									$36.40	$36 40	$36 40
									$0 00	$5,824.00	$5,824 00
M0000792	MPP E-Cell	MGE	875	MWT	NR	150	GEMANT	E Cell-GEMANT Lbr REMOVAL	40 00	0.00	40.00
									$36.40	$36 40	$36 40
									$1,456 00	$0 00	$1,456 00
M0000792									$164 443 18	$38,064.38	$202,507 56
									$164,443 18	$38,064 38	$202,507.56

07-158 GF
M0000786

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: MPP FO Transfer Pumps

Project Number: M0000786
(Permanent)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2007-10

Commitment Date: 2007-08

Primary Corporate Goal: Cap Exp

Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "PR9105-P: For PIF" report obtained from the estimators' Pillar file.)

Prior Years	2007	2008	2009	2010	2011	Future Years	Total
$0	$23	$0	$0	$0	$0	$0	$23

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
0	0	50	66	0	116

Purpose/Objectives:

Replace Maalaea Power Plant fuel oil transfer pumps.

ENTERED
in Pillar 8/15/07

Scope Description:

Replace pump and motor on MPP fuel tank 3A and 4A.

There will be no retirement of old pumps, rather we would use for back-up spares.

This PIF is to authorize $23,126.20 capital costs. This project is included in the 2007 BOD approved budget in the amount of $102,436. The difference is due to the original estimates being based on the information available at the time when this project was proposed.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Materials (pump and motor). Please see attached quote from Kaman Inc.
MECO labor

Justification:

The pump and motor on MPP fuel tank 3A and 4A are the original and are aged. These two pump and motors transfer fuel oil from the MPP storage tank farm to unit day tanks. These two pumps supply M10-13, M14, M15, and M16. We do not have a back up pump and motor. If these pump and motors were to fail, we could not transfer fuel to operate these units.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Relation to overall management operational objectives and consistency with IRP:

Issues, Impacts, Considerations:

We currently do not have a pump and motor back up for these two fuel tanks. If we had a failure, we could possibly not transfer fuel to the units for operation.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind** NONE

- **In Cash** NONE

Cash Advance NONE

Cost Sharing
(under HECO Policy UG Lines, October 2000)

NONE

Other type of payment (cash, non-cash) by outside party

NONE

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ◯ Approval Required ● Not Required

◯ Approved, Date of Decision & Order: - - Docket Number:

◯ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** _____

Originator's Name: Gerardo Flores

Responsible Estimator: Gerardo Flores
(Pillar UserID)

Resp. Estimator Dept: Power Supply Capital
(Pillar Department Folder)

Project Manager: Gerardo Flores

Date: 08/03/2007

Required Approvals to Initialize a Project:

REVIEWED
AUG 0 3 2007
BY:

Responsible Manager **Date**

MECO President **Date**

Required Approvals to Authorize a Project:

