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July 1, 2025

VIA ELECTRONIC FILING

Andrew S. Johnston, Executive Secretary
Maryland Public Service Commission
William Donald Schaefer Tower
6 St. Paul Street, 16th Floor
Baltimore, MD 21202

Re: Case No. 9761 - Potomac Edison's Application for an Electric Distribution System Support Services Pilot Program

Dear Executive Secretary Johnston:

Pursuant to Md. Code, Public Utilities Article § 7-1005, The Potomac Edison Company hereby files its application for an electric distribution system support services pilot program.

Please feel free to contact me if you have any questions about this filing.

Respectfully submitted,

Jessica M. Raba
Counsel to The Potomac Edison Company

cc: Service List, Case No. 9761

Enclosure

BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

DRIVE Act Implementation	*	Case No. 9761
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THE POTOMAC EDISON COMPANY'S APPLICATION FOR AN ELECTRIC DISTRIBUTION SYSTEM SUPPORT SERVICES PILOT PROGRAM

July 1, 2025

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THE POTOMAC EDISON COMPANY'S
APPLICATION FOR AN
ELECTRIC DISTRIBUTION SYSTEM SUPPORT SERVICES
PILOT PROGRAM

Pursuant to Md. Code, Public Utilities Article ("PUA") § 7-1005, The Potomac Edison Company ("Potomac Edison" or "Company") hereby files its application for an electric distribution system support services ("DSSS") pilot program ("Pilot").

I. EXECUTIVE SUMMARY

The Distributed Renewable Integration and Vehicle Electrification Act, or "DRIVE" Act, was passed in the 2024 legislative session, mandating Maryland's investor-owned utilities ("IOUs") to file pilot programs that use distributed energy resources ("DERs") to create virtual power plants ("VPPs"), an electric vehicle-to-grid ("V2G") pilot, and a time of use ("TOU") tariff.[1] Subsequent Maryland Public Service Commission ("Commission") orders clarified the language of the DRIVE Act to specify that IOUs should propose programs and related tariffs that reduce system peak loads, explore novel grid services that could be offered by VPPs, and consider how to maximize short- and long-term affordability to customers.[2]

In response to the referenced Orders, Potomac Edison is filing this application to propose the creation of a pilot program to integrate residential battery electric storage systems ("BESS") and electric vehicles ("EVs") with bidirectional charging capabilities into a VPP. In a separate filing submitted concurrently herewith, the Company is requesting Commission approval of a TOU rate plan, creating another new option for its residential customers to reduce their electric bills

[1] S.B. 959, Ch. 475, 2024 Reg. Sess. (Md. 2024).
[2] Public Conference ("PC") 64, Order No. 91391 (October 25, 2024); Case No. 9761, Notice of Clarifying Order No. 91391 (Jan. 31, 2025).

while providing valuable grid services. Additionally, Potomac Edison continues to plan for the implementation of an Electric School Bus Pilot that focuses on V2G and managed charging to further study how DER can provide benefits to the distribution system. Together and in combination with energy storage and demand response,[3] these requests show the Company's commitment to actively study how the potential benefits of DER and other demand-side resources can be utilized while keeping the Company's priority of providing safe, reliable, and affordable electric service first.

The main goals for this Pilot are to explore the feasibility of the goals listed below:

1. Demonstrate the ability to achieve system peak load reduction through the successful aggregation of DER technologies.
2. Investigate the applicability of other grid services that may provide value within this Pilot.
3. Advance Potomac Edison's internal capabilities with regard to bidirectional power flow, DER aggregation, and ability to successfully value non-peak grid services at multiple levels to maximize long-term customer affordability.

Potomac Edison expects to enroll up to 300 residential customers in this Pilot, within the filed incentive budget, through a bring-your-own-device ("BYOD") model, with an estimated peak load reduction of 1.186 megawatts ("MW"), as shown in Table ES-1 below.

[3] See, e.g., Case No. 9715, Order No. 91705 (June 24, 2025) (approving in concept Potomac Edison's proposal for distribution-connected energy storage procurement); Case No. 9705, Order No, 91461 (Dec. 27, 2024) (approving Potomac Edison's proposal for a residential smart thermostat demand response program).

