



January 29, 2020

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

FILED

2020 JAN 29 P 3:32

PUBLIC UTILITIES
COMMISSION

Dear Commissioners:

Subject: Maui Electric Energy Cost Recovery Factor for February 2020

Maui Electric Company, Limited's ("Maui Electric" or "Company") February 2020 Energy Cost Recovery factor for our Maui Division is 17.482 cents per kilowatt-hour ("kWh"), an increase of 0.731 cents per kWh from last month. A residential customer consuming 500 kWh of electricity will be paying \$172.82, an increase of \$4.25 compared to rates effective January 1, 2020. The increase in the typical residential bill is due to the increase in the Energy Cost Recovery Factor (+\$3.65) and the implementation of the residential DSM Adjustment (+\$0.63), partially offset by the decrease in the Purchase Power Adjustment (-\$0.03).

The Company's Maui Division fuel composite cost of generation, central station and other increased 75.26 cents per million BTU to 1,471.34 cents per million BTU. The composite cost of DG energy is 0.00 cents per kWh. The composite cost of purchased energy increased 0.791 cents per kWh to 20.257 cents per kWh.

The Energy Cost Recovery factor for our Lāna'i Division for February 2020 is 24.109 cents per kWh, a decrease of 1.260 cents per kWh from last month. A residential customer consuming 400 kWh of electricity will be paying \$168.65, a decrease of \$5.04 compared to rates effective January 1, 2020. The decrease in the typical residential bill is due to the decrease of the Energy Cost Recovery Factor (-\$5.04).

The Company's Lāna'i Division fuel composite cost of generation, central station and other increased 39.48 cents per million BTU to 2,083.55 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 February 2020 is 21.165 cents per kWh, an increase of 2.632 cents per kWh from last month. A residential customer consuming 400 kWh of electricity will be paying \$164.02, an increase of \$10.27 compared to rates effective January 1, 2020. The increase in the typical residential bill is due to the increase of the Energy Cost Recovery Factor (+\$10.53), partially offset by the termination of the Purchase Power Adjustment (-\$0.26).

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 140.89 cents per million BTU to 1,693.58 cents per million BTU. The composite cost of DG energy is 0.00 cents per kWh. The composite cost of purchased energy is 22.46 cents per kWh.

The Efficiency Factors used reflect the factors for 2020 provided in Maui Electric's Revised Target Sales Heat Rates filed on January 29, 2020, in Docket No 2017-0150. The lower revised target sales heat rates for our Maui Division are 0.015786 million BTU per kilowatt-hour for industrial fuel, 0.009938 million BTU per kilowatt-hour for diesel fuel, and 0.011072 million BTU per kilowatt-hour for other company generation sources. The lower revised target sales heat rates for our Lāna'i Division are 0.010872 million BTU per kilowatt-hour for diesel fuel and other company generation sources. There is no change to the target sales heat rates for the Moloka'i Division.

The attached sheets set forth the fuel adjustment in cents per kWh for each rate schedule that is applicable for pro rata use beginning February 1, 2020.

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>01/01/2020</u>	<u>02/01/2020</u>	
<u>COMPOSITE COSTS</u>			
Generation, Central Station & Other, ¢/mbtu	1,396.08	1,471.34	75.26
DG Energy, ¢/kWh	0.00	0.00	0.000
Purchased Energy, ¢/kWh	19.466	20.257	0.791
<u>Residential Schedule "R"</u>			
Energy Cost Recovery Factor, ¢/kWh	16.751	17.482	0.731
<u>Others - "G,P,F"</u>			
Energy Cost Recovery Factor, ¢/kWh	16.751	17.482	0.731
<u>Residential Customer with</u>			
500 KWH Consumption, \$/Bill	168.57	172.82	4.25
600 KWH Consumption, \$/Bill	201.30	206.40	5.10

Supersedes Sheet Effective:

January 1, 2020

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

ENERGY COST RECOVERY (ECR) FILING - February 1, 2020 (page 1 of 2)