8/8/07
8/8/07
8/8/07

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

8/15/07

MECO Accounting Manager **Date**

Edward L. Reinhardt 8/15/07

MECO President **Date**

8/3/2007 PIF: MPP Fuel Oil Transfer Pumps 12:55PM

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line item	Oct 07	FY07
M0000786	MPP Fuel Oil Transf...	*	*	*	*	401		Stores OHM0000786	9,520.63	9,520.63
									12.206 ~~$0.11640~~	12.206 ~~$0.11640~~
									$1,114.52 ~~$1,188.20~~	1,114.52 ~~$1,188.20~~
M0000786	MPP Fuel Oil Transf...	*	*	*	*	405		Pwr Sup OH M0000786	192.00	192.00
									$3.70 ~~$4.30~~	3.70 ~~$4.30~~
									$710.40 ~~$825.60~~	710.40 ~~$825.60~~
M0000786	MPP Fuel Oil Transf...	*	*	*	*	406		Corp Adm OH M0000786	192.00	192.00
									$3.88	$3.88 ✓
									$744.96	$744.96
M0000786	MPP Fuel Oil Transf...	*	*	*	*	421		NPW OH M0000786	192.00	192.00
									$4.46	$4.46 ✓
									$856.32	$856.32
M0000786	MPP Fuel Oil Transf...	*	*	*	*	422		Empl Benefits OHM0000786	192.00	19
									$12.22	$12.22 ✓
									$2,346.24	$2,346.24
M0000786	MPP Fuel Oil Transf...	*	*	*	*	423		PR Tax OH M0000786	7,005.92	7,005.92
									$0.08790	$0.08790 ✓
									$615.82	$615.82
M0000786	MPP Fuel Oil Transf...	*	*	*	*	430		AFUDC nonblkt by Component ProjectM0000786	1.00	1.00
									$164.39	$164.39
									$164.39	$164.39
M0000786	MPP Fuel Oil Transf...	*AFUDC_Duration	*AFUD...	*AFUDC...	*AFU...	*AFUDC_Duration		MPP Fuel Oil Transfer Pumps	1.00	1.00
									$0.00	$0.00
									$0.00	$0.00
M0000786	MPP Fuel Oil Transf...	MGD	212	MTF	NI	150	GDMANT	MPP Fuel Oil Transfer Pumps-GDMANT	160.00	160.00
									$36.03	$36.03
									$5,764.80	$5,764.80
M0000786	MPP Fuel Oil Transf...	MGE	212	MTF	NI	150	GEMANT	MPP Fuel Oil Transfer Pumps-GEMANT	16.00	16.00
									$36.40	$3[illegible]
									$582.40	$58[illegible]
M0000786	MPP Fuel Oil Transf...	MGE	212	MTF	NI	150	GESUPV	MPP Fuel Oil Transfer Pumps-GESUPV	16.00	16.00
									$41.17	$41.17
									$658.72	$658.72
M0000786	MPP Fuel Oil Transf...	MGE	212	MTF	NI	201		MPP Fuel Oil Transfer Pumps-Pumps & Motors	9,520.63	9,520.63
									$1	$1
									$9,520.63	$9,520.63
M0000786									~~$23,188.08~~	~~$23,188.08~~
									$23,126.20	$23,126.20
									~~$23,188.08~~	~~$23,188.08~~

(See attached tape on next page)

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Kaluakoi UG Main Fdr Rpl Ph3

Project Number: DTAKAHAT45
(Temporary)

Stategic Plan Linkage: 1E - Reliability
(Primary)

Plant Addition Date: 2006-10 ✓

Commitment Date: 2006-01

Primary Corporate Goal: SAIF

Impact on Goal: Medium

Project Forecast (Thousand $)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

Prior Years	2005	2006	2007	2008	2009	Future Years	Total
$0	$0	$296 ✓	$0	$0	$0	$0	$296

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	0	0	33	0	78

Purpose/Objectives:

Replace aging and failing UG cable in the Kaluakoi UG subdivision. Phase 3 of 4 phases to replace the main feeder cables in this subdivision.

Temporary Project Number is DTakahat 45.

Scope Description:

Replace existing #4/0 AL UG cable laterals for main feeder A with approximately 12,610 ft of new #4/0 AL cable and with approximately 22,050 ft of new #2 AL cable off Kaluakoi Rd. and Pahakuloa Rd.

Project Period: January, 2006 to October, 2006. ✓

Approximately 34,660 ft. of 3-1/C #4/0 XL PEICN, 15kV AL cable to be removed.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

2006 Resources:
MDT Construction Crew = 1200 hours
MGA Production Supv = 136 hours
MWP Designer = 100 hours
MWP Dist. Engr. Supv = 11 hours
MWS Staff Engr = 12 hours

Justification:

To reduce the number of outages due to cable failures and aging cables. Also, to provide better reliability for the existing UG distribution system in the Kaluakoi area.

