



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.

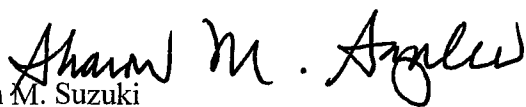
The Energy Cost Recovery factor for our Moloka'i Division for November 2019 is 20.907 cents per kWh, an increase of 1.836 cents per kWh from last month. A residential customer consuming 400 kWh of electricity will be paying \$162.13, an increase of \$10.62 compared to rates effective October 1, 2019. 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.
LANAI DIVISION**

ENERGY COST RECOVERY FACTOR

	EFFECTIVE DATES		<u>Change</u>
	<u>10-01-19</u>	<u>11-01-19</u>	
<u>COMPOSITE COSTS</u>			
Generation, Central Station & Other, ¢/mbtu	2,008.94	2,097.17	88.23
DG Energy, ¢/kWh	0.00	0.00	0.00
Purchased Energy, ¢/kWh	30.00	30.00	0.00
<u>Residential Schedule "R"</u>			
Energy Cost Recovery, ¢/kWh	24.957	26.088	1.131
<u>Others - "G,P,F"</u>			
Energy Cost Recovery, ¢/kWh	24.957	26.088	1.131
<u>Residential Customer with</u>			
400 KWH Consumption, \$/Bill	170.90	175.42	4.52
500 KWH Consumption, \$/Bill	212.02	217.67	5.65

Supersedes Sheet Effective:

October 1, 2019

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

ENERGY COST RECOVERY (ECR) FILING

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

Line

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

GENERATION COMPONENT

CENTRAL STATION						DG ENERGY COMPONENT	
FUEL PRICES, ¢/mmbtu							
3	Industrial		0.00				
4	Diesel - Miki Basin		2,092.93				
5	Diesel - Manele Bay		2,143.87				
6	Other		0.00				
BTU MIX, %							
7	Industrial		0.00%	25	COMPOSITE COST OF DG ENERGY, ¢/kWh		0.000
8	Diesel - Miki Basin		91.68%				
9	Diesel - Manele Bay		8.32%	26	% Input to System kWh Mix		0.00%
10	Other		0.00%				
			100.00%				
11	COMPOSITE COST OF GENERATION, CENTRAL STATION + OTHER ¢/mmbtu (Lines (3 x 7) + (4 x 8) + (5 x 9) + (6 x 10))		2,097.17	27	WEIGHTED COMPOSITE DG ENERGY COST, ¢/kWh (Lines 25 x 26)		0.00000
12	% Input to System kWh Mix		94.98%	28	BASE DG ENERGY COMP COST		0.000
	EFFICIENCY FACTOR, mmbtu/kWh			29	Base % Input to System kWh Mix		0.00%
	(A)	(B)	(C)	(D)	30	WEIGHTED BASE DG ENERGY COST, ¢/kWh (Line 28 x 29)	0.00000
		Eff Factor	Percent of	Weighted			
	Fuel Type	mmbtu/kwh	Centrl Stn + Other	Eff Factor	31	Cost Less Base (Line 27 - 30)	0.00000
13	Industrial	0.000000	0.00	0.000000	32	Loss Factor	1.0500
14	Diesel	0.011017	100.00	0.011017	33	Revenue Tax Req Multiplier	1.0975
15	Other	0.011017	0.00	0.000000	34	DG FACTOR, ¢/kWh (Line 31 x 32 x 33)	0.00000
	(Lines 13, 14, 15): Col(B) x Col(C) = Col(D)						
16	Weighted Efficiency Factor, mmbtu/kWh [lines 13(D) + 14(D) + 15(D)]		0.011017				
17	WEIGHTED COMPOSITE CENTRAL STATION + OTHER GEN COST, ¢/kWh (lines (11 x 12 x 16))		21.94467				
18	BASE CENTRAL STATION + OTHER GENERATION COST, ¢/mmbtu		-				
19	Base % Input to Sys kWh Mix		0.00%				
20	Efficiency Factor, mmbtu/kwh		0.011017				
21	WEIGHTED BASE CENTRAL STATION + OTHER GENERATION COST ¢/kWh (lines (18 x 19 x 20))		-				
22	COST LESS BASE (line(17 - 21))		21.94467				
23	Revenue Tax Req Multiplier		1.0975				
24	CENTRAL STATION + OTHER GENERATION FACTOR, ¢/kWh (line (22 x 23))		24.08428				
					SUMMARY OF		
					TOTAL GENERATION FACTOR, ¢/kWh		
					35	CNTRL STN + OTHER (line 24)	24.08428
					36	DG (line 34)	-
					37	TOTAL GENERATION FACTOR, ¢/kWh (lines 35 + 36)	24.08428