Line

1 Effective Date February 1, 2020
2 Supercedes Factors of January 1, 2020

GENERATION COMPONENT

CENTRAL STATION						
FUEL PRICES, ¢/mmbtu						
3	Industrial			908.55		
4	Diesel			1,578.70		
5	Other					
BTU MIX, %						
6	Industrial			16.02%		
7	Diesel			83.98%		
8	Other			0.00%		
				100.00%		
9	COMPOSITE COST OF GENERATION, CENTRAL STATION + OTHER ¢/mmbtu (Lines (3 x 6) + (4 x 7) + (5 x 8))			1,471.34		
10	% Input to System kWh Mix			86.17%		
EFFICIENCY FACTOR, mmbtu/kWh						
	(A)	(B)	(C)	(D)		
		Eff Factor	Percent of	Weighted		
	Fuel Type	mmbtu/kwh	Centrl Stn + Other	Eff Factor		
11	Industrial	0.015786	10.21	0.001612		
12	Diesel	0.009938	89.79	0.008923		
13	Other	0.011072	0.00	-		
	(Lines 11, 12, 13): Col(B) x Col(C) = Col(D)					
14	Weighted Efficiency Factor, mmbtu/kWh [lines 11(D) + 12(D) + 13(D)]			0.010535		
15	WEIGHTED COMPOSITE CENTRAL STATION + OTHER GENERATION COST, ¢/kWh (lines (9 x 10 x 14))			13.35684		
16	BASE CENTRAL STATION + OTHER GENERATION COST, ¢/mmbtu			0.00		
17	Base % Input to Sys kWh Mix			0.00		
18	Efficiency Factor, mmbtu/kwh			0.011072		
19	WEIGHTED BASE CENTRAL STATION + OTHER GENERATION COST ¢/kWh (lines (16 x 17 x 18))			-		
20	COST LESS BASE (line(15 - 19))			13.35684		
21	Revenue Tax Req Multiplier			1.0975		
22	CENTRAL STATION + OTHER GENERATION FACTOR, ¢/kWh (line (20 x 21))			14.65913		
				DG ENERGY COMPONENT		
				23	COMPOSITE COST OF DG ENERGY, ¢/kWh	0.000
				24	% Input to System kWh Mix	0.00%
				25	WEIGHTED COMPOSITE DG ENERGY COST, ¢/kWh (Lines 23 x 24)	-
				26	BASE DG ENERGY COMP COST	0.000
				27	Base % Input to System kWh Mix	0.00
				28	WEIGHTED BASE DG ENERGY COST, ¢/kWh (Line 26 x 27)	0.00000
				29	Cost Less Base (Line 25 - 28)	0.00000
				30	Loss Factor	1.057
				31	Revenue Tax Req Multiplier	1.0975
				32	DG FACTOR, ¢/kWh (Line 29 x 30 x 31)	0.00000
				SUMMARY OF TOTAL GENERATION FACTOR, ¢/kWh		
				33	CNTRL STN + OTHER (line 22)	14.65913
				34	DG (line 32)	-
				35	TOTAL GENERATION FACTOR, ¢/kWh (lines 33 + 34)	14.65913

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

ENERGY COST RECOVERY (ECR) FILING - February 1, 2020 (page 2 of 2)

