PUBLIC SERVICE COMMISSION OF MARYLAND

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

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

October 18, 2021

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I. 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 Maryland's 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. This is the thirteenth report prepared by the Commission. The initial report was produced in 2008.

Although there has been an increase in the number of recent installations of net-metered facilities, the current level of installed capacity, approximately 932 megawatts ("MW"),[1] is just over 30 percent of the eligible State cap of 3,000 MW. In the 2021 Session, House Bill 569 increased the State cap for net metering from 1,500 MW to 3,000 MW, effective October 1, 2021, by amending PUA § 7-306 (d).[2]

While no further revisions to PUA § 7-306 are recommended at this time, the Commission continues to monitor local and national renewable energy issues, including regulation and tariff changes. As of August 2021, 39 states and the District of Columbia had mandatory net metering rules.[3] In 2015 the Commission held a technical conference, docketed as Public Conference ("PC") 40,[4] to address distributed generation issues, including community solar implementation, which had recently been adopted by legislation in Maryland. In 2016, the

[1] Installed capacity as of June 30, 2021. This includes 887 MW installed net metering capacity and 44 MW installed Community Solar capacity.
[2] https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0569.
[3] North Carolina Clean Energy Technology Center, https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2021/08/DSIRE_Net_Metering_August2021.pdf, Accessed 09/02/2021.
[4] *In the Matter of the Investigation into the Technical and Financial Barriers to the Deployment of Small Distributed Energy Resources*, Public Conference 40.

Commission initiated Public Conference 44 ("PC44") to explore issues related to grid modernization and distributed resources.[5] During 2016, the Commission directed the Maryland Net Metering Working Group ("MNMWG") to implement a Community Solar Pilot Program ("Pilot") in response to the legislative requirements of House Bill 1087 ("HB1087") of the 2015 Session, since codified at PUA § 7-306.2. After a Commission Rulemaking, Subtitle 62 of Title 20 of the Code of Maryland Regulations ("COMAR"), which governs the Community Solar Energy Generating Systems ("CSEGS") Pilot Program ("Pilot") and provides a framework for the Pilot, 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 Pilot and directed its Technical Staff to prepare forms to authorize Subscriber Organizations that would build and operate the CSEGS. This was accomplished in April through June of 2017.

In 2019, the Maryland General Assembly amended PUA § 7-306.2 to extend and expand the Pilot.[6] In 2020, through Rulemaking 56 ("RM56") the Commission approved revisions to COMAR 20.62.02 to implement the extension and expansion of the Pilot. In 2021, the Commission held additional hearings under RM56 to review regulations proposals from the industry and interested stakeholders. The final revisions will be submitted to the *Maryland Register* for publication.

[5] *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*, Public Conference 44.
[6] https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0683/?ys=2019rs.

II. 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 hydroelectric generating facilities that are intended primarily to supply all or part of a customer's annual energy usage. The term "net metering" refers to the measurement of electricity on the basis that it is the 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.[7] 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 $4,057,323 of excess generation credits was paid to customers in the 12-month period ending April 30, 2021.

Table 1: Excess Generation Credit Payouts to Residential and Commercial Customers for the 12-Month Period Ending April 30, 2021

Electric Utility	Residential	Commercial
Baltimore Gas and Electric Company	$ 881,155	$ 1,184,309
Choptank Electric Cooperative	$ 83,412	$ 80,779
Delmarva Power and Light Company	$ 159,555	$ 487,681
Easton Utilities Commission	$ 614	$ 7,791
Hagerstown Municipal Electric Light Plant	$ 139	$ -
Thurmont Municipal Light Company	$ -	$ -
Mayor and Council of Berlin	$ 1,322	$ 625
Potomac Electric Power Company	$ 649,803	$ 99,580
The Potomac Edison Company	$ 129,481	$ 194,932
Williamsport Municipal Light Plant	$ -	$ -
Southern Maryland Electric Cooperative	$ 85,574	$ 10,572
State Total[8]	**$ 1,991,055**	**$ 2,066,268**

[7] 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 of a certain size.

[8] Values may not sum to total due to rounding.

Eligible customer-generators[9] 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.

