



October 29, 2019

FILED

The Honorable Chair and Members  
of the Hawai'i Public Utilities Commission  
Kekuanao'a Building, First Floor  
465 South King Street  
Honolulu, Hawai'i 96813

2019 OCT 29 P 3:15

PUBLIC UTILITIES  
COMMISSION

Dear Commissioners:

Subject: Maui Electric Energy Cost Recovery Factor for November 2019

Maui Electric Company, Limited's ("Maui Electric" or "Company") November 2019 Energy Cost Recovery factor for our Maui Division is 17.061 cents per kilowatt-hour ("kWh"), a decrease of 0.037 cents per kWh from last month. A residential customer consuming 500 kWh of electricity will be paying \$168.70, a decrease of \$0.23 compared to rates effective October 1, 2019. The decrease in the typical residential bill is due to the decrease in the Energy Cost Recovery Factor (-\$0.19) and the decrease in the Purchase Power Adjustment (-\$0.04).

The Company's Maui Division fuel composite cost of generation, central station and other increased 10.98 cents per million BTU to 1,398.45 cents per million BTU. The composite cost of DG energy is 0.00 cents per kWh. The composite cost of purchased energy decreased 0.776 cents per kWh to 17.442 cents per kWh.

The Energy Cost Recovery factor for our Lāna'i Division for November 2019 is 26.088 cents per kWh, an increase of 1.131 cents per kWh from last month. A residential customer consuming 400 kWh of electricity will be paying \$175.42, an increase of \$4.52 compared to rates effective October 1, 2019. The increase in the typical residential bill is due to the increase of the Energy Cost Recovery factor (+\$4.52).

The Company's Lāna'i Division fuel composite cost of generation, central station and other increased 88.23 cents per million BTU to 2,097.17 cents per million BTU. The composite cost of DG energy is 0.00 cents per kWh. The composite cost of purchased energy is 30.00 cents per kWh.

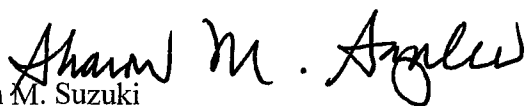
The Energy Cost Recovery factor for our Moloka'i Division for November 2019 is 20.907 cents per kWh, an increase of 1.836 cents per kWh from last month. A residential customer consuming 400 kWh of electricity will be paying \$162.13, an increase of \$10.62 compared to rates effective October 1, 2019. The increase in the typical residential bill is due to the increase of the Energy Cost Recovery Factor (+\$7.35), and the increase in the Purchase Power Adjustment (+\$3.27).

The Honorable Chair and Members  
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The Company's Moloka'i Division fuel composite cost of generation, central station and other increased 138.66 cents per million BTU to 1,750.21 cents per million BTU. The composite cost of DG energy is 0.00 cents per kWh. The composite cost of purchased energy is 21.80 cents per kWh.

The attached sheets set forth the fuel adjustment in cents per kWh for each rate schedule that is applicable for pro rata use beginning November 1, 2019.

Sincerely,

  
Sharon M. Suzuki  
President

Attachments

cc: Division of Consumer Advocacy

**MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION**

**ENERGY COST RECOVERY FACTOR**

	EFFECTIVE DATES		<u>Change</u>
	<u>10/01/2019</u>	<u>11/01/2019</u>	
<u>COMPOSITE COSTS</u>			
Generation, Central Station & Other, ¢/mbtu	1,387.47	1,398.45	10.98
DG Energy, ¢/kWh	0.00	0.00	0.000
Purchased Energy, ¢/kWh	18.218	17.442	(0.776)
<u>Residential Schedule "R"</u>			
Energy Cost Recovery Factor, ¢/kWh	17.098	17.061	(0.037)
<u>Others - "G,P,F"</u>			
Energy Cost Recovery Factor, ¢/kWh	17.098	17.061	(0.037)
<u>Residential Customer with</u>			
500 KWH Consumption, \$/Bill	168.93	168.70	(0.23)
600 KWH Consumption, \$/Bill	201.76	201.48	(0.28)

Supersedes Sheet Effective:

October 1, 2019



MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION  
ENERGY COST RECOVERY (ECR) FILING

ENERGY COST RECOVERY (ECR) FILING - November 1, 2019 (page 2 of 2)

