Report on the Status of Net Energy Metering In the State of Maryland

Prepared by
The Public Service Commission of Maryland

Prepared for the General Assembly of Maryland
Under Public Utilities Article §7-306(h)

September 10, 2014

Table of Contents

EXECUTIVE SUMMARY **1**

NET METERING IN MARYLAND **1**

ELIGIBILITY CAP **3**

CURRENT LEVEL OF RENEWABLE DEPLOYMENT **3**

RECOMMENDATION ON ELIGIBILITY CAP **5**

NET METERING REGULATIONS COMAR 20.50.10 ..... **5**

ELIGIBLE CUSTOMER SIZE. 5

AGGREGATE NET METERING. 5

OTHER ISSUES **6**

Executive Summary

This report is prepared by the Public Service Commission of Maryland ("Commission") in compliance with Public Utilities Article ("PUA") §7-306(h), *Annotated Code of Maryland*. PUA §7-306(h) requires the Commission to report on the status of the net metering program, including the amount of capacity by type of energy resource from net-metered facilities in the State, and recommend whether the cap on eligible capacity should be altered. This is the seventh report prepared by the Commission. The initial report was produced in 2008.

At this time, the Commission does not recommend changes to the eligibility cap for net metering. Although there has been an increase in the number of recent installations, the current level of installed capacity, approximately 144 MW,[1] is far below the eligible State cap of 1,500 megawatts ("MW"). Therefore, it is unlikely that the current cap would be approached without several years of advance notice.

The Commission has noted several policy issues relating to net metering and recent proposed legislation. While no revisions to PUA §7-306 are recommended at this time, the Commission continues to monitor local and national renewable energy issues with an eye toward regulation and tariff changes.

Net Metering in Maryland

Net metering is a method of simplifying the measurement of energy produced by a renewable energy generator when it is connected to an electric utility distribution system. Net energy metering generally utilizes the existing meter for all calculations thereby avoiding the expense of a second meter to measure incoming and outgoing energy separately. Net metering is permitted by law for solar, wind, biomass, micro combined heat and power, fuel cell, and closed conduit hydro electric generators that are intended primarily to supply the customer's annual energy usage. The term "net metering" refers to measurement of electricity on the basis that is net of energy used and produced by an eligible customer-generator during a single billing period, *e.g.*, one month. As discussed further below, the terms of utility tariffs typically require a customer to pay the monthly customer charge, regardless of the amount of energy produced. However, for energy billed, the customer pays only for energy that is used, netted against any generation produced by the customer. The practical effect of this policy is to allow customers to use the utility grid as if it were battery storage, so that excess energy produced at any given instant could be stored for later use. The law also provides for monetary payment for net excess generation when the customer terminates service or at the end of the net metering

[1] Installed capacity as of June 30, 2014.

year.[2] The dollar value of net excess generation is equal to the generation or commodity portion of the rate that the eligible customer-generator would have been charged by the electric company averaged over the previous 12-month period multiplied by the number of kilowatt hours of net excess generation. The following table summarizes the total amount of excess generation credit payouts by rate class for each of the utilities operating in Maryland. As Table 1 indicates, approximately $200,000 of excess generation credits were paid to customers in the 12-month period ending April 30, 2014.

Table 1: Excess Generation Credit Payouts to Residential and Commercial Customers for the 12-Month Period Ending April 30, 2014

Electric Utility	Residential	Commercial	Total
Baltimore Gas and Electric Company	$ 44,983.27	$ 31,288.60	$ 76,271.87
Choptank Electric Cooperative	$ 11,998.60	$ 14,112.14	$ 26,110.74
Delmarva Power and Light Company	$ 12,423.75	$ 27,463.22	$ 39,886.97
Easton Utilities Commission	$ 42.62	$ 1,349.01	$ 1,391.63
Hagerstown Municipal Electric Light Plant	$ 0.38	$ 1.03	$ 1.41
Thurmont Municipal Light Company	$ -	$ -	$ -
Mayor and Council of Berlin	$ -	$ 440.03	$ 440.03
Potomac Electric Power Company	$ 20,410.34	$ 5,926.13	$ 26,336.47
Potomac Edison Company	$ 7,652.80	$ 11,851.21	$ 19,504.01
Williamsport Municipal Light Plant	$ -	$ -	$ -
Southern Maryland Electric Cooperative	$ 4,170.02	$ 2,466.75	$ 6,636.77
State Total	**$ 101,681.78**	**$ 94,898.12**	**$ 196,579.90**

