

**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(i)**

November 1, 2022

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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(i), *Annotated Code of Maryland*. PUA § 7-306(i) 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 14th 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 1,033 megawatts (“MW”),¹ is 34.4 percent of the eligible State cap of 3,000 MW. In the 2021 Session, House Bill (“HB”) 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 April 2022, 39 states and the District of Columbia either had mandatory net metering rules or had taken policy action on net metering.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 Commission initiated Public Conference

¹ Installed capacity as of June 30, 2022. This includes 962 MW installed Net Metering Capacity and 71 MW Installed Community Solar Capacity.

² <https://mgaleg.maryland.gov/mgaweb/legislation/details/hb0569>.

³ North Carolina Clean Energy Technology Center, https://nccleantech.ncsu.edu/wp-content/uploads/2022/04/Q1-22_SolarExecSummary_Final.pdf, accessed 10/12/2022.

⁴ In the Matter of the Investigation into the Technical and Financial Barriers to the Deployment of Small Distributed Energy Resources, Public Conference 40.

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 HB 1087 of the 2015 Session, since codified at PUA § 7-306.2. After a rulemaking, in July 2016, the Commission adopted Subtitle 62 of Title 20 of the Code of Maryland Regulations (“COMAR”), which governs the Community Solar Energy Generating Systems (“CSEGS”) Pilot Program and provides a framework for the Pilot.

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 CSEGSs. 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, the Commission approved revisions to COMAR 20.62.02 to implement the extension and expansion of the Pilot.

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,

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/mgaweb/Legislation/Details/hb0683/?ys=2019rs>.

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 \$5,154,797 of excess generation credits was paid to customers in the 12-month period ending April 30, 2022.

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.

Table 1: Excess Generation Credit Payouts to Residential and Commercial Customers for the 12-Month Period Ending April 30, 2022		
Electric Utility	Residential	Commercial
Baltimore Gas and Electric Company	\$1,058,750	\$1,966,579
Choptank Electric Cooperative	\$78,527	\$77,897
Delmarva Power and Light Company	\$140,780	\$575,353
Easton Utilities Commission	\$1,480	\$11,558
Hagerstown Municipal Electric Light Plant	\$-	\$7
Thurmont Municipal Light Company	\$403	\$-
Mayor and Council of Berlin	\$1,851	\$513
Potomac Electric Power Company	\$584,094	\$137,994
Potomac Edison Company	\$196,184	\$192,254
Williamsport Municipal Light Plant	\$-	\$-
Southern Maryland Electric Cooperative, Inc.	\$113,889	\$16,686
State Total	\$2,175,958	\$2,978,841

Eligible customer-generators⁸ 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.

⁸ “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).

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 previous capacity limit of 1,500 MW. This limit represents approximately 19 percent of the peak demand, which for 2022 was forecast as 15,517 MW in the State.⁹ The generating capacity of an electric generating system used by an eligible customer-generator for net metering may not exceed 2 MW.¹⁰

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 962,140 kW through the end of June 2022. Table 2 below shows the results of the Commission Staff's survey of net-metered installations through June 30, 2022, as compared with net-metered installations from the previously reported 12-month period ending June 30, 2021, shown in Table 3. In the 12 months since June 30, 2021, net metering capacity has increased by 74,340 kW, representing an eight percent increase from the previously reported capacity.

⁹ *Ten-Year Plan (2021-2030) of Electric Companies in Maryland*, issued November 2021, Appendix Table 3(a)(i), page 32.

¹⁰ PUA § 7-306(g)(1). Please note that SB 110/ HB 440 amended PUA § 7-306 to allow Community Solar Energy Generating Systems to net meter up to 5 MW, effective October 1, 2022.

Table 2: Net Metering Capacity as of June 30, 2022 in kW

Electric Utility	Solar	Wind	Biomass	Utility Total	YOY % Change	kW Change
	Kilowatts of Installed Capacity					
Baltimore Gas and Electric Company	365,844	84	0	365,928	9%	28,675
Choptank Electric Cooperative	29,230	353	30	29,613	6%	1,579
Delmarva Power and Light Company	112,089	880	240	113,209	8%	8,758
Easton Utilities Commission	3,253	0	0	3,253	21%	555
Hagerstown Municipal Electric Light Plant	208	0	0	208	4%	9
Thurmont Municipal Light Company	214	0	0	214	7%	15
Mayor and Council of Berlin	574	0	0	574	19%	92
Potomac Electric Power Company	273,914	0	0	273,914	8%	19,530
Potomac Edison Company	104,499	7	256	104,762	10%	9,758
Williamsport Municipal Light Plant	28	0	0	28	0%	0
Southern Maryland Electric Cooperative, Inc.	70,081	36	320	70,437	8%	5,369
State Total	959,934	1,360	846	962,140	8%	74,340