Line		
1	Effective Date	November 1, 2019
2	Supercedes Factors of	October 1, 2019

Line	PURCHASED ENERGY COMPONENT	
	PURCHASED ENERGY PRICE - FOSSIL ¢/kWh	
	PURCHASED ENERGY PRICE - RENEWABLE, ¢/kWh	
36	Kaheawa Wind I - On Peak	13.783
37	- Off Peak	12.935
38	Kaheawa Wind II	19.826
39	Sempre Wind	22.197
40	Hydro & Other - On Peak	14.568
41	- Off Peak	13.842
42	South Maui RR	11.060
43	Ku'ia Solar	11.060
44	CBRE PV	16.500
45		
46	FIT	21.458
	PURCHASED ENERGY KWH MIX- FOSSIL, %	
46A	Subtotal Fossil %	0%
	PURCHASED ENERGY KWH MIX - RENEWABLE, %	
47	Kaheawa Wind I - On Peak	23.82%
48	- Off Peak	18.00%
49	Kaheawa Wind II	29.21%
50	Sempre Wind - On Peak	22.89%
51	Hydro & Other - On Peak	0.16%
52	- Off Peak	0.08%
53	South Maui RR	1.48%
54	Ku'ia Solar	1.51%
55	CBRE PV	0.37%
56		
57	FIT	2.48%
57A	Subtotal Renewable %	100.00%
57B	Total Purchased Energy %	100.00%
57C	Composite Cost of Purchased Energy, Fossil	N/A
57D	Composite Cost of Purchased Energy, Renewable	17.442
58	COMPOSITE COST OF PURCHASED ENERGY, ¢/kWh	17.442
	(Lines (36 x 47) + (37 x 48) + (38 x 49) + (39 x 50) + (40 x 51) + (41 x 52) + (42 x 53) + (43 x 54) + (44 x 55) + (46 x 57))	
59	% Input to System kWh Mix	35.49%
60	WEIGHTED COMPOSITE PURCHASED ENERGY COST, ¢/kWh (lines (58 x 59))	6.19017
61	BASE PURCHASED ENERGY COMPOSITE COST, ¢/kWh	0.000
62	Base % Input to Sys kWh Mix	0.00
63	WEIGHTED BASE PURCHASED ENERGY COST, ¢/kWh (lines (61 x 62))	0.00000
64	COST LESS BASE (lines (60 - 63))	6.19017
65	Loss Factor	1.057
66	Revenue Tax Req Multiplier	1.0975
67	PURCHASED ENERGY FACTOR, ¢/kWh (lines (64 x 65 x 66))	7.18095

Line	Calculation of Monthly Fossil Fuel Cost Risk Sharing Component	
	<b>Baseline IFO</b>	
68	IFO \$, baseline month	\$1,995,065
69	IFO mmbtu, baseline	214,724
70	Baseline IFO, ¢/mmbtu	929.13
	<b>Baseline Diesel</b>	
71	Diesel \$, baseline month	\$8,885,935
72	Diesel mmbtu, baseline	561,665
73	Baseline Diesel, ¢/mmbtu	1,582.07
	<b>Month IFO</b>	
74	IFO mmbtu, budget	165,924
75	IFO Cost, ¢/mmbtu	899.18
76	IFO ECRC Fossil Cost	\$1,491,954
77	IFO Base ECRC Recovery Target	\$1,541,649
78	IFO differential	-\$49,694
	<b>Month Diesel</b>	
79	Diesel mmbtu, budget	434,531
80	Diesel Cost, ¢/mmbtu	1,589.07
81	Diesel ECRC Fossil Cost	\$6,905,006
82	Diesel Base ECRC Recovery Target	\$6,874,592
83	Diesel differential	\$30,414
84	Total Fossil	-\$19,280
85	2% of above	-\$386
86	Total Monthly Fossil Fuel Cost Risk Sharing, Prior Months in Year	-\$5,754
87	Maximum Annual Cap (bi-directional)	\$570,000
88	Number of Days in year from implementation	122
89	Fossil Risk % Proration (based on 365 day year)	33.42%
90	Maximum Annual Cap (bi-directional) prorated	\$190,521
91	Applicable Monthly Fossil Fuel Cost Risk Sharing	-\$386
92	Total Monthly Fossil Fuel Cost Risk Sharing, Including This Month	-\$6,140
93	Fossil Cost Risk Sharing before taxes	-\$386
94	Revenue Tax Adjustment	1.097514
95	Fossil Cost Risk Sharing w/revenue tax	-\$423
96	Forecasted Month MWh Sales	82,998
97	Fossil Fuel Cost Risk Sharing Component, ¢/kWh	0.0005
	<b>Derivation of Non-Adjustable Component:</b>	
98	Maalaea Biodiesel (\$000s)	\$511.3
99	Hana (\$000s)	\$19.2
100	Ignition Startup (\$000s)	\$37.6
	Total	\$568.1
	Final Settlement, MECO-602, p1 and MECO-603, p1	
101	Revenue Tax Adjustment	1.097514
102	Non-Adj Revenues, \$000	\$623.5
103	2018 TY Sales, MWh	1,017,968
	Final Tariffs submitted 4/17/2019, Docket No. 2017-0150, Exhibit 2, Att 1, p361	
104	Non-Adj Revenues, ¢/kWh	0.06125
105	Generation and Purchased Energy Factors	18.17995
106	ECR Reconciliation Adjustment	(1.181)
107	Non-Adjustable Component	0.061
108	Fossil Fuel Cost Risk Sharing Component	0.0005
109	ECR FACTOR, ¢/kWh (lines (105 + 106 + 107 + 108))	17.0607

**MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION**

**Fuel Oil Inventory Prices for November 2019**

<u>TYPE OF OIL BURNED</u>	<u>PRICES \$/BBL</u>	<u>CONVERSION FACTORS</u>		<u>PRICES ¢/MBTU</u>
INDUSTRIAL	56.6484	6.30	MBTU/BBL	899.18
DIESEL/ULSD	93.0707	5.86	MBTU/BBL	1,589.07

**Maui Electric Company, Ltd.  
Maui Division**

**Month End Fuel Oil Estimate**

<b><u>Kahului</u></b>	<u>Barrels</u>	<u>MBTU</u>	<u>(\$)</u>
10/18/2019	45,428.80	286,201.44	2,544,878.46
Estimated Use	15,004.00	94,525.23	821,363.91
Estimated Received	0.00	0.00	0.00
Estimated Additional	0.00	0.00	0.00
Estimated End	<u>30,424.80</u>	<u>191,676.21</u>	<u>1,723,514.55</u>

**Next month's expense (\$/bbl) = \$ 56.6484**

<b><u>Maalaea</u></b>	<u>Barrels</u>	<u>MBTU</u>	<u>(\$)</u>
10/18/2019	92,399.51	541,177.25	8,498,849.36
Estimated Use	36,575.04	214,217.36	3,324,517.38
Estimated Received	43,000.00	251,847.89	4,023,329.36
Estimated Additional	0.00	0.00	0.00
Estimated End	<u>98,824.47</u>	<u>578,807.78</u>	<u>9,197,661.35</u>

**Next month's expense (\$/bbl) = \$ 93.0707**

**MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION**

**Contract Prices effective October 1, 2019**

<u>TYPE OF OIL BURNED</u>	<u>\$/BBL</u>	<u>¢/MBTU</u>
<b>INDUSTRIAL</b>		
Tax *	3.1866	50.58
Ocean Transportation	1.7129	27.19
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.4000	6.35
<b>DIESEL</b>		
Tax *	4.9304	84.14
Ocean Transportation	1.7129	29.23
Land Transportation	0.9694	16.54
Storage	2.9010	49.51
Wharfage	0.4000	6.83

\* Tax includes HGET, Hawaii Use Tax, Liquid Fuel Tax, LUST tax, Environmental Response Tax, Customs Duty Fee, and Fed Oil Spill Recovery Fee

Note: Since these components are not accounted for separately in inventory, contract prices for the current month are being provided. Contract prices are considered accurate pending actual delivery of the fuel.

Reference: Decision and Order No. 16134, Docket No. 96-0040.



**MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION**

**PURCHASED POWER PRICE CALCULATIONS**

KAHEAWA WIND POWER ENERGY RATE:

Kaheawa Wind - On Peak, ¢/kWh	13.783
- Off Peak, ¢/kWh	12.935

Kaheawa Wind Energy Rate Calculations:

Percent of Energy Payment Rate:

Fixed energy payment rate	70%
Flat payment rate	<u>30%</u>
	<u>100%</u>

Fixed Energy Payment Rate (Table D-1) for 2019:

On-peak, ¢/kwh	10.261
Off-peak, ¢/kwh	9.050

Flat Payment Rate Per Docket No. 2011-0192 D&O 30331:

On-peak, ¢/kwh	22.000
Off-peak, ¢/kwh	22.000

On-Peak Rate =  $10.2610 \text{ ¢/kwh} \times 0.7 + 22.000 \text{ ¢/kwh} \times 0.3 = 13.783 \text{ ¢/kwh}$

Off-Peak Rate =  $9.05 \text{ ¢/kwh} \times 0.7 + 22.000 \text{ ¢/kwh} \times 0.3 = 12.935 \text{ ¢/kwh}$

**MAUI ELECTRIC COMPANY, LTD.**  
**Maui Division**  
**ECR Reconciliation Adjustment**  
**November 2019**

1. Amount to be Refunded	(\$2,679,900)
2. Monthly amount (1 / 3 X Line 1)	(\$893,300)
3. Revenue Tax Divisor	0.91115
4. Total (Line 2 / Line 3)	(\$980,409)
5. Estimated Sales (November 2019)	82,998 mwh
6. Adjustment (Line 4 ÷ Line 5)	(1.181) ¢/kwh

MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION  
2019 FUEL OIL ADJUSTMENT RECONCILIATION SUMMARY  
(Thousand \$)

