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January 9, 2009

Darcy L. Endo-Omoto  
Vice President  
Government & Community Affairs

The Honorable Chairman and Members of  
the Hawaii Public Utilities Commission  
465 South King Street  
Kekuanaoa Building, 1st Floor  
Honolulu, Hawaii 96813

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PUBLIC UTILITIES  
COMMISSION

Dear Commissioners:

Subject: Hawaiian Electric Company, Inc.,  
Hawaii Electric Light Company, Inc.  
Maui Electric Company, Limited  
Net Energy Metering Status Report

Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited respectfully submit their 2008 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.

If you have any questions on this matter, please call Dean Matsuura at 543-4622.

Sincerely,

Attachment

cc: Division of Consumer Advocacy

## **Net Energy Metering Status Report**

**Hawaiian Electric Company, Inc.  
Hawaii Electric Light Company, Inc.  
Maui Electric Company, Limited**

**December 31, 2008**

### **Background**

Sections 269-101 to 269-111, Hawaii Revised Statutes, as amended, require net energy metering (NEM) to be available to eligible customer-generators with a capacity of not more than 50 kilowatts until the total rated generating capacity of eligible customers equals 0.5 percent of the electric utility's system peak demand. Systems must meet all applicable safety and performance standards and systems 10 kilowatts or less are exempt from additional requirements to install additional controls, perform or pay for additional tests or purchase additional liability insurance. Hawaiian Electric Company, Inc. (HECO), Hawaii Electric Light Company, Inc. (HELCO) and Maui Electric Company, Limited (MECO) (collectively, "the Utilities") were among the supporters of this legislation.

The NEM law states that eligible customers who own and operate a solar, wind turbine, biomass, or hydroelectric energy generating facility, or a hybrid system consisting of two or more of these facilities, with a capacity of not more than 50 kilowatts, shall be credited at the retail rate (of the rate class the customer is normally assigned to) for electrical energy generated by the eligible customer-generator and fed back to the electric grid. Over a monthly billing period, the difference (i.e., net) between the customer-generated electrical energy and the electrical energy supplied through the electric grid is determined. In essence, customers are able to "bank" the excess renewable energy they generate and feed into the Utilities' grid for later use.

The Utilities are required to do a twelve-month reconciliation of the net electricity provided by the utility with the electricity generated by the customer-generator and any unused monetary credits from the customer-generator carried over from prior months since the last twelve-month reconciliation period, and provide in each regular bill information on net electricity production and consumption, monetary balances, and credits. Excess electricity generated by the customer-generator in each billing period is carried over to the next month as a monetary credit within each twelve-month period.

On April 10, 2006, the Public Utilities Commission of the State of Hawaii ("Commission") issued Order No. 22380 in Docket No. 2006-0084, opening an investigative proceeding to address whether the Commission should increase: (1) the maximum capacity of eligible customer-generators to more than 50 kilowatts; and (2) the total rated generating capacity produced by eligible customer-generators to an amount above 0.5 percent of an electric utility's system peak demand.

On September 21, 2006, the Commission issued Order No. 22884 in Docket No. 2006-0084 to amend the Stipulated Procedural Order (filed on August 14, 2006) to include whether the Commission should adopt, modify, or decline to adopt, in whole or in part, the NEM standard articulated in PURPA as amended by the Energy Policy Act of 2005.

On March 13, 2008, the Commission issued Decision and Order ("D&O") No. 24089 approving the stipulated agreement reached by the parties of the docket submitted by the Utilities on September 17, 2007. The Commission approved the stipulated agreement reached by the parties that:

## **Net Energy Metering Status Report**

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- Increases the maximum size of the eligible customer-generator that can qualify for a NEM agreement from 50 kW to 100 kW;
- Increases the total rated generating capacity produced by eligible customer-generators from 0.5% to 1.0% of the utility's system peak demand;
- Reserves 40%, 50%, and 50% of the total rated generating capacity produced by eligible customer-generators for HECO, HELCO, and MECO, respectively, for residential and smaller commercial NEM customers (system sizes of 10 kW or less);
- Utilizes the Integrated Resource Planning (IRP) process to evaluate impacts to the Utilities' systems and determine further adjustments to the NEM system size and cap limits (limits re-examined on an annual basis); and
- Recommends that the Commission not adopt or modify the standard for NEM as articulated in the Public Utility Regulatory Policies Act of 1978 (PURPA) as amended by the Energy Policy Act of 2005.