Table ES-1: Program Overview

Device Type	Participation		Peak Reduction (MW)	
	Program Year 1	Program Year 2	Program Year 1	Program Year 2
EV BYOD	**29**	**34**	**0.021**	**0.024**
BESS BYOD	**223**	**266**	**0.974**	**1.162**
Total	**252**	**300**	**0.995**	**1.186**

II. BACKGROUND

For the purposes of this filing, Potomac Edison will treat a VPP according to the definition stated in Commission Order No. 91391: "a collection of distributed energy resources, potentially including energy storage devices, that can provide grid services when aggregated together and coordinated with grid operations."[4] This Pilot may offer opportunities for Maryland IOUs to explore the potential for VPPs to defer future distribution system upgrades, improve reliability, and pave the way for higher DER penetrations within the electric system. While VPPs remain largely unexplored in Maryland, with limited deployment nationally, the aggregation and orchestration of DERs is an area that the Company is interested in understanding so that it can best support its customers.

III. VPP AND V2G PILOT DESIGN

The Pilot proposed in this filing seeks to combine the potential benefits of system peak reduction with an approach that allows for wide-ranging exploration of the multiple other value streams that a VPP may be able to provide. To do so, Potomac Edison is proposing a BYOD program for residential customers that maximizes enrollment while minimizing impacts to customers.

[4] Order No. 91391 at n. 6.

Broadly, the envisioned BYOD program will allow enrollment from residential customers with an eligible BESS and/or EV capable of bidirectional charging. Customers who enroll and participate will be incentivized for the grid benefits that their devices are able to provide. As a result, the Company will gain a deeper understanding of how to value grid benefits provided through the orchestration of DERs.

To maximize this orchestration, it must be acknowledged that EV and BESS DERs have key differences that impact program design. BESS are stationary technologies that are, more or less, expected to be readily available for dispatch with less concern for event opt-outs. EVs, in contrast, are mobile battery platforms that are able to offer similar grid services as stationary batteries only when they are physically located in the home charging area and are actively plugged in. Thus, program success for EVs will be dictated largely by DER availability during event windows, rather than technology characteristics. These considerations impact EV and BESS performance modeling, marketing and engagement, and customer education efforts.

In the design of this Pilot, PE seeks to maximize the use of the technologies and data available while also recognizing its limitations. For this reason, the Company aligns with Commission direction in Order No. 91391 to focus initially on peak load reduction since the realization of additional value streams may prove to be significantly more challenging. These challenges include, but are not limited to, the lack of smart meter deployment across the Company's service territory, limitations on grid-edge visibility, and limited penetration of residential BESS and bidirectionally capable EVs within Potomac Edison's service territory. The Company believes that it can achieve the stated goals of this Pilot by requesting to contract with a third-party vendor who will assist in implementation and day-to-day operations to maximize

insights and quantification of benefits within existing limitations, as well as optimize the performance of the Pilot.

1. Eligibility Requirements and Enrollment Pathways

Eligibility for these programs will be limited to residential customers, served under Schedule R,[5] who own eligible equipment and necessary related home electrical infrastructure to support the program requirements and have successfully completed the Small Generator Facility Interconnection process per the Code of Maryland Regulations ("COMAR") 20.50.09,[6] including paying any applicable interconnection fees. As part of the interconnection process, Potomac Edison will install a bidirectional meter where necessary to allow for measurement of grid export for all residential BESS and V2G systems. Additional participation requirements may be identified by the yet to be selected third-party vendor. The Company notes that to be eligible to enroll in the V2G program, customers will need to have an EV and related charging system capable of bidirectional power flow and complete any additional requirements that may be imposed by the selected third-party vendor or required by the Company. The Company is proposing to engage in both V2G discharge as well as vehicle-to-home ("V2H")[7] discharge in recognition of potential additional requirements that a selected third-party vendor may identify that might otherwise limit participation in a program that requires EV grid injection. This flexible approach to eligibility will optimize the balance between expanding program enrollment without overly limiting the learnings gained from this Pilot.

[5] On July 1, 2025, Potomac Edison filed a proposal for a residential time of use ("R-TOU") rate schedule. Should this new schedule be approved, residential customers enrolled in Schedule R-TOU would also be eligible for these programs.

[6] This includes any modifications to COMAR related to V2G systems the Commission adopts in Rulemaking Session 87 ("RM87"), once effective.

[7] As V2H is defined here as electric vehicle supply equipment that operates in parallel and can both receive and feed power to the point of interconnection but not result in a net negative power flow overall, this qualifies as V2G per the proposed regulations in RM87.