Line		W/O Deadband 3rd Quarter YTD Total	collection by company*	Basis for Recon With Deadband 3rd Quarter YTD Total	collection by company*
	ACTUAL COSTS:				
1	Generation	\$95,334.6		\$95,334.6	
2	Distributed Generation	\$27.1		\$27.1	
3	Purch Power	\$37,033.8		\$37,033.8	
4	TOTAL	\$132,395.5		\$132,395.5	
	FUEL FILING COST				
5	Generation	\$95,697.5		\$95,557.0	
6	Distributed Generation	\$0.0		\$0.0	
7	Purch Power	\$37,033.8		\$37,033.8	
8	TOTAL	\$132,731.4		\$132,590.9	
	BASE FUEL COST				
9	Generation	\$98,376.0		\$98,376.0	
10	Distributed Generation	\$17.0		\$17.0	
11	Purch Power	\$28,763.0		\$28,763.0	
12	TOTAL	\$127,156.0		\$127,156.0	
13	FUEL-BASE COST (Line 8-12)	\$5,575.4		\$5,434.9	
14	ACTUAL FOA LESS TAX	\$6,401.1		\$6,401.1	
15	FOA reconciliation adj for prior year	-\$2,202.2		-\$2,202.2	
15A	Less: Non-Adjustable Component Revenues less tax	\$52.9		\$52.9	
16	ADJUSTED FOA LESS TAX	\$8,550.4		\$8,550.4	
17	FOA-(FUEL-BASE) (Line 16-13)	\$2,975.0	Over	\$3,115.5	Over
	ADJUSTMENTS				
18	Current year FOA accrual reversal	\$2,402.7		\$2,402.7	
19	Other prior year FOA	\$0.0		\$0.0	
20	Other	\$0.0		\$0.0	
21	3rd QUARTER FOA RECONCILIATION (Lines 17+18+19+20)	\$5,377.7	Over	\$5,518.2	Over
21A	YTD Fossil Fuel Cost Risk Sharing Adjustment	-\$0.1		-\$0.1	
21B	Quarterly FOA Recon w/Fossil Risk Adj (Line 21 + Line 21A)	\$5,377.6		\$5,518.1	
22	2nd QUARTERLY FOA Reconciliation Recognized in FOA Rates			\$2,838.2	Over
23	FOA Reconciliation to be Refunded November 2019 to January 2020 (Line 22- 21B)			-\$2,679.9	To Be Refunded

\* Over means an over-collection by the company.  
Under means an under-collection by the company.

**MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION**

Determination of Efficiency Factor to use for Cost-Recovery Purposes

Period: January 1, 2019 through January 13, 2019

	<u>Notes</u>	<u>YTD</u>
<b><u>Industrial Fuel Oil</u></b>		
Industrial Fuel Oil Efficiency Factor (TY2018), BTU/kWh	f	15,892
Industrial Fuel Oil Deadband Definition, - BTU/kWh	d	<b>100</b>
Industrial Fuel Oil Portion of Recorded Sales, MWh	a	6,043
Industrial Fuel Oil Consumption (Recorded), MMBTU	b	91,414
Industrial Fuel Oil Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	15,127
Lower limit of Industrial Fuel Oil Deadband, BTU/kWh	e = f-d	15,792
Higher limit of Industrial Fuel Oil Deadband, BTU/kWh	g = f	15,892
Industrial Fuel Oil Efficiency Factor for cost-recovery, BTU/kWh	h = c, e, or g	<b>15,792</b>
<b><u>Diesel</u></b>		
Diesel Efficiency Factor (TY2018), BTU/kWh	f	9,950
Diesel Deadband Definition, - BTU/kWh	d	<b>100</b>
Diesel Portion of Recorded Sales, MWh	a	23,411
Diesel Consumption (Recorded), MMBTU	b	226,043
Diesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	9,656
Lower limit of Diesel Deadband, BTU/kWh	e = f-d	9,850
Higher limit of Diesel Deadband, BTU/kWh	g = f	9,950
Diesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e, or g	<b>9,850</b>

**MAUI ELECTRIC COMPANY, LTD.**  
**MAUI DIVISION**

Determination of Efficiency Factor to use for Cost-Recovery Purposes

Period: January 14, 2019 through September 30, 2019

	<u>Notes</u>	<u>YTD</u>
<b><u>Industrial Fuel Oil</u></b>		
Industrial Fuel Oil Efficiency Factor (TY2018), BTU/kWh	f	15,892
Industrial Fuel Oil Deadband Definition, - BTU/kWh	d	<b>100</b>
Industrial Fuel Oil Portion of Recorded Sales, MWh	a	105,218
Industrial Fuel Oil Consumption (Recorded), MMBTU	b	1,655,208
Industrial Fuel Oil Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	15,731
Lower limit of Industrial Fuel Oil Deadband, BTU/kWh	e = f-d	15,792
Higher limit of Industrial Fuel Oil Deadband, BTU/kWh	g = f+d	15,992
Industrial Fuel Oil Efficiency Factor for cost-recovery, BTU/kWh	h = c, e, or g	<b>15,792</b>
<b><u>Diesel</u></b>		
Diesel Efficiency Factor (TY2018), BTU/kWh	f	9,950
Diesel Deadband Definition, - BTU/kWh	d	<b>100</b>
Diesel Portion of Recorded Sales, MWh	a	468,953
Diesel Consumption (Recorded), MMBTU	b	4,666,718
Diesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	9,951
Lower limit of Diesel Deadband, BTU/kWh	e = f-d	9,850
Higher limit of Diesel Deadband, BTU/kWh	g = f+d	10,050
Diesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e, or g	<b>9,951</b>