Table 3: Net Metering Capacity as of June 30, 2021 in kW

Electric Utility	Solar	Wind	Biomass	Utility Total
	Kilowatts of Installed Capacity			
Baltimore Gas and Electric Company	337,168	84	0	337,252
Choptank Electric Cooperative	27,990	15	30	28,035
Delmarva Power and Light Company	103,322	889	240	104,451
Easton Utilities Commission	2,698	0	0	2,698
Hagerstown Municipal Electric Light Plant	199	0	0	199
Thurmont Municipal Light Company	199	0	0	199
Mayor and Council of Berlin	482	0	0	482
Potomac Electric Power Company	254,306	78	0	254,384
Potomac Edison Company	94,741	7	256	95,004
Williamsport Municipal Light Plant	28	0	0	28
Southern Maryland Electric Cooperative, Inc.	64,712	36	320	65,068
State Total	885,845	1,109	846	887,800

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 relative to previous years for the five periods from 2018 through 2022. Capacity grew steadily through 2018, when net capacity installed increased by 17 percent; for 2019, capacity growth fell to 13 percent; and for 2020 growth slowed further at nine percent. From 2020 to 2022, capacity growth remained relatively constant with eight percent growth in 2021 and eight percent growth in 2022.

Table 4: Net Metering Capacity Growth for the Previous Five Years			
Year end	kW	kW Change	Percent Change
29-Jun-22	962,140	74,340	8%
30-Jun-21	887,800	65,008	8%
30-Jun-20	822,792	68,566	9%
30-Jun-19	754,226	84,390	13%
30-Jun-18	669,836	94,990	17%

Recommendation on Eligibility Cap

As of June 30, 2022, the level of installed capacity is approximately 32 percent of the newly adopted 3,000 MW limit. At this time, the Commission does not view this limit as a barrier to installation of new renewable generation.

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”).¹¹ 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

¹¹ Also referred to in utility tariffs as Aggregated Net Energy Metering or (“ANEM”).

below shows the number of pending projects including projects under construction¹² and projects completed for the Net Metering Aggregation Program reported by utilities as of June 30, 2022. The number of operating NMAP projects has increased from 21 in 2013 to 292 in 2022 while the number of applications has fluctuated from year to year.

Table 5: Projects Operating and Pending Applications (Including Projects Under Construction) for Net Metering Aggregation Program as of June 30, 2022		
Electric Utility	Applications Pending and Projects under Construction	Projects Operating
Baltimore Gas and Electric Company	1	71
Choptank Electric Cooperative	2	57
Delmarva Power and Light Company	10	66
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	13
Potomac Edison Company	2	62
Williamsport Municipal Light Plant	0	0
Southern Maryland Electric Cooperative, Inc.	1	22
State Total	21	292

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.¹³

¹² Projects under construction have started but not completed installation and are not providing kWh credits to the aggregated accounts.

¹³ COMAR 20.50.10.07B amended effective July 18, 2016 (43:14 Md. R. 780).

Community Solar Energy Generating Systems

During the 2015 Legislative Session, the General Assembly passed HB 1087/ Senate Bill (“SB”) 398 requiring the Commission to develop a Pilot Program (“Pilot”) and report on a new type of net-metering, Community Solar Energy Generating Systems (“CSEGS”). SB 398/ HB 1087 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. During the 2019 Legislative Session, PUA § 7-306.2 was amended to extend the Pilot through December 31, 2024, with capacity increasing annually.¹⁴ The limit on subscribers allowed for a given CSEGS was also removed. On February 22, 2022, revised regulations pertaining to capacity, subscription coordinators, and specialized locations were approved by the Commission for COMAR 20.62.

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.¹⁵ 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 applicable to the Pilot Program Study Plan. Through the fifth year of the Pilot, 349.07 MWs of capacity were offered under the net metering cap. The

¹⁴ SB 520/ HB 683.

¹⁵ RM56, *Revisions to COMAR 20.62 - Community Solar Energy Generation Systems*.

