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January 29, 2018

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PUBLIC UTILITIES
COMMISSION

The Honorable Chair and Members of the
Hawai'i Public Utilities Commission
465 South King Street
Kekuanaoa Building, 1st Floor
Honolulu, Hawai'i 96813

Dear Commissioners:

Subject: Hawaiian Electric Companies
2017 Net Energy Metering Status Report

Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc. and Maui Electric Company, Limited respectfully submit their 2017 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,

for Daniel G. Brown
Manager
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, 2017

Status

The following table provides the status of NEM in the Hawaiian Electric, Hawai'i Electric Light, and Maui Electric service territories as of December 31, 2017. 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 12/31/17

	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	*	1,868	22,633	N/A
Total Hawaiian Electric	565	47,813	321,815	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 (3) companies NEM cap is based on individual circuit capacity and not total system capacity, therefore this metric is no longer applicable (N/A) from 2011 on.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, 2017

NEM Status as of 12/31/17 (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
Total Hawai'i Electric Light	278	11,133	73,027	N/A

Net Energy Metering Status Report

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

December 31, 2017

NEM Status as of 12/31/17 (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	*	395	5,591	N/A
Total Maui Electric	220	11,499	85,602	N/A
TOTAL	*	70,445	480,444	

* 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 (2016) 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 2018 and the associated estimated value per kWh, based on estimated annualized kWh production of NEM installations in place as of year-end 2017. 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 Hawaiian Electric, Hawai'i Electric Light, Maui, Lana'i, and Moloka'i are unchanged from last year's report. For all Companies, the effective Purchased Power Adjustment Clause rates reflect the January 2018 values. The calculation for lost contribution to fixed cost includes the impact of surcharges for the residential and commercial demand-side management programs, for the renewable energy infrastructure programs, and for the recovery of the Rate Adjustment Mechanism Provision portion of the Revenue Balancing Account Rate Adjustment. For Hawaii Electric Light, the calculation for lost contribution to fixed cost also includes the 2016 interim rate increase percent by rate class. Lost contributions to fixed cost related to the Purchased Power Adjustment Clause, to the demand-side management surcharges, 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, 2017

Rate	Total Lost kWh/yr ¹	Base Energy Rate ² , cents/kWh	Eff. PPAC ³ cents/kWh	REIP & DSM ⁴ cents/kWh	RAM ⁴ cents/kWh	Eff. Base 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= sum(B:E)	G	H= F- G	J = A * H / 100
R	418,004,062	22.4707	3.1422	0.0774	1.5175	27.2078	15.3950	11.8128	\$49,377,984
G	14,126,793	21.3317	3.1081	0.0662	1.5175	26.0235	15.4450	10.5785	\$1,494,403
J	85,547,403	16.9734	2.7697	0.0662	1.5175	21.3268	15.4560	5.8708	\$5,022,317
P	1,223,654	14.9013	2.2672	0.0662	1.5175	18.7522	15.3860	3.3662	\$41,191
Total	518,901,911								\$55,935,895

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2018 Sales ⁶ kWh/Yr	Estimated Impact on Rates, ¢/kWh
	K = J	L	M = (K / L) * 100
R	\$49,377,984		
G	\$1,494,403		
J	\$5,022,317		
P	\$41,191		
Total	\$55,935,895		
Total Company		6,536,800,000	0.86

Notes:

- 1 See Appendix A, page 3, column H
- 2 Source: Base Energy Rates from Docket 2010-0080 (HECO 2011 Test Year)
 sched R: Docket 2010-0080 (HECO 2011 Test Year); Final revised tariffs, Exhibit B, Attachment 1, page 5, filed 07/24/2012.
 sched G: Docket 2010-0080 (HECO 2011 Test Year); Final revised tariffs, Exhibit B, Attachment 1, page 13, filed 07/24/2012.
 sched J: Docket 2010-0080 (HECO 2011 Test Year); Final revised tariffs, Exhibit B, Attachment 1, page 24, filed 07/24/2012.
 sched P: Docket 2010-0080 (HECO 2011 Test Year); Final revised tariffs, Exhibit B, Attachment 1, page 126, filed 07/24/2012.
- 3 PPAC Rates Effective January 2018
- 4 REIP and DSM rate from effective rate summaries for January 2018, RAM based on Decoupling Transmittal No. 17-02 filed on June 1, 2017, Decoupling Calculation workbook, Schedule A, page 1
- 5 Source: Cost-of-service calculation, from Docket 2010-0080 (HECO 2011 Test Year); Final revised tariffs, exhibit C, page 80, filed 07/24/2012.
- 6 Sales from 2018 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			
	PV kW NEM installed (Cumulative Dec 31, 2017) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kW NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kW	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^{A,B,D}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^F	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kWh
	A	B	C	D= sum(A:C)	E	F	G	H= sum(E:G)
R	258,179	1	0	258,180	418,001,521	2,540	0	418,004,062
G	9,001	4	0	9,005	14,116,632	10,162	0	14,126,793
J	53,857	20	0	53,877	85,496,595	50,808	0	85,547,403
P	753	0	0	753	1,223,654	0	0	1,223,654
Total	321,790	25	0	321,815	518,838,401	63,510	0	518,901,911

