



January 27, 2021

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

Dear Commissioners:

Subject: Hawaiian Electric Companies
2020 Net Energy Metering Status Report

Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc. and Maui Electric Company, Limited respectfully submit their 2020 Net Energy Metering Status Report, which provides the total number of installations and the total rated generating capacity of net metered customer facilities in each of their service territories.

Sincerely,

/s/ Kevin M. Katsura

Kevin M. Katsura
Director, Regulatory Non-Rate Proceedings

Attachment

c: Division of Consumer Advocacy

Net Energy Metering Status Report

Hawaiian Electric Company, Inc.
Hawai'i Electric Light Company, Inc.
Maui Electric Company, Limited

December 31, 2020

Status

The following table provides the status of NEM in the Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc., and Maui Electric Company, Limited service territories as of December 31, 2020. In addition, a report on the estimates of the rate and revenue impact of NEM participation is shown in Appendix A.

NEM Status as of 12/31/20

	Information packets sent	No. of Installations ¹	Installed kW ²	NEM System Cap, ³ kW
Hawaiian Electric				
2001	151	1	3.60	5,955
2002	12	1	2.06	6,020
2003	49	8	11.74	6,210
2004	15	3	7.90	6,405
2005	5	0	0	6,150
2006	23	10	74.28	6,330
2007	67	73	400.29	6,080
2008	132	220	2,361	11,860
2009	111	513	2,460	12,130
2010	*	1,327	7,267	11,620
2011	*	3,424	18,518	N/A
2012	*	8,623	52,504	N/A
2013	*	14,010	83,659	N/A
2014	*	6,830	46,242	N/A
2015	*	6,193	44,769	N/A
2016	*	4,709	40,902	N/A
2017	*	1,855	22,707	N/A
2018	*	355	3,789	N/A
2019	*	82**	1,080**	N/A
2020	*	24	920	N/A
Total Hawaiian Electric	565	48,261	327,678	N/A

¹ Completed systems (i.e., NEM Agreements completed).

² Installed kW reflects rated generating capacity installed in the year noted. Includes system expansions.

³ In 2011 the three companies NEM cap is based on individual circuit capacity and not total system capacity, therefore this metric is no longer applicable (N/A) from 2011 on. Prior system caps as follows: Hawaiian Electric - 0.5% of system peak in 2001-2007, 1.0% of system peak in 2008-2010. Hawai'i Electric Light, Maui Electric - 0.5% of system peak in 2001-2007, 3% of system peak in 2008-2009, and 4% system peak 2010. System Peak is defined as Net System Peak for Hawaiian Electric, Hawai'i Electric Light, and Maui Electric-Maui only and Gross System Peak for Maui Electric-Molokai and Maui Electric-Lanai.

Net Energy Metering Status Report

Hawaiian Electric Company, Inc.
Hawai'i Electric Light Company, Inc.
Maui Electric Company, Limited

December 31, 2020

NEM Status as of 12/31/20 (cont.)

	Information packets sent	No. of Installations ¹	Installed kW ²	NEM System Cap, ³ kW
Hawai'i Electric Light				
2001	122	2	10.20	871
2002	25	3	4.73	890
2003	13	6	28.00	934
2004	12	4	8.84	972
2005	17	10	58.27	985
2006	12	34	299.57	1,007
2007	24	35	263.15	1,017
2008	23	116	783.80	5,946
2009	30	265	2,063.58	5,838
2010	*	371	2,287.85	7,624
2011	*	804	4,522.31	N/A
2012	*	1,734	9,943	N/A
2013	*	1,952	12,442	N/A
2014	*	2,080	13,046	N/A
2015	*	2,210	14,224.4	N/A
2016	*	1,298	9,621	N/A
2017	*	209	3,420	N/A
2018	*	14	818	N/A
2019	*	-2	16	N/A
2020	*	-21	-113	N/A
Total Hawai'i Electric Light	278	11,124	73,748	N/A

Net Energy Metering Status Report

Hawaiian Electric Company, Inc.
Hawai'i Electric Light Company, Inc.
Maui Electric Company, Limited

December 31, 2020

NEM Status as of 12/31/20 (cont.)