Line

1	Effective Date	February 1, 2020
2	Supercedes Factors of	January 1, 2020

Line	PURCHASED ENERGY COMPONENT	
	PURCHASED ENERGY PRICE - FOSSIL ¢/kWh	
	PURCHASED ENERGY PRICE - RENEWABLE, ¢/kWh	
36	Kaheawa Wind I - On Peak	13.891
37	- Off Peak	13.030
38	Kaheawa Wind II	26.069
39	Sempre Wind	22.530
40	Unused - On Peak	0.000
41	- Off Peak	0.000
42	South Maui RR	11.060
43	Ku'ia Solar	11.060
44	Unused	0.000
45	Unused	0.000
46	CBRE PV	16.500
47		
48	FIT	22.490
	PURCHASED ENERGY KWH MIX- FOSSIL, %	
48A	Subtotal Fossil %	0%
	PURCHASED ENERGY KWH MIX - RENEWABLE, %	
49	Kaheawa Wind I - On Peak	14.18%
50	- Off Peak	8.25%
51	Kaheawa Wind II	18.98%
52	Sempre Wind - On Peak	43.41%
53	Unused - On Peak	0.00%
54	- Off Peak	0.00%
55	South Maui RR	4.05%
56	Ku'ia Solar	4.04%
57	Unused	0.00%
58	Unused	0.00%
59	CBRE PV	0.09%
60		
61	FIT	7.00%
61A	Subtotal Renewable %	100.00%
61B	Total Purchased Energy %	100.00%
61C	Composite Cost of Purchased Energy, Fossil	N/A
61D	Composite Cost of Purchased Energy, Renewable	20.257
62	COMPOSITE COST OF PURCHASED ENERGY, ¢/kWh	20.257
	(Lines (36 x 49) + (37 x 50) + (38 x 51) + (39 x 52) + (40 x 53) + (41 x 54) + (42 x 55) + (43 x 56) + (44 x 57) + (45 x 58) + (46 x 59) + (48 x 61))	
63	% Input to System kWh Mix	13.83%
64	WEIGHTED COMPOSITE PURCHASED ENERGY COST, ¢/kWh (lines (62 x 63))	2.80154
65	BASE PURCHASED ENERGY COMPOSITE COST, ¢/kWh	0.000
66	Base % Input to Sys kWh Mix	0.00
67	WEIGHTED BASE PURCHASED ENERGY COST, ¢/kWh (lines (65 x 66))	0.00000
68	COST LESS BASE (lines (64 - 67))	2.80154
69	Loss Factor	1.057
70	Revenue Tax Req Multiplier	1.0975
71	PURCHASED ENERGY FACTOR, ¢/kWh (lines (68 x 69 x 70))	3.24995

Line	Calculation of Monthly Fossil Fuel Cost Risk Sharing Component	
	Baseline IFO	
72	IFO \$, baseline month	\$1,242,171
73	IFO mmbtu, baseline	139,708
74	Baseline IFO, ¢/mmbtu	889.12
	Baseline Diesel	
75	Diesel \$, baseline month	\$8,277,586
76	Diesel mmbtu, baseline	542,177
77	Baseline Diesel, ¢/mmbtu	1,526.73
	Month IFO	
78	IFO mmbtu, budget	114,272
79	IFO Cost, ¢/mmbtu	908.55
80	IFO ECRC Fossil Cost	\$1,038,215
81	IFO Base ECRC Recovery Target	\$1,016,012
82	IFO differential	\$22,203
	Month Diesel	
83	Diesel mmbtu, budget	599,151
84	Diesel Cost, ¢/mmbtu	1,578.70
85	Diesel ECRC Fossil Cost	\$9,458,790
86	Diesel Base ECRC Recovery Target	\$9,147,412
87	Diesel differential	\$311,379
88	Total Fossil	\$333,582
89	2% of above	\$6,672
90	Total Monthly Fossil Fuel Cost Risk Sharing, Prior Months in Year	\$0
91	Maximum Annual Cap (bi-directional)	\$570,000
92	Number of Days in year from implementation	366
93	Fossil Risk % Proration (based on 366 day year)	100.00%
94	Maximum Annual Cap (bi-directional) prorated	\$570,000
95	Applicable Monthly Fossil Fuel Cost Risk Sharing	\$6,672
96	Total Monthly Fossil Fuel Cost Risk Sharing, Including This Month	\$6,672
97	Fossil Cost Risk Sharing before taxes	\$6,672
98	Revenue Tax Adjustment	1.097514
99	Fossil Cost Risk Sharing w/revenue tax	\$7,322
100	Forecasted Month MWh Sales	78,748
101	Fossil Fuel Cost Risk Sharing Component, ¢/kWh	-0.0093

Derivation of Non-Adjustable Component:		
102	Maalaea Biodiesel (\$000s)	\$511.3
103	Hana (\$000s)	\$19.2
104	Ignition Startup (\$000s)	\$37.6
	Total	\$568.1
	Final Settlement, MECO-602, p1 and MECO-603, p1	
105	Revenue Tax Adjustment	1.097514
106	Non-Adj Revenues, \$000	\$623.5
107	2018 TY Sales, MWh	1,017,968
	Final Tariffs submitted 4/17/2019, Docket No. 2017-0150, Exhibit 2, Att 1, p361	
108	Non-Adj Revenues, ¢/kWh	0.06125
109	Generation and Purchased Energy Factors	17.90908
110	ECR Reconciliation Adjustment	(0.479)
111	Non-Adjustable Component	0.0612
112	Fossil Fuel Cost Risk Sharing Component	-0.0093
113	ECR FACTOR, ¢/kWh (lines (109 + 110 + 111 + 112))	17.4820