Issues, Impacts, Considerations:

Failures to the existing underground cables in the area will occur more frequently if the existing cables are not replaced. This will affect SAIF. Also, there will be longer outage durations which will have a negative impact on CAID.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind**

- **In Cash**

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October 2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ◯ Approval Required ● Not Required

◯ Approved, Date of Decision & Order: - - Docket Number:

◯ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: _____ **Phone/Ext #:** 2385

Originator's Name: Dan Takahata

Responsible Estimator: DTakahat
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: Dan Takahata

Date: 06/29/2004

Required Approvals to Initialize a Project:

Neal Shaya 7-1-04 B 7/2/04
Responsible Manager **Date**

Edward J. Reilly 7/12/04
MECO President **Date**

Required Approvals to Authorize a Project:

Responsible Manager **Date**

VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

MECO President **Date**

*Project #	Project	*RA #	*Act #	*Loc #	*Ind #	*EE #	Line Item	FY06
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	401	Stores OHDTakahat45_	148,474.58 $0.12150 $18,039.66
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	404	En Del OHDTakahat45_	1,212.00 $28.12 $34,081.44
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	405	Pwr Sup OH DTakahat45_	136.00 $4.23 $575.28
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	406	Corp Adm OH DTakahat45_	1,459.00 $4.09 $5,967.31
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	407	Cust Install OHDTakahat45_	100.00 $32.10 $3,210.00
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	421	NPW OH DTakahat45_	1,459.00 $4.47 $6,521.73
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	422	Empl Benefits OHDTakahat45_	1,459.00 $9.14 $13,335.26
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	423	PR Tax OH DTakahat45_	47,725.72 $0.09250 $4,414.63
DTakahat45_	Temp Proj DTakahat45_	*	*	*	*	430	AFUDC nonblkt by Component Proje...	10.00 $1,349.08 $13,490.83
DTakahat45_	Temp Proj DTakahat45_	MDT	416	MAM	NI	150	Kaluakoi UG Main Fdr Repl Ph 3 - D...	1,200.00 $31.12 $37,344.00
DTakahat45_	Temp Proj DTakahat45_	MDT	416	MAM	NI	201	Kaluakoi UG Main Fdr Repl Ph 3 - #2...	58,653.00 $1.042 $61,116.43
DTakahat45_	Temp Proj DTakahat45_	MDT	416	MAM	NI	201	Kaluakoi UG Main Fdr Repl Ph 3 - #4...	43,126.00 $1.042 $44,937.29
DTakahat45_	Temp Proj DTakahat45_	MDT	416	MAM	NI	201	Kaluakoi UG Main Fdr Repl Ph 3 - Sp...	40,711.00 $1.042 $42,420.86
DTakahat45_	Temp Proj DTakahat45_	MGA	416	MAM	NI	150	Kaluakoi UG Main Fdr Repl Ph 3 - G...	136.00 $40.39 $5,493.04
DTakahat45_	Temp Proj DTakahat45_	MWP	404	MAM	NI	150	Kaluakoi UG Main Fdr Repl Ph 3 - W...	100.00 $39.74 $3,974.00
DTakahat45_	Temp Proj DTakahat45_	MWP	404	MAM	NI	150	Kaluakoi UG Main Fdr Repl Ph 3 - W...	11.00 $42.20 $464.20
DTakahat45_	Temp Proj DTakahat45_	MWS	404	MAM	NI	150	Kaluakoi UG Main Fdr Repl Ph 3 - W...	12.00 $37.54 $450.48
								$295,838.44

04-230(MF)

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: SOH MOL Kawaikapu Brdg

Plant Addition Date: 2005-10

Project Number: ~~MFERNAN25_~~ M0000652
(Temporary)

Commitment Date: 2004-11

Primary Corporate Goal: Cap Exp

Stategic Plan Linkage: 2A - Retain Customers
(Primary)

Impact on Goal: High

Project Forecast (Thousand $)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

Prior Years	2004	2005	2006	2007	2008	Future Years	Total
$13	~~$8~~ 3	~~$15~~ 31	$0	$0	$0	$0	~~$85~~ 47 -

Assessment Factors

Compliance	Competitive Advantage	Financial Impact	Reliability	Corporate Image	Total Score
45	0	0	0	0	45

Purpose/Objectives:

Relocate existing MECO overhead facilities to accomodate State of Hawaii Molokai Kawaikapu BridgeUA#1678 replacement.

Temporary Project number is MFernan25_.