	Information packets sent	No. of Installations ¹	Installed kW ²	NEM System Cap, ³ kW
Maui Electric				
2001	49	2	8.20	993
2002	19	5	8.80	1,006
2003	24	3	13.00	1,047
2004	29	8	21.60	1,091
2005	22	16	92.15	1,068
2006	49	50	233.47	1,091
2007	13	64	359.81	1,081
2008	15	135	947	6,171
2009	0	298	2,336	6,317
2010	*	342	1919	8,397
2011	*	1,039	6,624.22	N/A
2012	*	1,677	10,981	N/A
2013	*	1,566	11,202	N/A
2014	*	1,901	12,832	N/A
2015	*	2,207	17,025	N/A
2016	*	1,791	15,408	N/A
2017	*	394	5,613	N/A
2018	*	121	1,736	N/A
2019	*	12	737**	N/A
2020	*	7	34	
Total Maui Electric	220	11,638	88,131	N/A
TOTAL	*	71,023	489,557	

* NEM information and forms are made available on the web and therefore, not tracked for the respective Companies.

** The Number of Installations and the Installed kW are annually adjusted to reflect updates such as modifications to system capacity ratings, agreement execution dates, number of installations, additions to existing systems, changes in rate schedules, and subsequent accounting reconciliations. All accounting reconciliations are trued up in the preceding year (2019) totals only to reflect accurate annual and cumulative numbers in the filing year.

APPENDIX A

Per the Commission's request, the attached pages are included to provide illustrative estimates of lost contributions to fixed cost in 2021 and the associated estimated value per kWh, based on estimated annualized kWh production of NEM installations in place as of year-end 2020. The value shown in these illustrations represents the estimated amount from all installations since the inception of the NEM program.

For the calculation of lost contribution to fixed costs, the Base Energy Rates and Production Energy Rates for Oahu, Maui, Lanai, and Molokai are unchanged from last year's report. The Base Energy Rates and Production Energy Rates for Hawai'i Electric Light Company, Inc., have changed based on the Final Decision and Order in the Hawai'i Electric Light 2019 test year rate case (Docket No. 2018-0386). For all Companies, the calculation of lost contribution to fixed cost includes the Base Fuel Energy Value established in the applicable rate case. The estimated 2020 lost contribution to fixed costs in total for Oahu, Hawaii Island, Maui, Lanai, and Molokai is \$91,991,085.

For all Companies, the effective Purchased Power Adjustment Clause rates reflect the January 2021 values. The calculation for lost contribution to fixed cost includes the impact of surcharges for the residential and commercial demand-side management programs, the residential and commercial Demand Response Adjustment Clause (DRAC), for the renewable energy infrastructure programs, and for the recovery of the Rate Adjustment Mechanism Provision portion of the Revenue Balancing Account Rate Adjustment. Lost contributions to fixed cost related to the Purchased Power Adjustment Clause, to the demand-side management surcharges, the DRAC, to the renewable infrastructure surcharge, and to the Rate Adjustment Mechanism Provision portion of the Revenue Balancing Account Rate Adjustment are reflected in subsequent reconciliations of these surcharges and are eventually borne by customers who incur per kWh charges. Some of the lost contribution amount related to base energy rates may already be reflected in rates through past utility rate cases or through current decoupling rate adjustments. Any remaining lost contributions to fixed cost for base energy rates have no bill impact unless and until the utilities propose and receive Commission approval to adjust rates. At that point, any rate adjustment would apply to all customers, including customers with NEM installations.