Utilities implement the net energy metering operations authorized in PUA § 7-306 through tariffs that are filed with the 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.

III. Eligibility Cap

Electric companies are required to permit net metering for eligible customers. The aggregate limit on eligible renewable generation capacity in the State is 3,000 MW as of October 1, 2021, due to recent legislation that doubled the existing capacity limit of 1,500 MW. This limit represents approximately 20 percent of the peak demand, which in 2020 was forecast as 14,635 MW in the State.[10] The generating capacity of an electric generating system used by an eligible customer-generator for net metering may not exceed 2 MW.[11]

[9] "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 hydroelectric 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).

[10] *Ten-Year Plan (2020-2029) of Electric Companies in Maryland*, issued December 2020, Appendix Table 3(a) (i), page 33.

[11] PUA §7-306(g)(1).

IV. 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's distribution service territory. The total amount of generation has increased from approximately 364 kW in 2007 to 887,800 kW through the end of June 2021. Table 2 below shows the results of the Commission Staff's survey of net-metered installations through June 30, 2021, as compared with net-metered installations from the previously reported 12-month period ending June 30, 2020, shown in Table 3. In the 12 months since June 30, 2020, net metering capacity has increased by 65,008 kW, representing an 8 percent increase from the previously reported capacity.

Table 2: Net Metering Capacity as of June 30, 2021						
Electric Utility	**Solar**	**Wind**	**Biomass**	**Utility Total**	**YOY % Change**	**kW Change**
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	337,168	84	0	337,252	9%	27,998
Choptank Electric Cooperative	27,990	15	30	28,035	6%	1,574
Delmarva Power and Light Company	103,322	889	240	104,451	5%	4,747
Easton Utilities Commission	2,698	0	0	2,698	2%	50
Hagerstown Municipal Electric Light Plant	199	0	0	199	3%	5
Thurmont Municipal Light Company	199	0	0	199	29%	44
Mayor and Council of Berlin	482	0	0	482	22%	87
Potomac Electric Power Company	254,306	78	0	254,384	6%	14,669
The Potomac Edison Company	94,734	7	256	94,997	14%	11,318
Williamsport Municipal Light Plant	28	0	0	28	0%	0
Southern Maryland Electric Cooperative	64,712	36	320	65,068	7%	4,519
State Total	**885,845**	**1,109**	**846**	**887,800**	**8%**	**65,008**

Table 3: Net Metering Capacity as of June 30, 2020						
Electric Utility	**Solar**	**Wind**	**Biomass**	**Utility Total**	**YOY % Change**	**YOY kW Change**
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	309,180	84	0	309,264	7%	20,247
Choptank Electric Cooperative	26,058	373	30	26,461	7%	1,649
Delmarva Power and Light Company	98,815	889	0	99,704	10%	8,708
Easton Utilities Commission	2,648	0	0	2,648	2%	39
Hagerstown Municipal Electric Light Plant	194	0	0	194	0%	0
Thurmont Municipal Light Company	155	0	0	155	24%	30
Mayor and Council of Berlin	395	0	0	395	-1%	-2
Potomac Electric Power Company	239,637	78	0	239,715	13%	27,206
The Potomac Edison Company	83,416	7	256	83,679	8%	5,946
Williamsport Municipal Light Plant	28	0	0	28	0%	0
Southern Maryland Electric Cooperative	60,193	36	320	60,549	8%	4,743
State Total	**820,719**	**1,467**	**606**	**822,792**	**13%**	**68,566**

The amount of installed capacity has increased each year since the inception of Maryland's net metering program. The table below shows the installed capacity and the growth

rates for the five periods from 2017 through 2021. Capacity grew steadily through 2017, when net capacity installed grew 48 percent; for 2018, the capacity growth fell to 17 percent; and for 2019, growth slowed further at 13 percent. In 2020, growth was 9 percent relative to 2019 reported capacity, and in 2021 growth of 8 percent relative to 2020 reported capacity was observed.