In addition to the agreed-upon terms of the stipulation, the Commission ordered that the Utilities design and propose a NEM Pilot Program for the Commission's review and approval, which will allow on a trial basis a limited number of larger generating units for NEM.

### **New Developments**

On April 28, 2008, the Utilities filed with the Commission a proposed NEM Pilot Program to investigate the impacts of large NEM systems on the electric grid. Multiple discussions were held with the Hawaii Renewable Energy Alliance ("HREA") and the Hawaii Solar Energy Association ("HSEA") (together the "Parties") to gain feedback on the proposed program so that industry considerations are adequately addressed. HECO is currently reviewing and evaluating the most recent comments to determine whether, and if so to what extent, they should incorporate those comments into the proposed NEM Pilot Program. The Utilities, together with HREA and HSEA, will provide an update on the revised proposed NEM Pilot Program to the Commission by February 13, 2009. A Commission decision on the NEM Pilot Program is pending.

Based on a review in mid 2008 of approved, pending, and planned systems expected to apply for NEM status, it was forecasted that these systems would exceed the recently-approved NEM system caps for HELCO and MECO by the end of 2008. As a result of discussions with HREA, HSEA, and the Consumer Advocate, and consistent with the NEM review process within IRP established by D&O 24089, HELCO and MECO proposed adjustments to the NEM system cap to their Integrated Resource Planning ("IRP") Advisory Groups in July 2008. There were no objections to HELCO and MECO proposals. As a result, on September 30, 2008, HELCO, MECO, and the Division of Consumer Advocacy of the State of Hawaii Department of Commerce and Consumer Affairs ("Consumer Advocate") filed stipulations for Commission approval under the HELCO IRP-3 docket (Docket No. 04-0046) and MECO IRP-3 docket (Docket No. 04-0077) on proposed changes to the NEM system caps for HELCO and MECO, respectively.

On October 20, 2008, the Governor of the State of Hawaii, the State of Hawaii Department of Business, Economic Development and Tourism, the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, and the Utilities executed the Hawaii Clean Energy Initiative ("HCEI") Agreement. Among the numerous commitments contained in the

## Net Energy Metering Status Report

Hawaiian Electric Company, Inc.  
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HCEI Agreement was the provision that there should be no system-wide caps on NEM, and instead, distributed generation, including NEM, feeding into a circuit shall be limited on a per-circuit basis to no more than 15% of peak circuit demand for all distribution-level circuits of 12 kV or lower. For circuits approaching the 15% limit, the Utilities will perform a circuit-specific analysis to determine if the limit can be increased. In addition, the HCEI Agreement states that NEM will be replaced with an appropriate feed-in tariff and new NEM installations shall be required to utilize time-of-use metering equipment and rates. Regulatory or legislative implementation of this HCEI provision is pending.

On December 3, 2008, in response to a request by the Commission (in a letter dated October 10, 2008) to file the stipulations in the NEM docket (Docket No. 2006-0084), HELCO, MECO and the Consumer Advocate filed their stipulations on the proposed changes to the NEM system caps for HELCO and MECO. Shown below are highlights of the stipulation.

### Step 1:

- HELCO and MECO will increase the NEM system cap from 1.0% to 3.0% of system peak demand.
- HELCO and MECO will reserve 40% of the NEM system cap for NEM systems of 10 kW or less (leaving 60% of the NEM system cap for systems larger than 10 kW).<sup>1</sup>
- The maximum NEM system size remains unchanged at 100 kW.