2. Implementation Details

The goal of this Pilot is to balance system peak reduction with broader experimentation of other grid services that may be offered by VPPs. Accordingly, Potomac Edison will balance dispatch for peak events in both summer and winter, with other event calls throughout the year that are centered on mitigating system constraints to examine these other benefits. These calls may split participants into cohorts, run at different times of day and in different weather conditions to understand customer nuances around event participation and opt-out rates, explore various approaches to messaging, and many other potential experiments. Year-round event calls will also help attain another key Pilot goal of helping maintain customer satisfaction and continued engagement with the Pilot.

At this point in time, Potomac Edison is not establishing the exact event dispatch schedule beyond the focus on summer and winter system peak events as the final approach to experimentation will be determined in collaboration with the selected third-party vendor. That said, the Company plans to conduct a minimum of three events per quarter and limit the number of enrollments in the program to no more than 300 BESS and EV that can be served within the incentive budget.

3. Incentive Structure

The incentive structure is designed to create flexibility in event dispatch while still fundamentally relating incentives to DER performance. Customer incentives will be based on the nameplate characteristics of their device, with incentives paid as a function of estimated performance and event participation metrics over the previous performance period.[8] The specific payment frequency will be determined following program approval and designed in a manner to

[8] Performance period and associated incentive payment frequency will be established in coordination with the third-party vendor.

manage program costs, with the Company anticipating a semi-annual performance period and incentive payment schedule. Technological constraints make it infeasible to base payments on the exact grid discharge in a timely manner, so this incentive design balances participation with the customer's ability to reliably predict regular incentive amounts while keeping program costs down.

Incentives will have two portions paid via off-bill mechanisms to customers as shown in the following table:

Table 3-1

Incentive Type	Incentive Amount[9]	Payment period
Connectivity Incentive	$150/connected year	Annually, upon completion of connectivity verification and test
Performance Incentive	Up to $300/kilowatt ("kW")-year	Per performance period, based on event participation

The first incentive is a connectivity incentive designed to motivate customers as they complete the interconnection approval process and to set up the equipment necessary for VPP orchestration. Upon enrollment, customers will participate in a test event call and, if successful, will receive the connectivity incentive. Subsequent connectivity incentives will be paid annually thereafter, with a prorated payment for year 2 based on the number of months remaining in the Pilot. In the interest of accountability, these subsequent connectivity incentive payments will be contingent upon participation in the previous Pilot program year as determined by the Company. This connectivity incentive will help maintain customer participation and satisfaction while encouraging customers to proactively troubleshoot issues that would otherwise limit connectivity. More significantly, lowering program dropout rates will help ensure that the Pilot maximizes its learnings on customer behavior and DER performance.

[9] Incentives may be prorated for customers that are enrolled less than 12 months of a connected year.

Performance incentives are based on estimations of device performance over a 4-hour peak event period. Customers will be paid up to $300/kW-year of estimated device performance. Due to limitations in data collection and grid-edge visibility, as well as the fact that events may differ significantly in duration and magnitude, the Pilot currently plans for incentive payments to be based on nominated nameplate discharge capacity of the customer device. Customers will be eligible for performance incentive payments upon enrollment. Customers who participate in at least 75% of event hours over the performance period will be paid 100% of the performance incentive to encourage the spirit of the program and support customer participation. A potential incentive payout example is provided in Appendix A.

Given that a major goal of this Pilot is to understand customer program preferences, which is one of the main drivers of program satisfaction, the Pilot design does not plan to have strict non-participation requirements or penalties. Because incentives are performance-based, non-participation in events will lead to reduced or no incentives, limiting the ability for customers to "game the system."

It should be noted that Potomac Edison is committed to pilots that are flexible and adapt to learnings as they occur. Accordingly, the Company reserves the right to propose changes to aspects of this design based on feedback from third-party vendors, customers, evaluators, other Maryland stakeholders, and the Commission.

4. Customer Outreach and Engagement

Specific marketing strategies for this Pilot will be developed in collaboration with the selected third-party vendor. Marketing materials will be designed to convey the nature of the customer benefits of these programs and could include creating Pilot-specific webpages containing eligibility criteria, enrollment details, and aim to maximize participation and program interest. There are multiple potential customer touchpoints which will be considered as opportunities to

drive enrollment such as bill inserts, digital media, outreach to customers who have already completed interconnection agreement applications, and other opportunities as they become available.

