



January 27, 2022

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
2021 Net Energy Metering Status Report

Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc. and Maui Electric Company, Limited respectfully submit their 2021 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, 2021

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, 2021. 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 12/31/21

	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	*	12**	672**	N/A
2021	*	10	298	N/A
Total Hawaiian Electric	565	48,259	327,728	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three companies NEM cap is based on individual circuit capacity and not total system capacity, therefore this metric is no longer applicable (N/A) from 2011 on.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, 2021

NEM Status as of 12/31/21 (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	*	-24**	-456**	N/A
2021		3	369	
Total Hawai'i Electric Light	278	11,124	73,774	N/A

Net Energy Metering Status Report

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

December 31, 2021

NEM Status as of 12/31/21 (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	*	9**	-35**	N/A
2021	*	6	195	N/A
Total Maui Electric	220	11,646	88,257	N/A
TOTAL	*	71,029	489,759	

* 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 (2020) 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 2022 and the associated estimated value per kWh, based on estimated annualized kWh production of NEM installations in place as of year-end 2021. 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 for Oahu, Hawaii, Maui, Lanai, and Molokai remain unchanged from last year's report. 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 2022 lost contribution to fixed costs in total for Oahu, Hawaii Island, Maui, Lanai, and Molokai is \$97,889,451.

For all Companies, the effective Purchased Power Adjustment Clause rates reflect the January 2022 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, Annual Revenue Adjustment, Major Project Interim Recovery, and Exceptional Project Recovery Mechanism portions 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, Annual Revenue Adjustment, Major Project Interim Recovery, and Exceptional Project Recovery Mechanism portions 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, 2021

Rate	Total Lost kW/yr. ¹	Non-fuel		Eff. PPAC. ³ cents/kWh	REIP, ² DSM & DRAC ⁴ cents/kWh	RAM, ARA, MPR, EPRM ⁴ cents/kWh	Base Fuel Energy Value. ² cents/kWh	Effective Energy Rate cents/kWh	Production Energy Rate ⁵ cents/kWh	Lost Contribution to Fixed Cost, cents/kWh	Total Lost Contribution to Fixed Cost, \$/Yr
		A	B								
R	423,103,955		11,215.9	2,138.2	-0.0506	1,484.4	10,227.8	25,035.7	11,995.0	13,040.7	\$55,175,719
G	15,134,982		9,601.3	2,975.9	-0.1023	1,484.4	10,227.8	24,186.1	12,034.0	12,154.1	\$1,839,521
J	39,982,957		5,317.7	2,790.2	-0.1023	1,484.4	10,227.8	19,717.8	12,102.0	7,615.8	\$6,775,756
P	1,223,654		2,920.0	2,667.3	-0.1023	1,484.4	10,227.8	17,197.2	12,001.0	5,196.2	\$63,584
Total	528,445,587										\$63,855,590

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast		Estimated Impact on Rates, ¢/kWh
		2022 Sales. ⁶ kW/yr	L	
			M = (K / L) * 100	
R				
G				
J				
P				
Total				
Total Company		5,075,485,000		1.05

Notes:

- 1 See Appendix A, page 3, column H
- 2 Source: Base Non-Fuel Energy Rates from Docket 2016-0328 (HECO 2017 Test Year). Final revised tariffs, Exhibit 2, Attachment 1, page 23, filed July 23, 2018.
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 5, 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 2022
- 4 REIP, DSM, DRAC rates from effective rate summaries for January 2022.
- 5 RAM, ARA, MPR, and EPRM based on Transmittal No. 21-05 (Fall Revenue Report) filed November 5, 2021, Exhibit 2, Attachment 2, Schedule A, page 1.
- 6 Source: Cost-of-service calculation from Docket 2016-0328 (HECO 2017 Test Year), Final D&O, exhibit 3, page 80.
6 Sales for 2022, June 2021 sales forecast, total less sched F.