### Step 2:

- When approved NEM applications for either the  $\leq 10$  kW or  $> 10$  kW NEM-eligible systems equal or exceed 75% of the existing NEM system cap, HELCO and/or MECO will increase the NEM system cap from 3.0% to 4.0% of the system peak demand.
- HELCO and/or MECO will reserve 30% of the NEM system cap for NEM systems of 10 kW or less (leaving 70% of the NEM system cap for systems larger than 10 kW).<sup>1†</sup>
- HELCO and/or MECO will notify the Commission and announce at IRP advisory meetings when the increase (to 4.0%) goes into effect.
- The maximum NEM system size remains unchanged at 100 kW.

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### Step 3:

- Potential increases to the maximum size of eligible NEM systems and to the NEM system cap in excess of 4.0% of system peak demand will be analyzed in HELCO and MECO IRP processes.
- An IRP advisory group member can propose an increase to NEM limits if the approved NEM applications are at least 75% of the current utility peak demand.

### Review and Process Considerations:

- All parties in Docket No. 2006-0084 agree to informally meet in February of each year to review NEM installation status compared to respective HELCO and MECO system caps.
- HELCO and MECO will continue to report annually the progress of meeting renewable portfolio standards ("RPS") including estimated amount of energy provided through the NEM market.

<sup>1</sup> Expected growth in the number of systems and kW impact of systems larger than 10 kW is expected to be higher than that of systems of 10 kW or less.

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- HELCO and MECO will report to their respective IRP advisory groups, Consumer Advocate, and the Commission when NEM participation affects, or is anticipated to impact, utility system reliability, system safety, and power quality, as well as when changes to utility interconnection standards in Rule 14 are needed.
- HELCO and MECO will continue to discuss and report on estimates of the rate and revenue impact of NEM participation. (See Appendix A.)

On December 26, 2008, the Commission issued an Order Approving, in Part, and Denying, in Part, Stipulations filed on December 3, 2008 that:

- Approves the proposed increases in NEM system caps for HELCO and MECO (Step 1 and Step 2); and
- Denies the review of future increases in NEM system caps in IRP processes (Step 3) due to the closing of IRP dockets by the Commission.

The parties to Docket No. 2006-0084 shall submit a stipulated proposed plan to address the Utilities' and Consumer Advocate's NEM agreement as set forth by the HCEI Agreement and inform the Commission of any new review process for considering future increases to the NEM limits.

### Status

The following table provides the status of NEM in the HECO, HELCO, and MECO service territories as of December 31, 2008.

NEM Status as of 12/31/08

	Information packets sent	No. of Installations <sup>2</sup>	Installed kW <sup>3</sup>	NEM System Cap <sup>4</sup> , kW
<b>HECO</b>				
2001	151	1	3.60	5,955
2002	12	1	2.10	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	387.29	6,080
2008	132	221	2,362	11,860
Total (HECO)	454	317	2,849	

<sup>2</sup> Completed systems (i.e., NEM Agreements completed).

<sup>3</sup> Installed kW reflects rated generating capacity installed in the year noted. Includes system expansions.

<sup>4</sup> Based on 0.5% of system peak in 2001-2007 for HECO, HELCO, and MECO, 1.0% of system peak in 2008 for HECO, and 3% of system peak in 2008 for HELCO and MECO. Based on Net System Peak for HECO, HELCO, and MECO-Maui and Gross System Peak for MECO-Molokai and MECO-Lanai.

## Net Energy Metering Status Report

Hawaiian Electric Company, Inc.  
Hawaii Electric Light Company, Inc.  
Maui Electric Company, Limited

December 31, 2008

NEM Status as of 12/31/08 (cont.)

	Information packets sent	No. of Installations <sup>2</sup>	Installed kW <sup>3</sup>	NEM System Cap <sup>4</sup> , kW
<b>HELCO</b>				
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	35	299.57	1,007
2007	24	35	263.15	1,017
2008	23	115	782.1	5,946
Total (HELCO)	248	210	1,455	
<b>MECO</b>				
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	92.17	1,068
2006	49	50	231.69	1,091
2007	13	64	358.28	1,081
2008	15	135	952.6	6,171
Total (MECO)	220	283	1,686	
<b>TOTAL</b>	<b>922</b>	<b>810</b>	<b>5,990</b>	

<sup>2</sup> Completed systems (i.e., NEM Agreements completed).