MAUI ELECTRIC COMPANY, LTD.
LANAI 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, ¢/kWh - FOSSIL	
	PURCHASED ENERGY PRICE, ¢/kWh - RENEWABLE	
38	LANAI SOLAR RESEARCH PØn Peak	30.000
39	- Off Peak	30.000
40	Sch Q	0.000
	PURCHASED ENERGY KWH MIX, %, FOSSIL	
	PURCHASED ENERGY KWH MIX, %, RENEWABLE	
41	LANAI SOLAR RESEARCH PØn Peak	100.00%
42	- Off Peak	0.00%
43	Sch Q	0.00%
43A	Total Fossil %	0.00%
43B	Total Renewable %	100.00%
43C	Comp. cost of purch. energy, fossil ¢/kWh	N/A
43D	Comp. cost of purch. energy, renewable ¢/kWh	30.00
44	COMPOSITE COST OF PURCHASED ENERGY, ¢/kWh (Lines (38 x 41) + (39 x 42) + (40 x 43))	30.000
45	% Input to System kWh Mix	5.02%
46	WEIGHTED COMP. PURCH. ENERGY COST, ¢/kWh (lines (44 x 45))	1.50600
47	BASE PURCHASED ENERGY COMPOSITE COST, ¢/kWh	0.000
48	Base % Input to Sys kWh Mix	0.00
49	WEIGHTED BASE PURCHASED ENERGY COST, ¢/kWh (lines (47 x 48))	0.00000
50	COST LESS BASE (lines (46 - 49))	1.50600
51	Loss Factor	1.050
52	Revenue Tax Req Multiplier	1.0975
53	PURCHASED ENERGY FACTOR, ¢/kWh (lines (50 x 51 x 52))	1.73548

Calculation of Monthly Fossil Fuel Cost Risk Sharing Component		
Baseline Diesel (Actual)		
54	Diesel \$, baseline month	\$581,139
55	Diesel mmbtu, baseline	30,024
56	Baseline Diesel, ¢/mmbtu	1,935.58
Month Diesel		
57	Diesel mmbtu, budget	29,589
58	Diesel Cost, ¢/mmbtu	2,097.17
59	Diesel ECRC Fossil Cost	\$620,528
60	Diesel Base ECRC Recovery Target	\$572,715
61	Diesel differential	\$47,813
62	Total Fossil	\$47,813
63	2% of above	\$956
64	Total Monthly Fossil Fuel Cost Risk Sharing, Prior Months in Year	\$402
65	Maximum Annual Cap (bi-directional)	\$31,500
66	Number of Days in year from implementation	122
67	Fossil Risk % Proration (based on 365 day year)	33.42%
68	Maximum Annual Cap (bi-directional) prorated	\$10,529
69	Applicable Monthly Fossil Fuel Cost Risk Sharing	\$956
70	Total Monthly Fossil Fuel Cost Risk Sharing, Including This Month	\$1,358
71	Fossil Cost Risk Sharing before taxes	\$956
72	Revenue Tax Adjustment	1.097514
73	Fossil Cost Risk Sharing w/revenue tax	\$1,050
74	Forecasted Month MWh Sales	2,853
75	Fossil Fuel Cost Risk Sharing Component, ¢/kWh	-0.0368

Line **SYSTEM COMPOSITE CALCULATIONS**

76	GENERATION AND PURCHASED ENERGY FACTOR, ¢/kWh (lines (37 + 53))	25.81976
77	Adjustment, ¢/kWh	0.000
78	Fossil Fuel Cost Risk Sharing Component	(0.037)
79	ECR Reconciliation Adjustment	0.305
80	ECR FACTOR, ¢/kWh (lines (76 + 77 + 78 + 79))	26.088

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

MONTH END FUEL OIL ESTIMATE

<u>Miki Basin - ULSD</u>	<u>Barrels</u>	<u>MBTU</u>	<u>\$</u>
10/18/2019	3,441.69	19,720.88	418,117.15
Estimated Use	2,282.02	13,075.97	261,427.96
Estimated Received	2,285.71	13,097.12	262,210.94
Estimated Additional	<u>1,289.00</u>	<u>7,385.97</u>	<u>148,868.66</u>
Estimated End	4,734.38	27,128.00	567,768.79

