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)

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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 to recommend whether the cap on eligible capacity should be altered.[1] This is the tenth report prepared by the Commission. The initial report was produced in 2008.

At this time, the Commission does not see a need to change the eligibility cap for net metering to ensure reliability. Although there has been an increase in the number of recent installations, the current level of installed capacity, approximately 772 megawatts ("MW"),[2] is just over half of the eligible State cap of 1,500 MW. Given the potential future addition of about 200 MW of projects under the Community Solar Program, and the unpredictability of future solar installations, however, it is appropriate for policy makers to continue thinking about the policy implications of the State coming closer to the 1,500 MW cap. To that end, the Commission is awaiting a study from Daymark Energy Advisors analyzing the benefits and costs of both utility scale and behind the meter solar installations. Stakeholders in the PC44 workgroup reviewed an initial draft of this document over the summer and final filing is anticipated before the end of 2018.

[1] Section 7-306(h)(2) bases the Commission's recommendation "on the need to encourage diversification of the State's energy resource mix to ensure reliability."
[2] Installed capacity as of June 30, 2018.

This document is intended to help inform the future valuation of solar installations in Maryland.

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. In addition, the Commission has held a technical conference, docketed as PC40[3] to address distributed generation issues. The Commission's 2016 Public Conference, PC44, has been initiated to explore issues related to grid modernization and distributed resources.[4] During 2016, the Commission convened the Maryland Net Metering Working Group ("MNMWG") to implement a Community Solar program ("Program") in response to the legislative requirements of House Bill 1087 ("HB1087") of the 2015 Session.[5] After a Commission Rulemaking, Subtitle 62 of Title 20 of the Code of Maryland Regulations ("COMAR"), which governs Community Solar Generating Stations and provides a framework for the Program, was adopted in July 2016. The Commission directed the MNMWG to work collaboratively to develop utility tariffs to implement the regulations. In its February 15, 2017 Letter Order, the Commission directed Maryland's investor-owned utilities to file compliance tariffs to implement the Community Solar Program and directed its Technical Staff to prepare forms to authorize Subscriber Organizations. This was accomplished in April-June of 2017, and the Program is in its initial stages.

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[3] *In the Matter of the Investigation into the Technical and Financial Barriers to the Deployment of Small Distributed Energy Resources.*
[4] *In The Matter of Transforming Maryland's Electric Distribution Systems to Ensure that Electric Service Is Customer-Centered, Affordable, Reliable and Environmentally Sustainable in Maryland.*
[5] *See* PUA §7-306.1.

Net Metering in Maryland

By using a single meter to capture both usage and generation, 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 a customer's annual energy usage. The term "net metering" refers to the 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 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 year.[6] The dollar value of net excess generation

[6] 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

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 $2,390,604 of excess generation credits was paid to customers in the 12-month period ending April 30, 2018.

closes the account. *See also* PUA § 7-306(f)(7) for certain provisions applicable to electric cooperatives of a certain size.

Table 1: Excess Generation Credit Payouts to Residential and Commercial Customers for the 12-Month Period Ending April 30, 2018			
Electric Utility	**Residential**	**Commercial**	**Total**
Baltimore Gas and Electric Company	$589,422.71	$602,439.97	$1,191,862.68
Choptank Electric Cooperative, Inc.	$44,514.51	$35,164.43	$79,678.94
Delmarva Power & Light Company	$69,874.86	$305,859.58	$375,734.44
Easton Utilities Commission	$994.41	$8,336.23	$9,330.64
Hagerstown Municipal Electric Light Plant	-	$1.97	$1.97
Thurmont Municipal Light Company	-	-	-
Mayor and Council of Berlin	$352.92	$1,630.40	$1,983.32
Potomac Electric Power Company	$396,321.25	$18,308.47	$414,629.72
The Potomac Edison Company	$68,132.07	$186,814.25	$254,946.32
Williamsport Municipal Light Plant	-	-	-
Southern Maryland Electric Cooperative , Inc.	$55,244.55	$7,191.80	$62,436.35
State Total	**$1,224,857.28**	**$1,165,747.10**	**$2,390,604.38**

Eligible customer-generators[7] also may benefit from less costly interconnection with the utility, *e.g.*, only a single standard meter and without additional switches. The ease of 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

[7] "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).