IV. PILOT EXPERIMENTAL TARGETS

1. VPP Orchestration

As stated previously, this Pilot seeks to balance system peak reduction alongside targeted experimentation with other value streams. Explicitly, this Pilot seeks to explore the following key questions:

1. What is the dependability and magnitude of BESS and V2G/V2H customers in terms of being a dispatchable distribution asset for system peak load reduction?
2. To what extent can the devices enrolled in this Pilot provide other grid services?
3. What are the key market, technological, and regulatory barriers that would need to be addressed in order to successfully support future VPPs?

Through the lessons learned from the Pilot, the Company will seek to further leverage and properly value customer DERs for DSSS.

a. Existing Technological Barriers

While Potomac Edison is committed to advanced grid architecture, including VPPs, there are some fundamental aspects of existing grid infrastructure that must be considered in terms of evaluating what may be reasonably achieved in the course of this Pilot. Without smart meters, Potomac Edison expects to face technical challenges in terms of assessing and verifying device-level charge and discharge characteristics and meter-level performance. Additionally, Potomac Edison currently does not have a Distributed Energy Resource Management System ("DERMS"),

meaning that the Company will seek to partner with a third-party vendor that offers a DERMS platform. Without full integration into existing systems and with limited grid-edge visibility due to lack of smart meter penetration, some grid services may be difficult to assess and properly value. To the greatest extent possible, Potomac Edison will work with the selected third-party vendor to mitigate these challenges and maximize the takeaways from this Pilot. As mentioned, there will be at least three events per quarter.

b. Dispatch Strategies

The Company expects to test a variety of dispatch strategies, the exact nature of which will likely evolve through the course of the Pilot. The chief dispatch goal will be to provide system peak load reduction. In this way, dispatch will be aligned to the predicted summer and winter peak windows at the system level. For dispatch, these calls may also be adjusted based on specific customer characteristics (e.g. typical periods when the EV is plugged in and available for dispatch) to maximize the per-device system benefits.

For value streams beyond system peak load reduction, dispatch is expected to be highly varied. As this is in many ways an opportunity to demonstrate and validate learnings, the Company seeks to balance customer satisfaction (in terms of balancing event call frequency and duration with related performance incentives) with experimental efficacy as multiple approaches are evaluated. Potomac Edison's ability to test various strategies will be partially driven by the number of program enrollments but could include participant cohorting, locational dispatch, short duration event calls to evaluate VPP impacts on system voltage and hosting capacity, and other approaches that will be determined collaboratively with the third-party vendor.

2. Program Engagement

The success of this Pilot will be greatly influenced by program engagement efforts. These will include a variety of partnerships, the exact nature of which will be determined in collaboration

with the third-party vendor, leveraging existing trade ally relationships wherever possible. Some potential areas of partnership may include residential storage installers, battery Original Equipment Manufacturers ("OEMs"), EV dealerships and related OEMs, and equipment distributors.

V. BUDGET AND COST RECOVERY

The Company has provided budget breakouts by cost category. Those cost categories are defined as follows.

- Incentives: These costs include connectivity and performance payments provided to participating customers as outlined in Section III.3 (Incentive Structure) above.
- Utility Admin: The Company's costs to manage the Pilot cover a range of activities that will include coordination and oversight of the third-party vendor implementation, IT management, data collection, Evaluation Measurement & Verification ("EM&V") activities and reporting. In addition to the aforementioned costs, the Company respectfully requests approval for 1.17 new full-time equivalent ("FTE") positions to support the implementation and operation of the DSSS Pilot in Maryland. This Pilot represents a new and novel program for the Company, and additional staffing is essential to ensure its successful execution, evaluation and regulatory compliance. Specifically, 0.5 FTE will be allocated to engineering services supporting this Maryland Pilot. This role is critical due to the technical complexity of the Pilot and the need for close coordination with third-party vendors, among other daily activities. Drawing from the Company's experience with the Maryland Battery Storage

Pilot, Case No. 9619, we anticipate significant engagement will be required to align and coordinate vendor activities recognizing within Potomac Edison's distribution system and to develop and manage event-specific dispatch protocols. The Company requests 0.67 FTE[10] for an analyst who will be responsible for overseeing the implementation and performance of the DSSS program. The analyst will manage multiple interrelated projects, ensure alignment with strategic Pilot program objectives, mitigate program risks, and serve as the primary liaison for both internal stakeholders and external partners.

- Outside Services: The Company's costs to hire a third-party DERMS provider and any vendor costs to implement, track, analyze, and report back on impacts.
- Marketing: As described in Section III.4 (Customer Outreach and Engagement) above, the Company will collaborate with the third-party vendor to design collateral that communicates the benefits of participation to customers.