<sup>3</sup> Installed kW reflects rated generating capacity installed in the year noted. Includes system expansions.

<sup>4</sup> Based on 0.5% of system peak in 2001-2007 for HECO, HELCO, and MECO, 1.0% of system peak in 2008 for HECO, and 3% of system peak in 2008 for HELCO and MECO. Based on Net System Peak for HECO, HELCO, and MECO-Maui and Gross System Peak for MECO-Molokai and MECO-Lanai.

## Appendix A

The attached pages provide illustrative estimates of lost contributions to fixed cost in 2009 and associated estimated rate impact, based on NEM installations as-of year-end 2008. There is no bill impact on non-NEM customers until HECO, HELCO, or MECO propose and receive Commission approval to adjust rates upward to cover the NEM lost contribution to fixed cost. At that point, any rate adjustment impacts both NEM customers (to the extent that they pay for kWh) and non-NEM customers.

**HECO**

**Estimated Lost Contribution to Fixed Cost in 2009, based on NEM installations as-of year-end 2008**

Rate	kW (A)	Total Hours in Year <sup>1</sup> (B)	Estimated Capacity Factor <sup>2</sup> (C)	Total Lost kWh/yr (D)=(A) x (B) x (C)	Base Energy Rate <sup>3</sup> , cents/kWh (E)	Effective Interim Increase <sup>3</sup> , % (F)	Eff. Base Energy Rate, cents/kWh (G)=(E) x (1+ (F))	Production Energy Rate <sup>4</sup> , cents/kWh (H)	Lost Contribution to Fixed Cost, cents/kWh (I)=(G) - (H)	Total Lost Contribution to Fixed Cost, \$/Yr (J)=((D) x (I))/100
R/E	573	8760	18.9%	948,433	17.2	7.09%	18.4	9.7	7.5	\$71,148
G	297	8760	18.9%	491,228	16.4	7.01%	17.6	9.7	6.7	\$32,866
J	1,979	8760	18.9%	3,277,174	13.0	5.93%	13.8	9.7	3.3	\$108,868
<b>Total</b>	<b>2,849</b>			<b>4,716,836</b>						<b>\$212,881</b>

**Estimated Impact on Rates in 2009, based on NEM installations as-of year-end 2008**

	Total Lost Contribution to FC, \$/Yr (K) = (J)	Forecast 2009 Sales <sup>5</sup> kWh/Yr (L)	Estimated Impact on Rates, ¢/kWh (M)=((K)/(L))*100
R/E	\$71,148	2,028,600,000	0.00
G	\$32,866	376,100,000	0.01
J	\$108,868	2,042,000,000	0.01
<b>Total</b>	<b>\$212,881</b>	<b>4,446,700,000</b>	

**Notes:**

- 1 There are 8760 hour in a non-leap year, and 8768 hours in a leap year.
- 2 Source: Black & Veatch 2 kW Fixed PV System Unit Information Form. Actual capacity factor may vary.
- 3 Source: Effective Rate Summaries filed 1/7/2009.
- 4 Source: Most-recently approved cost-of-service calculation, from Docket 04-0113 (HECO 2005 Test Year)
- 5 Source: HECO Forecast and Research Division



**HELCO**

**Estimated Lost Contribution to Fixed Cost in 2009, based on NEM installations as-of year-end 2008**

Rate	kW (A)	Total Hours in Year <sup>1</sup> (B)	Estimated Capacity Factor <sup>2</sup> (C)	Total Lost kWh/yr (D)=(A) x (B) x (C)	Base Energy Rate <sup>3</sup> , cents/kWh (E)	Effective Interim Increase <sup>3</sup> , % (F)	Eff. Base Energy Rate, cents/kWh (G)=(E) x (1+ (F))	Production Energy Rate <sup>4</sup> , cents/kWh (H)	Lost Contribution to Fixed Cost, cents/kWh (I)=(G) - (H)	Total Lost Contribution to Fixed Cost, \$/Yr (J)=(D) x (I)/100
R/E	604	8760	18.9%	999,692	19.1	10.80%	21.2	7.9	11.2	\$111,856
G	388	8760	18.9%	641,776	21.4	10.80%	23.7	8.0	13.4	\$86,007
J	407	8760	18.9%	674,508	15.6	10.80%	17.3	7.9	7.7	\$51,693
H	7	8760	18.9%	11,589	15.9	10.80%	17.6	8.0	8.0	\$923
P	49	8760	18.9%	81,126	13.8	10.80%	15.3	7.8	6.0	\$4,867
<b>Total</b>	<b>1,455</b>			<b>2,408,691</b>						<b>\$255,345</b>