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, 2021) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	Hydro kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	Total kW	D = sum(A-C)	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^{A, B, D}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^F	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^F
R	261,723	0	0	261,723	0	423,103,202	762	0
G	9,827	4	0	9,831	0	15,124,820	10,162	0
J	55,700	20	0	55,720	0	88,932,179	£0,808	0
P	654	0	0	654	0	1,223,654	0	0
Total	327,704	24	0	327,728	0	528,383,855	61,732	0
								H = sum(E-G)
								423,103,965
								15,134,982
								88,982,987
								1,223,654
								528,445,587

Source: Gnd Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2021 utility detailed year end spreadsheets.

^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 of 29%.

^F Hydro capacity factor of 50% (In-Line Hydro Capacity Factors from HECO Comments on Alternative FIT Tariff (Dkt 2008-0273, 2010-01-21, Hydro Tier 2 from Attachment 4 page 93 of 135)

Hawai'i Electric Light
Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM Installations as of December 31, 2021

Rate	Total Lost kWh/yr ¹	Non-Fuel Base Energy Rate, cents/kWh	Effective 2019 Interim Rate Adjustment, %	Total Eff. Non-fuel Energy Rate, cents/kWh	Eff. PPAC ³ cents/kWh	REP & DSM ⁴ cents/kWh	RAM, ARA, MPR, EPRM ⁵ cents/kWh	Base Fuel Energy Value cents/kWh	Total 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 $L = A \cdot K / 100$
A	B	C	D = B*(C)	E	F	G	H	I = D*E*F*G+H	J	K = I - J	L = A * K / 100	
R	80,646,137	15.1661	0.00%	15.1661	2.1529	-0.0051	1.0153	18.2741	36.6033	19.4100	17.1933	\$13,865,732
G	7,605,344	17.2132	0.00%	17.2132	1.8757	0.0000	1.0153	18.2741	38.3783	19.6980	18.7703	\$1,427,546
J	21,713,955	9.7059	0.00%	9.7059	2.0742	0.0000	1.0153	18.2741	31.0695	19.8820	11.4865	\$2,494,173
P	381,947	6.2376	0.00%	6.2376	1.6721	0.0000	1.0153	18.2741	27.1991	19.2900	7.9091	\$30,209
Total	110,347,383											\$17,817,660

Rate	Total Lost Contribution to Fixed Cost, \$/yr	Forecast 2022 Sales ⁶ kWh/yr	Estimated Impact on Rates, \$/kWh
M = L	N	O = (M / N) * 100	
R	\$13,865,732		
G	\$1,427,546		
J	\$2,494,173		
P	\$30,209		
Total	\$17,817,660	1,013,570,964	1.76

Notes:

- 1 See Appendix A, page 5, column H.
- 2 Source: Base Non-Fuel Energy Rates from Docket 2018-0388 (HELCO 2019 Test Year)
Sched R: Docket 2018-0388 (HELCO 2019 Test Year) FINAL, Attachment 1, page 109, filed August 27, 2020.
Sched G: Docket 2018-0388 (HELCO 2019 Test Year), Final Attachment 1, page 39, filed August 27, 2020.
Sched J: Docket 2018-0388 (HELCO 2019 Test Year), Final Attachment 1, page 41, filed August 27, 2020.
Sched P: Docket 2018-0388 (HELCO 2019 Test Year), Final Attachment 1, page 45, filed August 27, 2020.
Base Fuel Energy Value from Docket 2018-0388 (HELCO 2019 Test Year), Final Attachment 1, page 229, filed August 27, 2020.
- 3 PPAC Rates from effective rate summaries for January 2022.
- 4 REP and DSM rate from effective rate summaries for January 2022.
- 5 RAM, ARA, MPR, and EPRM based on Transmittal No. 21-06 (Fall Revenue Report) filed November 5, 2021, Exhibit 3, Attachment 2, Schedule A, page 1
- 6 Sales for 2022: June 2021 sales forecast, total less sched F.

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
	A	B	C	D= sum(A-C)	E	F	G	H= sum(E-G)	
R	54,067	51	0	54,116	80,515,576	129,590	0	80,645,137	
G	5,107	0	0	5,107	7,605,344	0	0	7,605,344	
J	14,221	167	0	14,386	21,177,913	536,042	0	21,713,955	
P	112	0	49	161	167,327	0	214,620	381,947	
Total	73,507	216	49	73,774	109,467,151	665,632	214,620	110,547,983	

Source: Grid Technologies Department

^a NEM PV/wind/hydro kW data from respective 2021 utility detailed year end spreadsheets.