Pilot's capacity may be installed over a seven-year period with annual capacity allotments increasing over time. In addition to open systems, 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. In 2022, the Maryland General Assembly passed SB 110/ HB 440 which amended PUA § 7-306 and increased the maximum size of a Community Solar Energy Generating System to 5 MW from 2 MW, effective October 1, 2022.¹⁶ 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 2022, there have been 330.8 MW of accepted Community Solar projects (Table 7). As stated, the Community Solar pilot program is being rolled out over a seven-year period with annual capacity allotments. Currently, as seen in Table 7, there is roughly 582 MW of offered CSEGS capacity within the State, and 331 MW of this capacity has been approved and accepted for capacity. Approximately 71 megawatts of community solar projects are currently operating in Maryland as of June 30, 2022.

¹⁶ SB 110/ HB440 Electricity – Community Solar Energy Generating Systems – Net Energy Metering and Generating Capacity Effective on October 1, 2022.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
77.1	77.1	38.5	44.7	102.5	115.3	121.6

Electric Utility	Offered MW (Years 1-7)	Accepted MW (as of 6/30/22)	Operating MW (as of 6/30/22)
Baltimore Gas and Electric Company	305.40	165.42	38.69
Delmarva Power and Light Company	49.70	38.80	7.00
Potomac Electric Power Company	150.50	79.90	13.38
Potomac Edison Company	76.33	46.68	11.98
State Total	581.93	330.80	71.05

As shown in Table 8, the electric companies credited a total of 93,964,699 kWh to CSEGS subscribers (electric customers of the four electric utilities listed above) over the 12-month period and 178,071,089 kWh over the life of the program (2018 – June 2022).¹⁸

	12-Month Period (Ending 6/30/22)	Lifetime Amount
Baltimore Gas and Electric Company		
kWh Credited	43,911,345	75,005,384
Dollars Credited	\$5,058,137	\$8,306,133
Delmarva Power and Light		
kWh Credited	10,873,986	26,122,359
Dollars Credited	\$691,910	\$2,561,788
Potomac Electric Power Company		
kWh Credited	21,314,498	50,877,320
Dollars Credited	\$1,266,192	\$5,270,968
Potomac Edison		
kWh Credited	17,864,870	26,066,026
Dollars Credited	\$0	0
Total		
kWh Credited	93,964,699	178,071,089
Dollars Credited	\$7,016,239	\$16,138,889

¹⁷ Community Solar capacity is based on current utility community solar tariff pages.

¹⁸ The earliest Community Solar projects became operational in 2018.

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.¹⁹ Commission Staff estimates that the distribution bill impact of community solar for the 12 months ending June 2022, to an average BGE residential customer is about 11 cents a month. Distribution bill impact is estimated to be \$1.50 a month at full deployment using BGE’s allocation of the currently approved program capacity shown in Table 7.²⁰ Potomac Electric Power Company (“Pepco”) and Delmarva Power & Light Company (“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 22 cents and 26 cents a month, respectively, and \$2.10 a month and \$1.70, respectively, at full deployment. Unlike the three other investor-owned utilities, Potomac Edison 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.²¹

On July 1, 2022, the Commission submitted its report on the CSEGS Pilot Program to the General Assembly which recommended a full cost-benefit analysis be conducted at the end of

¹⁹ 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.

²⁰ Please note that future bill impacts are highly dependent on future participation levels and potential changes in distribution rates.

²¹ 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. Please note that future bill impacts are highly dependent on future participation levels and potential changes in distribution rates.

the Pilot. Additionally, the report recommends that the General Assembly consider maximizing low-and-moderate income (LMI) participation, coordinating potential CSEGS projects with electric companies for grid and market benefits, pairing CSEGS projects with energy storage to increase grid and market benefits, and other issues when considering future legislation.²²

The Commission issued a notice on July 5, 2022, giving interested parties the opportunity to comment on its report. The comments covered a variety of issues including whether to make the pilot a permanent program, support for conducting additional studies and analyses, and addressing LMI participation in the pilot. The Commission continues to support the recommendations made in its July 1, 2022 report and strongly recommends additional analyses be conducted to ensure that both participants in the pilot and ratepayers maximize benefits from CSEGS. The CSEGS pilot is an important tool in addressing the State's energy policy initiatives and the Commission recommends resources and funding for additional studies to ensure that future program design is best tailored to support the State's policies in a cost-effective manner.

Conclusion

The Commission has not identified other matters relating to the net-metering eligibility limit that require the action of the General Assembly at this time. 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 Public Service Commission of Maryland, Report on the Community Solar Energy Generating System (CSEGS) Pilot Program, July 1, 2022