**Estimated Impact on Rates in 2009, based on NEM installations as-of year-end 2008**

	Total Lost Contribution to FC, \$/Yr (K) = (J)	Forecast 2009 Sales <sup>5</sup> kWh/Yr (L)	Estimated Impact on Rates, ¢/kWh (M)=((K)/(L))*100
R/E	\$111,856	440,696,806	0.03
G	\$86,007	101,616,767	0.08
J	\$51,693	334,549,045	0.02
H	\$923	6,050,151	0.02
P	\$4,867	240,064,689	0.00
<b>Total</b>	<b>\$255,345</b>	<b>1,122,977,458</b>	

Notes:

- 1 There are 8760 hour in a non-leap year, and 8768 hours in a leap year.
- 2 Source: Black & Veatch 2 kW Fixed PV System Unit Information Form. Actual capacity factor may vary.
- 3 Source: Effective Rate Summaries filed 1/7/2009.
- 4 Source: Most-recently approved cost-of-service calculation, from Docket 99-0207 (HELCO 2000 Test Year)
- 5 Source: HELCO Energy Services Department

**MECO - Maui Division**

**Estimated Lost Contribution to Fixed Cost in 2009, based on NEM installations as-of year-end 2008**

Rate	kW (A)	Total Hours in Year <sup>1</sup> (B)	Estimated Capacity Factor <sup>2</sup> (C)	Total Lost kWh/yr (D)=(A) x (B) x (C)	Base Energy Rate <sup>3</sup> , cents/kWh (E)	Effective Interim Increase <sup>3</sup> , % (F)	Eff. Base Energy Rate, cents/kWh (G)=(E) x (1+ (F))	Production Energy Rate <sup>4</sup> , cents/kWh (H)	Lost Contribution to Fixed Cost, cents/kWh (I)=(G) - (H)	Total Lost Contribution to Fixed Cost, \$/Yr (J)=((D) x (I))/100
R/E	698	8760	18.9%	1,155,802	13.4	7.31%	14.4	4.6	8.8	\$101,550
G	210	8760	18.9%	347,784	14.6	7.31%	15.6	4.7	9.9	\$34,443
J	529	8760	18.9%	876,264	11.9	7.31%	12.7	4.7	7.2	\$63,224
<b>Total</b>	<b>1,437</b>			<b>2,379,850</b>						<b>\$199,217</b>

**Estimated Impact on Rates in 2009, based on NEM installations as-of year-end 2008**

	Total Lost Contribution to FC, \$/Yr (K) = (J)	Forecast 2009 Sales <sup>5</sup> kWh/Yr (L)	Estimated Impact on Rates, c/kWh (M)=((K)/(L))*100
R/E	\$101,550	407,749,000	0.02
G	\$34,443	93,105,057	0.04
J	\$63,224	263,087,721	0.02
<b>Total</b>	<b>\$199,217</b>	<b>763,941,778</b>	

**Notes:**

- 1 There are 8760 hour in a non-leap year, and 8768 hours in a leap year.
- 2 Source: Black & Veatch 2 kW Fixed PV System Unit Information Form. Actual capacity factor may vary.
- 3 Source: Effective Rate Summaries filed 1/7/2009.
- 4 Source: Most-recently approved cost-of-service calculation, from Docket 97-0346 (MECO 1999 Test Year)
- 5 Source: MECO Renewable Energy Services Department