Eligible customer-generators[3] also may benefit from less costly interconnection with the utility, *e.g.,* only a single standard meter and without additional switches. The ease of

[2] PUA §7-306(f)(6) states: (i) On or before 30 days after the billing cycle that is complete immediately prior to the end of April of each year, the electric company shall pay each eligible customer–generator for the dollar value of any accrued net excess generation remaining at the end of the previous 12–month period ending with the billing cycle that is complete immediately prior to the end of April; (ii) Within 15 days after the date the eligible customer–generator closes the eligible customer–generator's account, the electric company shall pay the eligible customer–generator for the dollar value of any accrued net excess generation remaining at the time the eligible customer–generator closes the account**.** *See also* PUA § 7-306(f)(7) for certain provisions applicable to electric cooperatives.

[3] "Eligible customer-generator" means a customer that owns and operates, leases and operates, or contracts with a third party that owns and operates a biomass, micro combined heat and power, solar, fuel cell, wind or closed conduit hydro electric generating facility that: (i) is located on the customer's premises or contiguous property; (ii) is interconnected and operated in parallel with an electric company's transmission and distribution facilities; and (iii) is intended primarily to offset all or part of the customer's own electricity requirements. *See* PUA §7-306(a)(4).

interconnection allows the customer to use the renewable generator in a grid-connected manner without significant additional installation or operating expense. For larger commercial customers, interconnection sometimes requires a more expensive installation, because tariffs typically recover distribution improvement costs from the customer.

The net energy metering law in PUA §7-306 permits renewable net energy metering, and utilities implement net energy metering operations through tariffs that are filed with the Commission. These tariffs place terms and conditions on the net energy metering operations. These tariffs also include eligibility requirements that cap the maximum installed size, as well as the State-wide limit. Any statutory change requires each utility to revise its tariff and file the revision with the Commission.

Eligibility Cap

Electric companies are required to permit net metering for eligible customers. The current aggregate limit on eligible renewable generation capacity in the State is 1,500 MW. This limit represents approximately 10 percent of the peak demand, which in 2014 is on the order of 15,000 MW in the State.[4] The generating capacity of an electric generating system used by an eligible customer-generator for net metering may not exceed 2 megawatts.

Current Level of Renewable Deployment

The Commission Staff surveyed Maryland electric companies for the number of net-metered facilities currently operating in each electric company distribution service territory. The total amount of generation has increased from approximately 364 kW in 2007 to 143,706 kW through the end of June 2014. Table 2 below shows the results of the Commission Staff's survey of net-metered installations through June 30, 2014 as compared with net-metered installations from the 12-month reporting period in 2013 ending on June 30, 2013, as reported in Table 3. In the 12 months since June 30, 2013, net metering capacity has increased by 42,014kW, representing a 41 percent increase over the previous 2013 period. However, this increase is smaller than the increase in the period ending June 30, 2013, when capacity increased by 43,177 kW, representing a 74 percent increase as compared to 2012.

[4] Ten-Year Plan (2013-2022) of Electric Companies in Maryland, April 2014, Appendix Table 3(a), page 9.

Table 2: Net Metering Capacity as of June 30, 2014						
Electric Utility	**Solar**	**Wind**	**Biomass**	**Utility Total**	**% Change**	**kW Change**
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	50,073	64	-	50,137	35%	13,110
Choptank Electric Cooperative	6,805	68	-	6,873	38%	1,896
Delmarva Power and Light Company	27,230	930	-	28,161	25%	5,671
Easton Utilities Commission	165	-	-	165	6%	10
Hagerstown Municipal Electric Light Plant	38	-	-	38	9%	3
Thurmont Municipal Light Company	74	-	-	74	124%	41
Mayor and Council of Berlin	66	7	-	73	11%	7
Potomac Electric Power Company	37,215	4	-	37,219	56%	13,354
Potomac Edison Company	13,266	161	-	13,426	78%	5,892
Williamsport Municipal Light Plant	-	-	-	-	n/a	-
Southern Maryland Electric Cooperative	7,178	42	320	7,540	37%	2,030
State Total	**142,110**	**1,276**	**320**	**143,706**	**41%**	**42,014**