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

Fuel Oil Inventory Prices for February 2020

<u>TYPE OF OIL BURNED</u>	<u>PRICES \$/BBL</u>	<u>CONVERSION FACTORS</u>		<u>PRICES ¢/MBTU</u>
INDUSTRIAL	57.2384	6.30	MBTU/BBL	908.55
DIESEL/ULSD	92.4552	5.86	MBTU/BBL	1,578.70

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

Month End Fuel Oil Estimate

<u>Kahului</u>	<u>Barrels</u>	<u>MBTU</u>	<u>(\$)</u>
1/20/2020	46,299.22	291,685.09	2,613,982.65
Estimated Use	11,274.92	71,032.00	627,810.67
Estimated Received	19,000.00	119,700.00	1,106,092.23
Estimated Additional	0.00	0.00	0.00
Estimated End	<u>54,024.30</u>	<u>340,353.09</u>	<u>3,092,264.21</u>

Next month's expense (\$/bbl) = \$ 57.2384

<u>Maalaea</u>	<u>Barrels</u>	<u>MBTU</u>	<u>(\$)</u>
1/20/2020	113,607.85	665,334.24	10,419,252.36
Estimated Use	28,661.45	167,853.24	2,562,522.95
Estimated Received	28,000.00	163,979.51	2,585,750.82
Estimated Additional	0.00	0.00	0.00
Estimated End	<u>112,946.39</u>	<u>661,460.51</u>	<u>10,442,480.23</u>

Next month's expense (\$/bbl) = \$ 92.4552

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

Contract Prices effective January 1, 2020

<u>TYPE OF OIL BURNED</u>	<u>\$/BBL</u>	<u>¢/MBTU</u>
INDUSTRIAL		
Tax *	3.3488	53.16
Ocean Transportation	1.6374	25.99
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.4000	6.35
DIESEL		
Tax *	5.0721	86.57
Ocean Transportation	1.6374	27.94
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	13.891
- Off Peak, ¢/kWh	13.030

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 2020:

On-peak, ¢/kwh	10.415
Off-peak, ¢/kwh	9.186

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

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

On-Peak Rate = $10.4150 \text{ ¢/kwh} \times 0.7 + 22.000 \text{ ¢/kwh} \times 0.3 = 13.891 \text{ ¢/kwh}$

Off-Peak Rate = $9.186 \text{ ¢/kwh} \times 0.7 + 22.000 \text{ ¢/kwh} \times 0.3 = 13.03 \text{ ¢/kwh}$

MAUI ELECTRIC COMPANY, LTD.
Maui Division
ECR Reconciliation Adjustment
February 2020

1. Amount to be Refunded	(\$1,031,400)
2. Monthly amount (1 / 3 X Line 1)	(\$343,800)
3. Revenue Tax Divisor	0.91115
4. Total (Line 2 / Line 3)	(\$377,325)
5. Estimated Sales (February 2020)	78,748 mwh
6. Adjustment (Line 4 ÷ Line 5)	(0.479) ¢/kwh