The total cost of this Pilot is estimated to be $3,769,500, with $1,860,000 spent in Program Year 1 and $1,909,500 spent in Program Year 2. The Company expects actual costs to vary across implementation years of this Pilot based on achieved enrollment and customer participation. More details on each budget category are available in Table 5-1 below.

[10] Potomac Edison is concurrently filing its TOU rate proposal in Case No. 9761 ("TOU Filing"). This incremental FTE request is to support both DRIVE Act programs with an estimated 2/3 of activities as described in this filing, and the balance of activities as described in the TOU Filing.

Table 5-1: Program Budget Detail

Year	Incentives	Utility Admin	Outside Services	Marketing	Total
PY 1	$336,300	$312,100	$1,077,100	$134,500	$1,860,000
PY 2	$401,000	$336,100	$1,072,200	$100,200	$1,909,500
Total	$737,300	$648,200	$2,149,300	$234,700	$3,769,500

The anticipated participation, peak reduction, and incentive costs by device and Pilot year are provided in Table 5-2 below.

Table 5-2: Program Overview

Device Type	Participation		Peak Reduction (MW)		Incentives ($)		
	PY 1	PY 2	PY 1	PY 2	PY 1	PY 2	Total
EV BYOD	29	34	0.021	0.024	$10,500	$12,400	$22,900
BESS BYOD	223	266	0.974	1.162	$325,800	$388,600	$714,400
Total	252	300	0.995	1.186	$336,300	$401,000	$737,300

Pursuant to PUA § 7-1007, to the extent feasible, costs must be recovered in the year in which they are incurred. The Company is requesting a surcharge for this Pilot to be combined with the requested surcharges in its filings for Time Of Use Rates, also in Case No. 9761, and energy storage, Case No. 9715. This combined surcharge would be called "Grid Programs Surcharge" and listed separately on customer bills. The Company would target to begin accepting program applications within six months of a final Commission Order, subject to implementation vendor selection. Implementation work would commence immediately following the Order. The proposed surcharge and accompanying workpapers would be filed no later than sixty days after the Order to allow time for Commission review and approval. Based on the proposed budget for year one, the surcharge allocated solely to residential customers is estimated to be $0.0006/kilowatt-hour ("kWh"). The average residential customer using 1,000 kWh per month would pay $0.55/month for this Pilot in Year 1. The Company is also requesting deferral accounting so that any over or

under-collection can be reconciled and reflected for refund or recovery, respectively, in the surcharge in the following year.

VI. CONCLUSION

Overall, Potomac Edison views this proposed Pilot as a key opportunity to explore advanced VPP orchestration and related grid services. The potential positive impacts on customer satisfaction, increases in DER penetration, and fine tuning of incentive structures and program design will all provide valuable lessons that will inform future planning. Moreover, the Pilot represents an innovative step forward in terms of considering DERs as grid assets that have the opportunity to provide significant value beyond the traditional peak system load reduction that has previously been considered under demand response programs. The highly dispatchable nature of residential BESS will offer a wide range of experimental opportunities, while the learnings gained from V2G/V2H participants will inform future transportation electrification program design and valuation. The Company will begin immediate program implementation and target accepting program applications within six months of a Commission final order, subject to vendor selection.

Appendix A –Potential Performance Incentive Example

The table below illustrates the potential incentive payments a customer might receive based on event performance with an example battery of a 13.5 kWh Tesla Powerwall with a 5 kW output capacity. This example device would have an estimated event performance of 13.5 kWh x 20% reserve / 4 event hours = 2.7 kW of peak hour load reduction. At a rate of $300/kW-year, this device would be eligible for a maximum of $300 x 2.7 = $810/yr, provided in two, semi-annual payments of $405. The table provides semi-annual performance payments that a customer with the example device would receive with 50% or greater hourly participation at a 10% increment for example purposes.

	% of semi-annual event participation					
Payment Period	100%	90%	80%	70%	60%	50%
1	$405	$405	$405	$284	$243	$203
2	$405	$405	$405	$284	$243	$203

If this customer fully participates in 7 out of 10 events (or 28 out of 40 event hours) in the first performance period, they would have achieved 70% of the semi-annual event participation, making them eligible for a performance payment of $405 x 70% = $284 in the first payment period. If the same customer fully participates in 8 out of 10 events (or 32 out of 40 event hours) in the second performance period, they will meet the requirement of at least 75% event participation and be eligible for a performance payment of $405 x 100% = $405 in the second payment period.