Next Month's Combined Miki Expense (\$/bbl) = \$ 119.9246 /bbl

<u>Manele CHP</u>	<u>Barrels</u>	<u>MBTU</u>	<u>\$</u>
10/18/2019	160.67	920.64	19,525.77
Estimated Use	(0.02)	(0.11)	(2.45)
Estimated Received	-	-	-
Estimated Additional	<u>268.63</u>	<u>1,539.25</u>	<u>33,211.01</u>
Estimated End	429.32	2,460.00	52,739.22

Next Month's Manele Expense (\$/bbl) = \$ 122.8436 /bbl

FUEL OIL INVENTORY PRICE USED FOR FILING

<u>Type of Oil Burned</u>	<u>Price</u>	<u>Conversion Factor</u>	<u>Prices ¢/MBTU</u>
Diesel - Miki Basin	\$ 119.9246	5.73 BTU/BBL	2,092.93
Diesel - Manele Bay	\$ 122.8436	5.73 BTU/BBL	2,143.87

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

Contract Prices effective October 1, 2019

<u>TYPE OF OIL BURNED</u>	<u>\$/BBL</u>	<u>¢/MBTU</u>
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MIKI BASIN - ULTRA LOW SULFUR DIESEL (DYED)

Tax *	1.5120	26.39
Ocean Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00

MIKI BASIN - ULTRA LOW SULFUR DIESEL

Tax *	16.5697	289.17
Ocean Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00

MANELE BAY - ULTRA LOW SULFUR DIESEL

Tax *	16.5697	289.17
Ocean Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00

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

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.
Lanai Division
ECR Reconciliation Adjustment

November 2019

1. Amount to be Collected	\$23,800
2. Monthly amount (1 / 3 X Line 1)	\$7,933
3. Revenue Tax Divisor	0.91115
4. Total (Line 2 / Line 3)	\$8,707
5. Estimated Sales (November 2019)	2,853 mwh
6. Adjustment (Line 4 ÷ Line 5)	0.305 ¢/kwh

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

<u>Line</u>		Without Deadband 3rd Quarter <u>YTD Total</u>	collection by <u>company*</u>	Basis for Recon With Deadband 3rd Quarter <u>YTD Total</u>	collection by <u>company*</u>
	ACTUAL COSTS:				
1	Generation	\$4,975.6		\$4,975.6	
2	Distributed Generation	\$0.0		\$0.0	
3	Purch Power	<u>\$346.2</u>		<u>\$346.2</u>	
4	TOTAL	\$5,321.8		\$5,321.8	
	FUEL FILING COST				
5	Generation	\$5,119.1		\$5,095.8	
6	Distributed Generation	\$0.0		\$0.0	
7	Purch Power	<u>\$346.2</u>		<u>\$346.2</u>	
8	TOTAL	\$5,465.2		\$5,442.0	
	BASE FUEL COST				
9	Generation	\$5,030.6		\$5,030.6	
10	Distributed Generation	\$0.0		\$0.0	
11	Purch Power	<u>\$263.1</u>		<u>\$263.1</u>	
12	TOTAL	\$5,293.7		\$5,293.7	
13	FUEL-BASE COST (Line 8-12)	\$171.6		\$148.4	
14	ACTUAL FOA LESS TAX	\$99.7		\$99.7	
15	FOA reconciliation adj for prior year	<u>-\$20.6</u>		<u>-\$20.6</u>	
16	ADJUSTED FOA LESS TAX	\$120.3		\$120.3	
17	FOA-(FUEL-BASE) (Line 16-13)	-\$51.3	Under	-\$28.1	Under
	ADJUSTMENTS				
18	Current year FOA accrual reversal	\$83.2		\$83.2	
19	Other prior year FOA	\$0.0		\$0.0	
20	Other	<u>\$0.0</u>		<u>\$0.0</u>	
21	3rd QUARTER FOA RECONCILIATION (Lines 17+18+19+20)	\$31.9	Over	\$55.1	Over
21A	Fossil Fuel Cost Risk Sharing Adjustment	<u>-\$0.1</u>		<u>-\$0.1</u>	
21B	Quarterly FOA RECONCILIATION w/Fossil Risk Adjustment	<u>\$31.9</u>		<u>\$55.1</u>	
22	2nd QUARTERLY FOA Reconciliation Recognized in FOA Rates			<u>\$78.9</u>	Over
23	FOA Reconciliation to be Collected November 2019 to January 2020 (Line 22- 21B)			<u>\$23.8</u>	To Be Collected