Scope Description:

Install for temporary relocation (5) 45' wood poles, and (1) 35' wood pole and (4) anchors. Existing overhead conductors to be utilized. Temporary relocation to be removed when bridge repair is completed and replaced with (1) 45' wood pole.
For temporary relocation Removial (2) 45" wood poles.
Permanent relocation removals: (4) 45' wood poles and (1) 35' wood pole.
Duration: November 2004 to October 2005.

This unbudgeted project, MFernan25_, is currently estimated at $46,866.98 with $2,843.61 for 2004. This $2,843.61 will be funded by Blanket project M7300000 Minor Pole Line Reloc with an approved 2004 budget of $89,174

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Manhours
MWP - 22.00 hours
MDT - 168.50 hours
MGT - 16.00 hours
MWL - 3.00 hours
Materials = $6,781.02
Outside = $5,508.00

See attached pillar file estimate and Ellipse actuals.

Justification:

Funds required for relocation of existing overhead facilities to accomodate State of Hawaii Molokai Kawaikapu Bridge Replacement project under UA#1678.

Issues, Impacts, Considerations:

Address State of Hawaii - Department of Transportation improvement to Molokai Kawaikapu Bridge in relation to the bridge reconstruction. This project is done in accordance with UA#1678.. Promotes the Company's Image to the general public.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has *not* been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- **In Kind**

- **In Cash**

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October 2000)

$0.00 To be determined based on UA.

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ◯ Approval Required ● Not Required

◯ Approved, Date of Decision & Order: - - Docket Number:

◯ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted

Submitted by: _____ **Phone/Ext #:** 2371

Originator's Name: Mark Fernandez

Responsible Estimator: Mark Fernandez
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: Mark Fernandez

Date: 11/22/2004

Required Approvals to Initialize a Project:

n/a
Responsible Manager **Date**

n/a
MECO President **Date**

Required Approvals to Authorize a Project:

Neal Shyn Nov. 22, 2004
Responsible Manager **Date**

n/a
VP, Government and Community Affairs **Date**
(not required if PUC approval is obtained)

MECO Accounting Manager **Date**

Edward J. Reinwald 12/1/04
MECO President **Date**

Pr 11/23/04
& for KH

11/22/2004 *PIA/VIEW: Proj $ MFERNAN25 Kawaikapu 12:13PM

*Project #	Project	*Ind #	*RA #	*Act #	*Loc #	*EE #	*Labor Class #	Line Item	FY04	FY05	Total $ Yea...
MFerman25_	Temp Proj MFerman25_	*	*	*	*	401		Stores OHMFerman25_	0.00 $0.00000 $0.00	6,781.02 $0.15220 $1,032.07	$1,032.07
...an25_	Temp Proj MFerman25_	*	*	*	*	404		En Del OHMFerman25_	0.00 $0.00 $0.00	168.50 $28.56 $4,812.36	$4,812.36
MFerman25_	Temp Proj MFerman25_	*	*	*	*	405		Pwr Sup OH MFerman25_	0.00 $0.00 $0.00	16.00 $3.00 $48.00	$48.00
MFerman25_	Temp Proj MFerman25_	*	*	*	*	406		Corp Adm OH MFerman25_	11.00 $3.95 $43.45	198.50 $3.73 $740.41	$783.85
MFerman25_	Temp Proj MFerman25_	*	*	*	*	407		Cust Install OHMFerman25_	10.00 $35.03 $350.30	10.00 $32.83 $328.30	$678.60
MFerman25_	Temp Proj MFerman25_	*	*	*	*	421		NPW OH MFerman25_	11.00 $3.90 $42.90	198.50 $4.38 $865.46	$908.36
MFerman25_	Temp Proj MFerman25_	*	*	*	*	422		Empl Benefits OHMFerman25_	11.00 $7.23 $79.53	198.50 $9.95 $1,975.08	$2,054.61
MFerman25_	Temp Proj MFerman25_	*	*	*	*	423		PR Tax OH MFerman25_	382.50 $0.08840 $33.81	6,805.24 $0.08760 $596.14	$629.95
MFerman25_	Temp Proj MFerman25_	*	*	*	*	430		AFUDC nonbilki by Component ProjectMFerna...	2.00 $6.76 $13.51	10.00 $158.47 $1,584.71	$1,598.22
MFerman25_	Temp Proj MFerman25_	NI	MDT	415	MAM	150	DTCREW	Molokai Kawaikapu Bridge - MOL CREW	0.00 $0.00 $0.00	168.50 $33.83 $5,700.36	$5,700.36
MFerman25_	Temp Proj MFerman25_	NI	MDT	415	MAM	201		Molokai Kawaikapu Bridge - Materials	0.00 $0 $0.00	6,781.02 $1 $6,781.02	$6,781.02
MFerman25_	Temp Proj MFerman25_	NI	MDT	415	MAM	505		Molokai Kawaikapu Bridge - O/S (AINA)	0.00 $0 $0.00	5,508.00 $1 $5,508.00	$5,508.00
...rman25_	Temp Proj MFerman25_	NI	MGT	415	MAM	150	GTSUPV	Molokai Kawaikapu Bridge - MOL SUPV	0.00 $0.00 $0.00	16.00 $37.68 $602.88	$602.88
MFerman25_	Temp Proj MFerman25_	NI	MWL	928	MAM	150	WLTC	Molokai Kawaikapu Bridge - Land Agent	0.00 $0.00 $0.00	3.00 $31.06 $93.18	$93.18
MFerman25_	Temp Proj MFerman25_	NI	MWP	403	MAM	150	WPOPNR	Molokai Kawaikapu Bridge - DES PLNR	10.00 $34.33 $343.30	10.00 $36.81 $368.10	$711.40
MFerman25_	Temp Proj MFerman25_	NI	MWP	403	MAM	150	WPSUPV	Molokai Kawaikapu Bridge - WP SUPV	1.00 $39.20 $39.20	1.00 $40.72 $40.72	$79.92
									$640.61	$31,076.77	$32,022.78