Source: Grid Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2017 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, 2017

Rate	Total Lost kWh/yr ¹	Base Energy Rate ² , cents/kWh	Eff. Interim ³ increase, %	Eff. Base Energy Rate, cents/kWh	Eff. PPAC ³ cents/kWh	REIP & DSM ⁴ cents/kWh	RAM ⁴ cents/kWh	Total Eff. Base 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= B+(B*C)	E	F	G	H= sum(D:G)	I	J= H- I	K = A * J / 100
R	80,645,699	29.2689	5.88%	30.9899	2.4105	0.0000	0.3123	33.7127	19.0760	14.6367	\$11,803,869
G	7,376,008	31.5858	5.49%	33.3199	2.3689	0.0000	0.3123	36.0010	19.1990	16.8020	\$1,239,317
J	20,827,881	24.8033	6.06%	26.3064	2.0561	0.0000	0.3123	28.6748	19.1130	9.5618	\$1,991,520
P	381,947	21.8184	6.32%	23.1973	1.6084	0.0000	0.3123	25.1180	18.7610	6.3570	\$24,280
Total	109,231,534										\$15,058,986

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2018 Sales ⁶ kWh/Yr	Estimated Impact on Rates, ¢/kWh
	L= K	M	N = (L / M) * 100
R	\$11,803,869		
G	\$1,239,317		
J	\$1,991,520		
P	\$24,280		
Total	\$15,058,986		
Total Company		1,033,441,454	1.46

Notes:

- 1 See Appendix A, page 5, column H
- 2 Source: Base Energy Rates, from Docket 2009-0164 (HELCO 2010 Test Year)
 Sched R: Docket 2009-0164 (HELCO 2010 Test Year), Exhibit 2C, Attach 1, page 9, Filed 02/21/2012 for base energy rate;
 Sched G: Docket 2009-0164 (HELCO 2010 Test Year), Exhibit 2C, Attach 1, page 10, Filed 02/21/2012.
 Sched J: Docket 2009-0164 (HELCO 2010 Test Year), Exhibit 2C, Attach 1, page 17, Filed 02/21/2012.
 Sched P: Docket 2009-0164 (HELCO 2010 Test Year), Exhibit 2C, Attach 1, page 143, Filed 02/21/2012.
- 3 Interim Increase and PPAC Rates from effective rate summaries for January 2018.
- 4 REIP and DSM rate from effective rate summaries for January 2018, RAM based on revised Decoupling Calculation Workbook for 2016 Interim Rate Increase, Docket No. 2015-0170, filed 8/23/17, Schedule A, page 1
- 5 Source: Most-recently approved cost-of-service calculation, from Docket 2009-0164 (HELCO 2010 Test Year), Exhibit 2E, page 65, Filed 02/21/2012.
- 6 Sales from 2018 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			
	PV kW NEM installed (Cumulative Dec 31, 2017) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kW NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kW	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^{A,B}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kWh
	A	B	C	D= sum(A:C)	E	F	G	H= sum(E:G)
R	54,065	52	0	54,117	80,513,598	132,101	0	80,645,699
G	4,953	0	0	4,953	7,376,008	0	0	7,376,008
J	13,626	170	0	13,796	20,291,839	536,042	0	20,827,881
P	112	0	49	161	167,327	0	214,620	381,947
Total	72,756	222	49	73,027	108,348,771	668,143	214,620	109,231,534

Source: Grid Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2017 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%.