**MAUI ELECTRIC COMPANY, LTD.  
MAUI DIVISION  
GENERATION FUEL FILING COST AND GENERATION BASE FUEL COST, WITHOUT and WITH DEADBAND**

	2019			
	Without Deadband	With Deadband AS FILED	Without Deadband	With Deadband AS FILED
	<u>Jan 1 - Jan 13</u>	<u>Jan 1 - Jan 13</u>	<u>Jan 14 - Sept 30</u>	<u>Jan 14 - Sept 30</u>
<b>INDUSTRIAL</b>				
Industrial Portion of Recorded Sales , MWH	6,043	6,043	105,218	105,218
Industrial Sales Efficiency Factor (mmbtu/kwh)	0.015892	0.015792	0.015892	0.015792
Mmbtu adjusted for Sales Efficiency Factor	96,036	95,431	1,672,124	1,661,602
\$/mmbtu	<u>\$10.7273</u>	<u>\$10.7273</u>	<u>\$10.0523</u>	<u>\$10.0523</u>
TOTAL Industrial \$000s TO BE RECOVERED	\$1,030.2	\$1,023.7	\$16,808.7	\$16,702.9
<b>DIESEL FUEL FILING COST</b>				
Diesel Portion of Recorded Sales, MWH	23,411	23,411	468,953	468,953
Diesel Sales Efficiency Factor (mmbtu/kwh)	0.009950	0.009850	0.009950	0.009951
Mmbtu adjusted for Sales Efficiency Factor	232,936	230,595	4,666,087	4,666,556
\$/mmbtu	<u>\$15.2504</u>	<u>\$15.2504</u>	<u>\$15.9247</u>	<u>\$15.9247</u>
TOTAL DIESEL \$000s TO BE RECOVERED	\$3,552.4	\$3,516.7	\$74,306.2	\$74,313.7
TOTAL GENERATION FUEL FILING COST, \$000s	\$4,582.6	\$4,540.4	\$91,114.9	\$91,016.6
TOTAL GENERATION BASE FUEL COST , \$000s	\$6,172.9	\$6,172.9	\$92,203.06	\$92,203.1
TOTAL GENERATION FUEL FILING COST, \$000s YTD	\$4,582.6	\$4,540.4	\$95,697.5	\$95,557.0
TOTAL GENERATION BASE FUEL COST, \$000s YTD	\$6,172.9	\$6,172.9	\$98,376.0	\$98,376.0

**Fossil Fuel Cost Risk Sharing Mechanism and Non-Adjustable Component, September 2019, Maui**

		Sep-19, Baseline	YTD Subject to Fossil Risk
A	IFO Fossil Fuel Cost Risk Sharing		
	MMBtu	214723.9958	214723.9958
B	\$ cost, actuals	\$1,995,065	\$1,995,065
C = B / A (Baseline Column)	Sep 2019 baseline \$/mmbtu	9.291301	9.291301
D	IFO Gen kWh		14,355,398
E	Total kWh, Gen, Purch Pwr, DG		100,383,368
F	Sales kWh		94,815,200
G = (D / E) x F	IFO kWh-sales		13,559,118
H	Target Heat Rate		15,892
I1	Upper limit w/deadband		15,992
I2	Lower limit w/deadband		15,792
I3 = A / G x 1,000,000	Calculated Heat Rate (YTD subject to fossil risk, before deadband)		15,836
I	Recovery Heat Rate (YTD subject to fossil risk, after deadband)		15,836
J = B / A ytd	Actual Cost \$/MMbtu		9.2913009
K = C x H x G / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$2,002,103
L = I x J x G / 1,000,000	Fuel Filing Cost Recovery		\$1,995,048
<b>M = 2% x (L-K)</b>	<b>IFO Cost Risk Sharing</b>		<b>-\$141</b>
	<b>Diesel Fossil Fuel Cost Risk Sharing</b>		
AA	MMBtu	561,665	561,665
BB	\$ cost, actuals	\$8,885,935	\$8,885,935
CC = BB / AA (Baseline Column)	Sep 2019 baseline \$/mmbtu	15.8207075	15.8207075
DD	Diesel Gen kWh		59,749,120
EE	Total kWh, Gen, Purch Pwr, DG		100,383,368
FF	Sales kWh		94,815,200
GG = (DD / EE) x FF	Diesel kWh-sales		56,434,894
HH	Target Heat Rate		9,950
II1	Upper limit w/deadband		10,050
II2	Lower limit w/deadband		9,850
II3 = AA/GG x 1,000,000	Calculated Heat Rate (YTD subject to fossil risk, before deadband)		9,952
II	Recovery Heat Rate (YTD subject to fossil risk, after deadband)		9,952
JJ = BB/AA (YTD Column)	Actual Cost \$/MMbtu		15.8207075
KK = CC x HH x GG / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$8,883,758
LL = II x JJ x GG / 1,000,000	Fuel Filing Cost Recovery		\$8,885,543
<b>MM = 2% x (LL-KK)</b>	<b>Diesel Cost Risk Sharing</b>		<b>\$36</b>
NN	Annual Cap (non-prorated)		\$570,000
OO	# Days		122
PP	Annual Cap (pro-rated)		\$190,521
QQ = M + MM, up to cap	Total Fossil Fuel Cost Risk Sharing Adjustment, subject to ±\$190521 cap		<b>-\$105</b>
AAA = F	Non-Adjustable Component		
	YTD kWh under ECRC		94,815,200
BBB	Non-Adjustable Component, cents/kWh		0.06125
CCC	Non-Adjustable Component Revenues w/tax		\$58,074
DDD	Non-Adjustable Component Revenues less tax		\$52,914