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

**MAUI ELECTRIC COMPANY, LTD.
LANAI DIVISION
DEADBAND CALCULATION**

Determination of Efficiency Factor to use for Cost-Recovery Purposes
Period: January 1, 2019 through September 30, 2019

	<u>Notes</u>	<u>YTD</u>
<u>Diesel</u>		
Diesel Efficiency Factor (TY2018), BTU/kWh	f	11,017
Diesel Deadband Definition, +/- BTU/kWh	d	50
Diesel Portion of Recorded Sales, MWh	a	22,832
Diesel Consumption (Recorded), MMBTU	b	244,430
Diesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	10,706
Lower limit of Diesel Deadband, BTU/kWh	e = f-d	10,967
Higher limit of Diesel Deadband, BTU/kWh	g = f+d	11,067
Diesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e, or g	10,967

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

	2019	
	Without Deadband	With Deadband AS FILED
	<u>Jan 1 - Sept 30</u>	<u>Jan 1 - Sept 30</u>
Diesel Portion of Recorded Sales, MWH	22,832	22,832
Diesel Sales Efficiency Factor (mmbtu/kwh)	0.011017	0.010967
Mmbtu adjusted for Sales Efficiency Factor	251,535	250,394
\$/mmbtu	<u>\$20.3512</u>	<u>\$20.3512</u>
TOTAL DIESEL \$000s TO BE RECOVERED	\$5,119.1	\$5,095.8
TOTAL GENERATION FUEL FILING COST, \$000s	\$5,119.1	\$5,095.8
TOTAL GENERATION BASE FUEL COST , \$000s	\$5,030.6	\$5,030.6
TOTAL GENERATION FUEL FILING COST, \$000s YTD	\$5,119.1	\$5,095.8
TOTAL GENERATION BASE FUEL COST, \$000s YTD	\$5,030.6	\$5,030.6

Fossil Fuel Cost Risk Sharing Mechanism, September 2019, Lanai

Sep-19, Baseline YTD Subject to Fossil Risk

		Sep-19, Baseline	YTD Subject to Fossil Risk
	Diesel Fossil Fuel Cost Risk Sharing		
AA	MMBtu	30,024	30,024
BB	\$ cost, actuals	\$581,139	\$581,139
CC = BB / AA (Baseline Column)	Sep 2019 baseline \$/mmbtu	19.3557536	19.3557536
DD	Diesel Gen kWh		2,927,547
EE	Total kWh, Gen, Purch Pwr, DG		3,038,187
FF	Sales kWh		2,924,138
GG = (DD / EE) x FF	Diesel kWh-sales		2,817,651
HH	Target Heat Rate		11,017
II1	Upper limit w/deadband		11,067
II2	Lower limit w/deadband		10,967
II3 = AA/GG x 1,000,000	Calculated Heat Rate (YTD subject to fossil risk, before deadband)		10,656
II	Recovery Heat Rate (YTD subject to fossil risk, after deadband)		10,967
JJ = BB/AA (YTD Column)	Actual Cost \$/MMbtu		19.3557536
KK = CC x HH x GG / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$600,843
LL = II x JJ x GG / 1,000,000	Fuel Filing Cost Recovery		\$598,116
MM = 2% x (LL-KK)	Diesel Cost Risk Sharing		-\$55
NN	Annual Cap (non-prorated)		\$31,500
OO	# Days		122
PP	Annual Cap (pro-rated)		\$10,529
QQ = MM, up to cap	Total Fossil Fuel Cost Risk Sharing Adjustment, subject to ±\$10529 cap		-\$55

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

<u>Month</u>	(1) <u>YTD FOA</u> <u>Reconciliation</u>	<u>Qtr</u>	(2) <u>FOA Rec</u> <u>Adjust</u> <u>Variance</u>	(3) <u>FOA Rec</u> <u>Less</u> <u>Variance</u>	(4) <u>Try to</u> <u>Collect</u>	(5) <u>Actual</u> <u>Collect</u>	(6) <u>Month-end</u> <u>Cumulative</u> <u>Balance</u>
December '18					(11,867)	(11,797)	11,475
January '19					(11,867)	(11,150)	325
February	8,600	(4)	(386)	8,986	(2,867)	(2,721)	6,590
March					(2,867)	(2,728)	3,862
April					(2,867)	(2,599)	1,263
May	91,900	(1)	1,002	90,898	(30,633)	(28,551)	63,610
June					(30,633)	(30,812)	32,798
July					(30,633)	(30,931)	1,867
August	(13,000)	(2)	2,171	(15,171)	4,333	4,372	(8,932)
September					4,333	4,343	(4,589)
October					4,333		
November	(23,800)	(3)	(249)	(23,551)	7,933		