Table 3: Net Metering Capacity as of June 30, 2013						
Electric Utility	**Solar**	**Wind**	**Biomass**	**Utility Total**	**% Change**	**kW Change**
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	36,915	113	-	37,027	65%	14,626
Choptank Electric Cooperative	4,916	61	-	4,977	147%	2,958
Delmarva Power and Light Company	21,560	930	-	22,490	61%	8,538
Easton Utilities Commission	155	-	-	155	33%	39
Hagerstown Municipal Electric Light Plant	35	-	-	35	0%	-
Thurmont Municipal Light Company	33	-	-	33	n/a	33
Mayor and Council of Berlin	66	-	-	66	85%	30
Potomac Electric Power Company	23,863	2	-	23,865	77%	10,349
Potomac Edison Company	7,373	161	-	7,534	124%	4,168
Williamsport Municipal Light Plant	-	-	-	-	n/a	-
Southern Maryland Electric Cooperative	5,147	42	320	5,510	79%	2,434
State Total	**100,062**	**1,310**	**320**	**101,692**	**74%**	**43,177**

While the amount of installed capacity has increased each year since the inception of net metering, the growth rate has decreased for the second consecutive year. The table below

shows the installed capacity and the growth rates for the four periods of 2011 through 2014. In the 2013 period, net capacity installed grew 74 percent, while it grew only 41 percent in 2014.

Table 4: Net Metering Capacity Growth for the Previous Three Years

Year end	kW	kW Change	Percent Change
June 30, 2014	143,706	42,014	41%
June 30, 2013	101,692	43,178	74%
June 30, 2012	58,514	26,775	84%
June 30, 2011	31,739	6,525	

Recommendation on Eligibility Cap

As of June 30, 2014, the level of installed capacity is 9.6 percent of the current limit. At this time, the Commission does not view the 1,500 MW limit as a barrier to installation of new renewable generation. The net-metering survey asked for information on the date of installation. This information indicates an increase in new renewable capacity in recent years. However, the rate of installation does not indicate that the cap would be approached in the near future.

Net Metering Regulations COMAR 20.50.10

COMAR 20.50.10, promotes the deployment of net-metered facilities and simplifies the requirements for customer interconnection. The regulations address the allowed size for net metering eligibility as a multiple of customer load and establish aggregate net metering for agricultural, municipal, and non-profit customers.

Eligible Customer Size. Under the regulations, a customer may net meter using facilities that are sized to produce up to 200 percent of a customer's annual baseline kWh use.

Aggregate Net Metering. Aggregation of net-metered loads is the practice of combining meter readings from more than one utility service point. Utilities can provide this service by using physical interconnection of service points or by summing the total usage from two or more meters (virtual aggregation). Only certain types of customers are permitted to use this service. Agricultural, municipal (including county governments), and non-profit entities (*e.g.* churches or schools) are permitted to aggregate net-metered loads under the regulations. The practice of aggregation may provide increased incentives for system deployment by providing greater economies of scale for installations and allowing a customer to make the most efficient use of existing solar or wind resources. An example of an agricultural application of aggregate net metering would consist of combining the load on the farm's barn, outbuildings, and residence. A solar array may be installed on a barn which would normally have excellent sun exposure, although it would

use little electric power. Joining the load of the residence (which may have less roof area or be in a shady location) and outbuildings to the load of the barn would make the installation more practical and cost-effective for the customer.

By acceptance of utility tariffs, the Commission has implemented a Net Metering Aggregation Program. Current net metering tariffs implement COMAR 20.50.10.07 and .08 by requiring utilities to provide aggregate net metering to more than one meter for certain types of customers. The Net Meter Aggregation Program began with a pilot with its temporary restrictions ending in 2012, after which the Net Meter Aggregation Program was implemented without the pilot restrictions and became open to all eligible customers. The table below shows the number of applications and installed projects for the net metering aggregation pilot reported by utilities as of June 30, 2014. The number of projects has more than doubled since 2013 from 21 to 49, and the number of applications has doubled from 12 in 2013 to 28 in 2014.

