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FY25 Maryland Solar Access Program
Consumer Benefits Analysis & Assumptions

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The following information was prepared for the Maryland Energy Administration ("MEA") by technical services contractor, AECOM, for the purpose of explaining the methodology behind the minimum benefits to customers required under the FY25 Maryland Solar Access Program ("MSAP") Consumer Protection Policy.

Objective

As part of Maryland Energy Administration's (MEA's) new Maryland Solar Access Program in FY25, MEA is creating consumer protection policies to ensure contractors do not take all the program's benefits without compensating the customers. The program will allow third party contractors to file for and receive the grant on behalf of the customer, with approval from the customer, but MEA would like to ensure customers receive at least minimum benefits to ensure that the program truly incentivizes residents to install rooftop solar. To help inform consumer protection policies, MEA's technical services contractor, AECOM, developed an Excel workbook that MEA can use to understand customer costs and savings with and without the Maryland Solar Access Program grant. In summary, the tool calculates the customer's avoidable rate today, determines what percentage below the avoidable rate is achievable with and without a grant, and calculates an equivalent maximum offer for solar lease, loan, and purchase.

Methodology

Calculating the Avoidable Rate: The first step in determining consumer benefits from the grant was to determine consumer benefits by generating their own electricity rather than paying for all energy consumed. This savings can be called the "avoided rate" as it is the rate in dollars per kilowatt-hour ($/kWh) that a customer would pay for electricity if it was not generating solar for themselves. This value is calculated using existing utility rates inclusive of all charges and surcharges.

Determining what % below the customer's avoidable rate is achievable with and without the grant:

The PPA rate percentage below avoidable rate (with and without a Maryland Solar Access Program grant) was calculated using estimated PPA rates derived from market-reported system payback averages[1]. The payback terms were used to calculate PPA rates where system owner payback lengths are the same with or without the grant, confirming total passthrough of the grant value to customers. The highest PPA rate that could be instituted and still be below

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[1] https://www.energysage.com/data/

10% and 20% the avoided rate was calculated using the avoided rate. This can be used as a reference point in future policy discussions. Customer savings and costs using a PPA (with and without grant) and compared to the avoidable rate were calculated using the known rates as well as estimated annual household generation and consumption.

Comparing customer cost savings of different solar energy purchasing options: The "equivalent offer" section of the workbook sets each purchasing mechanism to deliver the same net present value and therefore be "equivalent". This does not represent what the market is offering or what an installer would realistically offer a customer. To calculate an equivalent maximum offer for a lease, loan, purchase agreement, and outright system purchase, AECOM made assumptions on payments terms and rates (that are adjustable) and calculated system cost under each set of conditions. The cost of loans and outright purchases are also compared at "market rate": rather than setting all lifetime savings as equal, this calculation uses present market values to calculate average annual and total lifetime savings. These purchasing scenarios were then converted to $/kWh rates to be more directly comparable; these rates are included in the Results section below.

Updating the Tool

The workbook is modular; MEA can refine the workbook over time as additional scenarios arise or as other information becomes available. All cells that are shaded yellow within the tool are editable by the user and signify assumptions. Utility rates for each of the 4 largest electric utilities in Maryland can be updated within the Utility Rate Inputs tab when utilities publish their rate documentation[2]. The Maximum Equivalent Offer tab can only be updated if a new "Goal Seek" function is calculated in Excel.

Results

The main finding from the workbook is that an equivalent offer using a percent reduction from avoidable rates per PPA rate does not account for the time value of money and inflates 'acceptable' loan terms and system purchase costs. In practice, loan and system purchase options would not approach the equivalent offers; this implies that developers could be emboldened to inflate their system purchase and loan options. On the following page is a summary of the results of this analysis.