**MAUI ELECTRIC COMPANY, LTD.**  
**MAUI DIVISION**  
**2019 Cumulative Reconciliation Balance**

Month	(1) YTD FOA Reconciliation	Qtr	(2) FOA Rec Adjust Variance	(3) FOA Rec Less Variance	(4) Try to Collect	(5) Actual Collect	(6) Month-end Cumulative Balance
December '18					(327,700)	(323,073)	279,528
January '19					(327,700)	(345,025)	(65,497)
February	1,886,900	(4)	(48,178)	1,935,078	(628,967)	(587,149)	1,282,432
March					(628,967)	(591,146)	691,286
April					(628,967)	(657,008)	34,278
May	1,531,500	(1)	62,314	1,469,186	(510,500)	(538,146)	965,318
June					(510,500)	(580,323)	384,995
July					(510,500)	(585,791)	(200,796)
August	1,306,700	(2)	(125,510)	1,432,210	(435,567)	(484,194)	747,220
September					(435,567)	(495,890)	251,330
October					(435,567)		
November	2,679,900	(3)	(184,241)	2,864,141	(893,300)		

## NOTES:

- Col(1): Quarterly FOA reconciliation amounts. (Refer to Attachment 5)  
A positive number is an over-collection. A negative number is an under-collection.
- Col(2): FOA reconciliation adjustment variance accumulated during the last three months, starting with the fourth prior month; the difference between the estimated recorded sales used to derive the \$/kwh adjustment and the actual recorded sales.  
(Col(5) - Col(4))
- Col(3): FOA reconciliation generated in the current quarter. The YTD FOA reconciliation difference minus the adjustment variance. Col(1) - Col(2)
- Col(4): Amount that the FOA reconciliation adjustment is trying to collect. (Col(1) \* 1/3)
- Col(5): Actual collected amount. (recorded sales \* \$/kwh adjustment/1.09751)
- Col(6): Cumulative balance of the FOA reconciliation (Previous balance + Col(3) + Col(5))



**Maui Electric Company, Ltd.  
Maui Division  
Calculations of the Average Residential Customer Bill**

	Rate		Charge (\$) at 500 Kwh		
	10/01/19	11/01/19	10/01/19	11/01/19	Difference
<b>Base Rates</b>					
effective date:	09/01/19	09/01/19			
Base Fuel/Energy Charge ¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Non-fuel Energy Charge					
First 350 kWhr per month ¢/kWh	12.1240	12.1240	42.43	42.43	0.00
Next 850 kWhr per month ¢/kWh	14.3840	14.3840	21.58	21.58	0.00
Customer Charge \$	11.50	11.50	11.50	11.50	0.00
<b>Total Base Charges</b>			75.51	75.51	0.00
RBA Rate Adjustment ¢/kWh	0.8716	0.8716	4.36	4.36	0.00
PBF Surcharge ¢/kWh	0.4775	0.4775	2.39	2.39	0.00
SolarSaver Adjustment ¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Refund of 2018 Interim % on Base	0.00	0.00	0.00	0.00	0.00
Purchased Power Adjustment ¢/kWh	0.0023	-0.0063	0.01	-0.03	-0.04
Energy Cost Recovery ¢/kWh	17.098	17.061	85.49	85.30	-0.19
Green Infrastructure Fee \$	1.17	1.17	1.17	1.17	0.00
<b>Avg Residential Bill at 500 kwh</b>			168.93	168.70	
			Increase (Decrease -)		-0.23
			% Change		-0.14%