Hawaiian Electric Company

Estimated Lost Contribution to Fixed Costs and Surcharges, based on NEM installations as-of December 31, 2020

Rate	Total Lost kWh/Yr ¹	Non-fuel		Eff. PPAC ² cents/kWh	REIP, DSM & DRAC ⁴ cents/kWh	RAM ² cents/kWh	Base Fuel Energy Value ² cents/kWh	Effective Energy Rate cents/kWh $G = \text{sum}(B, F)$	Production Energy Rate ⁵ cents/kWh H	Lost Contribution to Fixed Cost, cents/kWh $I = G - H$	Total Lost Contribution to Fixed Cost, \$/Yr $J = A \cdot I / 100$
		Rate ³ , cents/kWh	Base Energy Rate ³ , cents/kWh								
R	423,978,546		11.2159	2.0114	0.0046	0.6356	10.2278	24.0953	11.9950	12.1003	\$51,302,780
G	15,151,062		9.6013	3.3493	0.0314	0.6356	10.2278	23.8454	12.0340	11.8114	\$1,789,556
J	89,092,381		5.3177	2.8858	0.0314	0.6356	10.2278	19.0983	12.1020	6.9963	\$6,233,192
P	1,227,906		2.9200	2.8145	0.0314	0.6356	10.2278	16.6293	12.0010	4.6283	\$56,790
Total	529,448,995										\$59,382,318

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2021 Sales ⁶ kWh/Yr	Estimated Impact on Rates, \$/kWh
	$K = J$	L	$M = (K / L) \cdot 100$
R	\$51,302,780		
G	\$1,789,556		
J	\$6,233,192		
P	\$56,790		
Total	\$59,382,318		
Total Company		6,206,622,025	0.96

Notes:

- 1 See Appendix A, page 3, column H.
- 2 Source: Base Non-Fuel Energy Rates from Docket 2016-0328 (HECO 2017 Test Year)
Sched R: Docket 2016-0328 (HECO 2017 Test Year); Final revised tariffs, Exhibit 2, Attachment 1, page 23, filed July 23, 2018.
Sched G: Docket 2016-0328 (HECO 2017 Test Year); Hawaiian Electric Revised ECRC Tariff Proposal, Exhibit 6, page 4, filed October 16, 2019.
Sched J: Docket 2016-0328 (HECO 2017 Test Year); Hawaiian Electric Revised ECRC Tariff Proposal, Exhibit 6, page 6, filed October 16, 2019.
Sched P: Docket 2016-0328 (HECO 2017 Test Year); Hawaiian Electric Revised ECRC Tariff Proposal, Exhibit 6, page 12, filed October 16, 2019.
Base Fuel Energy value from Docket 2016-0328 (HECO 2017 Test Year); Final revised tariffs, Exhibit 2, Attachment 1, page 23, filed July 23, 2018.
- 3 PPAC Rates Effective January 2021
- 4 REIP, DSM, DRAC rates from effective rate summaries for January 2021, RAM based on Transmittal Nos 20-01, 20-02, 20-03 Consolidated (Decoupling), Final Revised 2020 RBA Rate Adjustment Tariff Filing, Hawaiian Electric Schedule A, filed June 5, 2020.
- 5 Source: Cost-of-service calculation, from Docket 2016-0328 (HECO 2017 Test Year); Final D&O, exhibit 3, page 80.
- 6 Sales from 2021 Revenue Budget Forecast.

Hawaiian Electric Company
Estimated kW and kWh by technology and rate schedule

Rate	NEM kW Installed by Technology			NEM kWh Installed by Technology			Total kWh
	PV kW NEM installed (Cumulative Dec 31, 2020) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2020) NEM ^B	Hydro kW NEM installed (Cumulative Dec 31, 2020) NEM ^C	Total kW D = sum(A+C)	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^{E,D}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F
R	261,544	1	0	261,545	423,975,398	2,547	0
G	9,653	4	0	9,657	15,140,872	10,189	0
J	55,703	20	0	55,723	89,041,434	50,947	0
P	753	0	0	753	1,227,006	0	0
Total	327,653	25	0	327,678	529,385,311	63,684	0
							H = sum(E,G)
							423,978,546
							15,151,062
							89,092,381
							1,227,006
							529,448,995

Source: Grid Technologies Department.