**MECO - Lanal Division**

**Estimated Lost Contribution to Fixed Cost in 2009, based on NEM installations as-of year-end 2008**

Rate	kW (A)	Total Hours in Year <sup>1</sup> (B)	Estimated Capacity Factor <sup>2</sup> (C)	Total Lost kWh/yr (D)=(A) x (B) x (C)	Base Energy Rate <sup>3</sup> , cents/kWh (E)	Effective Interim Increase <sup>3</sup> , % (F)	Eff. Base Energy Rate, cents/kWh (G)=(E) x (1+ (F))	Production Energy Rate <sup>4</sup> , cents/kWh (H)	Lost Contribution to Fixed Cost, cents/kWh (I)=(G) - (H)	Total Lost Contribution to Fixed Cost, \$/Yr (J)=((D) x (I))/100
R/E	14	8760	18.9%	22,434	18.1	6.23%	19.2	9.1	9.0	\$2,019

**Estimated Impact on Rates in 2009, based on NEM installations as-of year-end 2008**

	Total Lost Contribution to FC, \$/Yr (K) = (J)	Forecast 2009 Sales <sup>5</sup> kWh/Yr (L)	Estimated Impact on Rates, ¢/kWh (M)=((K)/(L))*100
R/E	\$2,019	7,928,900	0.03

**Notes:**

- 1 There are 8760 hour in a non-leap year, and 8768 hours in a leap year.
- 2 Source: Black & Veatch 2 kW Fixed PV System Unit Information Form. Actual capacity factor may vary.
- 3 Source: Effective Rate Summaries filed 1/7/2009.
- 4 Source: Most-recently approved cost-of-service calculation, from Docket 97-0346 (MECO 1999 Test Year)
- 5 Source: MECO Renewable Energy Services Department

**MECO - Molokai Division**

**Estimated Lost Contribution to Fixed Cost in 2009, based on NEM installations as-of year-end 2008**

Rate	kW (A)	Total Hours in Year <sup>1</sup> (B)	Estimated Capacity Factor <sup>2</sup> (C)	Total Lost kWh/yr (D)=(A) x (B) x (C)	Base Energy Rate <sup>3</sup> , cents/kWh (E)	Effective Interim Increase <sup>3</sup> , % (F)	Eff. Base Energy Rate, cents/kWh (G)=(E) x (1 + (F))	Production Energy Rate <sup>4</sup> , cents/kWh (H)	Lost Contribution to Fixed Cost, cents/kWh (I)=(G) - (H)	Total Lost Contribution to Fixed Cost, \$/Yr (J)=((D) x (I))/100
R/E	74	8760	18.9%	122,236	17.4	6.82%	18.6	5.4	12.0	\$14,705
G	36	8760	18.9%	60,000	23.8	6.82%	25.4	5.4	18.4	\$11,013
J	75	8760	18.9%	124,173	16.9	6.82%	18.1	5.4	11.5	\$14,249
H	50	8760	18.9%	83,270	14.1	6.82%	15.1	5.4	8.7	\$7,230
<b>Total</b>	<b>235</b>			<b>389,680</b>						<b>\$47,197</b>

**Estimated Impact on Rates in 2009, based on NEM installations as-of year-end 2008**

	Total Lost Contribution to FC, \$/Yr (K) = (J)	Forecast 2009 Sales <sup>5</sup> kWh/Yr (L)	Estimated Impact on Rates, ¢/kWh (M)=((K)/(L))*100
R/E	\$14,705	12,160,100	0.12
G	\$11,013	3,674,005	0.30
J	\$14,249	7,400,463	0.19
H	\$7,230	1,723,100	0.42
<b>Total</b>	<b>\$47,197</b>	<b>24,957,668</b>	

**Notes:**

- 1 There are 8760 hour in a non-leap year, and 8768 hours in a leap year.
- 2 Source: Black & Veatch 2 kW Fixed PV System Unit Information Form. Actual capacity factor may vary.
- 3 Source: Effective Rate Summaries filed 1/7/2009.
- 4 Source: Most-recently approved cost-of-service calculation, from Docket 97-0346 (MECO 1999 Test Year)
- 5 Source: MECO Renewable Energy Services Department