	Rate		Charge (\$) at 600 Kwh		
	10/01/19	11/01/19	10/01/19	11/01/19	Difference
<b>Base Rates</b>					
effective date:	09/01/19	09/01/19			
Base Fuel/Energy Charge ¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Non-fuel Energy Charge					
First 350 kWhr per month ¢/kWh	12.1240	12.1240	42.43	42.43	0.00
Next 850 kWhr per month ¢/kWh	14.3840	14.3840	35.96	35.96	0.00
Customer Charge \$	11.50	11.50	11.50	11.50	0.00
<b>Total Base Charges</b>			89.89	89.89	0.00
RBA Rate Adjustment ¢/kWh	0.8716	0.8716	5.23	5.23	0.00
PBF Surcharge ¢/kWh	0.4775	0.4775	2.87	2.87	0.00
Renewable Energy Infrastructure Cost Recovery Provision ¢/kWh	0.0000	0.0000	0.00	0.00	0.00
SolarSaver Adjustment ¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Refund of 2018 Interim % on Base	0.00	0.00	0.00	0.00	0.00
Purchased Power Adjustment ¢/kWh	0.0023	-0.0063	0.01	-0.04	-0.05
Energy Cost Recovery ¢/kWh	17.098	17.061	102.59	102.36	-0.23
Green Infrastructure Fee \$	1.17	1.17	1.17	1.17	0.00
<b>Avg Residential Bill at 600 kwh</b>			201.76	201.48	
			Increase (Decrease -)		-0.28
			% Change		-0.14%

**MAUI ELECTRIC COMPANY, LTD. -- Maui Division  
FUEL OIL ADJUSTMENT FACTOR DATA**

<u>EFFECTIVE DATE</u>	FUEL FACTOR CENTS / KWH		RESIDENTIAL BILL (\$)	
	<u>RESIDENTIAL &amp; COMMERCIAL</u>		<u>@ 500 KWH</u>	<u>@ 600 KWH</u>
January 1, 2017	-7.659		146.59	175.55
February 1, 2017	-8.247		143.65	172.02
March 1, 2017	-7.314		148.32	177.61
April 1, 2017	-5.770		155.35	186.05
May 1, 2017	-7.998		144.79	173.38
June 1, 2017	-5.191		159.61	191.16
July 1, 2017	-5.635		157.32	188.42
August 1, 2017	-7.867		145.30	174.01
September 1, 2017	-9.278		138.19	165.47
October 1, 2017	-7.391		147.64	176.80
November 1, 2017	-5.305		158.18	189.46
December 1, 2017	-7.839		145.51	174.26
January 1, 2018	-6.115		154.28	184.75
February 1, 2018	-5.747		156.16	187.00
March 1, 2018	-4.402		162.88	195.07
April 1, 2018	-4.914		159.68	191.23
May 1, 2018	-4.510		162.34	194.42
June 1, 2018	-2.402		174.53	209.05
July 1, 2018	-1.259		180.32	216.01
August 1, 2018	-3.848		167.07	200.11
September 1, 2018	-3.445		174.06	208.51
October 1, 2018	-3.282		174.90	209.51
November 1, 2018	-2.358		179.87	215.47
December 1, 2018	-2.401		179.65	215.21
January 1, 2019	-3.405		174.77	209.33
February 1, 2019	-5.987		161.69	193.64
March 1, 2019	-5.839		162.44	194.54
April 1, 2019	-5.441		163.99	196.39
May 1, 2019	-4.041		171.40	205.29
June 1, 2019	3.899		179.76	214.71
July 1, 2019	3.059		178.60	213.35
August 1, 2019	2.938		178.02	212.67
September 1, 2019	18.068		173.77	207.57
October 1, 2019	17.098		168.93	201.76
November 1, 2019	17.061		168.70	201.48