^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.

^c PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20).

^d Wind capacity factor of 29% to 39%.

^e Hydro capacity factor of 50% (In-Line Hydro Capacity Factors from HECO Comments on Alternative FIT Tariff (Dkt 2008-0273, 2010-01-21, Hydro Tier 2 from Attachment 4 page 93 of 135)

Maui Electric Company - Maui Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM Installations as-of December 31, 2021

Rate	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, ARA, MPRI, EPRM ⁴ cents/kWh	Total 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
A	B	C	D	E	F	G = sum(B-F)	H	I = G - H	J = A * I / 100	
R	88,346,558	13.087	15.9777	-0.0100	-0.0084	1.3314	30.5994	17.4610	13.1384	\$11,607,718
G	12,325,113	14.2942	15.9777	-0.0100	-0.2028	1.3314	31.3905	17.5180	13.8725	\$1,709,801
J	24,381,130	9.6846	15.9777	-0.0051	-0.2028	1.3314	26.7858	17.6330	9.1528	\$2,231,556
P	1,759,096	7.2992	15.9777	0.0017	-0.2028	1.3314	24.4072	17.5510	6.8562	\$120,607
Total	126,814,897									\$15,669,682

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2022 Sales ⁶ kWh/yr	Estimated Impact on Rates, ¢/kWh
K = J	L	M = (K / L) * 100	
R	\$11,607,718		
G	\$1,709,801		
J	\$2,231,556		
P	\$120,607		
Total	\$15,669,682	946,818,801	1.65
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.
- 3 PPAC Rates Effective January 2022.
- 4 REIP, DSM, and DRAC rate from effective rate summaries for January 2022.
- 5 Source: Docket 2017-0150 (MECO 2018 Test Year), Parties' Joint Proposed Final Tariffs, Exhibit 3, page 78, filed April 17, 2019.
- 6 Sales for 2022: June 2021 sales forecast, total less sched F.

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, 2021) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	Hydro kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	Total kW D= sum(A:C)	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^{A,E,G}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^F	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^F
	A	B	C	D= sum(A:C)	E	F	G
R	59,291	21,050	0	59,312	88,256,083	53,475	0
G	8,268	5	0	8,273	12,313,123	11,991	0
J	16,292	47	0	16,339	24,262,493	118,637	0
P	1,171	600	0	1,177	1,743,853	15,242	0
Total	85,022	79	0	85,101	126,615,552	199,345	0
							H= sum(E:G)
							88,349,558
							12,325,113
							24,381,130
							1,759,095
							126,814,897

Source: Grid Technologies Department

^A NEM PV/wind/hydro kW data from respective 2021 utility detailed year end spreadsheets.

^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.

^C PV capacity factor of 17% (Based on PV benchmarking developed by E3 for FIT pricing (Docket No 2008-0273, page 20).

^D Wind capacity factor of 29%.

^E Hydro capacity factor of 50% (In-Line Hydro Capacity Factors from HECO Comments on Alternative FIT Tariff (Dkt 2008-0273, 2010-01-21, Hydro Tier 2 from Attachment 4 page 93 of 135)

Maui Electric Company - Lanai Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM installations as-of December 31, 2021

Rate	Total Lost kWh/yr ¹	Non-fuel Energy Rate ² , cents/kWh	Base Fuel Energy Value ³ , cents/kWh	RAM, ARA, MPIR, EPRM 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 $J = A * H / 100$
	A	B	C	D	E = B + C + D	G	H = E - G	J = A * H / 100
R	667,462	13.7465	21.9611	1.3314	37.0390	26.5070	10.5320	\$70,265
G	98,287	15.6715	21.9611	1.3314	38.9641	26.7720	12.1921	\$11,983
J	391,660	13.7188	21.9611	1.3314	37.0113	26.9390	10.0723	\$39,449
P	-	11.7904	21.9611	1.3314	35.0829	26.4280	8.6549	\$0
Total	1,157,408							\$121,697