- ^A NEM PV/wind/hydro kW data from respective 2020 utility detailed year end spreadsheets. HECO 2014 cumulative data used to breakout PTC/inverter kW counting method.
- ^B Adjustment made to account for PV conversion from PTC (PVUSA Test Conditions) to STC (Standard Test Conditions) by dividing by a factor of 0.89.
- PTC to STC conversion factor of 0.89 is an average calculated from GoSolarCalifornia.org web site.
- (For HECO prior to 2016, PV NEM capacity (kW) is PTC or inverter rating whichever is lower. For 2016 and beyond PV kW is STC or inverter rating whichever is lower), Multiply by hours in year-8760.
- ^D PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20).
- ^E Wind capacity factor 29% .

Hawai'i Electric Light
Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM Installations as of December 31, 2020

Rate	Total Lost kWh ¹ A	Non-Fuel Base Energy Rate ² cents/kWh B	Effective 2019 Interim Rate Adjustment, % C	Total Eff. Non-fuel Energy Rate, cents/kWh D = B*(B/C)	Eff. PPAC ³ cents/kWh E	REP & DSM ⁴ cents/kWh F	RAM ⁴ cents/kWh G	Base Fuel Energy Value cents/kWh H	Total eff. Energy Rate cents/kWh I = D + E + F + G + H	Production Energy Rate ⁵ cents/kWh J	Lost Contribution to Fixed Cost, cents/kWh K = I - J	Total Lost Contribution to Fixed Cost, \$/yr L = A * K / 100
R	80,752,103	15.1661	0.00%	15.1661	1.9133	0.0000	0.3066	18.2741	35.5633	19.4100	16.2533	\$13,124,914
G	7,593,329	17.2132	0.00%	17.2132	2.1057	0.0000	0.3066	18.2741	37.9028	19.6080	18.2948	\$1,389,187
J	21,862,455	9.7059	0.00%	9.7059	2.1606	0.0000	0.3066	18.2741	30.4504	19.5630	10.8674	\$2,378,063
P	110,610,679	6.2376	0.00%	6.2376	1.7060	0.0000	0.3066	18.2741	26.5295	19.2900	7.2395	\$27,727
Total												\$16,919,891

Rate	Total Lost Contribution to Fixed Cost, \$/yr M = L	Forecast 2021 Sales ⁶ kWh/yr N	Estimated Impact on Rates, ¢/kWh O = (M/N) * 100
R	\$13,124,914		
G	\$1,389,187		
J	\$2,378,063		
P	\$27,727		
Total Total Company	\$16,919,891	975,130,601	1.74

Notes:

- 1 See Appendix A, page 5, column H.
- 2 Source: Base Non-Fuel Energy Rates from Docket 2018-0368 (HELCO 2019 Test Year)
Sched R Docket 2018-0368 (HELCO 2019 Test Year) FINAL Attachment 1, page 105, filed August 27, 2020.
Sched G Docket 2018-0368 (HELCO 2019 Test Year), Final Attachment 1, page 39, filed August 27, 2020.
Sched J Docket 2018-0368 (HELCO 2019 Test Year), Final Attachment 1, page 41, filed August 27, 2020.
Sched P Docket 2018-0368 (HELCO 2019 Test Year), Final Attachment 1, page 45, filed August 27, 2020.
Base Fuel Energy Value from Docket 2018-0368 (HELCO 2019 Test Year), Final Attachment 1, page 229, filed August 27, 2020.
- 3 PPAC Rates from effective rate summaries for January 2021.
- 4 REIP and DSM rate from effective rate summaries for January 2021.
- 5 RAM based on Transmittal Nos 20-01, 20-02, 20-03 Consolidated (Decoupling), Final Revised 2020 RBA Rate Adjustment Tariff Filing, Hawaii Electric Light Schedule A, filed June 5, 2020.
- 6 Source: Docket 2018-0368 (HELCO 2019 Test Year), Final Attachment 1, page 310, filed August 27, 2020.
Sales from 2021 Revenue Budget forecast

Hawai'i Electric Light
Estimated kW and kWh by technology and rate schedule

Rate	NEM kW installed by Technology			NEM kWh installed by Technology				Total kWh H= sum(E,G)
	PV kW NEM installed (Cumulative Dec 31, 2020) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2020) NEM ^B	Hydro kW NEM installed (Cumulative Dec 31, 2020) NEM ^C	Total kW D= sum(A-C)	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^E	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^G	
R	53,990	51	0	54,041	80,622,187	129,915	0	80,752,103
G	5,085	0	0	5,085	7,593,329	0	0	7,593,329
J	14,294	167	0	14,461	21,344,944	537,511	0	21,882,455
P	112	0	49	161	167,785	0	215,208	382,993
Total	73,481	218	49	73,748	109,728,245	667,426	215,208	110,610,879

Source: Grid Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2020 utility detailed year end spreadsheets.