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

<u>Line</u>	<u>W/O Deadband 4th Quarter YTD Total</u>	<u>collection by company*</u>	<u>Basis for Recon With Deadband 4th Quarter YTD Total</u>	<u>collection by company*</u>
ACTUAL COSTS:				
1	\$128,229.9		\$128,229.9	
2	\$31.8		\$31.8	
3	<u>\$47,826.6</u>		<u>\$47,826.6</u>	
4	\$176,088.3		\$176,088.3	
FUEL FILING COST				
5	\$128,850.5		\$128,512.0	
6	\$0.0		\$0.0	
7	<u>\$47,826.6</u>		<u>\$47,826.6</u>	
8	\$176,677.1		\$176,338.6	
BASE FUEL COST				
9	\$98,376.0		\$98,376.0	
10	\$17.0		\$17.0	
11	<u>\$28,762.9</u>		<u>\$28,762.9</u>	
12	\$127,156.0		\$127,156.0	
13	\$49,521.1		\$49,182.6	
14	\$49,131.1		\$49,131.1	
15	-\$2,202.2		-\$2,202.2	
15A	<u>\$208.6</u>		<u>\$208.6</u>	
16	\$51,124.7		\$51,124.7	
17	\$1,603.6	Over	\$1,942.1	Over
ADJUSTMENTS				
18	\$4,624.9		\$4,624.9	
19	\$0.0		\$0.0	
20	<u>\$0.0</u>		<u>\$0.0</u>	
21	\$6,228.5	Over	\$6,567.0	Over
21A	<u>-\$17.5</u>		<u>-\$17.5</u>	
21B	\$6,211.0		\$6,549.5	
22			<u>\$5,518.1</u>	Over
23			<u><u>-\$1,031.4</u></u>	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>
<u>Industrial Fuel Oil</u>		
Industrial Fuel Oil Efficiency Factor (TY2018), BTU/kWh	f	15,892
Industrial Fuel Oil Deadband Definition, - BTU/kWh	d	100
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	15,792
<u>Diesel</u>		
Diesel Efficiency Factor (TY2018), BTU/kWh	f	9,950
Diesel Deadband Definition, - BTU/kWh	d	100
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	9,850

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

Determination of Efficiency Factor to use for Cost-Recovery Purposes

Period: January 14, 2019 through December 31, 2019

	<u>Notes</u>	<u>YTD</u>
<u>Industrial Fuel Oil</u>		
Industrial Fuel Oil Efficiency Factor (TY2018), BTU/kWh	f	15,892
Industrial Fuel Oil Deadband Definition, - BTU/kWh	d	100
Industrial Fuel Oil Portion of Recorded Sales, MWh	a	148,540
Industrial Fuel Oil Consumption (Recorded), MMBTU	b	2,332,392
Industrial Fuel Oil Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	15,702
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	15,792
<u>Diesel</u>		
Diesel Efficiency Factor (TY2018), BTU/kWh	f	9,950
Diesel Deadband Definition, - BTU/kWh	d	100
Diesel Portion of Recorded Sales, MWh	a	643,164
Diesel Consumption (Recorded), MMBTU	b	6,390,022
Diesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	9,935
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	9,935

**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 - Dec 31</u>	<u>Jan 14 - Dec 31</u>
INDUSTRIAL				
Industrial Portion of Recorded Sales , MWH	6,043	6,043	148,540	148,540
Industrial Sales Efficiency Factor (mmbtu/kwh)	0.015892	0.015792	0.015892	0.015792
Mmbtu adjusted for Sales Efficiency Factor	96,036	95,431	2,360,594	2,345,740
\$/mmbtu	<u>\$10.7273</u>	<u>\$10.7273</u>	<u>\$9.6471</u>	<u>\$9.6471</u>
TOTAL Industrial \$000s TO BE RECOVERED	\$1,030.2	\$1,023.7	\$22,772.9	\$22,629.6
DIESEL FUEL FILING COST				
Diesel Portion of Recorded Sales, MWH	23,411	23,411	643,164	643,164
Diesel Sales Efficiency Factor (mmbtu/kwh)	0.009950	0.009850	0.009950	0.009935
Mmbtu adjusted for Sales Efficiency Factor	232,936	230,595	6,399,479	6,389,832
\$/mmbtu	<u>\$15.2504</u>	<u>\$15.2504</u>	<u>\$15.8599</u>	<u>\$15.8599</u>
TOTAL DIESEL \$000s TO BE RECOVERED	\$3,552.4	\$3,516.7	\$101,495.1	\$101,342.1
TOTAL GENERATION FUEL FILING COST, \$000s	\$4,582.6	\$4,540.4	\$124,267.9	\$123,971.6
TOTAL GENERATION BASE FUEL COST , \$000s	\$6,172.9	\$6,172.9	\$92,203.08	\$92,203.1
TOTAL GENERATION FUEL FILING COST, \$000s YTD	\$4,582.6	\$4,540.4	\$128,850.5	\$128,512.0
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, December 2019, Maui