^F 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, 2017

Rate	Total Lost kWh/yr ¹	Base Energy Rate ² , cents/kWh	Eff. PPAC ³ , cents/kWh	REIP & DSM ⁴ , cents/kWh	RAM ⁴ , cents/kWh	Eff. Base 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= sum(B:E)	G	H= F- G	J= A * H / 100
R	87,472,419	33.5605	-0.006	0.0000	1.3036	34.8581	24.6820	10.1761	\$8,901,281
G	11,011,639	34.5890	-0.0133	0.0015	1.3036	35.8808	24.8630	11.0178	\$1,213,240
J	22,969,368	30.4163	-0.0083	0.0015	1.3036	31.7131	25.0050	6.7081	\$1,540,808
P	1,757,606	27.7504	-0.0057	0.0015	1.3036	29.0498	24.8200	4.2298	\$74,343
Total	123,211,033								\$11,729,672

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2018 Sales ⁶ kWh/Yr	Estimated Impact on Rates, ¢/kWh
	K = J	L	M = (K / L) * 100
R	\$8,901,281		
G	\$1,213,240		
J	\$1,540,808		
P	\$74,343		
Total	\$11,729,672		
Total Company		987,811,533	1.19

Notes:

- 1 See Appendix A, pag
- 2 Source: Base Energy Rates, from Docket 2011-0092 (MECO 2012 Test Year)- Maui Division
Sched R: Docket 2011-0092 (MECO 2012 Test Year), Maui Division, Exhibit 4, Attachment 1, page 8, filed 06/17/2013.
Sched G: Docket 2011-0092 (MECO 2012 Test Year), Maui Division, Exhibit 4, Attachment 1, page 9, filed 06/17/2013.
Sched J: Docket 2011-0092 (MECO 2012 Test Year), Maui Division, Exhibit 4, Attachment 1, page 33, filed 06/17/2013.
Sched P: Docket 2011-0092 (MECO 2012 Test Year), Maui Division, Exhibit 4, Attachment 1, page 40, filed 06/17/2013.
- 3 PPAC Rates Effective January 2018
- 4 REIP and DSM rate from effective rate summaries for January 2018, RAM based on Transmittal 17-04 filed on May 22, 2017, Decoupling Calculation Schedule A workbook, page 1.
- 5 Docket 2011-0092 (MECO 2012 Test Year), Maui Division, Exhibit 5, page 66, filed 06/17/2013.
- 6 Sales from 2018 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, 2017) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kW NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kW	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^{A,B}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kWh
	A	B	C	D= sum(A:C)	E	F	G	H= sum(E:G)
R	58,702	21	0	58,723	87,418,944	53,475	0	87,472,419
G	7,386	5	0	7,391	10,999,648	11,991	0	11,011,639
J	15,344	47	0	15,391	22,850,732	118,637	0	22,969,369
P	1,170	6	0	1,176	1,742,364	15,242	0	1,757,606
Total	82,603	78	0	82,681	123,011,688	199,345	0	123,211,033

Source: Grid Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2015 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%.

Maui Electric Company - Lanai Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM installations as-of December 31, 2017

Rate	Total Lost kWh/yr ¹	Base Energy Rate ² , cents/kWh	Eff. PPAC ³ , cents/kWh	REIP & DSM ⁴ , cents/kWh	RAM ⁴ , cents/kWh	Eff. Base 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 = sum(B:E)	G	H = F - G	J = A * H / 100
R	668,651	42.7689	0	0.0000	1.3036	44.0725	35.2000	8.8725	\$59,326
G	98,287	44.8726	0	0.0000	1.3036	46.1762	35.4360	10.7402	\$10,556
J	355,919	42.5860	0	0.0000	1.3036	43.8896	35.5590	8.3306	\$29,650
P	-	40.2141	0	0.0000	1.3036	41.5177	34.9320	6.5857	\$0
Total	1,122,857								\$99,532

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2018 Sales ⁶ , kWh/Yr	Estimated Impact on Rates, ¢/kWh
	K = J	L	M = (K / L) * 100
R	\$59,326		
G	\$10,556		
J	\$29,650		
P	\$0		
Total	\$99,532		
Total Company		27,515,287	0.36

Notes:

- 1 See Appendix A, page 9, column H
- 2 Source: Base Energy Rates, from Docket 2011-0092 (MECO 2012 Test Year)- Lanai Division
 Sched R: Docket 2011-0092 (MECO 2012 Test Year), Lanai Division, Exhibit 4, Attachment 1, page 83, filed 06/17/2013.
 Sched G: Docket 2011-0092 (MECO 2012 Test Year), Lanai Division, Exhibit 4, Attachment 1, page 84, filed 06/17/2013.
 Sched J: Docket 2011-0092 (MECO 2012 Test Year), Lanai Division, Exhibit 4, Attachment 1, page 92, filed 06/17/2013.
 Sched P: Docket 2011-0092 (MECO 2012 Test Year), Lanai Division, Exhibit 4, Attachment 1, page 101, filed 06/17/2013.
- 3 PPAC Rates Effective January 2017
- 4 REIP and DSM rate from effective rate summaries for January 2018, RAM based on Transmittal 17-04 filed on May 22, 2017, Decoupling Calculation Schedule A workbook, page 1.
- 5 Docket 2011-0092 (MECO 2012 Test Year), Lanai Division, Exhibit 5, page 143, filed 06/17/2013.
- 6 Sales from 2018 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			
	PV kW NEM installed (Cumulative Dec 31, 2017) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kW NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kW	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^{A,B}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kWh
	A	B	C	D= sum(A:C)	E	F	G	H= sum(E:G)
R	449	0	0	449	668,651	0	0	668,651
G	66	0	0	66	98,287	0	0	98,287
J	239	0	0	239	355,919	0	0	355,919
P	0	0	0	0	0	0	0	0
Total	754	0	0	754	1,122,857	0	0	1,122,857

Source: Grid Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2017 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.

Maui Electric Company - Molokai Division

Estimated Lost Contribution to Fixed Costs and Surcharges based on NEM installations as-of December 31, 2017

Rate	Total Lost kWh/yr ¹	Base Energy Rate ² , cents/kWh	Eff. PPAC ³ , cents/kWh	REIP & DSM ⁴ , cents/kWh	RAM ⁴ , cents/kWh	Eff. Base 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= sum(B:E)	G	H= F- G	J= A * H / 100
R	2,086,369	39.0927	0	0.0000	1.3036	40.3963	28.8010	11.5953	\$241,921
G	525,688	44.8344	0	0.0000	1.3036	46.1380	29.3620	16.7760	\$88,189
J	466,120	36.9705	0	0.0000	1.3036	38.2741	29.2020	9.0721	\$42,287
P	148,920	29.5392	0	0.0000	1.3036	30.8428	28.5660	2.2768	\$3,391
Total	3,227,096								\$375,788

Rate	Total Lost Contribution to Fixed Cost, \$/Yr	Forecast 2018 Sales ⁶ , kWh/Yr	Estimated Impact on Rates, ¢/kWh
	K = J	L	M = (K / L) * 100
R	\$241,921		
G	\$88,189		
J	\$42,287		
P	\$3,391		
Total	\$375,788		
Total Company		27,251,149	1.38

Notes:

- 1 See Appendix A, page 11, column H
- 2 Source: Base Energy Rates, from Docket 2011-0092 (MECO 2012 Test Year)- Molokai Division
 Sched R: Docket 2011-0092 (MECO 2012 Test Year), Molokai Division, Exhibit 4, Attachment 1, page 132, filed 06/17/2013.
 Sched G: Docket 2011-0092 (MECO 2012 Test Year), Molokai Division, Exhibit 4, Attachment 1, page 133, filed 06/17/2013.
 Sched J: Docket 2011-0092 (MECO 2012 Test Year), Molokai Division, Exhibit 4, Attachment 1, page 140, filed 06/17/2013.
 Sched P: Docket 2011-0092 (MECO 2012 Test Year), Molokai Division, Exhibit 4, Attachment 1, page 148, filed 06/17/2013.
- 3 PPAC Rates Effective January 2017
- 4 REIP and DSM rate from effective rate summaries for January 2018, RAM based on Transmittal 17-04 filed on May 22, 2017, Decoupling Calculation Schedule A workbook, page 1.
- 5 Docket 2011-0092 (MECO 2012 Test Year), Molokai Division, Exhibit 5, page 220, filed 6/17/2013.
- 6 Sales from 2018 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			
	PV kW NEM installed (Cumulative Dec 31, 2017) NEM ^A	Wind kW NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kW NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kW	PV kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^{A,B}	Wind kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^E	Hydro kWh generated in one year from NEM installed (Cumulative Dec 31, 2017) NEM ^F	Total kWh
	A	B	C	D= sum(A:C)	E	F	G	H= sum(E:G)
R	1,401	0	0	1,401	2,086,369	0	0	2,086,369
G	353	0	0	353	525,688	0	0	525,688
J	313	0	0	313	466,120	0	0	466,120
P	100	0	0	100	148,920	0	0	148,920
Total	2,167	0	0	2,167	3,227,096	0	0	3,227,096

Source: Grid Technologies Department.

^A NEM PV/wind/hydro kW data from respective 2016 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.