^B PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20). Multiply by hours in year- 8760)

^E Wind capacity factor range of 29% to 39%.

^I Hydro capacity factor of 50%.

Maui Electric Company - Maui Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM Installations as-of December 31, 2020

Rate	A	B	C	D	E	F	G = sum(B-F)	H	I = G - H	J = A * I / 100
	Total Lost kWh/yr ¹	Non-fuel Base Energy Rate ² , cents/kWh	Base Fuel Energy Value ² , cents/kWh	Eff. PPAC ³ , cents/kWh	REIP, DSM, DRAC ⁴ , cents/kWh	RAM ⁵ , cents/kWh	Total Eff. Energy Rate, cents/kWh	Production Energy Rate ⁶ , cents/kWh	Lost Contribution to Fixed Cost, cents/kWh	Total Lost Contribution to Fixed Cost, \$/Yr
R	88,688,675	13.3087	15.9777	-0.0013	-0.0022	0.7921	30.0750	17.4610	12.6140	\$11,187,179
G	12,376,800	14.2942	15.9777	0.0012	0.1595	0.7921	31.2247	17.5180	13.7067	\$1,696,449
J	24,316,519	9.6846	15.9777	0.0009	0.1595	0.7921	26.6148	17.6330	8.9818	\$2,184,058
P	1,760,928	7.2592	13.9777	0.0001	0.1595	0.7921	24.2286	17.3510	6.8776	\$17,588
Total	127,142,922									\$15,185,274

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2021 Sales ⁶ , kWh/yr	Estimated Impact on Rates, ¢/kWh
	K = J	L	M = (K / L) * 100
R	\$11,187,179		
G	\$1,696,449		
J	\$2,184,058		
P	\$17,588		
Total	\$15,185,274	948,945,762	1.60
Total Company			

Notes:

- 1 See Appendix A, page 7, column H.
- 2 Source: Base Non-Fuel Energy Rates from Docket 2017-0150 (Maui Electric 2018 Test Year)
- Sched R: Docket 2017-0150 (MECO 2018 Test Year) Parties' Joint Proposed Final Tariffs, Exhibit 2, Attachment 1, page 21, filed April 17, 2019.
- Sched G: Docket 2017-0150 (MECO 2018 Test Year) Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
- Sched J: Docket 2017-0150 (MECO 2018 Test Year) Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
- Sched P: Docket 2017-0150 (MECO 2018 Test Year) Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
- Base Fuel Energy Value from Docket 2017-0150 (MECO 2018 Test Year) Parties' Joint Proposed Final Tariffs, Exhibit 2, Attachment 1, page 21, filed April 17, 2019.
- PPAC Rates Effective January 2021.
- REIP, DSM, and DRAC rate from effective rate summaries for January 2021.
- RAM based on Transmittal Nos. 20-01, 20-02, 20-03 Consolidated (Decoupling) Final Revised 2020 RBA Rate Adjustment Tariff Filing, Maui Electric Schedule A, filed June 5, 2020.
- Source: Docket 2017-0150 (MECO 2018 Test Year), Parties' Joint Proposed Final Tariffs, Exhibit 3, page 78, filed April 17, 2019.
- Sales from 2021 Revenue Budget forecast

Maui Electric Company - Maui Division
Estimated kW and kWh by technology and rate schedule

Rate	NEM kW Installed by Technology			NEM kWh Installed by Technology			
	PV kW NEM installed (Cumulative Dec 31, 2020) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2020) NEM ^E	Hydro kW NEM installed (Cumulative Dec 31, 2020) NEM ^F	Total kW	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^{A-E}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F
	A	B	C	D= sum(A-C)	E	F	G
R	59,356	21	0	59,377	88,635,053	53,622	0
G	8,280	5	0	8,285	12,364,777	12,024	0
J	16,204	47	0	16,251	24,197,557	118,982	0
P	1,169	6	0	1,175	1,745,844	15,284	0
Total	85,009	78	0	85,087	126,943,031	199,891	0
							H= sum(E-G)
							0
							88,688,675
							12,376,800
							24,316,519
							1,760,928
							127,142,922

Source: Grid Technologies Department.