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

Year end	kW	kW Change	Percent Change
June 30, 2021	**887,800**	**65,008**	**8%**
June 30, 2020	822,792	68,565	9%
June 30, 2019	754,226	84,390	13%
June 30, 2018	669,836	94,990	17%
June 30, 2017	574,846	187,335	48%

V. Recommendation on Eligibility Cap

As of June 30, 2021, the level of installed capacity is approximately 30 percent of the newly adopted 3,000 MW limit. At this time, the Commission does not view the 3,000 MW limit as a barrier to installation of new renewable generation.

VI. 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 participate in net metering 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 nonprofit 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 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 ("NMAP").[12] 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. Thereafter, the Net Metering Aggregation Program was implemented without the pilot restrictions and made open to all eligible customers. Table 5

[12] Also referred to in utility tariffs as Aggregated Net Energy Metering ("ANEM").

below shows the number of pending projects including projects under construction[13] and projects completed for the Net Metering Aggregation Program reported by utilities as of June 30, 2021. The number of operating NMAP projects has increased from 21 in 2013 to 223 in 2021 while the number of applications has fluctuated from year to year.

Table 5: Projects Completed and Pending Applications (Including Projects Under Construction) for Net Metering Aggregation Program as of June 30, 2021

Electric Utility	Pending Applications and Projects under Construction	Projects Completed
Baltimore Gas and Electric Company	9	66
Choptank Electric Cooperative, Inc.	2	7
Delmarva Power & Light Company	2	61
Easton Utilities Commission	0	0
Hagerstown Municipal Electric Light Plant	0	0
Thurmont Municipal Light Company	0	0
Mayor and Council of Berlin	0	0
Potomac Electric Power Company	4	17
The Potomac Edison Company	14	54
Williamsport Municipal Light Plant	0	0
Southern Maryland Electric Cooperative	2	18
State Total	**33**	**223**

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 by interpreting the term "municipal governments" to include county governments. In 2016, the regulations were revised by the Commission to explicitly include county governments.[14]

[13] Projects under construction have started but not completed installation and are not providing kWh credits to the aggregated accounts.
[14] Regulation .07B amended effective July 18, 2016 (43:14 Md. R. 780).

VII. Community Solar Energy Generating Systems

During the 2015 Legislative Session, the General Assembly passed House Bill 1087 and its Senate counterpart, SB398, requiring the Commission to develop a Pilot Program ("Pilot") and report on a new type of net-metering, Community Solar Energy Generating Systems ("CSEGS"). HB1087/SB398 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 the results to the legislature by 2019. During the 2019 Legislative Session, PUA § 7-306.2 was amended to extend the Pilot through July 1, 2022, with capacity increasing annually.[15] The limit on subscribers allowed for a given CSEGS was deleted and the date for the Commission to file a report on the Pilot was extended to July 1, 2022. Revised regulations pertaining to capacity, subscription coordinators, and specialized locations were recently considered by the Commission but have not yet been adopted as final.

The Maryland Net Metering Working Group, 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.[16] 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

[15] HB683/SB520.
[16] RM56, *Revisions to COMAR 20.62 - Community Solar Energy Generation Systems.*

materials and report on program details applicable to the Pilot Program Study Plan. Through the fourth year of the Pilot, 243.8 MWs of capacity were offered under the net metering cap. The Pilot's capacity may be installed over a seven-year period with annual capacity allotments increasing over time. In addition to open systems up to 2 MW in size, 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 Pilot began in the second quarter of 2017 following approval of Pilot participants.

In 2020, the RM56 rulemaking accepted changes to COMAR 20.62.02, which increased the statewide capacity to 3.25 percent of the 2015 Maryland peak demand in the fourth year (2021), and outlined further increases for years 5, 6, and 7 to implement the extension and expansion of the Pilot. The revised regulations also removed the limit of 350 accounts that a subscriber organization may subscribe to for a given CSEGS. Eligible participants may continue to operate CSEGS facilities under the program rules for 25 years. Table 6 shows the incremental authorized CSEGS capacity. As of the writing of this report in 2021, there have been 177 MW of accepted Community Solar projects (Table 7). Most projects are currently being constructed. As stated, the Community Solar program is being rolled out over a seven-year period with annual capacity allotments. Currently, as seen in Table 7, no utility has accepted projects for all offered capacity, but most of the offered capacity has been reserved. Approximately 44 megawatts of community solar projects are operating in Maryland as of June 2021.