11/22/2004 *PIA/VIEW: Proj $ MFERNAN25 Kawaikapu with Remarks 12:12PM

*Project #	Project	*Ind #	*RA #	*Act #	*Loc #	*EE #	*Labor Class #	Line Item	FY04	FY05	Total 5 Yea...
MFernan25_	Temp Proj MFernan25_	*	*	*	*	401		Stores OHMFernan25_	0 00 $0 00000 $0 00	6,781 02 $0 15220 $1,032 07	$1,032.07
...an25_	Temp Proj MFernan25_	*	*	*	*	404		En Del OHMFernan25_	0 00 $0 00 $0 00	218.50 $28 56 $6,240 36	$6,240 36
MFernan25_	Temp Proj MFernan25_	*	*	*	*	405		Pwr Sup OH MFernan25_	0 00 $0 00 $0 00	21 00 $3 00 $63 00	$63 00
MFernan25_	Temp Proj MFernan25_	*	*	*	*	406		Corp Adm OH MFernan25_	11 00 $3 95 $43 45	253 50 $3.73 $945 56	$989 01
MFernan25_	Temp Proj MFernan25_	*	*	*	*	407		Cust Install OHMFernan25_	10 00 $35 03 $350.30	10 00 $32 83 $328.30	$678 60
MFernan25_	Temp Proj MFernan25_	*	*	*	*	421		NPW OH MFernan25_	11.00 $3 90 $42.90	253 50 $4.36 $1,105 26	$1,148 16
MFernan25_	Temp Proj MFernan25_	*	*	*	*	422		Empl Benefits OHMFernan25_	11 00 $7 23 $79 53	253 50 $9 95 $2,522.33	$2,601 86
MFernan25_	Temp Proj MFernan25_	*	*	*	*	423		PR Tax OH MFernan25_	362 50 $0 08840 $33 81	8,685 14 $0 08760 $760 82	$794 63
MFernan25_	Temp Proj MFernan25_	*	*	*	*	430		AFUDC nonbkl by Component ProjectMFerna...	2.00 $6.76 $13.51	10 00 $158 47 $1,584.71	$1,598 22
MFernan25_	Temp Proj MFernan25_	NI	MDT	415	MAM	150	OTCREW	Molokai Kawaikapu Bridge - MOL CREW	0 00 $0 00 $0 00	168.50 $33 83 $5,700 36	$5,700 36
MFernan25_	Temp Proj MFernan25_	NI	MDT	415	MAM	201		Molokai Kawaikapu Bridge - Materials	0 00 $0 $0 00	6,781.02 $1 $6,781 02	$6,781 02
MFernan25_	Temp Proj MFernan25_	NI	MDT	415	MAM	505		Molokai Kawaikapu Bridge - O/S (AINA)	0 00 $0 $0 00	5,508 00 $1 $5,508 00	$5,508 00
MFernan25_	Temp Proj MFernan25_	NI	MGT	415	MAM	150	GTSUPV	Molokai Kawaikapu Bridge - MOL SUPV	0 00 $0 00 $0 00	16 00 $37.68 $602 88	$602.88
MFernan25_	Temp Proj MFernan25_	NI	MWL	928	MAM	150	WLTC	Molokai Kawaikapu Bridge - Land Agent	0 00 $0 00 $0 00	3 00 $31.06 $93.18	$93 18
MFernan25_	Temp Proj MFernan25_	NI	MWP	403	MAM	150	WPDPNR	Molokai Kawaikapu Bridge - DES PLNR	10 00 $34.33 $343.30	10 00 $38 81 $388.10	$711 40