A NEM PV/wind/hydro kW data from respective 2020 utility detailed year end spreadsheets.

E PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20). Multiply by hours in year-8760.

F Wind capacity factor range of 29%.

Maui Electric Company - Lanai Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM Installations as-of December 31, 2020

Rate	Total Lost kWh/Yr ¹	Non-fuel Energy Rate ² , cents/kWh	Base Fuel Energy Value ³ , cents/kWh	RAM ⁴ cents/kWh	Eff. Energy Rate cents/kWh	Production Energy Rate ⁵ cents/kWh	Lost Contribution to Fixed Cost, cents/kWh	Total Lost Contribution to Fixed Cost, \$/Yr $J = A \cdot H / 100$
A	B	C	D	E = B + C + D	F	G	H = F - G	J
R	673,469	13.7465	21.9611	0.7921	36.4997	26.5070	9.9927	\$67,298
G	98,556	15.6716	21.9611	0.7921	38.4248	26.7720	11.6528	\$11,485
J	356,954	13.7168	21.9611	0.7921	36.4720	26.9390	9.5330	\$34,028
P	-	11.7904	21.9611	0.7921	34.5436	26.4280	8.1156	\$0
Total	1,128,979							\$112,811

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2021 Sales ⁶ kWh/Yr	Estimated Impact on Rates, \$/kWh
	$K = J$	L	$M = (K / L) \times 100$

Notes:

- 1 See Appendix A, page 9, column H.
- 2 Source: Base Non-Fuel Energy Rates from Docket 2017-0150 (Maui Electric 2018 Test Year)
Sched R: Docket 2017-0150 (MECO 2018 Test Year) Parties' Joint Proposed Final Tariffs, Exhibit 2, Attachment 1, page 121, filed April 17, 2019.
Sched G: Docket 2017-0150 (MECO 2018 Test Year), Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
Sched J: Docket 2017-0150 (MECO 2018 Test Year), Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
Sched P: Docket 2017-0150 (MECO 2018 Test Year), Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
Base Fuel Energy Value from Docket 2017-0150 (MECO 2018 Test Year) Parties' Joint Proposed Final Tariffs, Exhibit 2, Attachment 1, page 121, filed April 17, 2019.
- 3 No PPAC effective January 1, 2021 at Lanai Division.
- 4 RAM based on Transmittal Nos. 20-01, 20-02, 20-03 Consolidated (Decoupling) Final Revised 2020 RBA Rate Adjustment Tariff Filing, Maui Electric Schedule A, filed June 5, 2020.
- 5 Source: Docket 2017-0150 (MECO 2018 Test Year), Parties' Joint Proposed Final Tariffs, Exhibit 3, page 167, filed April 17, 2019.
- 6 Sales from 2021 Revenue Budget forecast

Maui Electric Company - Lanai Division
Estimated kW and kWh by technology and rate schedule

Rate	NEM kW Installed by Technology			NEM kWh Installed by Technology				Total kWh H= sum(E:G)
	A PV kW NEM installed (Cumulative Dec 31, 2020) NEM ^A	B Wind kW NEM installed (Cumulative Dec 31, 2020) NEM ^E	C Hydro kW NEM installed (Cumulative Dec 31, 2020) NEM ^F	D= sum(A-C)	E PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^{A,B}	F Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^E	G Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F	
R	451	0	0	451	673,469	0	0	673,469
G	66	0	0	66	98,556	0	0	98,556
J	239	0	0	239	356,954	0	0	356,954
P	0	0	0	0	0	0	0	0
Total	756	0	0	756	1,128,979	0	0	1,128,979

Source: Grid Technologies Department.