Rate	Total Lost Contribution to Fixed Cost, \$/yr	Forecast 2022 Sales ⁶ kWh/yr	Estimated Impact on Rates, ¢/kWh
	K = J	L	M = (K / L) * 100
R	\$70,265		
G	\$11,983		
J	\$39,449		
P	\$0		
Total	\$121,697	35,319,171	0.34

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, 2022 at Lanai Division.
- 4 RAM, ARA, MPIR, and EPRM based on Transmittal No. 21-06 (Fall Revenue Report) filed November 5, 2021, Exhibit 4, Attachment 2, Schedule A, page 1.
- 5 Source: Docket 2017-0150 (MECO 2018 Test Year), Parties' Joint Proposed Final Tariffs, Exhibit 3, page 167, filed April 17, 2019.
- 6 Sales for 2022: June 2021 sales forecast, total less sched F.

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			
	A PV kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	B Wind kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	C Hydro kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	D= sum(A:C)	E PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^{B,C}	F Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^E	G Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^F
R	448	0	0	448	667,162	0	0
G	66	0	0	66	98,287	0	0
J	263	0	0	263	391,660	0	0
P	0	0	0	0	0	0	0
Total	777	0	0	777	1,157,108	0	0
							H= sum(E,G) 1,157,108

Source: Grid Technologies Department

^A NEM PV/wind/hydro kW data from respective 2021 utility detailed year end spreadsheets.

^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.

^C 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 of 29%

^F Hydro capacity factor of 50% (In-Line Hydro Capacity Factors from HECO Comments on Alternative FIT Tariff (Dkt 2008-0273, 2010-01-21, Hydro Tier 2 from Attachment 4 page 93 of 135)

Maui Electric Company - Molokai Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM installations as-of December 31, 2021

Rate	Total Lost kWh/yr ¹	Non-fuel Energy Rate ² , cents/kWh	Base Fuel Energy Value ² , cents/kWh	PPAC cents/kWh	RAM, ARA, MPIR, EPRM 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 $I = A * H / 100$
A	B	C	D	E	F = B + C + D + E	G	H = F - G	I = A * H / 100	
R	2,272,519	15.1612	17.6887	0.0000	1.3314	34.1813	22.4840	11.6973	\$265,823
G	580,788	21.4602	17.6887	0.0000	1.3314	40.4803	22.7630	17.7173	\$102,900
J	540,580	13.2358	17.6887	0.0000	1.3314	32.2559	22.7430	9.5129	\$51,425
P	148,920	6.4744	17.6887	0.0000	1.3314	25.4945	22.3560	3.1385	\$4,674
total	3,542,807								\$424,822

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2022 Sales ⁶ kWh/Yr	Estimated Impact on Rates, ¢/kWh
	$J = I$	K	$L = (J / K) * 100$
R	\$265,823		
G	\$102,900		
J	\$51,425		
P	\$4,674		
Total	<u>\$424,822</u>		
Total Company		28,304,721	1.50

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)
- 3 No PPAC effective January 1, 2022 at Molokai division.
- 4 RAM, ARA, MPIR, and EPRM based on Transmittal No. 21-06 (Fall Revenue Report) filed November 5, 2021, Exhibit 4, Attachment 2, Schedule A, page 1
- 5 Source: Docket 2017-0150 (MECO 2018 Test Year), Parties' Joint Proposed Final Tariffs, Exhibit 3, page 256, filed April 17, 2019.
- 6 Sales for 2022: June 2021 sales forecast, total less sched F.

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.

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, 2021) NEM ^A	B Wind kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	C Hydro kW NEM installed (Cumulative Dec 31, 2021) NEM ^A	D= sum(A:C)	E PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^{A,B,D}	F Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^E	G Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2021) NEM ^F
R	1,526	0	0	1,526	2,272,519	0	0
G	390	0	0	390	580,788	0	0
J	363	0	0	363	540,580	0	0
P	100	0	0	100	148,920	0	0
Total	2,379	0	0	2,379	3,542,807	0	0

Source: Grid Technologies Department

^A NEM PV/wind/hydro kW data from respective 2021 utility detailed year end spreadsheets.

^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.

^D PV capacity factor of 17%, multiplied by 8760.

^E Wind capacity factor of 29%

^F Hydro capacity factor of 50%

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