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[2] Potomac Edison: https://www.firstenergycorp.com/customer_choice/maryland/maryland_tariffs.html
Pepco: https://www.pepco.com/my-account/my-dashboard/rates-tariffs/maryland/current-tariffs
Delmarva: delmarva.com/my-account/my-dashboard/rates-tariffs/maryland/current-tariffs
BGE: https://www.bge.com/my-account/my-dashboard/rates-tariffs/electric-service-rates-tariffs

	Customer's Average Avoidable Rate Today ($/kWh)	$0.1784

	Without MEA grant	**With MEA grant**
PPA Rate	$0.1446	$0.0840
% below the avoidable rate achievable	19%	53%
Equivalent Maximum Offers with 0% PPA and Lease Escalation		
Solar Lease Payment ($/mo, First Year)	$75.09	$19.19
Solar Loan Payment ($/mo)	$49.77	$6.87
Solar Purchase (Max Post-Incentive Cost, $)	$21,226	$11,529
Equivalent Maximum Offers with 3% PPA and Lease Escalation		
Solar Lease Payment ($/mo, First Year)	$134.13	$78.23
Solar Loan Payment ($/mo)	$111.05	$37.00
Solar Purchase (Max Post-Incentive Cost, $)	$29,525	$16,350

How to Interpret Results

<u>The Effect of Varying Utility Rates and Customer Characteristics</u>

This tool does not evaluate every potential customer's projected savings. To ensure perfect passthrough of the grant, these calculations would need to occur per system using the real system size, financing plan and terms, and the customer's real rate plan. The four major Maryland utilities are covered in the tool (as well as a weighted average of these utilities), but additional utilities such as rural co-operatives or outside suppliers could be evaluated in the custom scenario option in the tool. This tool also only evaluates the Residential "R" SOS rate, and it's possible that residential customers could be on other rate plans such as time-of-use

plans. For a true financial analysis, a customer's true rate plan would need to be reviewed on an individual basis. An incentive based on kWh production that's dependent on the utility rates would be preferred.

Considerations for the PPA Rate on the Customer

By inputting the proposed PPA rates into the *PPA Calculations* table, the table will show the percentage below the avoidable rate. This can be used to verify if the suggested PPA rate is at least 20% below the avoidable rate (for escalations of 0% and less than 3%), and 10% below the avoidable rate (with no escalations). This will ensure the PPA rate meets the terms of the consumer protection policy. Red values indicate a problem with the PPA rate in a given utility territory. Furthermore, a consistent PPA rate across the state would likely provide inequitable benefits to customers due to varying utility rates.

Considerations for the PPA Rate on the Installation Vendor

The impact on the installer's financials can be reviewed in the *System Owner PPA Financial Metrics* table. This table ensures that the installer is still meeting its financial targets under the established PPA rate. Appropriate financial goals could be confirmed with the Maryland Rooftop Solar Coalition to ensure the PPAs are providing reasonable benefits to both the customer and installer. Note that if the PPA rates vary by utility territory, the payback period for the installer will also change by territory.

To ensure a proper passthrough of the grant, the system owner financial metrics should remain consistent with and without the grant, indicating that the grant is solely benefiting the customer.

Purchase Option

The solar purchase equivalent offer in the *Results* table shows the maximum equivalent offer in $/kWh to make it comparable to the other options. This offer was calculated to provide the equivalent net present value to the customer as if they had chosen to do a PPA. This is also shown in terms of the System Purchase Cost in the *Maximum Equivalent Offer Comparison and Summary* table (Maximum Equivalent Offer workbook tab). This benchmark represents the maximum limit of the offer to meet the consumer protection policy but should not necessarily be used to ensure the bounds of fair purchase agreement.

Loan Option

A loan is calculated directly off the system purchase metrics (loan to own). This loan payment rate similarly represents the maximum the payment can be to offer the same net present value to the customer if they had chosen to do a PPA. Similarly, for a better comparison, the loan payment terms could be compared to the market in the *Market Product Comparison and Summary*.

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To ensure that the grant is being passed through to the customer, the loan payment should be lower with the grant than it would have been without, using the same loan payment terms. To review, use the Lifetime Loan Payment and Customer Cost Savings Relative to Avoidable rate in the *Loan Calculations* table.

<u>Lease Option</u>

The equivalent offer for the lease is calculated based off the PPA rates. This calculation ensures that the monthly loan payment offers the same net present value as if they had chosen to do a PPA. The lease monthly payment would typically be less than the PPA payment with the understanding that the obligation for solar production is now on the customer.

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