A NEM PV/wind/hydro kW data from respective 2020 utility detailed year end spreadsheets.

^a PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20). Multiply by hours in year-8760.

Maui Electric Company - Molokai Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM installations as-of December 31, 2020

Rate	Total Lost kWh/yr ¹ A	Non-fuel Energy Rate ² , cents/kWh B	Base Fuel Energy Value ² , cents/kWh C	PPAC cents/kWh D	RAM ⁴ cents/kWh E	Eff. Energy Rate cents/kWh F = B + C + D + E	Production Energy Rate ⁵ cents/kWh G	Lost Contribution to Fixed Cost, cents/kWh H = F - G	Total Lost Contribution to Fixed Cost, \$/Yr I = A * H / 100
R	2,254,853	15.1612	17.6887	0.0000	0.7921	33.6420	22.4840	11.1580	\$251,596
G	543,554	21.4602	17.6887	0.0000	0.7921	39.9410	22.7630	17.1780	\$93,372
J	467,397	13.2358	17.6887	0.0000	0.7921	31.7166	22.7430	8.9736	\$41,942
P	149,328	6.4744	17.6887	0.0000	0.7921	24.9552	22.3560	2.5992	\$3,881
Total	3,415,131								\$390,791

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2021 Sales ⁶ kWh/Yr	Estimated Impact on Rates, ¢/kWh
	J = I	K	L = (J / K) * 100
R	\$251,596		
G	\$93,372		
J	\$41,942		
P	\$3,881		
Total	\$390,791	27,949,167	1.40
Total Company			

Notes:

- 1 See Appendix A, page 11, column H.
- 2 Source: Base Non-Fuel Energy Rates from Docket 2017-0150 (Maui Electric 2018 Test Year)
Sched R: Docket 2017-0150 (MECO 2018 Test Year) Parties' Joint Proposed Final Tariffs, Exhibit 2, Attachment 1, page 221, filed April 17, 2019.
Sched G: Docket 2017-0150 (MECO 2018 Test Year), Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
Sched J: Docket 2017-0150 (MECO 2018 Test Year), Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
Sched P: Docket 2017-0150 (MECO 2018 Test Year), Final Tariff Sheets Reflecting Fuel Unbundling, filed July 15, 2019.
Base Fuel Energy Value from Docket 2017-0150 (MECO 2018 Test Year) Parties' Joint Proposed Final Tariffs, Exhibit 2, Attachment 1, page 221, filed April 17, 2019.
- 3 PPAC Rates Effective January 2021.
- 4 RAM based on Transmittal Nos. 20-01, 20-02, 20-03 Consolidated (Decoupling) Final Revised 2020 RBA Rate Adjustment Tariff Filing, Maui Electric Schedule A, filed June 5, 2020.
- 5 Source: Docket 2017-0150 (MECO 2018 Test Year), Parties' Joint Proposed Final Tariffs, Exhibit 3, page 256, filed April 17, 2019.
- 6 Sales from 2021 Revenue Budget forecast.

Maui Electric Company - Molokai Division
Estimated kW and kWh by technology and rate schedule

Rate	NEM kW Installed by Technology			NEM kWh Installed by Technology			Total kWh H= sum(E:G)
	A PV kW NEM installed (Cumulative Dec 31, 2020) NEM ^A	B Wind kW NEM installed (Cumulative Dec 31, 2020) NEM ^E	C Hydro kW NEM installed (Cumulative Dec 31, 2020) NEM ^F	D= sum(A:C) Total kW	E PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^{A-E}	F Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^E	G Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2020) NEM ^F
R	1,510	0	0	1,510	2,254,863	0	0
G	364	0	0	364	543,554	0	0
J	313	0	0	313	467,397	0	0
P	100	0	0	100	149,328	0	0
Total	2,287	0	0	2,287	3,415,131	0	0

Source: Grid Technologies Department.

A NEM PV/wind/hydro kW data from respective 2020 utility detailed year end spreadsheets.

E PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20). Multiply by hours in year-8760.

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