Table 6: Incremental Authorized Community Solar Capacity Per Year (MW)[17]							
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
77.1	77.1	38.5	51.2	51.2	57.7	64.1	416.9

Table 7: Community Solar Capacity Years 1-4			
Electric Utility	**Offered MW[18]**	**Accepted MW**	**Operating MW**
Baltimore Gas and Electric Company	127.50	101.97	19.77
Delmarva Power and Light Company	20.87	17.66	4.98
Potomac Electric Power Company	63.23	30.52	11.63
The Potomac Edison Company	32.23	27.08	8.08
State Total	**243.83**	**177.23**	**44.45**

As shown in Table 8, the electric companies credited a total of 57,847,852 kWh to CSEGS subscribers (electric customers of the four electric utilities listed above) over the 12-month period and 84,106,389 kWh over the life of the program (2018 – June 2021).[19]

[17] The capacity in years 4-7 would increase by approximately 40% as a result of recently proposed regulations in Commission Rulemaking 56.
[18] Combined Capacity for years 1, 2, 3, and 4.
[19] The earliest Community Solar projects became operational in 2018.

Table 8: CSEGS kWh and Dollar Credits		
	12-Month Period ending June 30, 2021	**Lifetime Amount (2018 – June 31, 2021)**
Baltimore Gas and Electric Company		
kWh Credited	23,774,415	31,094,038
Dollars Credited	$ 2,446,245	$ 3,247,996
Delmarva Power and Light		
kWh Credited	8,933,136	15,248,373
Dollars Credited	$ 1,144,8541	$ 1,869,878
Potomac Electric Power Company		
kWh Credited	18,788,221	29,562,822
Dollars Credited	$ 2,370,799	$ 4,004,776
The Potomac Edison Company		
kWh Credited	6,352,080	8,201,156
Dollars Credited[20]	N/A	N/A
Total		
kWh Credited	**57,847,852**	**84,106,389**
Dollars Credited	**$ 5,961,895**	**$ 9,122,650**

The electric companies have various methods for recovering the revenues associated with applying subscription credits to customer accounts. Baltimore Gas and Electric Company ("BGE") recovers customer distribution credits through its decoupling mechanism. Transmission and energy costs, which are largely offset through reduced sales, are recovered through the Company's transmission rates and the Standard Offer Service ("SOS") energy cost adjustment mechanism.[21] Commission Staff estimates that the distribution bill impact of community solar for the 12 months ending June 2021, to an average BGE residential customer is about 6 cents a month. Distribution bill impact is estimated to be $1 a month at full deployment using BGE's

[20] Unlike BGE, Pepco, and Delmarva, who convert credits to dollar values and then provide credits to customers as a dollar amount, Potomac Edison provides credits to customers as kWhs and therefore does not calculate a dollar value for the kWh credited to customers.

[21] CSEGS reduce energy demand and payments to Standard Offer Service suppliers and retail suppliers. The remaining energy cost true up is performed through the energy cost adjustment mechanism.

allocation of the currently approved program capacity shown in Table 6.[22] Potomac Electric Power Company ("Pepco") and Delmarva Power & Light ("Delmarva") use similar recovery mechanisms. Commission Staff estimates that the current distribution bill impact of community solar for average Pepco and Delmarva residential customers are 17 cent and 20 cents a month, respectively, and $1 a month and $1.50, respectively, at full deployment. Unlike the three other investor owned utilities, Potomac Edison ("PE"), applies a kWh reduction to subscribers' metered kWh use, rather than bill credits. This results in a reduction in volumetric-based revenue, which has the potential to be eventually recovered in base distribution and transmission rates from all customers.[23]

VIII. 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. However, the Commission will continue to monitor local and national renewable energy issues and determine if any tariff changes or new regulations are warranted.

[22] Please note that future bill impacts are highly dependent on future participation levels and potential changes in distribution rates.

[23] Distribution costs related to subscriber distribution credits may eventually be recovered through distribution rates, depending on when distribution rates are changed through a rate case. PE does not have distribution revenue decoupling. Subscriber energy credits reduce sales by Standard Offer Service suppliers, largely offsetting costs with any remaining true up performed through an energy cost adjustment mechanism.