Commission. These tariffs place terms and conditions on 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 was on the order of 15,000 MW in the State.[8] The capacity is set at 1,500 MW based on PUA §7-306(d). The generating capacity of an electric generating system used by an eligible customer-generator for net metering may not exceed 2 MW.[9]

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 772,699 kW through the end of June 2018. Table 2 below shows the results of the Commission Staff's survey of net-metered installations through June 30, 2018 as compared with net-metered installations from the 12-month reporting period ending June 30, 2017, as reported in Table 3. In the 12 months since June 30, 2017, net metering

[8] *Ten-Year Plan (2013-2022) of Electric Companies in Maryland*, issued April 2014, Appendix Table 3(a)(i), page 60.
[9] PUA §7-306(g)(1).

capacity has increased by 109,422 kW, representing a 16 percent increase over the previous 12-month period.

Table 2: Net Metering Capacity as of June 30, 2018						
Electric Utility	**Solar**	**Wind**	**Biomass**	**Utility Total**	**YOY % Change**	**kW Change**
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	292,461.6	64.2	-	292,525.8	10%	27,407.6
Choptank Electric Cooperative	20,432.9	79.4	-	20,512.3	13%	2,349.3
Delmarva Power and Light Company	110,209.6	888.9	-	111,098.5	20%	18,212.5
Easton Utilities Commission	2,602.9	-	-	2,602.9	440%	2,120.9
Hagerstown Municipal Electric Light Plant	182.5	-	-	182.5	1040%	166.5
Thurmont Municipal Light Company	104.3	-	-	104.3	8%	7.3
Mayor and Council of Berlin	352.0	7.0	-	359.0	17%	53.0
Potomac Electric Power Company	218,066.6	82.2	2,535	220,683.8	22%	39,304.8
Potomac Edison Company	73,505.9	7.4	250	73,763.3	22%	13,446.3
Williamsport Municipal Light Plant	28.0	-	-	28.0	0%	-
Southern Maryland Electric Cooperative	50,482.9	36.1	320.0	50,839.0	14%	6,354.0
State Total	**768,429.2**	**1,165.2**	**3,105.0**	**772,699.4**	**16%**	**109,422.1**

Table 3: Net Metering Capacity as of June 30, 2017						
Electric Utility	Solar	Wind	Biomass	Utility Total	YOY % Change	YOY kW Change
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	265,005	112	-	265,118	50%	88,899
Choptank Electric Cooperative	18,106	57	-	18,163	76%	7,865
Delmarva Power and Light Company	91,997	889	-	92,886	31%	22,107
Easton Utilities Commission	482	-	-	482	117%	260
Hagerstown Municipal Electric Light Plant	16	-	-	16	-64%	-29
Thurmont Municipal Light Company	97	-	-	97	7%	6
Mayor and Council of Berlin	299	7	-	306	16%	43
Potomac Electric Power Company	181,297	82	-	181,379	43%	54,447
Potomac Edison Company	60,310	7	-	60,317	31%	14,339
Williamsport Municipal Light Plant	28	-	-	28	NA	28
Southern Maryland Electric Cooperative	44,129	36	320	44,485	48%	14,355
State Total	**661,766**	**1,190**	**320**	**663,277**	**44%**	**202,320**

While the amount of installed capacity has increased each year since the inception of net metering, the growth rate has decreased over the 2018 reporting period. The table below shows the installed capacity and the growth rates for the five periods of 2013 through 2018. In the 2016 period, net capacity installed grew 93 percent; for 2017, the capacity growth was lower at 44 percent; and for 2018, growth slowed further to 16 percent.

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

Table 4: Net Metering Capacity Growth for the Previous Five Years			
Year end	kW	kW Change	Percent Change
June 30, 2018	**772,699**	**109,422**	**16%**
June 30, 2017	663,277	202,320	44%
June 30, 2016	460,957	222,044	93%
June 30, 2015	238,913	95,207	66%
June 30, 2014	143,706	42,014	41%
June 30, 2013	101,692	43,178	74%

Recommendation on Eligibility Cap

As of June 30, 2018, the level of installed capacity is 52 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 or as a reliability concern. The net metering survey asked for information on the date of installation. This information indicates an increase in new renewable capacity in recent years.