NOTES:

- Col(1): Quarterly FOA reconciliation amounts. (Refer to Attachment 13)
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.
Lanai Division
Calculations of the Average Residential Customer Bill**

	Rate		Charge (\$) at 400 Kwh		
	10-01-19	11-01-19	10-01-19	11-01-19	Difference
Base Rates					
effective date:	09/01/19	09/01/19			
Base Fuel/Energy Charge	¢/kWh	0.0000	0.00	0.00	0.00
Non-fuel Energy Charge					
First 250 kWhr per month	¢/kWh	12.3123	30.78	30.78	0.00
Next 500 kWhr per month	¢/kWh	14.8123	22.22	22.22	0.00
Customer Charge	\$	11.50	11.50	11.50	0.00
Total Base Charges			64.50	64.50	0.00
IRP Refund	% on base	0.0000	0.00	0.00	0.00
Revenue Balancing Rate Adjustment	¢/kWh	0.8716	3.49	3.49	0.00
PBF Surcharge	¢/kWh	0.4775	1.91	1.91	0.00
Renewable Energy Infrastructure Cost Recovery Provision	¢/kWh	0.0000	0.00	0.00	0.00
SolarSaver Adjustment	¢/kWh	0.0000	0.00	0.00	0.00
Refund of 2018 Interim	% on Base	0.00	0.00	0.00	0.00
Energy Cost Recovery	¢/kWh	24.957	99.83	104.35	4.52
Green Infrastructure Fee	\$	1.17	1.17	1.17	0.00
Avg Residential Bill at 400 kwh			170.90	175.42	

Increase (Decrease -)	4.52
% Change	2.64%

	Rate		Charge (\$) at 500 Kwh		
	10-01-19	11-01-19	10-01-19	11-01-19	Difference
Base Rates					
effective date:	09/01/19	09/01/19			
Base Fuel/Energy Charge	¢/kWh	0.0000	0.00	0.00	0.00
Non-fuel Energy Charge					
First 250 kWhr per month	¢/kWh	12.3123	30.78	30.78	0.00
Next 500 kWhr per month	¢/kWh	14.8123	37.03	37.03	0.00
Customer Charge	\$	11.50	11.50	11.50	0.00
Total Base Charges			79.31	79.31	0.00
IRP Refund	% on base	0.0000	0.00	0.00	0.00
Revenue Balancing Rate Adjustment	¢/kWh	0.8716	4.36	4.36	0.00
PBF Surcharge	¢/kWh	0.4775	2.39	2.39	0.00
Renewable Energy Infrastructure Cost Recovery Provision	¢/kWh	0.0000	0.00	0.00	0.00
SolarSaver Adjustment	¢/kWh	0.0000	0.00	0.00	0.00
Refund of 2018 Interim	% on Base	0.00	0.00	0.00	0.00
Energy Cost Recovery	¢/kWh	24.957	124.79	130.44	5.65
Green Infrastructure Fee	\$	1.17	1.17	1.17	0.00
Avg Residential Bill at 500 kwh			212.02	217.67	