MFernan25_	Temp Proj MFernan25_	NI	MWP	403	MAM	150	WPSUPV	Molokai Kawaikapu Bridge - WP SUPV	1 00 $39 20 $39 20	1.00 $40 72 $40 72	$79 92
MFernan25_	Temp Proj MFernan25_	NR	MDT	415	MAM	150	DTCREW	Molokai Kawaikapu Bridge - MOL CREW REM...	0.00 $0 00 $0 00	50.00 $33 83 $1,691 50	$1,691 50
MFernan25_	Temp Proj MFernan25_	NR	MGT	415	MAM	150	GTSUPV	Molokai Kawaikapu Bridge - MOL SUPV - RE...	0 00 $0 00 $0 00	5 00 $37 68 $188 40	$188 40
									$946 01	$35,558 55	$36,502 56

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Edit Tools Help

OK Revert

Work Order: CE012764 Molokai Kawaikapu Bridge Emergency

From Period 01/99 To Period 12/03

Expense/Revenue

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	AFUDC	E	5.25		0.00	
2	LABOR	E	45.07	OR	1.50	
3	OVERHEADS	E	31.50		0.00	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Edit Tools Help

OK Revert

Work Order: CE012765 Molokai Kawaikapu Bridge. (MF)

From Period 01/99 To Period 12/03

Expense/Revenue

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	AFUDC	E	2307.57		0.00	
2	LABOR	E	4425.56	OR	158.00	
3	OTHER	E	39.02		0.00	
4	OVERHEADS	E	6092.63		0.00	

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Edit Tools Help

OK Revert

Work Order: CE012764 Molokai Kawaikapu Bridge Emergency

From Period 01/04 To Period 11/04

Expense/Revenue

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	AFUDC	E	6.09		0.00	
2						

Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)

File Edit Tools Help

OK Revert

Work Order: CE012765 Molokai Kawaikapu Bridge. (MF)

From Period 01/04 To Period 11/04

Expense/Revenue

	Category	Expense/Revenue	Actual Cost	Statistic Type	Actual Statistic	Action
1	AFUDC	E	961.35		0.00	
2	LABOR	E	371.18	OR	10.50	
3	OVERHEADS	E	558.98		0.00	
4						

MSM977A ~

Date Printed	20 November 2004 11:56:39
Userid	lyamashi
Program Name	msq000.exe
Program Description	Review Work Order Costs By Category (MAUI ELECTRIC COMPANY, LTD.)
Version	001A
Revision	144.1 ; Date: Tuesday, February 10, 2004
Module	3001
Product Version	5.2.3.2
File Version	5.23.144.1
Location	d:\PROGRA~1\Mincom\MIMSOP~1\523~1.2\bin\
Compiled Date	25 February 2004 09:20
Form Name	lmMSQMU100Main