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 aggregate net metering. 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 a farm's barn, outbuildings, and residence. A solar array may be installed on a barn that 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 Metering Aggregation Program began with a pilot

whose temporary restrictions ended in 2012, after which the Net Metering Aggregation Program was implemented without the pilot restrictions and made open to all eligible customers. Table 5 below shows the number of applications and installed projects for the Net Metering Aggregation Program reported by utilities as of June 30, 2018. The number of projects had increased from 21 in 2013, to 49 in 2014, to 72 in 2015, to 127 in 2016, to 165 in 2017, and to 200 in 2018. The number of applications had increased from 12 in 2013 to 28 in 2014 and to 55 in 2015. In 2016, the number of applications decreased to 28, but in 2017, applications nearly tripled to 79. In 2018, applications decreased again to 33.

Table 5: Projects and Pending Applications for Net Metering Aggregation Program as of June 30, 2018

Electric Utility	Applications Pending	Number of Projects
Baltimore Gas and Electric Company	4	55
Choptank Electric Cooperative, Inc.	1	38
Delmarva Power & Light Company	19	41
Easton Utilities Commission	0	1
Hagerstown Municipal Electric Light Plant	0	0
Thurmont Municipal Light Company	0	0
Mayor and Council of Berlin	0	0
Potomac Electric Power Company	5	9
The Potomac Edison Company	4	44
Williamsport Municipal Light Plant	0	0
Southern Maryland Electric Cooperative	0	12
State Total	33	200

By Letter Order, dated August 13, 2014, the Commission clarified its interpretation of COMAR 20.50.10 regarding the applicability of aggregate net metering within The

Potomac Edison Company ("PE") service territory. The Commission ruled that county governments in PE's service territory were eligible customers for aggregate net metering.

Community Solar Energy Generating Systems

During the 2015 Legislative Session, HB1087 was passed requiring the Commission to develop a Pilot Program and report on a new type of net-metering, Community Solar Energy Generating Systems ("CSEGS"). HB1087/SB383 was signed into law in May 2015, and is codified at PUA §7-306.2. The law directed the Commission to establish a three-year pilot program and to report to the legislature on the results by 2019.

The Maryland Net Metering Working Group ("MNMWG"), a Staff-facilitated stakeholder group, was reconvened in July 2015 to develop a program design to implement the CSEGS legislation. Following development of the program parameters, the Commission established a rulemaking process to codify the program.[10] Community Solar regulations were adopted as final in July 2016, and participating utilities filed implementation tariffs in September of 2016. Throughout the second half of 2016, the MNMWG worked to revise the utility-proposed CSEGS tariffs to implement the new regulations. On February 15, 2017, the Commission issued a Letter Order to each of the investor-owned utilities directing the Companies to file revised tariffs and finalize program details. In addition, the Staff and the MNMWG were directed to finalize application materials and report on program details and the Pilot Program Study Plan. The Program, if fully subscribed, would add about 200MW under the 1500MW net metering cap. The program capacity may be installed over a three-year pilot program

[10] RM56, *Revisions to COMAR 20.62 - Community Solar Energy Generation Systems.*

with annual capacity allotments. The program capacity includes categories for low and moderate income customers; as well as small systems, rooftop systems, and installations on buildings and parking facilities. Implementation of the program began in the second quarter of 2017 following approval of program participants. Eligible participants may continue to operate CSEGS facilities under the program rules for 25 years. As of the writing of this report in 2018, there have been 116 Community Solar projects proposed by authorized subscriber organizations with a capacity of 189.73 MW. Most year 1 projects are presently being constructed. As stated, the Community Solar program is being rolled out in a three year period with annual capacity allotments. Currently, as seen in Table 6 no utility has hit their first year cap, but most of the offered capacity has been reserved.

Table 6: Community Solar Capacity

Electric Utility	Offered MW	Accepted MW
Baltimore Gas and Electric Company	40.27	31.86
Delmarva Power and Light Company	6.70	5.96
Potomac Electric Power Company	20.00	13.24
Potomac Edison Company	10.17	9.08
State Total	**77.14**	**60.14**

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.