By Letter Order, dated August 13, 2014, the Commission clarified its interpretation of COMAR 20.50.10 regarding the applicability of aggregate net metering for municipal customers. The Commission ruled that county governments were eligible customers for aggregate net metering.

Table 5: Projects and Pending Applications for Net Metering Aggregation Program as of June 30, 2014.

Electric Utility	Applications Pending	Number of Projects
Baltimore Gas and Electric Company	7	7
Choptank Electric Cooperative	0	7
Delmarva Power and Light Company	8	18
Easton Utilities Commission	0	0
Hagerstown Municipal Electric Light Plant	0	0
Thurmont Municipal Light Company	0	0
Mayor and Council of Berlin	1	1
Potomac Electric Power Company	3	3
Potomac Edison Company	9	9
Williamsport Municipal Light Plant	0	0
Southern Maryland Electric Cooperative	0	4
State Total	28	49

Other Issues

At this time, the Commission has not identified other matters relating to the net-metering eligibility limit that require the action of the General Assembly.

Within Maryland, two pieces of legislation that would have established Community Renewable Energy Generating System (CREGS) programs were considered by the General Assembly but did not pass. House Bill ("HB") 1192/Senate Bill ("SB") 786 would have established a pilot program for CREGS under the authority of the Commission. The CREGS would generate energy for, and credit the electric bills of, subscribers. HB 1076/SB 521 would have established a smaller scale CREGS program specific to the anaerobic digestion of poultry litter. CREGS would provide access to individuals who, due to their residential or other property circumstances, could not otherwise participate in net metering. Although the Commission has not taken a position on any legislation concerning CREGS, or the extent to which CREGS should receive subsidies, the Commission has provided technical advice on how to make CREGS feasible under the law.

National discussion on net metering policy has recently addressed customers' access to the benefits that distributed generation and net metering can offer, especially for customers such as renters, or those with limited access to credit or capital. Recently, the increasing use of power purchase agreements ("PPAs") has made the installation of rooftop solar less capital intensive for end-use customers; however these financing approaches are more likely to be attractive for property-owners rather than renters.

The deployment of distributed renewable energy facilities can provide benefits relating to environmental, energy efficiency, reliability and economic development goals; however, there have been calls to examine the policies by which incentives interact with utility cost recovery. The Electric Power Research Institute ("EPRI") Integrated Grid Report (2014) examines the average costs of providing grid services for a typical U.S. residential customer.[5] The report notes concerns regarding reliability if policies permitting distributed generation to remain grid-connected without paying average costs are not modified.[6] Other studies identify the need to accurately account for the full value that distributed resources provide to the grid.[7] The Commission acknowledges that the appropriate integration of distributed renewable generation with traditional grid resources will be an important issue as Maryland continues to expand its net metered facilities.

Finally, in addition to policy concerns, the Commission continues to review technical issues related to the deployment of distributed generation and net metering. Currently, one utility has applied restrictions in COMAR 20.50.09.09 Small Generator Interconnection Standards, to limit the installation of interconnected photovoltaic

[5] *The Integrated Grid: Realizing the Full Value of Central and Distributed Energy Resources,* page 22 http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000003002002733&Mode=download

[6] Ibid. Page 4. "Along with reinforcing and modernizing the grid, it will be essential to update interconnection rules and wholesale market and retail rate structures so that they adequately value both capacity and energy. Secure communications systems will be needed to connect DER and system operators. As distributed resources penetrate the power system more fully, a failure to plan for these needs could lead to higher costs and lower reliability."

[7] See IREC_Rabago_Regulators-Guidebook-to-Assessing-Benefits-and-Costs-of-DSG.

systems.[8] The Commission's Engineering Division plans to work with utilities to ensure that there are no significant unnecessary obstacles to renewable energy deployment.

[8] COMAR 20.50.09.09A(1)(a) restricts the interconnection of small generators that would exceed 15 percent of the line section peak load.