		Sep-19, Baseline	YTD Subject to Fossil Risk
A	IFO Fossil Fuel Cost Risk Sharing		
	MMBtu	214723.9958	891907.762
B	\$ cost, actuals	\$1,995,065	\$7,859,207
C = B / A (Baseline Column)	Sep 2019 baseline \$/mmbtu	9.291301	9.291301
D	IFO Gen kWh		59,941,407
E	Total kWh, Gen, Purch Pwr, DG		394,086,893
F	Sales kWh		373,813,385
G = (D / E) x F	IFO kWh-sales		56,857,766
H	Target Heat Rate		15,892
I1	Upper limit w/deadband		15,992
I2	Lower limit w/deadband		15,792
I3	Calculated Heat Rate (YTD subject to fossil risk, before deadband)		15,680
I	Recovery Heat Rate (YTD subject to fossil risk, after deadband)		15,792
J = B / A ytd	Actual Cost \$/MMbtu		8.8116815
K = C x H x G / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$8,395,467
L = I x J x G / 1,000,000	Fuel Filing Cost Recovery		\$7,911,990
M = 2% x (L-K)	IFO Cost Risk Sharing		-\$9,670
	Diesel Fossil Fuel Cost Risk Sharing		
AA	MMBtu	561,665	2,284,969
BB	\$ cost, actuals	\$8,885,935	\$35,917,043
CC = BB / AA (Baseline Column)	Sep 2019 baseline \$/mmbtu	15.8207075	15.8207075
DD	Diesel Gen kWh		243,153,760
EE	Total kWh, Gen, Purch Pwr, DG		394,086,893
FF	Sales kWh		373,813,385
GG = (DD / EE) x FF	Diesel kWh-sales		230,644,895
HH	Target Heat Rate		9,950
I11	Upper limit w/deadband		10,050
I12	Lower limit w/deadband		9,850
I13	Calculated Heat Rate (YTD subject to fossil risk, before deadband)		9,907
I1	Recovery Heat Rate (YTD subject to fossil risk, after deadband)		9,907
JJ = BB/AA (YTD Column)	Actual Cost \$/MMbtu		15.7188306
KK = CC x HH x GG / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$36,307,206
LL = I1 x JJ x GG / 1,000,000	Fuel Filing Cost Recovery		\$35,917,512
MM = 2% x (LL-KK)	Diesel Cost Risk Sharing		-\$7,794
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		-\$17,463
AAA = F	Non-Adjustable Component		
	YTD kWh under ECRC		373,813,385
BBB	Non-Adjustable Component, cents/kWh		0.06125
CCC	Non-Adjustable Component Revenues w/tax		\$228,961
DDD	Non-Adjustable Component Revenues less tax		\$208,618

MAUI ELECTRIC COMPANY, LTD.
MAUI DIVISION
2020 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)	(480,697)	(229,367)
November	2,679,900	(3)	(184,241)	2,864,141	(893,300)	(987,633)	1,647,141
December '19					(893,300)	(950,248)	696,893
January '20					(893,300)		
February	1,031,400	(4)	(196,411)	1,227,811	(343,800)		

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		
	01/01/20	02/01/20	01/01/20	02/01/20	Difference
Base Rates	effective date:	09/01/19	09/01/19		
Base Fuel/Energy Charge	¢/kWh	0.0000	0.0000	0.00	0.00
Non-fuel Energy Charge					
First 350 kWh per month	¢/kWh	12.1240	12.1240	42.43	42.43
Next 850 kWh per month	¢/kWh	14.3840	14.3840	21.58	21.58
Customer Charge	\$	11.50	11.50	11.50	11.50
Total Base Charges			75.51	75.51	0.00
RBA Rate Adjustment	¢/kWh	0.8716	0.8716	4.36	4.36
PBF Surcharge	¢/kWh	0.7437	0.7437	3.72	3.72
SolarSaver Adjustment	¢/kWh	0.0000	0.0000	0.00	0.00
Refund of 2018 Interim	% on Base	0.00	0.00	0.00	0.00
Purchased Power Adjustment	¢/kWh	-0.0069	-0.0126	-0.03	-0.06
Energy Cost Recovery	¢/kWh	16.751	17.482	83.76	87.41
DSM Adjustment	¢/kWh	0.000	0.1268	0.00	0.63
Green Infrastructure Fee	\$	1.25	1.25	1.25	1.25
Avg Residential Bill at 500 kwh			168.57	172.82	