**MAUI ELECTRIC COMPANY, LTD. -- Maui Division  
RESIDENTIAL SURCHARGE DATA**

EFFECTIVE DATE	DESCRIPTION OF SURCHARGE	RATE
<b>06/01/11</b>	<b>IRP RECOVERY REFUND</b>	<b>0.000 PERCENT ON BASE</b>
04/01/13 - 04/30/13	SOLARSAVER ADJUSTMENT	-0.2053 CENTS/KWH
8/1/2013 - 5/31/19	FINAL RATE INCREASE (1.25%), DOCKET NO. 2011-0092 (2012 TEST YEAR)	
04/01/17 - 04/30/17	SOLARSAVER ADJUSTMENT	-0.1378 CENTS/KWH
05/01/17 - 3/31/18	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
05/01/17 - 05/31/17	PURCHASED POWER ADJUSTMENT	-0.0224 CENTS/KWH
06/01/17 - 06/30/17	PURCHASED POWER ADJUSTMENT	-0.0218 CENTS/KWH
6/1/2017 - 05/31/18	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	1.5654 CENTS/KWH
07/01/17 - 12/31/17	GREEN INFRASTRUCTURE FEE	1.18 DOLLARS/MONTH
07/01/17 - 07/31/17	PURCHASED POWER ADJUSTMENT	-0.0202 CENTS/KWH
07/01/17 - 06/30/18	RESID. PBF SURCHARGE ADJUSTMENT	0.4244 CENTS/KWH
08/01/17 - 08/31/17	PURCHASED POWER ADJUSTMENT	-0.0286 CENTS/KWH
<b>08/17/17</b>	<b>RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION</b>	<b>0.0000 CENTS/KWH</b>
09/01/17 - 09/30/17	PURCHASED POWER ADJUSTMENT	-0.0307 CENTS/KWH
10/01/17 - 10/31/17	PURCHASED POWER ADJUSTMENT	-0.0275 CENTS/KWH
11/01/17 - 11/30/17	PURCHASED POWER ADJUSTMENT	-0.0058 CENTS/KWH
12/01/17 - 12/31/17	PURCHASED POWER ADJUSTMENT	-0.0054 CENTS/KWH
01/01/18 - 01/31/18	PURCHASED POWER ADJUSTMENT	-0.0060 CENTS/KWH
01/01/18 - 06/30/18	GREEN INFRASTRUCTURE FEE	1.3400 DOLLARS/MONTH
02/01/18 - 04/30/18	PURCHASED POWER ADJUSTMENT	0.0003 CENTS/KWH
04/01/18 - 04/30/18	SOLARSAVER ADJUSTMENT	-0.1278 CENTS/KWH
05/01/18 - 03/31/19	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
05/01/18 - 06/30/18	PURCHASED POWER ADJUSTMENT	0.0004 CENTS/KWH
06/01/18 - 08/22/18	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	1.8954 CENTS/KWH
07/01/18 - 07/31/18	PURCHASED POWER ADJUSTMENT	0.0003 CENTS/KWH
07/01/18 - 06/30/19	RESID. PBF SURCHARGE ADJUSTMENT	0.4658 CENTS/KWH
07/01/18 - 12/31/18	GREEN INFRASTRUCTURE FEE	1.2100 DOLLARS/MONTH
08/01/18 - 08/31/18	PURCHASED POWER ADJUSTMENT	-0.0618 CENTS/KWH
09/01/18 - 09/30/18	PURCHASED POWER ADJUSTMENT	-0.0635 CENTS/KWH
08/23/18 - 05/31/19	INTERIM RATE INCREASE 2018 TEST YEAR	7.42 PERCENT ON BASE
08/23/18 - 05/31/19	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	0.3183 CENTS/KWH
10/01/18 - 10/31/18	PURCHASED POWER ADJUSTMENT	-0.0602 CENTS/KWH
11/01/18 - 11/30/19	PURCHASED POWER ADJUSTMENT	0.0108 CENTS/KWH
12/01/18 - 12/31/18	PURCHASED POWER ADJUSTMENT	0.0099 CENTS/KWH
01/01/19 - 01/31/19	PURCHASED POWER ADJUSTMENT	0.0094 CENTS/KWH
01/01/19 - 06/30/19	GREEN INFRASTRUCTURE FEE	1.35 DOLLARS/MONTH
02/01/19 - 02/28/19	PURCHASED POWER ADJUSTMENT	-0.0241 CENTS/KWH
03/01/19 - 03/31/19	PURCHASED POWER ADJUSTMENT	-0.0224 CENTS/KWH
04/01/19 - 04/30/19	PURCHASED POWER ADJUSTMENT	-0.0244 CENTS/KWH
04/01/19 - 04/30/19	SOLARSAVER ADJUSTMENT	-0.0855 CENTS/KWH
05/01/19 - 05/31/19	PURCHASED POWER ADJUSTMENT	-0.0274 CENTS/KWH
<b>05/01/19</b>	<b>SOLARSAVER ADJUSTMENT</b>	<b>0.0000 CENTS/KWH</b>
06/01/19 - 06/30/19	PURCHASED POWER ADJUSTMENT	-0.0067 CENTS/KWH
<b>06/01/19</b>	<b>FINAL RATE INCREASE (3.74%), DOCKET NO. 2017-0150 (2018 TEST YEAR)</b>	
06/01/19 - 06/30/19	REFUND OF INTERIM RATE INCREASE 2018 TEST YEAR	-2.03 PERCENT ON BASE
<b>06/01/19</b>	<b>REVENUE BALANCING ACCOUNT RATE ADJUSTMENT</b>	<b>0.8716 CENTS/KWH</b>
07/01/19 - 07/31/19	PURCHASED POWER ADJUSTMENT	-0.0045 CENTS/KWH
<b>07/01/19</b>	<b>RESID. PBF SURCHARGE ADJUSTMENT</b>	<b>0.4775 CENTS/KWH</b>
<b>07/01/19</b>	<b>GREEN INFRASTRUCTURE FEE</b>	<b>1.17 DOLLARS/MONTH</b>
08/01/19 - 08/31/19	PURCHASED POWER ADJUSTMENT	0.0023 CENTS/KWH
09/01/19 - 09/30/19	PURCHASED POWER ADJUSTMENT	0.0005 CENTS/KWH
10/01/19 - 10/31/19	PURCHASED POWER ADJUSTMENT	0.0023 CENTS/KWH
<b>11/01/19</b>	<b>PURCHASED POWER ADJUSTMENT</b>	<b>-0.0063 CENTS/KWH</b>

~ Surcharges currently in effect are in bold.

~ Base charges include customer charge, demand charge, energy charge, power factor adjustment, voltage discount and minimum charge.

**Maui Electric Company, Ltd. - Maui Division  
Residential Bill at 500 kWh/Month Consumption**