Increase (Decrease -)	5.65
% Change	2.66%

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

<u>EFFECTIVE DATE</u>	FUEL FACTOR CENTS / KWH		RESIDENTIAL BILL (\$)
	<u>RESIDENTIAL & COMMERCIAL</u>	<u>@ 400 KWH</u>	<u>@ 500 KWH</u>
January 1, 2017	-11.861	139.67	173.68
February 1, 2017	-11.218	142.24	176.90
March 1, 2017	-10.975	143.21	178.11
April 1, 2017	-10.875	143.06	177.92
May 1, 2017	-11.993	139.14	173.02
June 1, 2017	-11.149	143.14	178.03
July 1, 2017	-11.181	142.28	176.97
August 1, 2017	-11.659	140.36	174.58
September 1, 2017	-10.389	145.40	180.88
October 1, 2017	-10.059	170.90	212.02
November 1, 2017	-8.264	153.90	191.51
December 1, 2017	-9.353	149.55	186.06
January 1, 2018	-8.358	153.69	191.20
February 1, 2018	-8.395	153.54	191.01
March 1, 2018	-7.868	155.65	193.65
April 1, 2018	-9.141	150.05	186.64
May 1, 2018	-7.716	156.26	194.41
June 1, 2018	-6.144	163.86	203.92
July 1, 2018	-5.753	165.46	205.95
August 1, 2018	-7.005	160.45	199.69
September 1, 2018	-6.735	166.53	207.25
October 1, 2018	-6.372	167.98	209.07
November 1, 2018	-6.037	169.32	210.74
December 1, 2018	-5.396	171.89	213.95
January 1, 2019	-6.950	165.81	206.32
February 1, 2019	-8.789	158.45	197.12
March 1, 2019	-6.041	169.45	210.86
April 1, 2019	-6.801	166.07	206.63
May 1, 2019	-7.864	162.15	201.75
June 1, 2019	4.196	172.73	214.30
July 1, 2019	3.088	171.26	212.48
August 1, 2019	3.232	171.84	213.20
September 1, 2019	24.278	168.18	208.62
October 1, 2019	24.957	170.90	212.02
November 1, 2019	26.088	175.42	217.67

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

EFFECTIVE DATE	DESCRIPTION OF SURCHARGE	RATE
01/01/11 - 12/31/11	RESID. PBF SURCHARGE ADJUSTMENT	0.5944 CENTS/KWH
06/01/11	IRP RECOVERY REFUND	0.000 PERCENT ON BASE
08/01/13 - 05/31/19	FINAL RATE INCREASE (1.25%), DOCKET NO. 2011-0092 (2012 TEST YEAR)	
01/01/16 - 06/30/16	GREEN INFRASTRUCTURE FEE	1.3000 DOLLARS/MONTH
03/01/16 - 02/28/17	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0099 CENTS/KWH
04/01/16 - 04/30/16	SOLARSAVER ADJUSTMENT	-0.1835 CENTS/KWH
05/01/16 - 03/31/17	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
06/01/16 - 05/31/17	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	1.4082 CENTS/KWH
07/01/16 - 06/30/17	RESID. PBF SURCHARGE ADJUSTMENT	0.5865 CENTS/KWH
07/01/16 - 12/31/16	GREEN INFRASTRUCTURE FEE	1.13 DOLLARS/MONTH
01/01/17 - 06/30/17	GREEN INFRASTRUCTURE FEE	1.27 DOLLARS/MONTH
03/01/17 - 08/16/17	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0098 CENTS/KWH
04/01/17 - 04/30/17	SOLARSAVER ADJUSTMENT	-0.1378 CENTS/KWH
05/01/17 - 03/31/18	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
06/01/17 - 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 - 06/30/18	RESID. PBF SURCHARGE ADJUSTMENT	0.4244 CENTS/KWH
08/17/17	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0000 CENTS/KWH
01/01/18 - 06/30/18	GREEN INFRASTRUCTURE FEE	1.34 DOLLARS/MONTH
04/01/18 - 04/30/18	SOLARSAVER ADJUSTMENT	1.3400 CENTS/KWH
05/01/18 - 03/31/19	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
06/01/18 - 08/22/18	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	1.8954 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	1.21 DOLLARS/MONTH
08/23/18 - 05/31/19	INTERIM RATE INCREASE 2018 TEST YEAR	6.36 PERCENT ON BASE
08/23/18 - 05/31/19	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	0.3183 CENTS/KWH
01/01/19 - 06/30/19	GREEN INFRASTRUCTURE FEE	1.35 DOLLARS/MONTH
04/01/19 - 04/30/19	SOLARSAVER ADJUSTMENT	-0.0855 CENTS/KWH
05/01/19	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
06/01/19	FINAL RATE INCREASE (3.74%), DOCKET NO. 2017-0150 (2018 TEST YEAR)	
06/01/19 - 06/30/19	REFUND OF INTERIM RATE INCREASE 2018 TEST YEAR	-2.03 PERCENT ON BASE
06/01/19	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	0.8716 CENTS/KWH
07/01/19	RESID. PBF SURCHARGE ADJUSTMENT	0.4775 CENTS/KWH
07/01/19	GREEN INFRASTRUCTURE FEE	1.17 DOLLARS/MONTH

~ Surcharges currently in effect are in bold.

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