Increase (Decrease -)	4.25
% Change	2.52%

	Rate		Charge (\$) at 600 Kwh		
	01/01/20	02/01/20	01/01/20	02/01/20	Difference
Base Rates	effective date:	09/01/19	09/01/19		
Base Fuel/Energy Charge	¢/kWh	0.0000	0.0000	0.00	0.00
Non-fuel Energy Charge					
First 350 kWh per month	¢/kWh	12.1240	12.1240	42.43	42.43
Next 850 kWh per month	¢/kWh	14.3840	14.3840	35.96	35.96
Customer Charge	\$	11.50	11.50	11.50	11.50
Total Base Charges			89.89	89.89	0.00
RBA Rate Adjustment	¢/kWh	0.8716	0.8716	5.23	5.23
PBF Surcharge	¢/kWh	0.7437	0.7437	4.46	4.46
Renewable Energy Infrastructure Cost Recovery Provision	¢/kWh	0.0000	0.0000	0.00	0.00
SolarSaver Adjustment	¢/kWh	0.0000	0.0000	0.00	0.00
Refund of 2018 Interim	% on Base	0.00	0.00	0.00	0.00
Purchased Power Adjustment	¢/kWh	-0.0069	-0.0126	-0.04	-0.08
Energy Cost Recovery	¢/kWh	16.751	17.482	100.51	104.89
DSM Adjustment	¢/kWh	0.000	0.1268	0.00	0.76
Green Infrastructure Fee	\$	1.25	1.25	1.25	1.25
Avg Residential Bill at 600 kwh			201.30	206.40	

Increase (Decrease -)	5.10
% Change	2.53%

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

<u>EFFECTIVE DATE</u>	FUEL FACTOR CENTS / KWH		RESIDENTIAL BILL (\$)	
	<u>RESIDENTIAL & COMMERCIAL</u>		<u>@ 500 KWH</u>	<u>@ 600 KWH</u>
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
December 1, 2019	16.191		164.37	196.28
January 1, 2020	16.751		168.57	201.30
February 1, 2020	17.482		172.82	206.40

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

EFFECTIVE DATE	DESCRIPTION OF SURCHARGE	RATE
06/01/11	IRP RECOVERY REFUND	0.000 PERCENT ON BASE
08/17/17	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0000 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
05/01/19	SOLARSAVER ADJUSTMENT	0.0000 CENTS/KWH
06/01/19 - 06/30/19	PURCHASED POWER ADJUSTMENT	-0.0067 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 - 07/31/19	PURCHASED POWER ADJUSTMENT	-0.0045 CENTS/KWH
07/01/19 - 12/31/19	RESID. PBF SURCHARGE ADJUSTMENT	0.4775 CENTS/KWH
07/01/19 - 12/31/19	GREEN INFRASTRUCTURE FEE	1.17 DOLLARS/MONTH
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
11/01/19 - 11/30/19	PURCHASED POWER ADJUSTMENT	-0.0063 CENTS/KWH
12/01/19 - 12/31/19	PURCHASED POWER ADJUSTMENT	-0.0047 CENTS/KWH
01/01/20 - 01/31/20	PURCHASED POWER ADJUSTMENT	-0.0069 CENTS/KWH
01/01/20	RESID. PBF SURCHARGE ADJUSTMENT	0.7437 CENTS/KWH
01/01/20	GREEN INFRASTRUCTURE FEE	1.25 DOLLARS/MONTH
02/01/20	PURCHASED POWER ADJUSTMENT	-0.0126 CENTS/KWH
02/01/20	RESID. DSM ADJUSTMENT	0.1268 CENTS/KWH

~ 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**

